Understanding the deal journey in the context of asymmetric pharmaceutical R&D

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ABSTRACT

This research addresses a significant gap in deal structuring: how are deals structured before being codified into contractual agreements. Focusing deals structuring in the context asymmetric pharmaceutical R&D, this study follows a process based perspective to map the temporal architecture of deal structuring as a phased, iterative, dyadic sequence of decision gates—Deal Viability (DVD), Early Alignment (EAD), and Deal Configuration (DCD). At EAD, a preliminary deal format is defined via the Shift of Property and Control (SPC), distinguishing full, partial, collaborative, and optional architectures implemented through asset- or equity-based focus. At DCD, the Control Rights Allocation Framework and Typology (CRAFT) operationalizes SPC into 11 empirically identified and executable control rights across. Integrating Transaction Cost Economics (TCE), Resource-Based View (RBV), Real Options (RO), and Incomplete Contract Theory (ICT), the thesis shows that these theories guide different phases conditionally and in sequence: RBV at DVD, TCE/ICT at EAD–DCD, and RO for optionality design. Empirically, it explains why comparable deals diverge by tracing how small differences in SPC and CRAFT propagate into distinct contractual forms and outcomes. Methodologically, it renders intermediary governance structures observable and analytically tractable. Theoretically, it inverts the contract–governance relationship: contracts codify, rather than generate, governance. Practically, the framework reduces renegotiation risk and improves execution readiness by sequencing strategy, architecture, and control design prior to legal drafting.

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1. Introduction and overview

1.1. Context

The success of the pharmaceutical industry is based on its ability to develop new drugs, through extensive research and development (R&D) investments (Han et al., 2018). However, for some time, this industry has faced a significant R&D productivity decline (Schramm et al. 2022). Such a decline represents a serious threat to its sustainability. As a way of compensating for the lack of in-house generated technologies, large pharmaceutical firms have increasingly supplemented their R&D pipelines by forming dyadic asymmetric relationships, typically with smaller firms (Kim et al. 2021). Such relationships represent the large majority (more than 75%) of deals in which those R&D needs are met (IQVIA, 2022). These deals have become so strategically important that their number and size have become key innovation performance indicators (Kim et al. 2021). Firms have used various types of governance and contractual instruments (named deal structures) around such relationships. In 1989, Pisano (1989) developed a widely established typology of deal structures. However, since then, deal structures have become increasingly sophisticated and complex (Roehrich et al. 2020), so this established typology is unlikely to comprehensively capture them.

As a pharmaceutical industry professional, with two decades' experience, an extensive deals record, and as a board member of the Swiss Healthcare Licensing Group (Swiss HLG, association of professionals negotiating and closing deals within the pharmaceutical industry), I can also confirm that there are no commonly used academic-based frameworks for structuring and classifying these deals. In practice, deals are still handled in a rather intuitive way, mainly based on firms' experience (or inexperience). The complexity inherent in such deals is exemplified in Figure 1-1, which depicts the case involving Pfizer and BioNTech. Therefore, understanding and conceptualizing how these deals are structured in this context is of high interest and the main goal of this research.

In late 2019, the world was hit by a deadly virus that would soon be known as COVID-19. The virus spread rapidly across the globe, leaving a trail of death and destruction in its wake. By the end of March 2020, the World Health Organization had declared COVID-19 a pandemic, as it had infected millions of people and killed thousands. The virus caused widespread panic and chaos, as governments scrambled to contain the spread of the disease.

As the world reeled from the impact of the pandemic, scientists and researchers around the globe began working on a vaccine. One of the companies at the forefront of the race was BioNTech, a German biotechnology company. BioNTech had been working on developing a vaccine against COVID-19 since the early 2020. BioNTech's efforts paid off on November 9, 2020, when the company announced that its vaccine was more than 90% effective in preventing COVID-19. This raised hopes that an end to the pandemic was finally in sight.

But BioNTech's work was far from over. The company needed a partner to help manufacture and distribute the vaccine on a global scale. Enter Pfizer, one of the world's largest pharmaceutical companies. Pfizer and BioNTech quickly formed a collaborative deal, with Pfizer agreeing to manufacture and distribute the vaccine while BioNTech focused on research and development. BioNTech was not acquired by Pfizer and its decision to remain independent allowed to maintain control over its technology and intellectual property, while benefiting from Pfizer's expertise in manufacturing and distribution. Both firms remained independent, working together towards a common goal. This deal proved to be a game-changer. By December 2020, just a few weeks after the vaccine was approved, Pfizer and BioNTech had shipped millions of doses of the vaccine around the world. The vaccine had been approved for emergency use in the United States, the United Kingdom, and other countries. This deal between the two companies was counterintuitive, as observers would have expected Pfizer to simply acquire BioNTech. This also challenges traditional assumptions about mergers and acquisitions in the industry.

Figure 1-1 Illustrative COVID-19 deal story between BioNTech and Pfizer

1.2. Pharmaceutical R&D context

Chapter 2 establishes the empirical foundation of the study by detailing the pharmaceutical R&D process and its inherent challenges. It describes the high-uncertainty, stage-gated nature of drug development—from discovery through regulatory approval—highlighting how factors like escalating costs, evidence-based milestones, and capability asymmetries between partners shape deal structuring.

1.3. Literature review

Chapter 3 provides a literature review, offering a summary of key insights & identified gaps derived from:

- A comprehensive analysis of deal-structuring definitions, antecedents, processes and outcomes, with a specific focus on the R&D context and the pharmaceutical industry.
- An extensive review of theoretical perspectives, encompassing both major and minor theories.

1.3.1. Definitions, antecedents, processes and outcomes of deal structuring in the pharmaceutical industry R&D context

In the context of pharmaceutical R&D, this review examines all components of deals including definitions, antecedents, processes, and outcomes. First of all, the exploration of the impact of the R&D context on deal structuring revealed common challenges and identified a research gap in understanding the dynamic nature of R&D collaborations (Hwang, 2022). Secondly, antecedents – defined as the factors or conditions existing before the initiation of a deal – have shown a multifaceted nature, offering a broad spectrum of factors shaping deal structures. Thirdly, the literature on the deal-structuring process emphasized the need for more investigation, more systematic incorporation of the dyadic perspective, and a more temporal perspective. Fourthly, at the outcome level, the use of simplistic typologies based on governance and contract might show limitations in the ability to properly capture all deal structures in this context. Lastly, the literature has methodological flaws and limitations, including misleading assumptions, an improper unit of analysis and the lack of a holistic perspective due to fragmentation across different research streams. Most research lacks empirical data, with some frameworks not validated in practice and not relevant to this phenomenon (Dushnitsky and Lenox, 2005). Hence, this review takes a broad view, critically assessing the diverse literature to

identify research with the potential to contribute to a nuanced understanding, shedding light on knowledge limitations in these critical components.

1.3.2. Theoretical perspectives

A survey of the literature suggests that, amongst those theories that have the potential to explain deal structuring, Transaction Cost Economics (TCE, Williamson, 1991), the Resource-Based View (RBV, Barney, 1991), Real Options (RO, Kogut, 1991) and Incomplete Contract Theory (ICT, Hart, 1996) appear to be the most dominant. A comparative assessment of these four major theories is undertaken in the literature review, focusing on their ability to describe and explain deal-structuring antecedents, processes, and typologies. According to these theories, deal structuring might be shaped by the need to secure valuable resources (RBV), to minimize transaction costs (TCE), to maintain options (RO) and/or to allocate rights (ICT). However, each theory has significant limitations in its ability to comprehensively describe and predict the deal structuring in any given circumstance (Brouthers & Hennart, 2007). Various scholars have acknowledged the difficulty of trying to do so (David & Han, 2004; Brouthers & Hennart, 2007). Others have noted that this gap implies a lack of empirically validated guidelines for practitioners seeking to optimize deal structures (Villalonga et al., 2005). Lastly, these theories contradict each other in multiple circumstances. For instance, TCE and RBV assume that deal structuring is a "one shot" and static unilateral decision. However, Arino et al. (1998) argue that deals should be regarded as "dynamic systems which adapt and evolve, especially in the context of R&D relationships", as supported by RO and ICT.

1.4. Methodological approach

The methodological approach is summarized in this section, whilst a full description of the methodology and research design is provided in Chapter 5. Adopting a pragmatist ontological position and using abductive reasoning, the methodology aims to integrate the four main theories (TCE, RBV, RO, and ICT) into a comprehensive framework, allowing for a dialogue between theory-driven and data-driven qualitative analysis. The research utilizes qualitative data from multiple case studies within the pharmaceutical industry to qualitatively capture the reality of deal structuring in terms of process and outcome.

1.4.1. A multi-objective research study

Considering the above gaps in the literature, the objectives of this research are to:

- describe the antecedents, process and outcomes of these dyadic R&D deals in the pharmaceutical industry
- assess the usefulness of the four principal theories in explaining these differences in this context.

1.4.2. An abductive qualitative case study-based methodology

In terms of methodology, this research has taken an abductive pragmatic approach. Consistent with the pragmatic epistemology of the research and the multi-theoretic foundation of the study, this work adopts an abductive approach. That is, it aims to assess which of the four theories provides the best explanation of deal structuring rather than attempting to prove one or another or allowing an explanation to emerge from the data. On one hand, the study was designed to be "unbiased", based on empirical data collection from qualitative case studies. On the other hand, the study was designed to allow theory-driven data analysis.

Further, given the ill-defined nature of the variables involved, a qualitative case study approach has been adopted. Qualitative data have been collected from multiple case studies, embedded within a single-industry case design (the pharmaceutical industry). Fifteen cases have been investigated. They all consist of deals occurring in the pharmaceutical context of dyadic asymmetric R&D relationships. These case studies were selected to cover the broadest diversity possible of protagonists and deal structures. For each case study, one key influential protagonist from each side of the deal was interviewed using a semi-structured approach. This approach allowed interviewees to freely express their views and ideas, using their own terms, whilst staying within a general framework. This also allowed for the generation of deep insights as well as the inclusion of multiple perspectives (Yin, 2009). Each interview was recorded, transcribed and annotated using a coding matrix informed by the research objectives. Data analysis was performed at the single and comparative case-study level.

1.4.3. A multi-theoretical, phased and dyadic methodological stance

Based on the learnings and gaps identified from the literature review, the research study was designed around the following methodological stance:

- To consider a dyadic perspective on deal structuring (each side has a significant impact on the deal). That is, data was gathered from both parties in each deal and both perspectives were equally considered.
- To also consider a temporal and phased perspective on deal structuring. That is, both data gathering and data analysis focused on each deal's stages and process rather than considering it a single, short-lived episode.
- To consider a multi-theoretical perspective. That is, all four principal theories were used to inform the design of both data gathering and data analysis.

1.5. Findings - within case analysis

As indicated in the methodology section, 15 deal cases have been investigated. The analysis of each case study followed a structured approach in order to provide comprehensive insights. For each case, the buyer and seller perspectives have been analyzed individually and comparatively. The analysis has covered the antecedents to the deal structuring, the process of deal structuring, the key decisions, and how all of that could relate to the four principal theories. The comparison of buyer and seller's perspectives aims to uncover similarities and differences in the deal structuring antecedents and process. This approach ensures a systematic exploration of each case study's idiosyncrasies.

1.6. Findings – cross-case analysis

This section examines the antecedents, process and considerations involved in deal structuring across all cases, aiming to identify key patterns and insights. The interplay between these factors and theoretical perspectives is also explored. Subsequently, the decision-making process is scrutinized, with a focus on pivotal decisions that significantly influenced the formulation of the deals. The analysis examines multiple definitions of deal structures, drawing from contractual agreements, shifts in property and control, and the allocation of control rights. Furthermore, this section provides an elucidation of the inter-relationships inherent in the typology, enhancing the comprehensive understanding of various deal structures.

1.7. Discussion

Chapter 8 – Discussion synthesizes the thesis's empirical and theoretical insights. Its core objective is to answer the 3 research questions, to discuss contribution to knowledge, to methodology and implications for practice - while acknowledging limitations and suggesting avenues for future research.

1.8. Thesis structure

This introductory chapter has introduced the context for the research objectives, the methodological approach and the likely contribution of the study. Chapter 2 provides an overview of the pharmaceutical R&D context. Chapter 3 goes on to review the key theories and models from the literature which attempt to describe deal structuring from a process and outcome perspective. Chapters 4 and 5 describe the research objectives, questions and subsequent design/methodology developed for this study. Chapter 6 and 7 respectively analyze within and across cases sets out the analysis of each case study. Chapters 8 discusses findings, answers research questions propose deal structuring process framework and outcome typology.

2. Pharmaceutical R&D context

This section explains the complexities and challenges of the pharmaceutical R&D discovery process, highlighting the specific challenges of this sector and the resulting drivers and factors that impact deal structuring.

2.1. Pharmaceutical R&D journey and challenges

2.1.1. Development stages

The development of new drugs is a complex and lengthy process that typically involves several key stages. The initial phase of drug discovery is focused on identifying and validating biological targets implicated in disease and screening potential drug candidates. This stage, (Fig.2-1) is characterized by high scientific and technological uncertainty, resulting in a significant failure rate for candidate molecules. Following this, promising drug candidates progress to preclinical development, where they undergo rigorous laboratory and animal studies to evaluate their safety, efficacy and pharmacological properties (Schlander et al., 2021). Clinical trials constitute the next stage, involving testing the drug candidate on human volunteers and patients across three phases—Phase I, Phase II, and Phase III. These trials are designed to demonstrate the drug's safety, efficacy, optimal dosage and potential side effects. Notably, even drugs that successfully complete Phase II clinical studies have a less than 50% chance of ultimately reaching the market. Once clinical trials demonstrate safety and efficacy, the pharmaceutical company seeks regulatory approval from agencies like the FDA in the United States or the EMA in Europe. After receiving regulatory approval, the drug is manufactured, marketed and made available to patients.

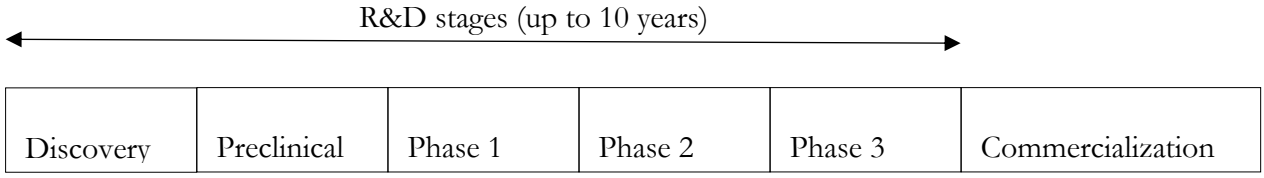

Figure 2-1-1 Drug Discovery and Development stages up to commercialisation

2.1.2.Challenges, risks, and uncertainties

From the initial phases of scientific exploration to the final regulatory approvals, each step presents unique obstacles that require substantial financial investment, scientific expertise, strategic acumen, and resilience in the face of setbacks. The uncertainties associated with scientific and technological advancement pose significant challenges. Drug development is inherently unpredictable, with many promising candidates failing to yield successful outcomes. Pisano (2006) emphasizes the profound levels of risk tied to biotechnology research. Identifying viable drug candidates, understanding their mechanisms of action, and accurately predicting their efficacy and safety in human trials are complex and often elusive tasks. Billitteri et al. (2013) note that the risk of failure is particularly pronounced in the early stages of drug development; for instance, DiMasi (2001) reports that the probability of success for a drug that completes Phase II-A clinical trials is still less than 50%.

Developing a new drug is also a financially intensive undertaking, necessitating considerable resources and prolonged timelines before yielding revenue. Schlander et al. (2021) conducted a systematic review of studies that estimated the pre-launch R&D cost per new molecular entity (NME) varied widely, ranging from $161 million to $4.54 billion (in 2019 US dollars). This expenditure encompasses research, development, clinical trials, regulatory submissions and subsequent marketing efforts.

While some risks can be identified, quantified and mitigated to a degree, uncertainty in drug development remains pervasive. Scientific breakthroughs can be unpredictable, unforeseen technological challenges may arise, and the regulatory landscape is subject to shifts that necessitate constant adaptation and strategic agility. The ability to effectively navigate this complex landscape, manage risks, and adapt to evolving uncertainties serves as a hallmark of successful drug development endeavors.

2.1.3.R&D productivity decline

The pharmaceutical industry, a knowledge-based and R&D-driven sector, relies heavily on extensive R&D investment (Filiou, 2020) in order to develop new drugs. At a first level of approximation, the pharmaceutical industry can be viewed as having two business models: generic and research-based. Research-based pharmaceutical companies are a knowledge-based, R&D-driven sector that relies heavily on extensive R&D investment (Filiou, 2020) in order to develop new drugs. However, the

industry has faced a significant decline in R&D productivity in recent years (Mahrlich et al. 2021) due to the high cost of bringing a new drug to market, estimated to be between 161 million and 4.51 billion US dollars (Schlander et al., 2021). This cost is largely attributed to the high attrition rates of potential new molecules in development, with fewer than 5% of compounds screened entering pre-clinical development and only 2% entering clinical testing (Di Masi, 2016). This decline poses a significant threat to the innovative, research-led component of the pharmaceutical industry.

Several factors contribute to the decline in R&D productivity. Increasing complexity in drug development, driven by scientific advancements, has led to more sophisticated drug targets and therapies that require longer and more intricate development processes. DiMasi, Hansen and Grabowski (2003) highlight that the escalating costs and timeframes associated with new drug development are partly driven by the shift toward more targeted and personalized medicine.

Moreover, higher regulatory hurdles imposed by agencies like the FDA (Food and Drug Agency) or EMA (European Medicine Agency) have raised the standards for safety and efficacy, resulting in longer clinical trials and increased scrutiny of new drug applications. While essential for patient safety, this stringent regulatory environment complicates the R&D process, adding complexity and costs, as noted by Bradfield and El-Sayed (2009).

Competition from generics has also played a role, as the introduction of generic drugs post-patent expiration has eroded profitability for established pharmaceutical companies, potentially limiting their capacity to invest in risky and long-term R&D projects. Danzon, Epstein and Nicholson (2007) discuss the impact of mergers and acquisitions in response to these competitive pressures. Finally, challenges in translating basic research into clinical success remain significant, as many drug candidates fail to demonstrate efficacy or safety in human trials despite promising preclinical data.

2.1.4. Rising deals

The decline in R&D productivity carries several serious implications for the pharmaceutical industry and patients. Conventional research-led pharmaceutical companies employ a vertically integrated research and development model in which in-house R&D teams discover drug candidates, and wholly owned development resources bring them to market approval. However, the failure of this approach to provide sufficient new, approved drugs has led to a growing need to complement internal pipelines

with products discovered and partly developed by external partners. This shift towards disintegration, including the outsourcing of R&D, has been termed a "holobiont shift" by Smith (2017), in comparison to the symbiotic nature of biological aggregates such as coral reefs. To compensate for the lack of in-house generated technologies, pharmaceutical firms have increasingly formed dyadic asymmetric relationships with smaller biotechnology firms to supplement their R&D pipelines (Schumacher et al., 2023). These relationships, often with much smaller firms, represent the majority (over 75%) of deals in which the needs of the large firms are met (Schumacher et al., 2023). Such deals have become so strategic that their number and size have become key R&D innovation performance indicators for these large firms (Schumacher et al., 2023). They have become the norm, if not the backbone, of the development of new drugs in the pharmaceutical industry (Schumacher et al., 2023).

In light of the challenges arising from declining R&D productivity, the pharmaceutical industry is witnessing a marked shift towards increased reliance on external technology sourcing deals to stimulate innovation and replenish its drug development pipeline. This deal trend is evident in the growing number of strategic alliances, joint ventures, and mergers and acquisitions, as discussed by Billitteri et al. (2013) and Lo Nigro et al. (2012). Pharmaceutical companies are increasingly seeking partnerships (also called external technology sourcing) with biotechnology start-up firms, academic institutions and other stakeholders to access new technologies, share risks and expedite drug development.

The increasing reliance on external technology sourcing deals carries several implications for the pharmaceutical sector. Business models within the industry are evolving, emphasizing agility and adaptability, as external partnerships become core components of innovation strategies. The traditional model of centralized, in-house R&D is giving way to a more distributed and collaborative approach, with pharmaceutical firms acting as orchestrators of networks comprising external partners.

The essential nature of alliance management has also changed. As firms engage in external collaborations, effectively managing and leveraging these partnerships is vital for success. Devarakonda and Reuer (2018) emphasize the significance of mechanisms such as steering committees to facilitate knowledge transfer and mitigate risks in R&D collaborations.

2.2. Deal structuring in the pharmaceutical industry R&D context

As already described in the previous section, to navigate these complexities and maintain competitive advantage, it is crucial for pharmaceutical companies to strategically structure deals that align with the unique challenges of R&D. The following section will explore the impact of the R&D context on deal structuring, both within the pharmaceutical industry and beyond, highlighting four key characteristics: the phased nature of R&D, uncertainty and risk, protection of sensitive information, and the need for incomplete and renegotiable contracts.

2.2.1. Deal structuring in the R&D context

Current knowledge about deal structuring in the R&D context, not only in the pharmaceutical industry but beyond, illuminates four important challenging characteristics:

- Phased nature
- Uncertainty and risk
- Protection of sensitive information
- Incomplete and re-negotiable

First and foremost, the R&D context is recognized by its phased nature, as described by Crama et al. (2013). Since the R&D process is phased, deals in this context tend to be rather complex, and staged according to multiple milestones and deliverables that must be met over a period of time (Crama et al., 2013; Goel, 1999). Secondly, this staged approach to deal structuring seems to be complicated by the uncertainty and difficulty in predicting the likelihood of success of R&D projects (Grandori and Furlotti, 2018). This uncertainty can make deals more complex in terms of expected and defined outcomes, as well as timing. This can make the development of new knowledge and the setting of prices and budgets difficult (De Jong et al., 2008; Goel, 1999; von Hippel, 1987). The high level of risk involved in R&D cooperation between competitors is also an important consideration in deal structuring (Miotti and Sachwald, 2003). This risk can create a tension between information disclosure and opportunism avoidance during the contracting process (Martimort et al., 2010). Thirdly, deals in the R&D context place a great emphasis on protection of sensitive information, which often includes clauses related to intellectual property rights, confidentiality, and the sharing of data and results (Blomqvist et al., 2005). Lastly, the R&D outcome being uncertain, deals are subject to renegotiation

after pre-defined milestones, so contracts are often incomplete (Blomqvist et al., 2005; Martimort et al., 2010). As the pace of technological change accelerates, R&D deals are increasingly subject to shorter terms and more frequent renegotiations (Adler et al., 2016). In summary, deal structuring is a complex undertaking for organizations due to the interplay of these competing concerns (Blomqvist et al., 2005).

2.2.2.Deal structuring in the pharmaceutical industry R&D context

With regards to deal structuring in the pharmaceutical R&D context, the asymmetry between pharmaceutical firms and small biotech firms in terms of size, resources, capabilities, information and culture (Blomqvist et al. 2005) can lead to a power imbalance in negotiations (Crozier & Friedberg, 1977). This can also result in one partner abusing their dominant position for their own profit (Park & Ungson, 2001). This unequal power balance and the critical role of intangible results that must be allocated (Blomqvist et al., 2005) make R&D relationships between small and large firms particularly complex. Moreover, small biotech firms are at risk of being under-compensated for revealing their valuable technical knowledge to large alliance partners (Deeds and Hill, 1996). The governance of such R&D deals is challenging because of the tension between generating benefits and mitigating safeguarding risks (Nooteboom 2004). Small biotech firms are usually reluctant to hand over the ownership of their intellectual property without some control over its subsequent use and exploitation, and without any rights (Martimort et al. 2010). Thus, deal structures and contracts in this context entail risk evaluation as a key factor in the decision-making process (Sitkin & Pablo, 1992). Lastly, recent literature has brought attention to a shift in deal structures from primarily serving as a safeguard against economic risk to more coordination and adaptation structures (Schepker et al., 2014). This is especially critical within pharmaceutical R&D and asymmetric contexts. Most R&D activities in this industry cannot be mediated by arm's length market transactions due to the high uncertainty and severe misappropriation hazards (Han and Liu, 2018).

The stage of the R&D pipeline significantly impacts the types of inter-firm relationships (IFRs) formed and the specific terms negotiated. As a product or technology progresses through the pipeline, various types of risks and uncertainties evolve, leading firms to favor different governance structures. In the early stages of discovery and preclinical development, performance uncertainty (technological risk) is paramount, as the likelihood of a drug candidate's success is low.

2.2.3.R&D deals vs. Non-R&D deals

Deals involving R&D activities possess unique characteristics that distinguish them from non-R&D deals, particularly regarding risk profiles and the necessity for technological advancement preceding revenue generation. This distinction originates from the inherent uncertainties and complexities of the R&D process, necessitating a tailored approach to deal structuring and risk mitigation.

The contrasting characteristics of R&D and non-R&D contexts necessitate distinct approaches to deal structuring and risk management. In the R&D setting, prolonged time horizons are the norm, with projects often spanning several years or even decades before a product reaches the market. This extended development cycle introduces substantial uncertainty regarding the ultimate success and profitability of the endeavor. Technological uncertainty is especially pronounced in R&D, as the unpredictable nature of scientific breakthroughs and unforeseen technological challenges can hinder progress. High failure rates further complicate this context, with many projects failing to achieve commercial viability. Additionally, regulatory hurdles play a significant role, particularly in the pharmaceutical sector, where stringent compliance requirements can considerably affect project timelines and market entry.

As highlighted by Higgins and Rodriguez (2006a, 2006b), the difficulties in accurately assessing R&D projects are amplified by these uncertainties, complicating acquisition processes within the industry. As such, careful risk allocation within deal structures becomes crucial, with specific R&D uncertainties needing to be explicitly addressed. Choi and Contractor (2019) stress the importance of aligning governance structures with the complexity and risk levels typical of R&D efforts, advocating for flexibility and contingencies to refine these structures as conditions evolve.

In stark contrast, non-R&D deals commonly feature shorter execution timeframes and faster revenue generation, focusing primarily on optimizing existing operations, expanding market reach, or enhancing efficiency. By dealing primarily with established technologies and processes, non-R&D initiatives experience significantly lower technological uncertainty. Furthermore, these projects usually demand reduced upfront investments, as they leverage existing assets rather than undertake the development of entirely new technologies. The regulatory environment surrounding non-R&D agreements tends to be less complex and stringent compared to that governing R&D activities.

The implications of these differences are profound; while R&D contexts call for complex deal structure assessment around risk and valuation, non-R&D contexts allow for more straightforward deal structures based on established criteria. The dynamic nature of R&D necessitates deal structures that can accommodate variations in project scopes and emerging challenges, ultimately informing the risk management strategies employed by firms. This necessity for adaptability underscores the distinct requirements of R&D versus non-R&D deal structuring, emphasizing the importance of tailored approaches based on the unique characteristics of each context.

2.2.4. Connecting deal structuring with the pharmaceutical R&D context

Deals in the research-intensive pharmaceutical industry exhibit significant multidimensionality, setting them apart from both non-R&D contexts and other research-intensive sectors. This complexity arises from the convergence of scientific, technological, financial, regulatory and strategic considerations, necessitating a sophisticated understanding of the interplay between these factors.

The early stages of drug development are characterized by significant risk and uncertainty, primarily due to the "technological newness" of the projects (see Fig. 3-2). Many compounds fail to advance through these initial phases, as noted by Billiterri et al. (2013). As development progresses toward commercialization, the associated costs escalate considerably. Moreover, R&D requires substantial financial investment upfront, with no guarantee of return. DiMasi, Hansen and Grabowski (2003) estimate the average cost of bringing a new drug to market at around USD 800 million to USD 1.2 billion. This financial burden is particularly acute for smaller biotech companies that depend on external funding and strategic partnerships to navigate this landscape. With each subsequent stage of research and testing, the financial burden increases, leading to substantial investments by the time a technology reaches maturity. This maturation not only elevates the inherent value of the product but also influences its acquisition cost, as highlighted by Kim et al. (2014).

In addition to these challenges, specific risks emerge when structuring R&D deals in the pharmaceutical sector. The drug discovery process is nonlinear, characterized by emergent and uncertain outcomes driven by rapidly evolving technologies and the complexities of the value-creation process (Choi et al., 2017). This heightened uncertainty complicates the specification of all contingencies within deal structures (Grandori et al., 2018), resulting in contracts that are often incomplete and unable to fully anticipate future challenges. As a result, accurately valuing early-stage

technologies proves inherently difficult due to high uncertainty, and traditional valuation methods frequently fail to capture the potential future value of these emerging technologies (Filiou et al., 2021). This inadequacy complicates deal negotiations and hampers effective risk allocation.

The scientific and technological depth of these deals often involves cutting-edge scientific discoveries and rapidly evolving technologies. Filiou (2021) emphasizes the importance of understanding both upstream and downstream open innovation activities, highlighting the breadth and depth of scientific engagement.

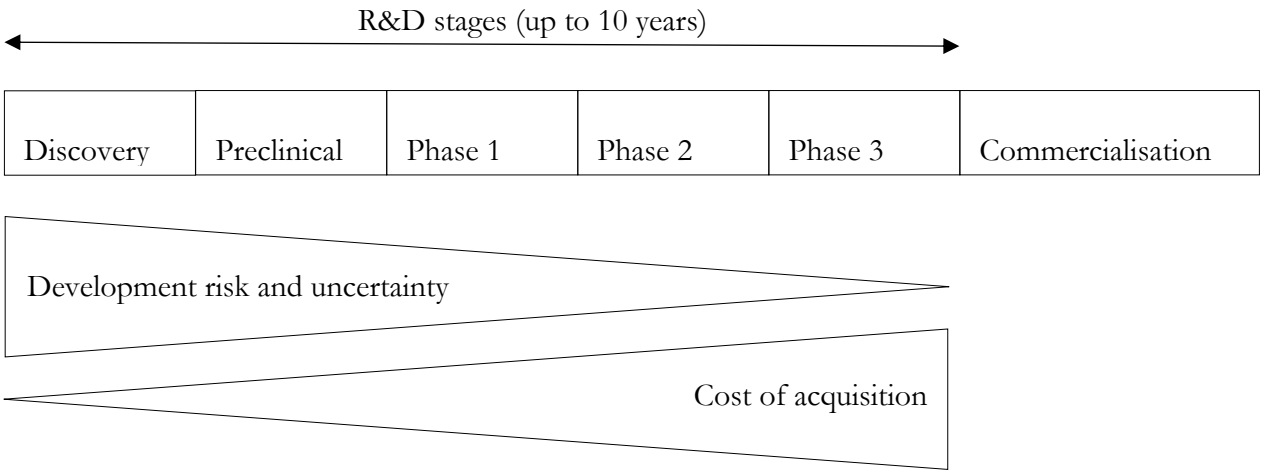

Figure 3.2 Risk and Cost based on technology completeness (level of advancement towards commercialisation stage)

The multidimensionality of pharmaceutical R&D deals manifests in key considerations such as valuation and risk allocation. Accurately appraising early-stage technologies while appropriately allocating risks between partners represent crucial challenges. Creative deal structures that incorporate milestone payments, royalties and equity arrangements are often utilized to navigate these complexities. Yoon et al. (2018) explore various compensation mechanisms to balance incentives and financial sustainability in this context. Establishing effective mechanisms for knowledge sharing while safeguarding intellectual property is paramount in these arrangements. Devarakonda and Reuer (2018) illustrate the importance of steering committees and well-defined contractual provisions in regulating knowledge transfer and mitigating risks of misappropriation. Empirical research in the Italian pharmaceutical industry by Billitteri et al. (2013) found that pharmaceutical companies are more likely to structure deals that increasing control and ownership to the extent that the R&D product nears the commercialization stage.

Additionally, regulatory rigor is a defining feature, as the pharmaceutical sector faces stringent oversight and complex approval processes. Choi and Contractor (2019) stress the importance of aligning governance structures with the regulatory complexities intrinsic to R&D.

Lastly, despite some research addressing the phased nature of R&D projects and the necessity for frequent renegotiations, limited attention has been given to this area. This limitation is significant, as comprehending the dynamic and evolving nature of R&D collaborations is crucial within the industry (Hwang, 2022). Bérard and Perez (2014) advocate for incorporating contractual flexibility throughout this R&D process, thereby accommodating the myriad developments that may occur.

In conclusion, the multidimensional intricacies of R&D in the pharmaceutical industry requires a sophisticated approach to deal structuring.

3. Literature review

3.1. Introduction

The literature on deal structuring is fragmented, and a broad review is necessary to identify research that can contribute to a better understanding of the deal-structuring process and outcome in the pharmaceutical industry R&D context.

This literature review begins with an examination of the antecedents that influence the deal-structuring process (Section 3.2), followed by an overview of the insights gained regarding the overall deal-structuring process, especially around decision gates and key considerations during this journey (Section 3.3). Then, it analyzes the outcomes and typologies associated with deal structuring (Section 3.4) and follows with theoretical insights that enhance our understanding of the subject matter (Section 3.5). A detailed review of key research publications is also provided (Section 3.6), highlighting significant contributions to the field and limitations. The review finally synthesizes the identified research gaps along with priorities for future investigations (Section 3.7).

3.2. Deal structuring antecedents in the pharma R&D context

3.2.1. The most prominent antecedents

Several antecedents to deal structuring in the context of pharmaceutical industry R&D have been described and investigated in the literature. The most frequently investigated ones include strategic antecedents, asset-related antecedents, economic antecedents, organizational antecedents, risk (as well as uncertainty), social antecedents, trust, asymmetry and negotiation power. These are described as follows.

Strategic antecedents refer to all factors considered as strategic which might influence the deal structure. As articulated by Hampl (2020), deal structures are shaped, not only by economic antecedents, but also by such strategic antecedents. Deals are structured to align with the strategic objectives of the involved parties. In the context of R&D in the pharmaceutical industry, strategic fit contributes to aligning objectives and capabilities, maximizing the likelihood of deal success (Nielsen, 2010).

Asset-related antecedents are influential factors pertaining to the nature and specificity of assets. This encompasses the degree of asset specificity, defined as the extent to which an asset can be redeployed for alternative uses and by alternative users without a loss of productive value. Asset specificity plays a pivotal role in deal structuring, especially when it comes to the implementation of safeguarding, termination and protection terms (Ding et al., 2013; Bosse and Alvarez, 2010; Farazi et al., 2019; Khoury et al., 2019). The typology of assets involved, either property-based or knowledge-based, is also recognized as influencing deal structuring. Das and Teng (2000) suggest that property-based assets incline deals towards more market-oriented structures, while knowledge-based assets lean towards integrated deal structures. Additionally, the asset's development stage influences the selection of appropriate deal structures, with considerations of licensing agreements, joint ventures and strategic alliances based on the maturity of products and technologies in the R&D pipeline (Das and Teng, 2000). Asset-related antecedents illuminate the critical role of unique, costly and time-consuming resources in shaping the strategic landscape of collaborative ventures in the pharmaceutical R&D domain.

Economic antecedents, such as the allocation of costs and risk sharing that significantly influence and shape deal structures (Dussauge et al., 2000), are pivotal factors. These antecedents are central to the negotiation process, as profit-maximizing firms consider the level and nature of their financial strategies, accounting for the parallel actions of other firms (Ross, 2014). Furthermore, the flexibility requirements of the involved parties, and their individual financial risk perceptions, also shape the deal structure (Das & Teng, 2001). In order to achieve their financial objectives, firms may choose to transfer risks to third parties through licensing agreements or share risks and costs through joint ventures (Dussauge et al., 2000).

Organizational antecedents comprise firm-specific factors such as capabilities, experience and resources which could influence deal structures (Hoffman, 2001; Nielsen, 2010; Das & Teng, 2008; Moatti, 2009). For instance, according to Hoffman (2001), financial strength may influence deals to lean towards more or less integrated and hierarchical structures. Another instance is when firms' expertise in the area might influence deal structures (Reuer et al., 2004). Lastly, whilst firms with greater acquisition experience are more likely to consider acquisitions over alliances, firms with greater alliance experience are not significantly likely to consider alliances over acquisitions (Villalonga & McGahan, 2005).

Risk-related antecedents include both risk (technological, commercial, financial) and uncertainty-related factors which could influence deal structures. The literature consistently acknowledges that the level of risk inherently associated with R&D projects can significantly impact deal structures. Profit-maximizing firms consider the level and nature of risk in their strategies, taking into account the actions of other firms (Ross, 2014). Firms structure deals so as to manage risks. According to financial economics, high risk should be associated with a higher expected return, and high-risk perception has been found to favor deal structures with some level of flexibility (Sitkin & Pablo, 1992). For example, licensing agreements can transfer the risks of R&D to a third party, while joint ventures allow for the sharing of risks and costs. Risk perception and flexibility requirements play a crucial role in structuring such deals. The classical approach to deal negotiations has historically focused on the avoidance of risk, but it has recently been argued that this overlooks the true significance of the deal-structuring process, which should be centered around value creation (Erikson and Knockaert, 2021). Uncertainty, a subset of risk-related antecedents, is a lack of clarity and predictability. As Grandori and Furlotti (2018) argue, "strong uncertainty puts both rational behavior and contractual governance under strain", and actors often rely on simplifying heuristics and decision-making shortcuts due to limited knowledge. The difficulties in resolving inherent uncertainties in deals mean that many sophisticated contracting parties leave gaps in their agreements to be filled in later (Hwang, 2022). Uncertainty is thus a major factor affecting the incompleteness of contracts (Grandori and Furlotti, 2018).

Social antecedents, particularly prior ties, appear to play a role in shaping the deal-structuring process in business contexts. The presence of prior ties, such as social connections or relationships between the parties involved in a deal, can impact the negotiation process and ultimately determine the outcome of the deal (Lioukas and Reuer ,2015). Prior ties can establish trust and increase the level of cooperation between the parties, leading to mutually beneficial outcomes in the deal-structuring process.

Trust, as defined by Porter (2020, IJBMI, PP 01-07), is the "confidence that one party to an exchange will not exploit or seek opportunities to exploit the other's vulnerability". In terms of deal structuring, trust can be a potential antecedent in several ways. Firstly, the existence of prior trust between the parties involved can facilitate the negotiations and reduce the transaction costs associated with the deal (Porter, 2020). Secondly, trust can impact the extent of due diligence and contract-based

mechanisms used in deals (Bierly et al., 2007). Thirdly, trust can be both a precursor to a contract to enable communication, and an outcome as the partnership evolves (Woolthuis et al., 2005).

Asymmetry refers to the difference between negotiating firms in terms of resources, size and information. As multiple scholars have argued, resource asymmetry between two firms has a significant impact on bargaining power and therefore deal structuring (Bosse and Alvarez, 2010; Farazi et al., 2019; Khoury et al., 2019). Information asymmetry occurs when one party has more information than another (Akerlof, 1970). Such asymmetry could represent an advantage on one side and a risk on the other side, therefore driving the deal structuring based on the appreciation of this advantage or risk (Crama et al., 2013, Yoon et al., 2018).

Negotiation power shapes the eventual outcome of the negotiation, and this power is a key antecedent in explaining which party's preferences will be satisfied in the negotiation process (Pattit and Deeds, 2021, p. 4).

Overall, antecedents provide insights into the initial conditions and motivations that shape the trajectory of a deal. By examining antecedents, one can understand why a process takes a particular starting point and how those initial conditions influence subsequent stages of the deal. Antecedents also shape the decision gates encountered during the deal-structuring process.

Interdependence between these antecedents might play a role in shaping deal structures in this context. For instance, prior ties and strong social capital foster trust (Cannavale et al., 2021), reducing the necessity for stringent deal structures, while power-dependence dynamics reveal how resource asymmetries influence deal-structuring decisions and outcomes (Roehrich et al., 2020). Collectively, these elements underscore the complexity of deal structuring in this context.

3.2.2.Limitations of current knowledge

The analysis of antecedents in order to investigate deal structuring in the asymmetric pharmaceutical R&D context presents notable limitations. A key issue lies in the prevailing tendency of existing research to examine antecedents in isolation, often within narrowly defined theoretical frameworks. This approach results in a fragmented understanding, failing to capture the complexity and interconnectedness of factors shaping deal structuring. No single antecedent, when considered

independently, can adequately account for the intricacies of deal structuring in this context, highlighting the need for a more integrated, collective and theory-agnostic methodology.

Furthermore, excessive emphasis on the reasons for entering deals often detracts from an understanding of the subsequent stages of negotiation and the determinants of the final deal structure. Antecedents typically provide a static perspective, outlining the initial conditions but failing to elucidate the dynamic processes that unfold during deal structuring. As such, while they are indispensable for understanding the starting point of the process, they fall short of explaining the negotiation scope or the factors driving the ultimate structure of the agreement. As noted by Mohr (1982) and Van de Ven and Poole (2005), variance approaches primarily aim to identify antecedents and consequences of phenomena, while process approaches seek to explain how events unfold over time. The current literature's reliance on variance approaches restricts its ability to provide a nuanced understanding of the deal-structuring process. Antecedents may serve as starting points for understanding deal structuring; however, they are insufficient for capturing the full complexity of negotiations and the decision-making processes involved.

In summary, while antecedents are undeniably important in investigating deal structuring within the asymmetric pharmaceutical R&D context, their fragmented analysis in isolation leads to an incomplete understanding of the phenomenon. A more integrated approach that considers the dynamic interplay between various antecedents and analyzes both "why" and "how" deals are structured is essential for advancing knowledge in this area. By adopting a theory-agnostic perspective that embraces complexity and change over time, researchers can better elucidate the multifaceted nature of deal structuring in this context.

Following this thorough examination of the diverse antecedents shaping deal structuring, and acknowledging their limitations, the subsequent section undertakes an in-depth review of extant literature on the deal-structuring process.

3.3. The deal-structuring process in the pharma R&D context

This section examines the extant knowledge around the deal-structuring process by surveying primary research, summarizing insights and identifying limitations.

3.3.1. General findings around the deal-structuring process in the pharma R&D context

Remarkably, the literature covering the process of deal structuring is far less extensive than that covering the antecedents to deal structuring. Within this body of literature, the closest research theme to the deal-structuring process is commonly referred as "contract design". Here are the few learnings drawn from this literature.

Firstly, contract design binds the negotiating firms to carry out the actions needed to achieve their mutual goals and enables joint rules through contractual arrangements. Firms may articulate their expectations, assumptions and concerns about the relationship, which generates cues for their counterparts to make sense of their competence and professionalism as well as their intentions and hidden agendas during the contracting process (Blatt, 2009; Lumineau et al., 2011). Secondly, contract design plays an important role in addressing and managing potential contractual risks (Martimort et al., 2010). During the negotiation process, there is a continual tension between the need for information disclosure and the avoidance of opportunistic behavior. One of the key challenging tasks of contract design is to reduce costs and minimize risks to both firms (Blomqvist et al., 2005). Thirdly, when risks are properly shared and the terms of the contract are well defined, the partnership is strengthened, and a level of trust is established between the parties involved (Pattit and Deeds, 2021). Lastly, the process of drafting contractual clauses has been shown to facilitate learning, leading to more extensive partnerships, as new negotiations are triggered beyond the original agreement. Legal theory also addresses the deal-structuring process in a very interesting way (Hwang and Jennejohn, 2018). This will be further described in the theoretical section.

Overall, the insights derived from contract design underscore the significance of adopting a dyadic perspective, an emphasis which is less prevalent in the literature on antecedents. The key success factor lies in achieving alignment between negotiating parties, contributing to effective risk management. This alignment serves as a cornerstone, not only in addressing risks, but also in establishing trust and fostering the accumulation of shared knowledge and expertise. However, most research has focused

on a one-sided perspective, overlooking the importance of considering the viewpoints of both organizations involved in the transaction, and not sufficiently considering this dyadic perspective in the deal-structuring process (Barchi and Greco, 2018). Deal structuring is a collaborative and consensus-driven process influenced by the preferences and requirements of various internal constituencies, which constitute a business party's "position" in a deal (Hwang, 2022). The execution of a deal requires the involvement of many actors whose opinions can influence the outcome (Hwang, 2022), and the multitude of actors who make decisions during the pre-deal phase are often overlooked in the literature (Welch et al., 2020). Thus, a dyadic perspective that accounts for the views of all relevant actors is necessary for a comprehensive understanding of the deal-structuring process.

3.3.2.Decision gates within the deal-structuring process

In the context of deal structuring, particularly within R&D-intensive industries like pharmaceuticals, several successive decision gates significantly shape agreements between firms. Based on extensive industry practice experience, understanding the decision-making process is crucial for fully grasping the deal-structuring process and its eventual outcomes. By examining how decisions are made—including the antecedents and considerations that guide these choices—researchers can unveil the underlying mechanisms that ultimately dictate deal outcomes.

3.3.2.1. Decision gates in the literature

Currently, the literature identifies two primary decision gates inherent to the deal-structuring process: Partner Selection and Initial Agreement. The *Partner Selection* decision gate seems to involve evaluating the strategic fit and complementarity between firms. Some researchers approach this decision gate from the perspective of strategic and organizational fit, emphasizing its critical role prior to committing to a deal (Billitteri et al., 2013; Cannavale, Esempio, & Ferretti, 2021; Kale & Singh, 2009; Lo Nigro et al., 2012). Other studies underscore the impact of such a decision gate on the deal performance (Billitteri et al., 2013; Cannavale, Esempio, & Ferretti, 2021; Choi & Contractor, 2019; Kale & Singh, 2009; Kim, 2017; Lioukas & Reuer, 2020; Lo Nigro et al., 2012). The *Initial Agreement* decision gate entails negotiating the initial agreement. Several studies focus on the outcomes of this process, primarily from a governance-structure perspective, often framing discussions around the dichotomy of equity-based versus non-equity-based structures (Billitteri et al., 2013; Choi &

Contractor, 2016; Kim, 2017; Lioukas & Reuer, 2020; Lo Nigro et al., 2012; Taneri & De Meyer, 2017; Yasuda, 2018).

3.3.2.2. Limitations of current knowledge on decision gates

First of all, the literature often highlights the importance of initial governance modes yet overlooks preceding and subsequent decision points that considerably impact the partnership's evolution and outcomes. The existing literature tends to assume that deal structures arise from a static, one-off event. However, this overlooks the dynamic nature of deal structuring in the pharmaceutical R&D context. Existing research has failed to sufficiently describe the deal process from a dynamic perspective and has instead focused on the static, legal agreements. As a result, the current literature provides a limited explanation of how firms structure complex and sophisticated deals involving multiple stages (Choi, 2020). Therefore, a more temporal perspective is needed to account for the multiple steps leading to the final deal (Welch et al., 2020). More precisely, this perspective should incorporate the various stages involved in deal structuring, as well as the interdependence between these stages.

Secondly, while individual studies provide valuable insights into specific decision gates, a cohesive framework integrating successive decision points remains absent. Thirdly, another related shortcoming of the research into the decision-making process, especially in pharmaceutical R&D, is the tendency to assume that deals are a one-off decision. The literature tends to overlook the multiple successive decisions that must be made in order to structure a deal effectively. Although Reuer et al. (2016) have taken initial steps towards recognizing deal structuring as a decision-making process by proposing decisions at three nested levels, their approach still suffers from a simplistic binary scheme between two deal structures (equity-based or purely contractual forms). The complexity of these decisions is considerable and involves multiple decision makers with differing preferences and goals (Hwang, 2022). There are still unexplored decision gates. Questions arise regarding other potential decisions that may occur throughout the process and the contexts in which they manifest.

Fourthly, existing sources primarily examine how uncertainty affects governance mode choices, offering insufficient insights into the specific bargaining and negotiation processes within each stage. Fifthly, despite significant progress, no study has empirically investigated these decisions in depth or dissected the deal-structuring process within this context. Many studies have primarily concentrated on ex-ante antecedents or the final outcomes of deal structuring, neglecting the iterative nature of

decision-making encountered in this realm. There remains a pressing need for more extensive exploration of the key decision gates involved.

The existing body of work highlights an evident need for deeper investigation into the decision-making processes underlying deal structuring and alliance formation. While numerous scholars discuss factors influencing partner selection and governance structures, there is often a lack of detailed explanations regarding the step-by-step processes involved. This gap has been acknowledged by several key scholars. Choi and Contractor (2016, 2019) suggest a spectrum that reflects inter-partner interaction and task complexity, underscoring the need to understand the nuanced decision-making processes leading to specific governance selections. In their review of real options research, Ipsmiller et al. (2019) call for a deeper exploration of how firms recognize and capitalize on real options, emphasizing a need to investigate the decision-making processes involved in evaluating strategic choices during alliance formation. Lioukas and Reuer (2020) highlight a significant theoretical gap in transaction cost economics, indicating that, while discussions often focus on governance structure choices, attention also needs to be paid to the decisions made regarding the transaction itself and associated trade-offs. Lastly, apart from mergers and acquisitions (M&A), legal and negotiation literature, the large majority of research has underestimated what is referred to as multi-stage contracting. M&A scholars stress the importance of a multi-stage approach during the deal-structuring process, with deals often being too complex to be completed in one stage (Hwang and Jennejohn, 2019). Multi-stage contracting divides the deal-structuring process into multiple modules over multiple time periods, with modularity playing an important role in the early stages of the deal process (Hwang and Jennejohn, 2019). In addition to that, negotiation scholars recommend theorizing and measuring negotiation as a multiphase process with possibilities for recursion (Jang et al., 2018).

3.3.3. Considerations during the deal-structuring process

The bargaining, negotiation and structuring of deals involve multiple considerations. These considerations refer to the specific elements that parties negotiate to align their interests, mitigate risks, and achieve strategic objectives. Reviewing and understanding considerations is of importance as they might form the foundation for shaping the deal outcome.

3.3.3.1. Considerations in the literature

First consideration identified from the review is *financial provisions*. This can be defined as the financial terms of the deal including upfront payments, milestone payments, and royalties (Yoon et al., 2018). The timing and structure of payments are often subject to negotiation, influenced by antecedents such as risk and return.

Similarly, *acquisition cost* plays a critical role in agreements involving acquisitions. The willingness of the buyer to pay is shaped by the perceived value of the seller's assets, intellectual property and market position (Yoon et al., 2018). The determination of acquisition costs reflects both market-based assessments and strategic considerations specific to the R&D context.

Another consideration, the *overall degree of coordination and communication* between partners emerges as a central aspect of negotiation (Choi et al., 2017). Determining the intensity of interaction depends on the nature of the project, desired levels of flexibility and associated risks. Effective communication ensures alignment between parties and mitigates uncertainties, but it also involves balancing the costs and complexities of coordination (Choi et al., 2019).

Contractual complexity is another consideration reflecting the detail and comprehensiveness of alliance contracts (Kim et al., 2014). Contractual complexity serves as a mechanism to address exchange hazards arising from ambiguity, asymmetric information and asset specificity. As defined by Kim et al. (2014), this consideration involves the negotiation of explicit provisions to clarify roles, responsibilities and contingencies.

Direct oversight and control exerted by the buying firm is another consideration (Kim et al., 2014). Oversight mechanisms determine the level of authority the buying party has over critical R&D activities. This negotiation point often reflects broader concerns about trust, organizational autonomy, and the strategic objectives of the collaboration.

Lastly, *Division of labor and activities* also shapes the scope and complexity of deals. Negotiations around labor allocation determine the distribution of resources, responsibilities and potential risks between partners (Kim et al., 2014). For instance, co-development and co-manufacturing require higher levels of integration and long-term commitment than co-marketing and co-promotion activities, which can operate with more independent structures.

3.3.3.2. Limitations of current knowledge on considerations

The extant literature on these considerations has several limitations restricting their applicability and explanatory power. First of all, research directly investigating these considerations, especially in the context of R&D and in the pharmaceutical industry, is very limited. Ignoring these considerations risks oversimplifying the complex interplay of processes and decisions that influence deal outcomes, especially in the asymmetric pharmaceutical R&D context. In addition, the identified considerations may not capture the full complexity of deal structuring. Considerations around the allocation of control rights or safeguards remain under-investigated, meriting further exploration to develop a more comprehensive understanding of deal structuring. Furthermore, studies identifying these considerations often lack a unified theoretical framework. Investigations that adopt a theory-agnostic stance or integrate multiple theoretical perspectives could yield novel insights into governance mechanisms.

In conclusion, while understanding considerations underlying deal structuring in the pharmaceutical R&D context is crucial, the fragmented research landscape, limited contextual studies and lack of theoretical integration hinders such a comprehensive understanding. To bridge these gaps, a holistic, theory-agnostic, and structured approach to examining these considerations is necessary. This approach should specifically target the pharmaceutical R&D context, where asymmetries in information, risk and resource allocation create unique challenges in deal structuring.

The next section will examine the outcomes of deals, exploring their definitions, structures, and typologies.

3.4. Deal-structuring outcomes and typologies

This section explores the existing body of knowledge surrounding deal-structuring outcomes, focusing specifically on their definitions, classifications, typologies and associated terminologies. A thorough understanding of how deal structures are conceptualized and categorized in the literature is crucial for advancing theoretical and practical insights into this critical area of research.

Investigating how deal structures are defined and classified is not merely an academic exercise but a critical step in addressing significant limitations in the existing body of knowledge. Without a nuanced and comprehensive understanding of these constructs, researchers and practitioners alike risk

oversimplifying the complexities inherent in deal-making processes. This section thus seeks to lay the groundwork for a more robust exploration of deal structures by identifying gaps, inconsistencies and areas for further research.

3.4.1.Deal-structuring outcome definitions

This section addresses current definitions of deals and their limitation.

3.4.1.1. Outcomes defined as governance or contracts

The predominant definition of deals in the literature is commonly framed as either governance or contractual arrangements. This section will examine the existing literature around these two ways of defining deals.

Williamson (1979) defines governance as "alternative institutional modes for organizing transactions". It is viewed as a means by which to infuse order, thereby mitigating conflict and realizing mutual gain. Coad and Cullen (2006) highlight that governance is intended to improve goal congruence and reduce preference divergences among alliance participants, and is widely acknowledged to be an essential mechanism for interfirm collaborations. Therefore, deal structuring, defined as choice of governance, refers to the decision regarding how the relationship between the parties involved in a deal will be managed, including the allocation of decision-making authority and the mechanisms for monitoring and controlling performance.

The other definition of deals used in the literature is contract. Formal contracts are defined as written, legally binding agreements between two or more parties (Lyons and Metha 1997) that represent promises or obligations to perform actions in the future (Mayer and Argyres, 2004). Contracts play an important role in deals because they enable the parties to articulate their individual and mutual goals. Contracts are, in principle, designed to protect the parties' assets, prevent disagreements in R&D collaboration, and strengthen confidence in continuity. The choice of contract entails decisions around formal and legal agreements to execute the deal. Interestingly, recent studies on inter-organizational governance have started to shift towards exploring contractual governance in further detail (Reuer & Devarakonda, 2016). For example, the literature has shifted its focus towards exploring issues pertaining to contract design (Bercovitz and Tyler 2014; Dean, Griffith, and Calantone 2016; Ozmel et al. 2017) and the content of the contract (Duplat and Lumineau 2016; Schilke and Lumineau 2018).

In summary, deals are defined in two main ways: governance and contracts. Governance refers to the choice regarding how the relationship between parties involved in a deal will be managed, and contracts are legally binding agreements between parties. The choice of governance and choice of contract are two different but related and complementary endeavors in the context of deal structuring.

3.4.1.2. Shortcomings of governance and contracts

The study of governance and contracts has been a prominent area of research in the field of strategic management for several decades. However, the limitations of using governance and contracts as the sole units of analysis have been increasingly recognized by scholars. Despite the significant contributions made by previous research, it has been argued that the focus should shift from analyzing broad governance choices to understanding what drives firms to choose among different contractual modes. The need to consider contractual governance mechanisms from the beginning of a collaboration is noted by many authors (Slowinski and Sagal 2006; Slowinski et al. 2006; Kale and Singh 2009; Mehlman et al. 2010). Future research needs to acknowledge that contracts can do more than simply eliminate negative outcomes and can help set a frame that encourages a positive outcome.

The distinction between governance and contract is also a source of confusion in the literature. While the choice of governance refers to the management of the relationship between parties, the choice of contract refers to the specific terms and conditions included in the agreement. Although the two are closely related, they cannot be treated as equivalent, as they do not cover the full phenomenon of interest. According to Keller et al. (2021), prior research has used different conceptual labels for similar governance mechanisms and treated contractual and formal, and relational and informal, governance mechanisms as equivalent. Furthermore, the opposition between contracts and other governance mechanisms, such as authority relations and constitutions, has been criticized as ill-founded. Grandori and Furlotti (2018) argue that it would be more helpful to abandon this opposition and instead focus on the full picture of the deal. By considering the interplay between governance and contract, researchers can gain a better understanding of the factors that influence the success of partnerships.

Although scholars like Contractor (2017) and Choi (2017) have called for more interest in contract than governance, the use of contracts has shown limitations. Some contracts (e.g., joint ventures) have received considerably more attention than others. What we know about deals in general is likely to be overly influenced by the characteristics of the most studied contracts, such as joint ventures, and may

not actually apply broadly to all deals, such as options. In this context, the concept of the deal appears to be a more comprehensive unit of analysis. Research in the field should focus on the interaction mechanisms or knowledge-management practices adopted between partners in order to maximize value creation and adoption of new technologies developed within the alliance (Martinez-Noya and Narula, 2018). By focusing on the full picture of the deal, researchers can better understand the interplay between governance and contract and the impact they have on the success of partnerships.

In conclusion, the limitations of using governance and contract as the sole units of analysis in the field of strategic management have begun to be recognized but are not yet taken into account within studies. The concept of the deal as a unit of analysis could provide a more comprehensive framework for understanding the interplay between governance and contract and their impact on the success of partnerships.

3.4.2.Deal-structuring outcome typologies

This section analyses the various typologies of deal structures, offering insights into the diverse dimensions along which deals can be categorized.

3.4.2.1. Predominant outcome typology based on the integration dimension

The dominant typology of deals is built on the logic of Transaction Cost Economics (TCE) (Pisano, 1989; Das and Teng, 1996). According to this typology, deal-structuring outcomes are classified as hierarchical, market or hybrid governance, depending on the degree of integration/ownership (market-hierarchies continuum), centralization and delegation of decision-making authority. This typology also relies on the distinction between non-equity alliances, equity alliances, and mergers and acquisitions (M&A). The following elucidates each category and its subcategories.

First of all, an alliance is an agreement between two or more firms to jointly manage their assets and achieve their strategic objectives (Gulati, 1995). This constitutes voluntary arrangements between firms involving exchange, sharing or co-development of products, technologies or services (Gulati, 1998). Within an alliance, both firms participate in the decision-making process. Non-equity alliances include all contracts (unilateral and bilateral) which do not involve any equity-related transaction. Equity alliances include all contracts partially involving an equity-related transaction. Lastly, M&A involves transactions with full merge or acquisition of equity (Fig. 3-1).

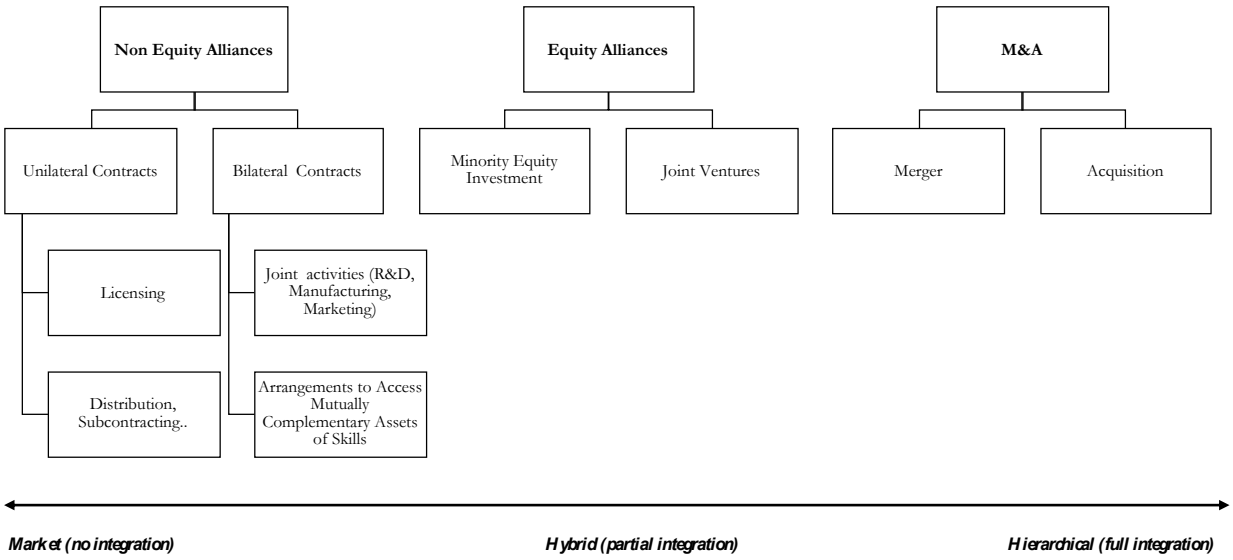

Figure 3-1 Deal-structuring outcome typology based on TCE & integration (Kale and Singh, 2009)

In summary, this typology broadly relies on the dichotomy between alliance and acquisitions. The TCE-based typology remains the most extensively used framework for categorizing and analyzing deal structuring in the pharmaceutical R&D context, yet it has not evolved significantly in recent years. *Recent studies, such as Yang et al. (2023), continue to apply this typology without substantial modification, underscoring its enduring relevance but also highlighting the gap in updating or extending its theoretical underpinnings to address emerging complexities in collaborative innovation contexts.*

3.4.2.2. Minor outcome typologies based on other dimensions

There are several additional, much less investigated, typologies of deal-structuring outcomes based on different dimensions identified from the literature. The first, the relationship-based typology, classifies deals based on the type of relationship established between the parties (Abdi et al., 2017). For example, deals can be classified as formal or relational contracts, depending on the level of trust and communication between the parties. The difficulty in accurately determining the level of trust and communication between parties, along with the possibility of deals falling into a grey area between the two, highlights the need for further research and refinement of the classification frameworks used in the field. The second, the asset-based typology, classifies deals based on the type of asset being transferred (Hoetker et al., 2009.). For example, deals are built around either tangible or intangible assets. However, one limitation of this typology is the dual nature of some assets, which might be both

tangible and intangible. Additionally, the classification of assets can be affected by the specific context and the legal definitions of the assets involved.

The third, the specificity-based typology, classifies deals according to the level of specificity of the terms and conditions (Langfield-Smith, 2008). For example, contracts can be classified as specific or general contracts, depending on whether the terms and conditions are well-defined or open-ended. However, a limitation of classifying deals based on the level of specificity is the difficulty in determining the level of specificity of the terms and conditions, as this can change over time. Additionally, some deals may fall into a grey area between specific and general type, making it difficult to classify them. The final one, the risk-based typology, has two sub-typologies – the first based on a risk-adjusted payment model and the second based on risk sharing. In the sub-typology based on risk sharing, deals can be classified according to three risk-sharing profiles: risk borne primarily by the seller, risk borne primarily by the buyer, and risk shared between buyer and seller (Adler et al., 2016). As Han and Li (2018) argue, "the symmetric distribution of the residual rights and risk sharing is one of the important principles of contract design and choice". Notably, there may be limitations to this typology. For instance, the risk-sharing sub-typology may not capture the full range of risk-sharing arrangements that exist in complex R&D collaborations, and there may be other factors beyond risk that influence the design and implementation of such deals. Additionally, while the principle of symmetric distribution of residual rights and risk sharing is important, it may not always be feasible or optimal in practice, and alternative approaches to contract design may need to be considered.

In summary, this chapter has shown that the outcome of deal structuring is primarily categorized into governance or contractual definitions. While these definitions hold validity, they alone may not be sufficient, prompting the suggestion that the deal itself should be considered the principal definition. Furthermore, the prevalent typology derived from TCE logic and the integration dimension does not comprehensively capture all types of deals, lacking granularity and the ability to encompass complex deals involving multiple agreements. Some alternative typologies, although not mutually exclusive, have relevance but suffer from several limitations and inadequate exploration. The next section will explore various theoretical perspectives employed to describe and explain deal structuring in the pharmaceutical R&D context.

3.4.2.3. Limitations of current typology knowledge

By itself, TCE integration-based typology seems to be sufficient at first glance; however, the subsequent literature on deal structuring has predominantly grounded its research assumptions in the dichotomy between alliances and acquisitions, or equity vs non equity deals, adopting a binary approach that falls short of encompassing the diverse variety and complexity evident in practical deal structures. For instance, this typology does not capture the diversity and complexity of deal structures observed in practice, such as option agreements or asset purchases. Already, back in 2007, Reuer and Arino (2007) showed that contractual complexity does not necessarily vary between equity and non-equity alliances. This suggests that equity alone does not guarantee successful governance and may work in conjunction with other mechanisms. In addition, flexible or reversible deal structures, including options, are not considered, although they are of growing importance within the pharmaceutical R&D context (Papp, 2010; Osborne, 2010). In essence, the entire spectrum of deals is not exhaustively covered and investigated, indicating a need for further research in this domain to explore and understand the full range of deal structures (Hwang, 2022).

Another limitation is that this typology, based on TCE, primarily focuses on minimizing transaction costs and mitigating risks. While this is important, it overlooks the potential for deals to generate synergy effects and learning opportunities that can enhance firm value. The TCE model does not provide sufficient guidance on how different deal structures can facilitate knowledge sharing and co-creation to realize these benefits. Furthermore, this typology is not able to capture the complexity and heterogeneity of R&D deal structure. The literature provides limited investigation and explanation of the process by which firms structure multi-contract deals. Modern commercial contracts have become structurally complex and interconnected, with parties often setting out their intentions in numerous provisions and multiple contracts. For many years, however, research has largely overlooked contractual complexity (Hwang and Jennejohn, 2019) despite the fact that modern contracts are fundamentally different from the relatively simple contracts that motivated classic questions (Hwang and Jennejohn, 2018). Hwang (2022) highlights how complex transactions are now completed in multiple related contracts, rather than in one large omnibus contract. In a world where contracting is complex, the classic rules/standards framework is an inadequate lens through which to understand contract design and interpretation (Hwang and Jennejohn, 2018). This typology does not incorporate deal-structuring outcomes based on multiple contractual agreements (Yin, 2008; Choi and Contractor,

2019). This oversight in the literature represents a gap in distinguishing the nuances of deal structuring in this field.

Lastly, Baldi et al. (2020) note that deals in pharmaceutical industry R&D commonly differ according to the degree of cooperation and control exerted between the parties involved in drug co-development. As a result, this typology ignores some important dimensions that would allow the further differentiation of deal-structuring outcomes.

Overall, the TCE-based typology model of governance, while providing a useful starting point for analyzing deal structures, suffers from several limitations. By adopting a comprehensive qualitative approach to understanding the deal-structuring process, researchers and practitioners could gain a better understanding of how firms structure sophisticated deals, particularly in the context of pharmaceutical industry R&D. The traditional dichotomy of "market vs. hierarchy" has been called into question due to the increase in complex alliance types and contracts. Scholars like Das and Teng (2001), Lo Nigro et al. (2012), and Lioukas and Reuer (2020) have successively called for multidimensional frameworks that encompass a more holistic perspective and better typologies, stemming from the recognition that deals in this context are multifaceted and cannot be adequately captured by a simple binary categorization. Rightly, they advocate for models that provide a more complete understanding of how deals are structured and governed.

3.5. Theoretical perspectives

Within the scope of this literature review, a comprehensive examination has been undertaken to explore various theoretical perspectives that (directly or indirectly) contribute to the understanding and explanation of deal structuring, both within the pharmaceutical R&D context and beyond. The review has identified a diverse range of over 15 theoretical frameworks in the literature, and a focused survey has unveiled a primary cluster of four dominant theories: Transaction Cost Economics (TCE), Resource-Based View (RBV), Real Options (RO) and Incomplete Contract Theory (ICT). While other theories have offered insights, especially Legal Theory, their empirical backing, and breadth of applicability to this research is rather limited. The following section will begin by discussing the major theories before exploring the minor ones.

3.5.1.Major theories

While the following theories were not originally developed to explain deal structuring in the asymmetric pharmaceutical R&D context, they provide valuable conceptual tools for dissecting its complexities. This approach aligns with Schön's (1979) notion of "displacement of concepts", wherein theories developed for one explanandum are repurposed to illuminate new domains. Such theoretical transpositions are common in management and organizational studies.

3.5.1.1. Transaction Cost Economics (TCE) - definition, explanatory power and limitations

3.5.1.1.1. TCE definition

Over the last twenty years, TCE (Williamson, 1975, 1985, 1991, 2002) has been the most investigated and empirically backed theory for analyzing questions regarding deal structuring (Schepker et al., 2014). TCE is multidisciplinary, joining economics with organization theory and selected aspects of the law (especially contract law). According to this theory (developed by Williamson, 1991), relationships between companies are understood in a context in which opportunism and bounded rationality characterize firms' participation in transactions. As Leiblein (2003) points out, TCE has constituted the standard framework for describing and predicting deal structuring.

Fundamentally, TCE posits that deal structure will always result from a need to decrease the effects of environmental uncertainty (opportunism of partners due to market imperfections) and competitive pressure (De Jong et al., 2008) on a transaction. TCE assumes that competitive pressure will eventually eliminate deal choices that are inefficient relative to other alternatives in a discriminating way so as to optimize transaction cost and risk. In other words, assumptions about human nature and decision making (i.e., bounded rationality, opportunism and bounded reliability) are related to why transactional characteristics (i.e., asset specificity, uncertainty, dependence and complexity) affect the effectiveness of deals. TCE focuses on transaction characteristics such as investment idiosyncrasy, uncertainty/risk, asymmetric information and asset rent seizing. Each type of deal will involve different levels of coordination and mechanisms, and different disturbance and adaptation abilities.

3.5.1.1.2. TCE and the antecedents to deal structuring in the pharmaceutical R&D context

Among the antecedents listed in the preceding section, TCE identifies the ones that are deeply connected to the asset, economics and risks within the deal. First, the nature of the asset, encompassing specificity and uniqueness, plays a pivotal role in shaping the deal structure. In the case of highly specific assets or appropriability hazards, large firms might privilege acquisitions (Langfield-Smith, 2008). Transactions in the pharmaceutical R&D context involve highly specific assets (unique innovating technologies) and, based on TCE prediction, such deals will preferentially result in acquisitions (Yasuda, 2005).

TCE also emphasizes economic-related antecedents, such as transaction cost efficiency, as key factors influencing the deal structure. One example in the pharmaceutical industry is when TCE can help to explain why companies may enter into licensing agreements or joint ventures rather than internalizing R&D activities. By partnering with external organizations, firms can access new technologies and expertise without incurring the high costs associated with internal R&D. Furthermore, TCE can help to explain why firms may prefer to enter into long-term deals with low transaction costs, such as a licensing agreement, rather than shorter-term deals with high transaction costs, such as a research collaboration.

Furthermore, TCE recognizes the inherent risks associated with the deal and the asset, advocating for the incorporation of risk-mitigation strategies in the deal structure. According to TCE, a radical innovation involves a high degree of risk, increasing the hold-up risk and requiring a higher amount to be invested. This risk is managed – according to TCE – with control and hierarchy. The main strength of TCE theory is that it weighs risk, one of the key factors in the R&D context, into the decision-making process. In essence, TCE provides a framework that acknowledges the interplay of asset-related antecedents, economic-related antecedents, and risk-related antecedents in shaping deal structure.

3.5.1.1.3. TCE and the deal-structuring process in the pharmaceutical R&D context

TCE's description of the deal-structuring process is rather limited since it portrays deals as static one-off events with no temporality, no phasing and no iterations. If one were to incorporate TCE into the

deal-structuring process, it is anticipated that the predominant considerations would revolve around the costs, benefits and overall efficiency associated with the deal structure.

3.5.1.1.4. TCE and the deal-structuring outcomes and typology in the pharmaceutical R&D context

According to the TCE-based typology, deal-structuring outcomes are classified as hierarchical, market or hybrid governance, depending on the degree of integration/ownership (market-hierarchies continuum), centralization and delegation of decision-making authority (Fig. 3-1). This typology, described in the previous section, also relies on the distinction between non-equity alliances, equity alliances, and mergers and acquisitions (M&A).

3.5.1.1.5. TCE limitations in explaining deal-structuring antecedents, process and outcomes

Transaction cost economic (TCE) theory is a useful framework for understanding deal structuring in the pharmaceutical R&D context. However, it has several limitations that hinder its ability to provide a comprehensive understanding of deal structures in this industry.

With regard to antecedents, TCE primarily focuses on the costs associated with transactions and neglects other antecedents, such as strategic antecedents, and the potential value-creating benefits to be gained from subsequent deals. TCE focuses less on value creation and assumes universal availability of resources, failing to account for resource constraints that could have long-term effects on an organization (Fosfuri, 2006). TCE also disregards strategy and organization in deal structuring. This does not allow for individual firm differences in capabilities and resources, which are especially significant in the asymmetric cases common in the pharmaceutical sector (David & Han, 2004). Therefore, TCE cannot explain deal structures by focusing only on transaction characteristics and efficiency considerations; other antecedents are required to better understand deal structures (Pattit and Deeds, 2021).

With regard to the deal-structuring process, TCE fails to consider the temporal and dyadic aspects of deal structuring. TCE also assumes that firms will necessarily be very opportunistic, highly protective and poorly collaborative. This one-sided, win-lose, protection-driven perspective limits TCE's ability to fully take into account the coordination mechanism as a way to control and monitor partner

relationships. TCE focuses primarily on control and integration and does not consider the dyadic win-win perspective required in the pharmaceutical R&D context (Remneland-Wikhamn et al., 2012; Grandori and Furlotti, 2018; Martínez-Noya and Narula, 2018).

With regard to the deal-structuring outcome and typology, TCE has predominantly grounded its research assumptions in the dichotomy between alliances and acquisitions, adopting a binary approach that falls short of encompassing the diverse variety and complexity evident in practical deal structures. The entire spectrum of deals is not exhaustively covered and investigated, indicating a need for further research in this domain to explore and understand the full range of deal structures (Hwang, 2022). Moreover, this typology does not incorporate deal-structuring outcomes based on multiple contractual agreements (Yin, 2008; Choi and Contractor, 2019). Finally, this typology ignores some important dimensions that allow the further differentiation of deal-structuring outcomes.

In conclusion, while TCE provides a fairly well established and investigated framework for understanding the deal-structuring antecedents and outcomes in the pharmaceutical R&D context, its limitations necessitate the inclusion of additional theoretical perspectives for a more comprehensive understanding of deal structures in this context.

3.5.1.2. Resource Based View (RBV) - definition, explanatory power and limitations

3.5.1.2.1. RBV definition

Introduced by Barney (1991), RBV is a theory that views firms as collections of strategic resources or assets, whose differential level and nature of capabilities, assets and resources influence deal structure (Contractor, 2002; Nielsen, 2010). RBV takes a strategic and organizational advantage approach, highlighting the complementarity between strategic assets as well as the strategic importance of involved assets. According to RBV, firms' deal-structure preferences are a function of their simultaneous desire to acquire access to valuable resources and protect and control their own resources (Leiblein, 2003). In other words, decisions about deal structures are based on the resources and assets of partners (Dyer, 2004; Hoetker et al., 2005). RBV supports the notion, especially in the R&D context, that access to new technological knowledge and complementary technologies or other assets beyond firm boundaries is critical (Bayona et al., 2001; Robertson and Gatinon, 1998). RBV

supports deal structures in which the strategic benefits of being the first mover outweigh the cost of sharing the profits with partners through strategic alliances (Shan & Visudtibhan, 1990).

3.5.1.2.2. RBV & the antecedents to deal structuring in the pharma R&D context

RBV identifies antecedents closely intertwined with strategic and organizational matters within the deal. Strategic-related antecedents emphasize that the deal structure is influenced by factors related to firms' strategic objectives and capabilities. RBV has been studied extensively, with predictions for alliances or acquisitions based on strategic fit between firms' resources (strength, similarity or complementarity). Firms with the same type of resource capabilities are more likely to integrate, while limited complementarity favors alliances (Hoetker et al., 2005; Sirmon et al., 2007). The unique competencies, experiences and resources of the organizations involved are crucial organizational antecedents shaping the structure of the deal. Human and intangible assets favor alliances, while tangible assets favor acquisitions (Dyer, 2004; Hoetker et al., 2005). Firms with low financial strength may prefer alliances, while firms with high financial strength prefer acquisitions (Hoffman, 2001). Asymmetry, identified by the theory of asymmetric information, could fall within the broader framework of RBV, as it addresses the impact of information asymmetry on transaction costs and economic decision-making. In R&D relationships between large pharmaceutical firms and smaller R&D firms, RBV predicts alliance-type deals due to high asymmetry and dissimilarity between firms (Conner & Prahalad, 1996; Sirmon et al., 2007). A firm may prefer an alliance to an acquisition if it lacks information about the potential target (Balakrishnan & Koza, 1993). In essence, RBV provides a comprehensive framework acknowledging the interplay between strategic-related antecedents and organizational antecedents in shaping the deal structure.

3.5.1.2.3. RBV and the deal-structuring process in the pharmaceutical R&D context

RBV falls short in capturing the intricacies of the deal-structuring process within the pharmaceutical R&D context. While RBV excels at emphasizing antecedents, it tends to neglect the temporal aspect inherent in deal structuring. This limitation hampers its ability to comprehensively explain the deal-structuring outcome.

3.5.1.2.4. RBV and the deal-structuring outcomes and typology in the pharmaceutical R&D context

With regard to the deal-structuring outcomes and typology, the use of RBV, in contrast to TCE, has not led to any established typology of deal structures in this context. On the other hand, RBV has, like TCE, predominantly grounded its research assumptions in the dichotomy between alliances and acquisitions, adopting a binary approach that falls short of encompassing the diverse variety and complexity evident in deal structures in practice. The entire spectrum of deals is not exhaustively covered and investigated, indicating a need for further research in this domain to explore and understand the full range of deal structures (Hwang, 2022).

3.5.1.2.5. RBV limitations in explaining deal-structuring antecedents, process and outcomes

The Resource-Based View (RBV) framework has several limitations that need to be considered. With regard to antecedents, RBV uses two key strategic and organizational antecedents. However, RBV pays much less attention to the transaction efficiency and economic-related antecedents, as well as to the risk and uncertainty-related antecedents.

Regarding the deal-structuring process, RBV fails to consider the temporal aspects of deal structuring. While RBV effectively elucidates the reasons behind firms' engagement in deals and the strategic and organizational factors influencing deal structures, it provides comparatively less insight into the operational intricacies of how the deal-structuring process unfolds. To overcome this shortcoming, a process-oriented perspective that considers how resource attributes and properties evolve, interact and reconfigure throughout the deal structuring process within the context of asymmetric pharmaceutical R&D could be considered.

With regard to the deal-structuring outcome and typology, the use of RBV has not led to any established typology of deal structures in this context. RBV only focuses on two deal structures: alliances and acquisitions. RBV is useful for understanding formal, hierarchical deals like equity deals, but is less so for non-equity deals in which resource exchange is less obvious (Hoffman, 2001). Lastly, it does not take into account the wide range of other deal structures, such as options, research

collaborations and equity investments without acquisitions, which are commonly used. Thus, RBV alone is not able to capture all existing deal structures.

In conclusion, while RBV provides fairly established strategic and organizational motives and antecedents for understanding the deal-structuring antecedents, the description of the process and the outcome is rather limited. These limitations necessitate the inclusion of additional theoretical perspectives for a more comprehensive understanding of deal structures in this context.

3.5.1.3. Real Options (RO) theory - definition, explanatory power and limitations

3.5.1.3.1. RO definition

RO applies financial options theory (with some modifications) to the case of real, that is non-financial, assets (McGrath & Boisot, 2005, p. 2). This theory is still recent in the field and is subject to growing interest, particularly for high technology industries (such as the pharmaceutical industry) in which investments are at high risk, and firms need to set flexible inter-relationships. RO posits that firms can view investment decisions, such as R&D collaborations and licensing agreements, as options that can be exercised at a later date. This allows firms to delay committing to a specific course of action until they have more information and can make a more informed decision. RO is a right, but not an obligation, to take an action in the future, viewed as the flexibility a manager has to make decisions about real assets. RO is capable of incorporating the value of flexibility, growth opportunities and competitive strategies in an uncertain environment (Smit & Trigeorgis, 2006). RO theory suggests that deals may be modified in response to changes in the transaction environment (Leiblein, 2003). RO focuses on measurable risk (rather than uncertainty) as a key factor in the decision-making process leading to deal structures (Sitkin & Pablo, 1992), and risk mitigation becomes a key part of deal structuring. RO examines the trade-offs of committed and flexible ownership strategies.

3.5.1.3.2. RO and the antecedents to deal structuring in the pharmaceutical R&D context

RO in deal structuring introduces a distinct approach to risk-related antecedents, diverging from the TCE perspective (Dixit and Pindyck, 1994). RO underscores the importance of flexibility and adaptability in dealing with uncertainties and risks within an R&D environment. Unlike TCE, which often focuses on transactional risk mitigation, RO emphasizes the strategic value of managerial flexibility and the ability to capitalize on future opportunities. In the context of R&D, which is

characterized by high risk, RO suggests that firms would benefit from flexible deals rather than hierarchical deals (Schepker et al., 2014). Whereas a significant equity investment imposes substantial risk, deferring an irreversible investment (e.g., option to acquire or divest) provides flexibility (Li, et al., 2007). In essence, RO provides a unique lens through which to understand the impact of risk-related antecedents in shaping deal structures.

3.5.1.3.3. RO and the deal-structuring process in the pharmaceutical R&D context

RO's description of the deal-structuring process suggests that firms can view investment decisions as options which can be exercised at a later date. This involves assessing the potential future value of different types of deals, and how this might change over time. To some extent, RO introduces a dynamic and temporal component to the deal-structuring process. RO suggests that deals may be modified in response to changes in the transaction environment (Leiblein, 2003), allowing a flexible, dynamic perspective to deal structures. As Leiblein (2003, p. 948) argues, "the ability to flexibly update a conditional upon the arrival of new information is valuable and this value is not accounted for in traditional theories of investment or governance". In the context of pharmaceutical R&D, firms initiate relationships with a limited investment as a kind of "getting to know each other" in preparation for a secondary consecutive stronger commitment with more resources. If one were to incorporate RO into the deal-structuring process, it is anticipated that the predominant considerations would revolve around risk-adjusted payments and returns.

3.5.1.3.4. RO and the deal-structuring outcomes and typology in the pharmaceutical R&D context

The use of RO for deal-structuring outcomes can be directly linked to the use of options agreements as deal structures. Baldi (2020) notes that RO is able to structure deals with milestones and payments in line with the sequential nature of the product innovation process (Baldi, 2020, p. 4). Other than this deal-structuring outcome, no typology based on RO has emerged so far.

RO analysis offers a framework for evaluating a portfolio of potential deals characterized by diverse risk-return profiles. Firms can invest in multiple R&D projects, each presenting different levels of risk and potential return, thereby allowing flexibility in decision-making based on how uncertainty unfolds over time (Leblein, 2003). Several criteria inform the evaluation of risk-return profiles within RO

analysis. RO also systematically accounts for various types of uncertainties, encompassing both market and technological uncertainties. It could acknowledge technological viability in decision-making processes. The analysis is particularly adept at evaluating staged investments, where firms can decide to continue or abandon a project at various phases based on newly acquired information, thus enabling smaller initial investments while increasing commitment as uncertainty diminishes (Leblein, 2003).

3.5.1.3.5. RO limitations in explaining deal-structuring antecedents, process and outcomes

The RO framework has several limitations. RO's main weakness is that it has not been sufficiently investigated, with very limited empirical support in the context of pharmaceutical R&D (Ragozzino, 2016). In parallel, RO scholars have faced significant implementation and organizational challenges that have at times raised questions about the practical applicability of RO in organizations (Ragozzino, 2016). With regard to antecedents, RO provides a unique lens through which to understand the impact of risk-related antecedents in shaping deal structures. However, it pays much less attention to strategic and economic-related antecedents, as well as organizational-related antecedents.

Regarding the deal-structuring process, the RO approach is often seen as one-sided and arbitrary because it assumes that only one party will make the decision on deal structuring, ignoring the importance of bargaining and negotiation between the parties involved (Ragozzino, 2016). In other words, RO lacks the dyadic perspective. In addition, RO is based on the idea of a single investment decision, but in reality, many deals in the pharmaceutical industry involve multiple investment decisions that are interconnected, making it difficult to analyse them from a single investment perspective. With respect to the deal-structuring outcome and typology, apart from the use of options agreements as deal structures, no typology based on RO has emerged so far. These options agreements have not been integrated within other typologies. Therefore, RO alone is not able to capture all existing deal structures. In conclusion, while RO provides a new angle to risk-related antecedents – a flexible and optional deal structure – its limitations also necessitate the inclusion of additional theoretical perspectives for a more comprehensive understanding of deal structures in this context.

In conclusion, RO offers valuable insights into risk-related antecedents and flexible deal structures within pharmaceutical R&D, yet its limited empirical support and organizational challenges raise questions about its practical applicability. While RO sheds light on risk factors, it overlooks strategic, economic and organizational antecedents, lacks a dyadic perspective in deal structuring and fails to

capture the complexity of multi-investment decisions, necessitating complementary theoretical perspectives for a comprehensive understanding of deal structures in this domain.

3.5.1.4. Incomplete Contract Theory (ICT) - definition, explanatory power and limitations

3.5.1.4.1. ICT - definition

Incomplete Contract Theory (ICT) is a branch of contract theory which acknowledges that contractual incompleteness arises from the inherent uncertainty and incompleteness of real-world interactions. Oliver Hart first developed ICT in the 1980s and later expanded it together with Bengt Holmström in the 1990s. This theory argues that, in the R&D context (associated with high uncertainty and high risk), it is impossible to write a complete contract accounting for every possible contingency, leading to incomplete contracts that require parties to negotiate and make decisions over time (Hart, 1988; Holmström, 1999). ICT can be considered a theory at the interface of contract theory and Property Right Theory (PRT). ICT and PRT both address the allocation of control rights and property rights as an important aspect of the deal-structuring process. ICT focuses on the allocation of control rights within the negotiation process and how this can be used to create flexible and adaptive deal structures, while PRT focuses on the allocation of property rights and how these rights are used to manage risk and uncertainty in the deal.

Incomplete contract theory maximizes economic value by acknowledging the impossibility of complete contracts and instead focusing on creating incentives, ownership structures, flexibility, and relational mechanisms that enable firms to adapt to unforeseen circumstances, mitigate opportunistic behavior, and make efficient investments over time (Hart et al., 2017). This approach to value maximization is inherently dynamic and considers both the specific needs of a local exchange and the broader context of the firm's strategic objectives, thereby incorporating elements of both local and global maximization (Sumo et al., 2016).

3.5.1.4.2. ICT and the antecedents to deal structuring in the pharmaceutical R&D context

ICT (Grossman and Hart, 1986) differs from other theories in having ICT-specific antecedents that are much less investigated and less prominent in the literature, and also partly using some existing antecedents. The first ICT-specific antecedent, the asset-ownership antecedent, implies that when a deal structure cannot specify all aspects of asset usage in every contingency, the owner of the asset has

the decision right regarding missing usages. This means residual control rights over that asset and the ability to decide on all usages of that asset are not inconsistent with a prior contract, custom or law (Hart and Moore, 1990; Schepker et al., 2014).

The second ICT-specific antecedent, the deal-respective contribution, implies that residual claimancy should be allocated to the party that makes the most valuable contribution to the deal (Grossman and Hart, 1986; Hart and Moore, 1990). According to Grossman and Hart (1986) and Hart and Moore (1988), control rights will be assigned to the contracting party with the greater marginal ability to impact output. The ideal incentive structure assigns more residual rights of control to the party in the exchange that has the most to gain from the exchange (Hart and Moore, 1990). Additionally, ICT also predicts that deals between firms of more equal size and resources will include more symmetric allocation of control rights, as the risk of opportunistic behavior is lower in these types of relationships (Li & Wang, 2019). On the other hand, in situations in which one firm finances a project by another more specialized firm, control rights should be assigned to the more specialized R&D firm to align incentives (Schepker et al., 2014).

Among the prominent antecedents identified from previously identified theories, certain facets pertaining to assets and organizational antecedents assume significance within the ICT framework. For instance, a party with important human capital is expected to have ownership rights (Grandori and Furlotti, 2018). On the other hand, when both firms have essential human capital, then ownership structure does not matter since neither party's investment will pay off in the absence of agreement with the other. Another implication of ICT is that highly complementary assets should be under common ownership. In other words, when the assets are strictly complementary, some form of integration is better than non-integration. Just as the theory predicts that complementarities – otherwise known as synergies – make integration more likely, so it predicts the opposite – independent assets should be separately owned.

Finally, risk-related antecedents, to some extent, also seem to influence deal structuring, particularly in cases where ICT foresees deal-structure provisions between large pharmaceutical firms and smaller biotech firms. These provisions aim to allow the large firm to maintain substantial control over the R&D process and utilize the resulting intellectual property, serving as a risk-mitigation strategy against opportunistic behaviour by the smaller firm (Bai & Fang, 2018). Large firms typically operate as

principals by providing funding and resources, while smaller firms serve as agents, offering specialized knowledge and innovation (Panico, 2011). Importantly, small firms may be more inclined to invest in collaborations if granted adequate control rights, even if their property rights are limited. Control over the research process can enhance their bargaining position and improve their ability to capture value from these deals.

3.5.1.4.3. ICT and the deal-structuring process in the pharmaceutical R&D context

ICT differs from other theories in its greater contribution to the deal-structuring process and outcome. ICT's description of the deal-structuring process starts with the stage at which firms discuss and negotiate the allocation of control rights. This allocation of control rights is an important aspect of the deal-structuring process in the context of deal structuring in pharmaceutical industry R&D (Chen & Wang, 2017). As a matter of clarification, control rights refer to the contractual rights that a party may possess to monitor and control the actions of another party. Following a dyadic perspective, the deal-structuring effort focuses on defining rights over the resources committed and over the outcome (Grandori and Furlotti, 2018). Therefore, it is important to allocate residual rights of control to the parties in a way that structures their incentives to maximize the economic value of their exchange.

3.5.1.4.4. ICT and deal-structuring outcomes and typology in the pharmaceutical R&D context

ICT supports the use of incomplete contracts to create flexible and adaptive deal structures, especially in an R&D context. This incompleteness of contracts is recognized by scholars as "intentional and rational" especially in the context of sophisticated deal structures (Hwang, 2022). ICT also suggests that in the R&D context, final deal structures often involve a trade-off in the allocation of different control rights (Panico, 2011; Gans et al., 2017). ICT also allows us to take into account the interdependence of multiple contracts and how they evolve over time, making it a more suitable framework for analyzing multiple contracts. These contracts often have different objectives and contingencies and can evolve over time. This is particularly important in the pharmaceutical industry as many deals involve multiple contracts and agreements that are interconnected.

Regarding the deal-structuring outcome typology derived from ICT, Lerner and Merges (1998) categorized control rights into various types, including intellectual property rights, licensing rights,

royalties, research and development rights, distribution rights, collaboration rights and exit rights[1]. Some rights may include monitoring provisions aimed at providing behavioral controls rather than just incentive-based controls (Schepker et al., 2014). It is important to note that the control rights that parties negotiate in a deal may vary depending on the specific circumstances of the deal and the goals and objectives of the parties involved. Moreover, in pharmaceutical industry R&D, the legal aspects of a deal are crucial, and the rights being negotiated may differ from those in other industries. Each allocation of a right represents, to some extent, a point of bargaining between the firms and ultimately a decision to be made. This implies a series and succession of decisions to be made. This emerging ICT-derived typology offers a novel and intriguing perspective, providing a complementary lens for understanding and describing deal structures.

[1] Intellectual property rights, which include patents, trademarks and copyrights, are often negotiated in R&D deals to safeguard the innovations and technologies of companies. Licensing rights encompass the rights to use, manufacture, distribute and sell a product or technology. Royalties, on the other hand, represent payments made to the owner of a patent or other intellectual property in exchange for the right to use it. Research and development rights grant parties the right to conduct R&D activities, including performance metrics, timelines and milestones. Distribution rights allow for the marketing and distribution of a product or technology. Collaboration rights refer to the right to work together on a project or initiative, while exit rights provide parties with the right to terminate an agreement or transfer ownership of intellectual property or technology. Some of the additional control rights that may be negotiated in an R&D deal include, but not limited to, ownership of patents, development rights, clinical trial and distribution rights, marketing and commercialization rights and manufacturing rights.

3.5.1.4.5. ICT limitations in explaining deal-structuring antecedents, process and outcomes

The application of ICT presents some limitations, starting from its limited empirical support because relatively few studies have tested the implications of ICT in the pharmaceutical industry R&D setting. With regard to the antecedents, ICT does not identify the same antecedents in the same way as other theories. In addition, ownership and control in pharmaceutical industry R&D do not always correspond to the level of investment made. Thus, start-ups may still retain significant control and ownership despite not having made the most significant investment (Pisano, 2010). Regarding the deal-structuring process, although ICT does consider a dyadic and temporal perspective, it assumes that parties will engage in renegotiation when unforeseen contingencies arise, but this may not always be possible or desirable in the pharmaceutical industry, where regulatory approvals and timelines can be lengthy and uncertain. With respect to deal-structuring outcomes and typology, it is worth noting that not all rights have been identified yet, and there is a clear need to capture the entire set of rights more comprehensively, based on a practice perspective (Schepker et al., 2014). In conclusion, while ICT has the potential to improve understanding of the deal-structuring process and outcome, it is important to recognize and address the limitations that arise when applying ICT to pharmaceutical industry deal structures. Its limitations necessitate the inclusion of additional theoretical perspectives for a more comprehensive understanding of deal structures in this context. The exploration of control rights in deals reveals several key limitations and areas for further investigation. First, establishing a hierarchical structure among these rights could help the parties involved determine which rights to prioritize during negotiations, thereby improving clarity and effectiveness in deals. Additionally, recognizing potential contradictions among these rights is crucial, as some rights may need to be prioritized over others to ensure successful partnerships. Furthermore, understanding the evolution of these rights over time is essential in assessing their impact on deal structuring. Addressing these aspects would enhance the overall comprehension of the role of control rights in deals within the R&D industry pharmaceutical context.

In conclusion, ICT offers valuable insights into deal structuring within pharmaceutical R&D, yet its limited empirical support and divergence from traditional theories raise questions about its applicability. While ICT acknowledges a dyadic and temporal perspective, the incomplete identification of rights highlights the need for a more comprehensive approach. Thus, while ICT

enhances understanding, its limitations call for complementary theoretical perspectives to fully grasp deal structures in this context.

3.5.2.Minor theories on deal structuring in the pharmaceutical R&D context

Several less explored theories have shown a very interesting level of description and explanation of the phenomenon of interest. These include, by order of interest and explanatory power, Legal theories, Relational Contract theory, Social Theory, Agency Cost Theory and Institutional Theory.

3.5.2.1. Legal theories

Legal theories have their origins in the legal frameworks and principles that guide contractual agreements. While not directly developed as economic theories, they provide the foundational legal boundaries for economic and organizational theories such as TCE, RBV, RO and ICT. These frameworks are instrumental in shaping deal structures as they determine the enforceability and interpretation of contracts. To a certain extent, legal theories explain deal structuring by establishing the legal parameters that govern contractual relationships. They emphasize the formal aspects of deals, including contract formation, terms, interpretation and enforcement, contributing to the establishment of legal rights, obligations and remedies for the parties involved. The merits of legal theories in explaining deal structuring lie in their ability to incorporate a de facto dyadic, iterative and phased perspective on the deal-structuring process. Their weakness in explaining deal structuring is that, in focusing primarily on the legal aspects of deals, they overlook the strategic, economic and technical considerations that also influence the structuring of collaborations in the pharmaceutical industry. In addition, they are more prescriptive in nature, guiding how contracts should be drafted and interpreted, but they may not comprehensively address the complex interplay of antecedents that inform deal structures.

3.5.2.2. Relational Contract Theory

Relational Contract Theory (RCT) traces its origins to MacNeil's work (1973) and emphasizes the role of trust, communication and mutual expectations. While not directly developed from another theory, RCT builds upon the understanding of contracts as ongoing relationships (Grandori & Furlotti, 2018; Schepker et al., 2014). RCT explains deal structuring as a mechanism to align interests, foster trust and manage relationships, particularly through self-enforcement and relational norms. Its strength in

explaining deal structuring is its focus on trust, communication and mutual expectations, offering insights into fostering successful collaborations. Whilst integrating a dyadic perspective, RCT acknowledges the significance of long-term relationships and the role of self-enforcement in deal structures. Its weaknesses in explaining deal structuring include assumptions of long-term relationships that may not align with short-term deals, and potential conflicts arising from varying interpretations of contract terms. RCT's exclusive emphasis on trust and communication may downplay other crucial factors like strategy, economics and technology. Moreover, it is unlikely that self-enforceability is feasible when innovative activities are involved, and companies rarely embark on projects entailing risks of this sort purely on the basis of trust, especially if the stakes are high (Grandori & Furlotti, 2018; Schepker et al., 2014).

3.5.2.3. Social Theory

Social Theory has its origins in seminal works by Gulati (1995) and Chung et al. (2000), building upon prior research by Gulati (1993), Kogut et al. (1992) and Shan (1992). It focuses on how social antecedents influence deal structures and highlights the cooperative element in relationships. Social Theory would explain deal structuring as the outcome of evolving social and technical interactions within the pharmaceutical industry. Its strengths in explaining deal structuring are its recognition of the impact of social norms on behavior, shedding light on the role of trust and collaboration. Social Theory contributes to our understanding of partnerships and the influence of social antecedents on deal structures. Its weaknesses in explaining deal structuring are its limited focus on organizational decision-making complexities, overlooking the interplay between strategic, economic and technological antecedents. It may not adequately address micro-level dynamics, technical and scientific aspects, and the internal antecedents shaping deal structures. Additionally, it may not comprehensively address the dynamic and multifaceted nature of deal-making within the pharmaceutical context.

3.5.2.4. Agency Cost Theory

Agency Cost Theory finds its origins in the seminal work of Jensen & Meckling (1976) and examines conflicts of interest between principals and agents. It explains deal structuring as a means of aligning interests, mitigating risks and managing the agency problems inherent in pharmaceutical R&D collaborations. Its strengths in explaining deal structuring include its focus on contractual mechanisms to manage agency conflicts and offering insights into designing contracts that incentivize collaboration

and risk management. For instance, contractual provisions such as milestone payments and royalty sharing can be used to incentivize agents (e.g., inventors or scientists) to work diligently and efficiently towards the development of successful drugs, while also protecting principals' investments in the case of failure (Rosenberg & Feldman, 2008). Its weaknesses in explaining deal structuring are its assumptions of rationality and self-interest, which may not fully capture the diverse goals and beliefs within the pharmaceutical industry (Gulati & Singh, 1998). In addition, Agency Cost Theory focuses on contractual solutions to agency problems, but in reality, many important aspects of R&D collaborations, such as knowledge sharing, learning and innovation, cannot be easily contracted and may require more relational and trust-based approaches (Grandori & Furnari, 2018). Lastly, Agency Cost Theory may not address the multifaceted aspects of R&D collaborations, knowledge sharing and innovation, limiting its explanatory scope (Kumar & Nti, 1998).

3.5.2.5. Institutional Theory

Institutional Theory originates from Scott's (2001) work and provides insights into the influence of collective beliefs, norms and regulations on deal structures. It would explain deal structuring as a response to normative pressures, environmental dynamics and technology intensity within the pharmaceutical industry (Van de Vrande et al., 2009). Its strengths in elucidating deal structuring are its focus on institutional pressures and regulatory influences (which are quite strong in the pharmaceutical R&D context), explaining the prevalence of specific deal types. In addition, Institutional Theory recognizes the impact of external antecedents on deal structures, including regulatory changes and policy shifts. Its weaknesses in explaining deal structuring are its limited consideration of internal antecedents and lack of empirical support within the pharmaceutical R&D context, specifically. Furthermore, IT has traditionally been criticized for being overly deterministic and not providing a satisfactory explanation for why organizations deviate from institutional norms (DiMaggio and Powell, 1983). Lastly, IT is not always suited to explaining the intricacies of the R&D process, the specificities of deal structures, and the decision-making process leading to deal structures.

3.5.3. Comparative analysis of major theoretical contributions

This section undertakes a comparative analysis of the major theories' (TCE, RBV, RO and ICT) contributions to the understanding and explanation of the deal-structuring antecedents, processes and outcome/typologies.

3.5.3.1. Comparative theoretical contributions to the antecedents

Each of the four theories offer valuable and complementary insights into the antecedents of deal structuring within the pharmaceutical R&D context. The TCE narrative emphasizes asset-related antecedents, economic-related antecedents and risk-related antecedents. However, its narrow focus on these antecedents sidelines the strategic and value-related antecedents. RBV adds layers to the story, highlighting strategic-related antecedents and organizational antecedents as pivotal. The notion of exchange of strategic resources and/or capabilities as an antecedent to the deal structure is stronger in RBV than in any other theory, yet the RBV narrative overlooks economic-related antecedents and underplays the significance of risk-related antecedents. RO Theory introduces a new angle to risk-related antecedents, but it encounters challenges in finding empirical support. ICT highlights asset ownership, deal contributions and control rights as crucial antecedents. However, these antecedents are so specific that they have not been sufficiently assessed, and ICT does not identify the same antecedents in the same way as other theories. Lastly, social-related antecedents – trust and negotiation power – offer intriguing avenues for further exploration in the diverse landscape of deal structuring.

Disregarding a number of antecedents due to theoretical gaps within a specific research framework represents a notable limitation. Recognizing the inherent tension and complementarity between these antecedents is crucial. Thus, adopting a multi-theoretical approach that synthesizes antecedents supported by each theory is relevant for a comprehensive understanding of deal structuring in this context. This direction is supported by previous research, particularly in the initial comparison between TCE and RBV, where empirical studies reveal inconsistent results in assessing their efficacy as theoretical frameworks (Kim, 2017, p. 356). Contrary to being comparative, TCE and RBV demonstrate complementarity (Silverman, 1998) (Kim, 2017, p. 356).

The following section will elucidate how these theories complementarily contribute to our understanding of the deal-structuring process in the pharmaceutical R&D context.

3.5.3.2. Comparative theoretical contributions to the deal-structuring process

An examination of TCE contributions regarding the deal-structuring process in the pharmaceutical R&D context reveals that TCE's description is limited, treating deals as static one-off events without a temporal perspective. TCE neglects, not only the temporal, but also the dyadic aspects, assuming overly predatory, opportunistic and protective behaviors. This win-lose perspective inhibits TCE from fully incorporating the cooperative, win-win attitude which is crucial in the collaborative landscape of pharmaceutical R&D (Remneland-Wikhamn et al., 2012; Grandori and Furlotti, 2018; Martínez-Noya and Narula, 2018). RBV, despite providing valuable insights into strategic and organizational antecedents to deal structuring, falls short in detailing the operational intricacies of the deal-structuring process. RBV also fails to consider the temporal aspect of the deal-structuring process.

RO introduces a dynamic and temporal component to the deal-structuring process by viewing deal-structuring decisions as options that are exercisable later. This dynamic perspective allows for flexibility in response to changes in the transaction environment, especially valuable in the evolving landscape of pharmaceutical R&D. However, RO is critiqued for its one-sided and arbitrary decision-making assumption, lacking a dyadic perspective and struggling to analyse complex, interconnected multiple deal-structuring decisions in the pharmaceutical industry.

ICT seems to stand out in its contribution to the deal-structuring process by highlighting the importance of negotiating the allocation of control rights. This dyadic and phased viewpoint centres on various decisions related to the allocation of control rights. However, ICT is much less investigated and empirically supported than the other theories.

Lastly, Legal Theory, although a minor theory, encompasses a very interesting deal-structuring process framework based on dyadic, iterative and phased perspective.

Considering these individual perspectives, a nuanced understanding emerges, highlighting the need for a complementary multi-theoretical approach. Each theory brings valuable insights, but their limitations highlight the importance of synthesizing and connecting these perspectives for a more comprehensive understanding of the deal-structuring process in pharmaceutical R&D. TCE and RBV for the most part assume that deals are one-off decisions and do not take into account the iterative nature of deal structuring, whereby the parties involved may renegotiate the terms of the deal multiple

times during the project's lifecycle (De Man et al., 2005). The temporal, dyadic multi-decision perspective can be better captured through a collaborative application of TCE, RBV, RO and ICT, offering a more holistic approach to navigating the complexities of the deal-structuring process. The following section will elucidate how these theories complementarily contribute to our understanding of the deal-structuring outcome and typology in the pharmaceutical R&D context.

3.5.3.3. Comparative theoretical contributions to the deal-structuring outcome and typology

Each theory has a different approach to describing deal-structuring outcomes. Their ability to support a typology of different deals varies. In delineating deal-structuring outcomes and typologies, TCE classifies them into hierarchical, market or hybrid governance based on the degree of integration/ownership degrees, centralization and delegation of decision-making authority. This typology is established and recognized in the industry. However, this binary approach oversimplifies the nuanced reality of deal structures, particularly in the pharmaceutical R&D context, necessitating further exploration of a broader spectrum of deal structures (Hwang, 2022). Moreover, TCE's typology lacks consideration for multifaceted deal structures.

RBV, akin to TCE, primarily focuses on the alliance-acquisition dichotomy, failing to establish a nuanced typology for deal structures. It excels in elucidating formal, hierarchical deals but falls short in capturing the diversity of non-equity deals prevalent in the pharmaceutical industry, such as research collaborations and equity investments without acquisitions. A comprehensive understanding of deal structures needs to be extended beyond RBV's binary framework (Hoffman, 2001).

RO's application to deal-structuring outcomes aligns with the use of options agreements, offering a sequential approach to product-innovation processes. However, RO lacks a developed typology beyond this specific outcome, underscoring its limitation in capturing the full spectrum of existing deal structures.

In contrast, ICT may be the best at addressing multiple contracts in the context of the pharmaceutical industry. ICT-derived typologies, exemplified by Lerner and Merges (1998), explore diverse control rights, including intellectual property, licensing, royalties and collaboration rights. The comprehensive analysis of rights is an ongoing process, requiring continued exploration to capture the entirety of deal structures (Schepker et al., 2014). This emerging ICT-derived typology could provide a valuable lens,

complementing other theories and offering a more granular perspective on deal structures in the pharmaceutical industry.

In conclusion, while TCE and ICT offer a good grounding for typologies, RO has a limited impact and RBV seems to be more concerned with the antecedents that influence deal structuring. As such, a multi-theoretical approach integrating insights from TCE, RO and ICT, would allow a holistic definition and typology of deal-structuring outcomes in pharmaceutical R&D.

3.5.3.4. Comparative theoretical contributions – summary and conclusions

Each of the theories (TCE, RO, RBV and ICT) has strengths and weaknesses, and each provides a unique perspective on deal structures in pharmaceutical industry R&D (Table 3-1), with TCE emphasizing transactional efficiency, RBV highlighting strategic and organizational antecedents, RO introducing a dynamic and option-based approach, and ICT emphasizing control rights allocation. RBV and RO do not provide specific typologies for deal-structuring outcomes, in contrast to TCE, which offers a relatively established but simplistic typology. However, there is potential for further investigation and development of an ICT-derived typology to complement TCE's existing framework. A comprehensive understanding of deal structuring might require a multi-theoretical approach that develops and synthesizes insights from TCE, RBV, RO and ICT, offering a more holistic perspective across antecedents, process and outcomes.

Theory	Level of empirical investigation	Key antecedents	Process perspective	Outcome/typology perspective
TCE	Widely investigated	Asset-related Economic	Static and one-sided	TCE-derived, integration-based typology Dichotomy: alliance vs acquisition
RBV	Some empirical investigation	Strategic Organizational	Static and one-sided	No RBV-derived typology Use of dichotomy: alliance vs acquisition
RO	Poor empirical investigation	Risk/uncertainty	Temporal and one-sided	Inclusion of option-based deal outcome No RO-derived typology
ICT	Poor empirical investigation	Ownership, deal contribution	Temporal, multi decision & dyadic	ICT-derived typology based on control rights allocation

Table 3-1 Comparative theoretical contributions to the deal-structuring antecedents, process and outcome
(TCE = Transaction Cost Economics, RBV = Resource Based View, RO = Real Options, ICT = Incomplete Contract Theory)

3.6. Detailed review of key research publications

This review synthesizes key contributions from publications specifically selected to address this topic, emphasizing their theoretical foundations, methodological approaches, limitations and implications for future research. The papers were chosen based on their relevance to the topic and their significance within this field of research, ensuring that the analysis captures a comprehensive perspective on the subject matter. By focusing on these pivotal works, the review aims to contribute to the ongoing conversation in the field while identifying areas that warrant further investigation.

3.6.1. Key research publications (in chronological order)

Published in the International Journal of Production Economics, a study by Lo Nigro, Perrone and Chiapparrone (2012), addresses the limited guidance provided by the extant literature on designing collaborations to govern knowledge flows. The authors investigate how interorganizational collaborations can be structured to support productive knowledge sharing, identifying factors that affect knowledge sharing and the mechanisms governing it. Using a deductive, quantitative approach, they analyze 48 case studies from various sources, employing multiple ordinal regression. The research integrates TCE, RBV and Relational theory, offering insights into governance form choices in alliances, joint ventures, and mergers and acquisitions. The study concludes that steering committees promote knowledge sharing when partners have overlapping knowledge bases and valuable knowledge, but limit sharing when these conditions are absent.

In their 2013 study published in Technology Analysis & Strategic Management, Billitteri, Lo Nigro and Perrone (2013) address the lack of empirical studies integrating findings from different theoretical approaches. They explore factors affecting governance mode choices in inter-firm relationships (IFRs) within the Italian biopharmaceutical industry. Their research highlights the importance of integrating multiple theoretical perspectives to avoid misleading findings. Using an empirical survey and deductive, quantitative methods, they developed a framework combining TCE, PRT, RO and RBV. The study found that the development stage of the product/technology, previous relations between partners, and the number of products commercialized by the biotech firm significantly influence governance decisions.

Another 2013 study by the same authors, published in International Business Review, examines how relational and performance risks influence the choice of governance forms in biopharmaceutical IFRs. Using a deductive, quantitative approach, they analyze secondary data from the BioWorld Industry Snapshot database. Their study operationalizes a framework combining TCE and RO theory, revealing a paradox where hierarchical governance forms are suggested by risk constructs, but stronger partners may opt for less hierarchical forms due to greater bargaining power. This research contributes to the literature by linking risk constructs to governance choices and highlighting the role of bargaining power in shaping governance decisions.

Kim's 2014 study, published in Industrial & Corporate Change, investigates the principal drivers defining governance forms in relationships between pharmaceutical and biotechnology companies. Using a deductive, quantitative approach, the author analyzes secondary data from the Recombinant Capital (rDNA) database. The study identifies drivers related to inter-firm relationship characteristics, biotech company resources, industry context, and relational factors. It concludes that repeated deals (informal governance) and formal governance mechanisms interact in shaping alliance structures. The research is grounded in TCE, emphasizing the role of transaction-specific investments and absorptive capacity in governance decisions.

Published in Manufacturing & Service Operations Management, Taneri and De Meyer's (2017) study explores how contract theory considerations impact the structure and performance of biopharmaceutical alliances. Using a deductive, quantitative approach, the authors analyze secondary data from the Reuters Recap Database. They find that alliance structure is driven by contract theory considerations, and that ignoring these can harm performance and lead to alliance termination. Their study highlights the importance of contract characteristics such as deal size, exclusivity and territorial scope in shaping alliance outcomes. The research contributes to the literature by empirically linking contract theory to alliance performance.

Published in the British Journal of Management, Choi and Contractor's (2017) study challenges the traditional dichotomy of non-equity versus equity alliances, proposing a spectrum-based view of alliance governance. Using a deductive, quantitative approach, the authors analyze secondary data from the Current Agreements Database and 10-K/10-Q reports. They find that moderate levels of interaction and coordination enhance R&D project performance, suggesting an inverted-U-shaped

relationship. The study integrates TCE, emphasizing the importance of balancing interaction and coordination costs in alliance governance.

In their 2018 study published in Strategic Management Journal, Devarakonda and Reuer examine the role of steering committees in knowledge sharing and safeguarding in biotechnology alliances. Using a deductive, quantitative approach, they analyze secondary data from the Recap and SDC databases. Their study found that steering committees facilitate knowledge transfer when there is technology overlap, and the partner's knowledge is valuable. The research integrates the Knowledge-Based View (KBV) and TCE, offering insights into the governance mechanisms that enhance knowledge sharing in non-equity R&D alliances.

Published in the Journal of Accounting, Business and Management, a study by Han and Liu (2018) addresses the gap in research on the impact of strategic and organizational fit on alliance and acquisition performance. Using a deductive, qualitative approach, the authors developed a theoretical framework integrating KBV, TCE and RO theory. They conclude that both strategic and organizational fit significantly affect the performance of alliances and acquisitions. Their study provides a nuanced understanding of how fit and governance influence transaction outcomes in knowledge-intensive industries.

In their 2018 paper published in Annals of Operations Research, Yoon, James, and Lambrecht (2018) developed a mathematical model to analyze optimal partnership agreements in the biopharmaceutical sector under uncertainty. Using a deductive, quantitative approach, they derive closed-form solutions for licensing contract terms and valuations. The study demonstrates the potential gains achievable through optimal partnership agreements when uncertainty is considered. Their research contributes to the literature by applying real options theory to partnership agreements in the biopharmaceutical industry.

In her 2020 study published in Organization Studies, Vedel introduces a contractual dynamics approach to interorganizational collaborations in the pharmaceutical industry. Using an inductive/abductive, mixed-methods approach, she conducts a longitudinal single-case study of an eight-year collaboration involving a pharma company, biotech firm, foundation and university. The study highlights how contractual dynamics evolve to balance conflicting goals and achieve strategic

outcomes. Her research contributes to the literature by emphasizing the role of organizational, relational and contextual factors in value creation.

Published in R&D Management, Filiou's (2021) study explores the alliance strategies of large pharmaceutical companies (LPCs) in biotechnology. Using an inductive, qualitative approach, the author analyzes secondary data from the UK Biotechnology Directory and ReCap database. The author argues that both transaction cost and learning with flexibility considerations are important for understanding R&D alliance formation between LPCs and new biotechnology firms (NBFs). The research integrates open innovation, dynamic capabilities and RBV, offering propositions for future research.

In their 2021 study published in the Journal of Business Research, Jambulingam and Saxton (2021) examine the effectiveness of formal and informal governance mechanisms in biotech alliances. Using a deductive, quantitative approach, they conducted a two-stage survey of 66 transactions in the pharmaceutical industry. Their study found that the relationship between repeated deals and formal governance mechanisms is contingent on the degree of co-specialization between partners. Their research integrates RBV and TCE, providing insights into the interplay of strategic fit, organizational fit and transaction structure in alliance performance.

3.6.2. Overall critical review

A predominant reliance on quantitative and deductive methodologies, accounting for approximately 85% of the reviewed studies, underscores a methodological imbalance. While these approaches offer valuable insights into patterns, correlations and generalizable findings, they often lack the depth and contextual richness necessary to fully capture the complexities of deal structuring. Quantitative studies typically rely on secondary data sources, such as industry databases (e.g., Recap, BioWorld, SDC), which may not adequately reflect the nuanced dynamics of the deal-structuring process. This overreliance on deductive reasoning further limits the exploration of emergent phenomena, as studies often prioritize testing pre-existing theories rather than generating novel insights from empirical observations. Consequently, the field risks perpetuating a static and fragmented understanding of deal structuring, which fails to account for the dynamic and iterative nature of such deals.

Compounding this issue is the scarcity of qualitative and interview-based studies, which constitute only around 15% and 10% of these papers, respectively. Qualitative approaches, particularly those involving interviews, are essential for uncovering the "how" and "why" behind deal-structuring decisions, considerations and outcomes. For instance, Vedel's (2020) longitudinal case study stands out as one of the few exceptions that explore the processual aspects of contractual dynamics in multi-party collaborations. The limited adoption of qualitative methods restricts the field's ability to explore decision-making mechanisms and the dynamics that shape deal structures. This gap is particularly problematic given the inherently complex and context-dependent nature of such deals, which often require in-depth, context-sensitive analysis to fully understand.

Furthermore, the dominance of variance-based perspectives, employed in approximately 90% of the studies, highlights another significant limitation. Variance-based approaches focus on identifying relationships between independent and dependent variables, which, while useful for hypothesis testing and establishing causal relationships, often overlook the processual and temporal dimensions of alliance governance. Only a handful of studies, such as Vedel (2020) and Kilubi and Haasis (2016), adopt a process-based perspective, which is critical for understanding how governance mechanisms evolve over time and adapt to changing circumstances. The lack of process-based research limits the field's ability to capture the dynamic and iterative nature of the deal-structuring process, constraining its theoretical and practical relevance.

Theoretical integration, while present in several studies, remains limited in scope and depth. Although approximately 60% of the reviewed studies integrate two or three theoretical perspectives—most commonly TCE and RBV — only one study (Billitteri, Lo Nigro and Perrone, 2013) combines four theoretical lenses: TCE, RBV, ICT and RO. This lack of multi-theoretical integration, particularly in conjunction with no process-based perspectives, represents a significant gap in the literature. Understanding when and how different theories apply at various stages of the deal-structuring process would be beneficial for developing a more holistic understanding of deal-structuring process and outcome. For example, TCE might be more relevant during the initial stages of the deal-structuring process to address transaction costs, while RO could be more applicable during the execution and adaptation phases. Future research should aim to integrate multiple theoretical perspectives with process-based approaches to provide a more context-sensitive understanding of deal-structuring process.

Another notable limitation is the lack of new typologies and theoretical extensions. With the exception of Choi and Contractor's (2019) work, which extends TCE by proposing a spectrum-based view of alliance governance, the field has seen limited development of new typologies or theoretical frameworks. This limits the ability to consider multi-agreement deals or optional deals. Developing new typologies and theoretical extensions is essential for advancing the field and providing actionable insights for practitioners navigating these complexities.

Additionally, the limited focus on deal-structuring processes and decision gates represents a significant gap in the literature. Only around 10% of the reviewed studies explicitly examine the deal-structuring process and the decision gates involved in alliance formation and governance. For instance, Hwang (2022) provides valuable insights into the internal negotiations and bureaucratic processes that shape contract design, but such studies are rare. Understanding the decision gates is of high importance for developing practical frameworks that guide managers in structuring deals effectively.

To address these limitations, future research should prioritize several key directions. First, greater use of qualitative and process-based methods, such as longitudinal case studies and interviews, is essential for capturing the dynamic and iterative nature of alliance governance. These methods can provide deeper insights into the micro-level processes and decision-making mechanisms that shape alliance outcomes. Future research should explicitly examine the deal-structuring process and the decision gates and considerations involved in the deal-structuring process. Second, integrating multiple theoretical lenses with process-based perspectives will enable researchers to understand when and how different theories apply at various stages of the deal-structuring journey. Third, the development of new typologies and theoretical extensions is necessary to address emerging challenges and provide more nuanced and context-specific frameworks.

3.7. Comprehensive assessment of research limitations and gaps

The literature surrounding deal structuring in the pharmaceutical R&D context reveals significant gaps that warrant attention in order to advance this field of study at the deal-structuring methodological level, antecedent level, process level, outcome level and theoretical level, all of which are interconnected.

3.7.1.Methodological gaps in the analysis of deal structuring in the pharma R&D context

To address the above limitations, significant new contributions could result from understanding, summarizing and synthesizing empirical findings, following Oxley et al. (2010), who advocate for rigorous work that decouples theoretical and empirical contributions.

3.7.1.1. Gaps resulting from the dominance of deductive quantitative methodology

Current research in the realm of deal structuring, particularly within the pharmaceutical R&D context, is dominated by deductive, quantitative approaches. While these methods offer valuable statistical insights and facilitate hypothesis testing, they inherently possess several limitations that restrict their ability to capture the complexity of such deals in this context. Firstly, a lack of contextual richness is a significant drawback of deductive quantitative research. This methodology typically emphasizes predefined variables and set frameworks, limiting the capacity to explore the intricate dynamics of negotiations and decision-making processes that unfold in real-world contexts. Most of the research is quantitative and hypothesis-driven, with scholars trying to test deterministic theoretical models from TCE, RBV and RO (strong positivist approach).

> *"Survey research tends to be the primary data collection method (42%). Surveys have particularly been dominant in studies....The use of case study methodologies is more limited (15%)" (Roehrich et al., 2020).*

Secondly, over-reliance on pre-existing theories in deductive approaches limits the exploration of emerging themes. Researchers frequently assume theoretical frameworks onto their data, leading to findings that may confirm existing hypotheses but fail to uncover new dimensions of the phenomenon. In such a strategic and complex context, this pre-determined theoretical orientation can create a fragmented understanding, overlooking the diverse influences that may be at play. Embracing a more theoretically agnostic, qualitative approach (to start with) can encourage researchers to remain open to new insights and perspectives that might challenge established paradigms. Moreover, the static nature of quantitative research presents a critical limitation in understanding the dynamic and iterative processes inherent to deal structuring.

Lastly, qualitative engagement with practitioners is often minimal in quantitative frameworks, resulting in a disconnect between academic findings and real-world application. Quantitative studies lack direct interaction with industry professionals, leading to conclusions that may not resonate with or be

relevant to practitioners in the field. Field-based qualitative methods (especially interview-based) could reveal the nuanced human experiences, motivations and interactions that drive the deal-structuring process. By integrating field-based qualitative research that collates insights from both sides of the negotiation table, researchers can ensure that their findings are grounded in practical realities. A qualitative approach that emphasizes in-depth case studies would allow for a more targeted exploration of deal-structuring dynamics.

3.7.1.2. Gaps resulting from the dominance of a variance-based view

As highlighted in the review of key literature, studies on deal structuring within the R&D context predominantly utilize variance-based approaches. Variance-based research seeks to establish causal relationships between independent (antecedents) and dependent (outcomes) variables, often treating time as a uniform and linear dimension external to the phenomena being studied. While suitable for quantitative methods, this perspective struggles to accommodate the dynamic and iterative nature of processes, failing to account for the complex, multi-stage negotiations and successive decisions that shape deals over time.

Variance-based methodologies typically provide static snapshots of relationships, inadequately capturing the evolving interactions and temporal flows essential to effective deal-making. By abstracting away temporal dynamics, these strategies cannot fully illuminate the causal mechanisms driving negotiations. They often overlook the intricate phases of deal structuring, missing the nuanced decision-making processes that unfold during negotiations. This narrow perspective limits the guidance available to practitioners navigating the complexities of inter-firm negotiations and may fail to identify critical insights regarding when and why specific decision gates are activated—pivotal moments that can significantly influence the trajectory of a deal.

To enhance understanding of the deal-structuring process and its implications for deal outcomes, further research is needed. One way could be a methodological shift towards a process-based approach, able to scrutinize the dynamic interplay between processes, practices and actors as emergent phenomena shaped by ongoing activities. The distinction between variance-based and process-based approaches establishes a critical framework for understanding the limitations of the former. As Elsahn et al. (2020) note, "variance approaches aim to identify antecedents and consequences of certain phenomena, while process approaches develop explanations of why and how events unfold over time"

(Mohr, 1982; Van de Ven and Poole, 2005). By emphasizing the centrality of time, process approaches contribute uniquely to organizational and management research, bridging gaps left by variance-based methodologies. A process view provides insights into the temporal dynamics of organizational life, unveiling the interconnectedness of decisions and events, and their evolution over time (Langley et al., 2013, p. 4). Langley et al. (2013) emphasize that process studies address "questions about how and why things emerge, develop, grow, or terminate over time, as distinct from variance questions dealing with covariation among dependent and independent variables". This methodological emphasis enables a closer empirical focus on evolving phenomena, ensuring that theoretical frameworks explicitly incorporate temporal progressions as central to explanation and understanding.

In summary, process-based approaches present a compelling pathway to address the deficiencies of variance-based methodologies. Rather than isolating factors, these approaches explore how deals emerge, evolve and are shaped through ongoing interactions. This will be further explained in the Methodology chapter (section 5.1.3).

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3.7.1.3. Gaps resulting from a one-sided perspective

Extant research often fails to collect empirical data and insights from both sides of the deal. Much of the existing research tends to focus on the perspective of one side—usually the organization being studied or the dominant buying party in the negotiation. This imbalance not only limits the depth of insights but also propagates a skewed understanding of how deals are structured and finalized. This is a significant shortcoming, as the complexities of inter-firm relationships can only be fully appreciated through the lens of both parties involved in the negotiation process.

On the other hand, some researchers have begun to illuminate the significance of a dyadic perspective; however, it remains underemphasized within the broader literature. For instance, Taneri and De Meyer

(2017) note that the ultimate deal structure emerges through negotiation, with each firm weighing up trade-offs to reach an optimal, mutually agreed-upon arrangement. Similarly, Billitteri, Lo Nigro and Perrone (2013b) stress that firms often possess conflicting goals when selecting governance modes, with the relative bargaining power of each firm significantly influencing the final deal structure. Each party aims to secure an outcome that aligns with its own interests, highlighting the necessity for a holistic examination of both organizations involved.

From a methodological standpoint, it would be beneficial to garner data and insights from both sides of the deal, explicitly following a dyadic perspective. Addressing this methodological gap is crucial for several reasons. Firstly, it enables the identification of antecedents and considerations that may not be apparent from a one-sided investigation. Understanding how each party perceives its interests—and how those perceptions influence the negotiation process—is vital for comprehensively assessing the intricacies of deal structuring. Secondly, collecting insights from both sides allows us to uncover areas of potential alignment and misalignment, which is essential for understanding the factors that contribute to deal outcomes. This dual perspective can illuminate the compromises made during negotiation, providing clarity on how parties navigate their conflicts to arrive at a mutually acceptable arrangement. Moreover, incorporating diverse viewpoints fosters a richer empirical understanding of the iterative nature of deal negotiations. As negotiations progress, both parties may adjust their strategies based on feedback and new information. Capturing this dynamism through a dyadic lens enables us to map the evolution of the negotiation process more accurately.

A field-based qualitative methodology could create such a shift towards a dyadic perspective. Engaging directly with practitioners from both sides of the negotiation process would allow researchers to gather rich, contextual insights that reflect the realities of deal structuring. This dual perspective would enhance the understanding of how each organization navigates its own goals, resources and risk perceptions during collaboration. By exploring the experiences and viewpoints of individuals involved, one can capture the nuanced interplay of influences that shape deal structuring.

In summary, by shifting from a one-sided perspective towards a dyadic, from both a conceptual and methodological perspective, researchers could better capture the dynamics of negotiation, compromise and mutual benefit that underpin effective collaborations.

3.7.2.Gaps in the analysis of deal structuring antecedents in the pharma R&D context

The examination of prominent antecedents influencing deal structuring has consistently highlighted their multifaceted nature. These antecedents encompass a broad spectrum of factors that shape the dynamics of inter-firm relationships. However, a significant limitation arises from their isolated investigation within distinct theoretical frameworks, which restricts the ability to understand their collective impact on the deal-structuring process. As Wang (2007) suggests, there is a pressing need for a more comprehensive, theory-agnostic assessment that transcends traditional boundaries of inquiry.

Investigating these antecedents empirically on an agnostic basis offers numerous advantages. A holistic approach acknowledges that the complexities of deal structuring in the pharmaceutical R&D context cannot be fully understood through the lens of any single theoretical perspective. Each framework may capture unique aspects of the relationships between antecedents, yet they fall short of providing a complete picture. By adopting an agnostic stance, researchers can draw from various theories and methodologies, integrating insights to form a more unified understanding of how these antecedents collectively influence deal structures.

Moreover, field-based investigations that directly interrogate the perspectives of individuals involved in such deals are essential to gaining nuanced insights. This approach has been significantly lacking in the literature to date. Engaging directly with practitioners allows researchers to uncover the real-world implications of identified antecedents, shedding light on how they manifest in practice. It enables the capture of rich, qualitative data that reflects the complexities of human interactions, negotiation styles and decision-making processes inherent in collaborative R&D environments. This field-based approach also facilitates the exploration of context-specific factors that may influence deal structuring. Understanding these contextual elements is crucial, as they often shape how antecedents are perceived and acted upon by the firms involved.

In conclusion, addressing the limitations of prior research encourages a commitment to a holistic, theory-agnostic, empirical investigation of antecedents in deal structuring.

3.7.3.Gaps in the analysis of the deal-structuring process in the pharma R&D context

The existing literature on deal structuring in the pharmaceutical R&D context reveals several critical gaps that hinder a comprehensive understanding of the processes involved. Firstly, there is a limited research focus on the process of deal structuring itself, leading to a lack of clarity on how firms undertake this crucial process. However, limited attention has been given to the dynamic and evolving nature of R&D collaborations, highlighting a significant research gap (Hwang, 2022).

Another significant limitation is the focus on the one decision around choice of governance, which often overshadows the preceding and subsequent decision points that substantially impact the evolution and outcomes of such deals. While various scholars discuss factors affecting partner selection and governance structures (Choi and Contractor, 2016, 2019), most do not provide detailed explanations of the step-by-step processes involved. The absence of a cohesive framework that integrates successive decision points presents a challenge. This is particularly evident in the assumption that deals are singular decisions, which disregards the multiple successive choices required to effectively structure a deal. Although Reuer et al. (2016) have made strides toward framing deal structuring as a decision-making process—proposing nested decision levels—this remains constrained by overly simplistic binary classifications of deal structures. Moreover, the tendency to regard deal structures as static, one-off events overlooks the dynamic nature of deal structuring, particularly in the pharmaceutical sector. As highlighted by Choi (2020), a more temporal perspective is needed to account for the multiple stages involved and the interdependence between these stages. In addition to that, the multi-stage contracting perspective has received insufficient attention, with the exception of the legal related literature which highlights the importance of such a perspective for structuring deals, as many agreements cannot be completed in a single phase (Hwang and Jennejohn, 2019). This multi-stage perspective emphasizes the need for flexibility and modularity in the early stages of deal processes, while negotiation scholars advocate viewing negotiations as multiphase processes with opportunities for recursion (Jang et al., 2018).

Another significant gap in the analysis of the deal-structuring process is the limited attention given to investigating deal-structuring considerations, defined as specific elements that parties negotiate to align their interests, mitigate risks and achieve strategic objectives. Direct research addressing these considerations in the pharmaceutical R&D context remains scarce. Additionally, current frameworks

may not capture the full complexity of deal structuring, particularly concerning the allocation of control rights and safeguards, which warrant further investigation. Most studies lack a unified theoretical framework, suggesting that integrating multiple theoretical perspectives could yield new insights into governance mechanisms. This might be also related to another gap in the limited exploration of the bargaining and negotiation processes associated with each stage of deal structuring. Extant research falls short of providing in-depth insights into these critical negotiation dynamics, and a lack of empirical investigations into the complexities of decision-making processes persists, with many studies focusing predominantly on ex-ante antecedents or final outcomes.

Overall, given the critical gaps identified in the existing literature on the deal-structuring process within the pharmaceutical R&D context, research aimed at addressing these deficiencies is essential. This research should focus on developing a cohesive framework that integrates the multiple successive decision points involved in deal structuring, thereby illuminating the dynamic nature of deals and recognizing that each deal might involve a series of interdependent choices. Furthermore, adopting a multi-stage contracting perspective would align more coherently with the reality that such deals in the pharmaceutical R&D context may not be concluded in a single step. Investigating the implications of a flexible and modular approach to structuring deals is crucial, as is a deeper exploration of the negotiation dynamics that encompass each stage of the process. Additionally, direct investigations into deal-structuring considerations would provide valuable insights.

3.7.4. Gaps in the analysis of deal-structuring outcomes and typologies in the pharma R&D context

At the deal-structuring outcome and typology level, the study of governance and contract has been a prominent area of research in the field of strategic management for several decades. However, scholars have recognized the limitations of using governance and contract as the sole units of analysis. This review suggests that the focus should shift towards using the deal as a more comprehensive unit of analysis. This unit of analysis could help to better integrate governance and contract and their interplay.

At the typology level, it is noteworthy that the TCE-based typology continues to be the most prevalent and well-established framework for the categorization of deal structures despite its inherent limitations. While it initially appears adequate, this typology relies heavily on a binary framework that classifies deals as either alliances or acquisitions, or as equity versus non-equity agreements. The definitions and typologies surrounding deal-structuring outcomes further illustrate the insufficiencies within the

current literature. Predominantly categorized as governance mechanisms or contractual agreements, these definitions risk oversimplifying the complex realities of deal-making. The reliance on binary typologies—such as alliances versus acquisitions—requires further scrutiny to encompass the diverse range of deal types, especially as flexible agreements gain prominence in contemporary practice. Notably, Reuer and Arino (2007) have already concluded that contractual complexity should not be simplistically linked to the equity status of alliances.

Moreover, this typology does not accommodate the growing prevalence of flexible or reversible deal structures such as option agreements (supported by RO theory), which are increasingly becoming established in the landscape of deal structures in pharmaceutical R&D (Papp, 2010; Osborne, 2010). This oversight may hinder researchers' ability to fully capture adaptable deal structures designed to respond to evolving circumstances and market conditions.

Additionally, the TCE-based typology places a primary emphasis on minimizing transaction costs and mitigating risks. While these objectives are undoubtedly important, such a restrictive focus overlooks the potential for deals to generate synergy effects (supported by RBV theory) or to allocate rights and obligations in specific ways (supported by ICT). As Martínez-Noya and Narula (2018) suggest, "literature should move from analyzing broad categories of governance forms to focus more on the interaction mechanisms or knowledge management practices to be adopted between partners so as to maximize value creation and appropriation of new technologies developed within the alliance". By failing to recognize how various deal structures facilitate innovation and collaboration, this typology adopts a purely transactional perspective that limits its applicability to the pharmaceutical industry R&D context.

In conclusion, while the TCE-based typology provides a foundational framework for analyzing deal structures, its reliance on a narrow categorical approach reveals significant deficiencies in its effectiveness in categorizing, describing and differentiating real-world deals. As noted by Roehrich et al. (2020), "more recent studies on inter-organizational governance have moved towards exploring contractual governance in further detail". This preliminary shift highlights an emerging recognition among scholars of the need for a more nuanced analytical lens to understand the complexities of contemporary deals. However, this initial progress is insufficient; the limitations of the existing framework underscore the necessity for a more comprehensive and qualitative methodology capable

of thoroughly investigating the deal-structuring processes prevalent in pharmaceutical R&D. Researchers could consider employing a multi-theoretical perspective that incorporates various levels of analysis at different distinct decision gates. Additionally, adopting a multi-agreement perspective would allow researchers to better capture the interrelationships among different contracts and their cumulative impact on deal outcomes.

3.7.5. Theoretical gaps in the analysis of deal structuring in the pharma R&D context

The analysis of deal structuring within the pharmaceutical R&D context is currently characterized by a mono-theoretical dominance, notably the reliance on TCE or RBV. However, this mono-theoretical perspective significantly hinders the capacity to comprehensively analyze, describe and understand the intricacies of deal-structuring antecedents, process and outcomes within the pharmaceutical R&D context. One assumption has been that one theory would fit all deals. This phenomenon is at the interface of various research streams, leading to a disconnect between research areas and the lack of a holistic perspective to describe the phenomenon.

Each of the major theoretical frameworks —TCE, RBV, RO and ICT — offers valuable complementary insights into the antecedents, processes and outcomes of deal structuring. Supporting a preliminary multi-theoretical perspective, previous empirical research has demonstrated inconsistencies when comparing TCE and RBV, revealing their complementary nature rather than their competitive distinctions (Kim, 2017). In addition, these four theories center around specific drivers of governance and decision-making but do not adequately address the operational details involved in actual negotiations.

This suggests that a more integrative and temporal multi-theoretical approach combining insights from TCE, RBV, RO and ICT could allow a more comprehensive understanding of the deal-structuring process. In response to the limitations inherent in single theoretical frameworks, Jambuligam et al. (2021) propose a "combinatory framework" designed to integrate insights from diverse research traditions, encompassing strategy processes and strategic practices.

However, while some authors strongly advocate adopting a multi-theoretical perspective to analyze deal structuring in R&D pharmaceuticals, they often neglect to address the factors contributing to the limited adoption of such approaches. Firstly, academic specialization often leads researchers to favor

singular theoretical perspectives, thereby hindering interdisciplinary collaboration and the integration of diverse theoretical viewpoints. TCE, RBV, RO and ICT emerge from distinct disciplinary roots—economics, strategic management and finance—resulting in fragmented research streams. This separation complicates efforts to create a cohesive understanding of deal structuring. Furthermore, the complexities associated with combining multiple theories could hinder research design and analysis. One way to overcome that is to deeply assess the foundational assumptions of each theory and try to understand when and how they could interact with one another, making the adoption of a multi-theoretical approach consistent. Secondly, while such integration could enrich analysis, it may also introduce layers of complexity that challenge traditional interpretations. The potential for overlap between theories may lead to redundancy and obscure the unique contributions of each theoretical framework. Therefore, careful integration and clear delineation of theoretical boundaries are crucial to avoid these pitfalls. Additionally, multi-theoretical models may be more complex and challenging to empirically test, necessitating advanced statistical techniques and comprehensive data-collection efforts.

Despite these challenges, the benefits of a multi-theoretical framework may outweigh the limitations. Combining TCE, RO, RBV and ICT for the first time holds potential for a more comprehensive understanding for several reasons. Firstly, the integration of these theories would allow for a comprehensive integration of multiple antecedents shaping deal structures. This holistic approach could provide a deeper understanding of the intricate interactions between these antecedents in influencing deal structures within the pharmaceutical R&D context. Secondly, the combined application of TCE, RO, RBV and ICT would facilitate the analysis of deal-structuring outcomes from various dimensions and typologies. As strategic management evolves, the integration of theories, research streams and management practices becomes essential for a holistic understanding of firms (Zakaria and Genç, 2017; Dess, Gupta, Hennart, & Hill, 1995; Mahoney & Sanchez, 2004). Such a multi-theoretical perspective aligns with the emphasis on theories being relevant to practitioners, as highlighted by Mark de Rond (2003). This holds the potential to bridge the existing gaps and enrich our understanding of deal structuring in the pharmaceutical R&D context.

In summary, this review has identified significant methodological and theoretical gaps in the analysis of deal structuring within the pharmaceutical R&D context. A primary limitation is the reliance on deductive, quantitative methodologies, which often oversimplify complex negotiations by focusing on predefined variables and neglecting contextual richness. This highlights the need for qualitative approaches that uncover the deal-structuring process. Additionally, the dominance of variance-based perspectives constrains understanding by emphasizing static antecedents and outcomes, thereby neglecting the dynamic, iterative nature of the multi-stage deal-structuring process. Another critical gap is the one-sided perspective prevalent in existing research, which typically focuses on a single party, usually the dominant buyer. A dyadic perspective that includes insights from both deal sides would illuminate such deal analysis. Furthermore, the examination of antecedents influencing deal structuring has suffered from fragmentation across distinct theoretical frameworks, creating an incomplete understanding. The literature also indicates a lack of focus on critical decision points and the multi-stage, iterative deal-structuring process in this context. Furthermore, the reliance on mono-theoretical perspectives—primarily TCE or RBV—limits a holistic understanding of deal structuring. Integrating insights from TCE, RO, RBV and ICT in a multi-theoretical framework promises a more nuanced understanding of the antecedents, processes and outcomes associated with deal structuring. Lastly, from my practical experience in deal-making, no exhaustive descriptions of deals, antecedents, processes and outcomes exist in practice, and there is no established framework and typology universally accepted by both industry and practitioners. More precisely, the term "deal structuring" is widely recognized, yet its interpretation and implications vary significantly among different parties.

To address these identified gaps, the following chapter will develop research objectives and questions.

4. Research objectives and questions

4.1. Researching objectives

The preceding chapter comprehensively reviewed the relevant literature and concepts integral to this research, illuminating important perspectives that have sustained certain paradigmatic stances and assumptions, potentially introducing biases into the existing body of research. Given the complexity of deal-structuring processes, simplistic perspectives fail to capture the intricate dynamics at play. Thus, this study aims to investigate and conceptualize the deal-structuring process and outcome by undertaking a comprehensive and agnostic examination of relevant antecedents, processes and outcomes even if it implies challenging some paradigmatic assumptions that seem to deviate from the reality of deals in the pharmaceutical R&D context.

The primary objectives of this research are fourfold. First, it aims to systematically map the key components, and their temporal interconnections, of deal-structuring processes in the asymmetric pharmaceutical R&D context, identifying antecedents, decision gates, phases, considerations and outcomes to provide foundational insights. By identifying antecedents, decision gates, phases, considerations and outcomes, this research will enhance our understanding of these specific elements and above all elucidate their relationships over time.

Second, it intends to investigate the underlying mechanisms and causal factors contributing to the variability in deal-structuring outcomes across different cases, uncovering reasons for divergent outcomes through an examination of the processes involved. This deeper investigation into the differences in deal structures from a process-based perspective aims to challenge existing assumptions while also illuminating critical insights into decision-making dynamics that have been overlooked in the current literature. By highlighting these nuances, the research will significantly enhance academic knowledge and deepen our understanding of the complexities inherent in deal structuring.

Third, the study seeks to refine or create typologies that capture the complexity and variability of deal-structuring outcomes. This objective addresses a significant gap in the existing literature. By developing comprehensive typologies, this research will offer a more granular lens through which scholars can analyze and categorize deal structures. This advancement in typological understanding

fosters meaningful discussions on the nature and variety of deal structures, potentially leading to improved theoretical frameworks and empirical studies in the field.

Finally, the research aims to design a multi-theoretical framework that integrates Transaction Cost Economics, Resource-Based View, Real Options and Incomplete Contract Theory to enhance understanding of deal structuring, bridging existing gaps in the literature. By bridging these diverse theoretical perspectives, the research aims to overcome the limitations of the mono-theoretical approaches that have dominated previous studies. This integration not only enriches academic discourse but also opens new avenues for research that can adapt to complex realities in deal structuring, providing a more comprehensive understanding of the interplay between different theories.

Ultimately, these objectives collectively aim to enhance not only academic knowledge but also practical insights for practitioners engaged in deal-making within the pharmaceutical R&D context. By synthesizing existing knowledge and offering a broader perspective, this research seeks to make substantive contributions to the fields of strategy and business, fostering informed decision-making and guiding future scholarly inquiries.

4.1. Research questions

Utilizing Alvesson's (2013, p. 15) framework for the formulation of research questions establishes a structured and systematic approach to grounding a study in relevance, rigor and clarity. This framework invites researchers to engage in profound reflection concerning the purpose and scope of their inquiry, ensuring that the research questions are not only precise but also aligned with broader objectives of knowledge generation. By embedding these questions within a robust theoretical and methodological foundation, Alvesson's approach adeptly addresses real-world complexities while ensuring that academic contributions are meaningful and actionable.

Alvesson's framework is particularly valuable for several reasons. Firstly, it encourages a reflective and pragmatic approach, fostering critical reflection that enables the formulation of questions resonant with both theoretical and practical considerations. This ensures that the research questions maintain significance in the empirical domain and effectively address existing literature gaps. Secondly, the framework aligns well with process-based research, which necessitates nuanced and dynamic inquiry

to comprehend how phenomena evolve over time. Alvesson's emphasis on thoughtful and contextualized questions is instrumental in allowing researchers to explore the intricate, interconnected aspects of a phenomenon.

In addition, the framework facilitates a multi-layered exploration of research topics. It emphasizes various dimensions—descriptive, comparative, explanatory and normative—ensuring a comprehensive understanding of the subject matter, which is crucial for capturing the multifaceted nature of deal structuring in pharmaceutical R&D. Furthermore, Alvesson's framework promotes theory integration by advocating conceptual clarity, which supports the incorporation of multiple theoretical lenses such as TCE, RBV, RO and ICT. This integration is especially pertinent in interdisciplinary contexts such as deal structuring in asymmetric environments.

To define research questions effectively, one can progress through several inquiry types. Descriptive inquiry involves identifying and mapping the key elements of the phenomenon, including antecedents, decision gates, phases and outcomes in deal structuring. Following this, exploratory inquiry should examine the processes and interactions that link these elements over time, capturing nuances and emerging dynamics. Explanatory inquiry then investigates the reasons behind specific patterns or differences, focusing on causal mechanisms and underlying drivers, while normative inquiry seeks to design solutions or frameworks that enhance understanding and application, ensuring relevance to practitioners and stakeholders. Consequently, I have defined four research questions grounded in this framework:

RQ1 (Descriptive) - How can the deal-structuring process be mapped, and how do its decision gates and outcomes interconnect over time?

This descriptive question aims first, and above all, to create a systematic map of the key decision gates and their temporal interconnections within the deal-structuring process, based on deep enriched contextual qualitative research. It provides foundational insights into the chronological anatomy of deal structuring by identifying distinct stages and decision points, investigating outcomes linked to these stages. This aligns with Langley's (1999) emphasis on capturing the temporal unfolding of processes, particularly focusing on how actions and decisions evolve sequentially. Moreover, this question enables the exploration of how deal structuring adapts to considerations, providing insights into the iterative adjustments and feedback loops often overlooked in static analyses.

RQ2 (Theoretical and Normative) - When and how can the theories of Transaction Cost Economics (TCE), Resource-Based View (RBV), Real Options (RO) and Incomplete Contract Theory (ICT) guide the deal-structuring process in the asymmetric pharmaceutical R&D context?

This research question introduces a novel process-based perspective that seeks to integrate relevant theories—TCE, RBV, RO and ICT—rather than positioning them as competing frameworks. By explicitly addressing the questions of "when and how" these theories can be applied, the inquiry emphasizes the timing and situational appropriateness of theoretical frameworks. Having investigated various decision gates, phases and outcomes, one can pinpoint moments when specific theories may yield the most valuable insights for decision-making. Another critical focus of this inquiry is the aim to "better guide and support" practitioners, fostering actionable insights that facilitate a deeper understanding of how to navigate such deals. In this research, the aim is not to predict or optimize outcomes, as such objectives can be overly ambitious and potentially unattainable in the complex landscape of inter-firm negotiations. Instead, the focus is on better guiding practitioners by offering a structured framework for effective decision-making. This approach constitutes a tangible normative objective that not only contributes to theoretical advancement but also delivers valuable real-world guidance that enhances collaboration and strategic decision-making in the industry. Indeed, by providing tailored recommendations grounded in empirical insights, this research strives to produce actionable guidance that can be directly applied in practice.

RQ3 (Explanatory) - Why do deal-structuring processes lead to different outcomes across cases, and what typologies can be developed to categorize and explain these differences?

This explanatory question aims to uncover the reasons behind the variability in deal outcomes by examining the processes that contribute to these differences. In a sector characterized by structured deals, it is essential to explore why deals that appear comparable can result in substantially different results. This inquiry seeks to uncover the underlying factors contributing to these variations. By focusing on the processes involved—such as decision gates and considerations —the research aims to shed light on the nuances that distinguish seemingly similar deals. The emphasis on causation encourages an exploration of how small deviations in strategy or context can lead to divergent outcomes, challenging the assumption that similar deals will produce consistent results—aligning with

Alvesson's explanatory framework that emphasizes understanding "why" phenomena occur. By focusing on the reasons behind different outcomes and employing a process-based perspective, the inquiry aims to offer valuable insights that advance both theoretical understanding and practical guidance for managers. In addition, this question highlights the importance of identifying, refining or developing specific typologies of (intermediary) outcomes to capture deal differences. Effective categorization of outcomes is crucial in a context characterized by complexity and variability.

In summary, these research questions aim to thoroughly re-examine and map the antecedents, processes and outcomes of deal structuring in the pharmaceutical R&D context while utilizing existing knowledge and avoiding premature theoretical biases. The study will strive to identify new contextual variables and understand how they connect with established theoretical variables. The objective is to develop a more comprehensive model for describing, differentiating and explaining deals from conceptual, theoretical and practical perspectives. Focusing on decision-gates and considerations will allow for a deeper exploration of multi-stage processes, which seem important for grasping the differences between final deal structures. Together, these efforts are expected to enhance our understanding of the field and contribute valuable insights to the existing body of knowledge.

5. Methodology

In the previous two chapters, the literature was reviewed and research questions and objectives were identified. The research questions have been formulated as the following:

RQ1 (Descriptive) - How can the deal-structuring process be mapped, and how do its decision gates and outcomes interconnect over time?

RQ2 (Theoretical and Normative) - When and how can the theories of Transaction Cost Economics (TCE), Resource-Based View (RBV), Real Options (RO) and Incomplete Contract Theory (ICT) guide the deal-structuring process in the asymmetric pharmaceutical R&D context?

RQ3 (Explanatory) - Why do deal-structuring processes lead to different outcomes across cases, and what typologies can be developed to categorize and explain these differences?

To achieve this, the research methodology employs a process-based, qualitative, field-based investigation designed to capture the reality of these deals. The study will explore alternative assumptions, including a dyadic perspective that recognizes the temporal and staged nature of deals. Additionally, a multi-theoretical framework will be adopted to better comprehend deal outcomes through a deeper understanding of their antecedents and processes.

5.1. Research stance

In this section, I will delineate the research stance adopted in this study, beginning with my philosophical and epistemological position. This foundation will be followed by a discussion of abductive reasoning, a justification for the use of a process-based view, and an explanation of the qualitative approach and multi-theoretical perspective employed in the research.

5.1.1. Pragmatic epistemological stance

To define my philosophical and epistemological position, it is essential to engage with the existing body of knowledge. The literature review indicates that the prevalent epistemological stance in this field is characterized by positivist, deductive, rationalistic theorizing relying on abstract conceptual models and realist assumptions. While I have developed a strong inclination toward models that quantitatively define and predict outcomes, I acknowledge that an overly positivist approach focused

solely on theory testing may obscure the complex realities of the phenomenon under investigation. Furthermore, addressing the limitations of existing research necessitates a commitment to a more interpretivist approach, emphasizing a holistic and theory-agnostic empirical investigation of my area of interest. This complementary interpretivist-phenomenological approach can enhance the understanding of contextual variables free from preconceived theoretical frameworks, acknowledging that complexities cannot be fully captured through a single theoretical lens. That said, I recognize that existing theories provide substantial explanatory power, albeit from limited angles and perspectives. Thus, a purely inductive stance is likely be insufficiently explanatory.

Instead, I aimed to generate qualitative data, analyze them, and then integrate insights from various theories. This approach allows for the utilization of foundational theories while also accommodating new findings. Consequently, my research has adopted a dual stance incorporating both deductive and inductive approaches, leading me to embrace pragmatism as the most suitable philosophical and epistemological stance. Pragmatism, rooted in the work of Peirce (1966), emphasizes the practical implications of knowledge, summarized in his principle: "Consider what effects, which might conceivably have practical bearings, we conceive the object of our concept to have. Then, our conception of these effects is the whole of our conception of the object". This pragmatic view implies that specific theories or findings should aid in achieving particular goals and supporting certain values while simultaneously countering other objectives. Valid knowledge is assessed based on its ability to fulfill these goals. The key pragmatic principle is to consider the practical implications of whether a given theory is regarded as true. Importantly, pragmatism reconciles the tension between positivist and interpretivist stances by recognizing that different phenomena have varying levels of malleability, with their relevance judged on practical usefulness because, from a methodological point of view, a pragmatist is agnostic to both deductive and inductive approaches as long as research questions can be answered (Kelly and Cordeiro, 2020).

5.1.2. Abductive reasoning

In alignment with a pragmatic stance, this research has adopted an abductive reasoning approach, which seeks to integrate the strengths of both inductive and deductive methodologies. Abductive reasoning, historically developed by Peirce (1934), serves as a method for drawing inferences that are oriented towards theory building. Also known as "inference to the best explanation", abductive

reasoning is a form of logical reasoning that looks to the most likely hypothesis to explain something (Koslowski, 2018). This allowed for the exploration of empirical observations while simultaneously facilitating the integration of existing theoretical frameworks, thereby enabling a comprehensive understanding of the complexities inherent in the phenomena under investigation. Building upon this, Tavory and Timmermans (2021, 2014, 2019) have extensively developed methodologies around "abduction" to move beyond the induction vs deduction debate (Vila-Henninger et al., 2022). As stated by Vila Henninger (2022, page 7), "Abduction is then part of a movement that highlights what its proponents see as a false dichotomy between inductive and deductive analysis".

This reasoning allowed me to qualitatively collect data and analyze them through the lens of the four cited theoretical perspectives (TCE, RBV, RO and ICT). The expected advantage of this specific abductive approach was therefore the "dialogue" between theory-driven and data-driven qualitative analysis. For the sake of clarity, even though the study was informed by these theories, the end point of describing and understanding deal structuring was unknown prior to undertaking the study.

5.1.3.Process-based view

5.1.3.1. Rationale for process-based view

As previously highlighted in the review of key literature, analyses of deals in pharma R&D essentially adopt a static, variance-based lens, focusing on factors influencing deal outcomes rather than the dynamic process of deal structuring and evolution, failing to account for the complex, multi-stage negotiations and successive decisions that shape deals over time. As Elsahn et al. (2020, p. 312) argue, "Variance approaches aim to identify antecedents and consequences of certain phenomena, while process approaches develop explanations of why and how events unfold over time". Indeed, recognizing that deals are not static and do not constitute a one-off decision, but rather involve multiple stages and recurring decision gates, a process-based approach presents a compelling and rectifying way to complement the deficiencies of variance-based methodologies. This research aimed to uncover the unfolding of the deal-structuring journey by employing a process-based view (Langley, 1999), which prioritizes sequences of events, temporal flows and causality over time. Unlike deductive quantitative studies, which capture a snapshot in time and reveal correlations without addressing how these relationships evolve, process-based qualitative methodologies facilitate a longitudinal view of negotiations. This enables us to track changes, adaptations and feedback loops as parties engage in

bargaining. Process-based approaches are better suited for understanding complex phenomena by providing "know-how" knowledge, as opposed to the "know-that" knowledge offered by variance-based approaches. This distinction highlights the practical value of process-based approaches in guiding managerial action.

Adopting a process-based perspective aimed to allow the dissection of the various phases of deal structuring, identifying key decision gates and considerations that emerge during negotiations. This permitted us to address the research objectives of obtaining a holistic understanding of deal structuring in R&D by focusing on how deal-structuring processes unfold, adapt and influence outcomes. Each phase—whether initial discussions, formal agreements or revisions in response to changing conditions—provides unique insights into how decisions are made and adapted over time. For instance, recognizing when and why specific decision gates are activated can uncover critical moments that influence the trajectory of a deal. Furthermore, a process-based methodology allows for the examination of iterative cycles, where feedback loops can alter the course of negotiations. This adaptability is crucial in R&D contexts, where partnerships must respond to unforeseen challenges and opportunities. As noted by Elsahn et al. (2020), "Process research might emphasize how abduction leads to richer process theorizing through connecting to prior theory". The process view is consistent with abductive reasoning.

5.1.3.2. Weak process-based view

Employing a comprehensive systematic theoretical review methodology, Elsahn et al. analyzed 311 qualitative case-based articles published in 31 journals from 2013 to 2018, in the area of Technology Innovation and Management (TIM)(an area which my research topic falls into). The authors aimed to examine the current utilization of qualitative case study approaches while assessing their rigor, transparency and paradigmatic consistency. Furthermore, the authors classified these 311 articles into three distinct approaches based on Van de Ven and Poole's typology, between variance and process-based approaches. The comparative analysis identified two primary process-based views, which distinguishes between two approaches grounded in process epistemology: Strong process theorizing and Weak process theorizing.

Strong process theorizing embraces a process ontology and epistemology, viewing TIM phenomena as ongoing processes characterized by continuous flux and emergence. This approach focuses on

concepts of "becoming" and "doing," and aims to understand the unfolding of processes over time. Strong process theorizing often employs a single case study design, facilitating deep immersion and a rich presentation of findings. While multiple cases may also be utilized to identify similar processes across various contexts, the predominant method remains semi-structured interviews. This approach is noted for its consistency in theorizing modes, primarily relying on inductive and abductive reasoning. Strong process theorizing mainly produces process models and narratives that adeptly capture the unfolding of processes, utilizing specific language that emphasizes flow, movement, and interconnectedness to avoid the reification of processes.

In contrast, Weak process theorizing conceptualizes phenomena as distinct entities while aiming to explain changes within these phenomena by identifying specific events, cycles or stages. This approach adopts a process epistemology to understand how change unfolds over time. Its research practices are characterized by heterogeneity, as it combines a variance ontology with process epistemology, leading to diverse interpretations along the process/variance continuum. Weak process theorizing typically employs multiple case studies to detect phases and patterns across different cases, primarily utilizing semi-structured interviews for data collection. However, this data collection method may not effectively capture the emergent qualities of processes, often culminating in process models that delineate phenomena into stages or cycles. Additional outputs from this approach include typologies illustrating process variations and narratives that explain the progression of processes. Nevertheless, one significant challenge faced by weak process theorizing is the difficulty in transitioning from extensive descriptive accounts to theory development.

In summary, both weak and strong process theorizing have their own distinct strengths and limitations. Recognizing these differences, my research adopted a weak process theorizing approach, as it is better suited to addressing the defined research questions aimed at understanding the deal-structuring process, exploring differences in deals, and developing typologies. This approach facilitated a more structured analysis that aligned with the goals of my investigation while accommodating the complexity inherent in the subject matter.

5.1.4.Multi-theoretical perspective

The research stance emphasizes the importance of integrating multiple theoretical perspectives—namely Transaction Cost Economics, Resource-Based View, Real Options and Incomplete Contract

Theory. By combining these frameworks, the research sought to capture the diverse influences and interactions that shape deal-structuring processes. This multi-theoretical perspective allows for a richer analysis than any single theory could provide, facilitating a deeper exploration of the antecedents, decision gates, phases and outcomes associated with deal structuring.

In response to the limitations inherent in single theoretical frameworks, Jambuligam et al. (2021) propose a "combinatory framework" designed to integrate insights from diverse research traditions, encompassing strategy processes and strategic practices. A multi-theoretical framework can provide a more comprehensive understanding of complex phenomena than relying on an individual theoretical perspective, as illustrated by Billiteri et al. (2013) in their examination of deal-structuring complexities within the pharmaceutical R&D industry. Over-dependence on a singular approach can stifle the development of a field, and researchers must be cognizant of potential inconsistencies that may arise when integrating different theoretical perspectives. Such paradigmatic inconsistencies can obscure the understanding of constructs and impede academic progress.

Billiteri et al. (2013) identify certain antecedents, such as the development stage of the product and the number of commercialized products, which influence governance decisions and try to link them to either of TCE, RBV or RO. However, while such attempts at multi-theoretical perspectives have been made, they are limited in explanatory power (Dushnitsky and Lenox, 2005). Indeed, they fail to adequately account for the temporal dimension inherent in such deals, overlooking the complex dynamics of timing and contextual factors that influence the applicability of each theoretical framework. Understanding when and how each theory is relevant throughout different stages of the deal process would be beneficial for a holistic analysis of such deals.

5.1.5.Qualitative design

The goal of this study was to capture the reality of deal structuring in terms of process and outcome, as well as to attempt to integrate the four current theories into a final framework. Since the objective was to describe, compare and understand, the study took a qualitative approach. This approach involved qualitative methodologies that engaged with practitioners directly, ensuring that the findings would be grounded in real-world experiences and insights. Engaging with practitioners involved in deal structuring would provide insight into their experiences, interpretations, and analyses, thus enriching the research.

Gaining in-depth insights into strategy processes and practices often requires researchers to analyze organizations to understand their activities—a notable strength of qualitative inquiry (Burgelman et al., 2017). As noted by Elshan et al. (2020), "process studies inherently address questions about how and why phenomena emerge, develop, grow, or terminate over time", making qualitative methods particularly well-suited to capturing these evolving phenomena and uncover the underlying mechanisms involved.

5.2. Case study methodology and design

5.2.1. Rationale for case study methodology

Process theories concentrate on understanding how and why phenomena emerge, develop, grow, or ultimately terminate, over time (Langley et al., 2013). They construct explanations by observing patterns in events, activities and decisions throughout their progression (Welch et al., 2014). The fundamental emphasis of a process perspective is on temporality, activity and the continuous flow of events (Cloutier et al., 2020). The central inquiry shifts from "What are the antecedents or consequences of this issue?" to "How does the issue unfold over time?" (Welch et al., 2014). Consequently, process research empirically investigates evolving phenomena and employs temporal sequences of events to trace changes (Hurmerinta et al., 2016). These theories recognize the non-linear nature and complex causality of processes, aiming to account for the temporal patterns observed.

Consequently, the case study is the most suitable approach for this study. By definition, a case study is an in-depth investigation, from multiple perspectives, of the complexity and uniqueness of a particular phenomenon of interest (Simons, 2009, p.21). This is an ideal methodology when a holistic, in-depth investigation is needed (Feagin, Orum and Sjoberg, 1991). According to Eisenhardt (1989), case studies are particularly useful for investigating phenomena characterized by little empirical substantiation, namely situations where little is known about a phenomenon, current perspectives seem inadequate and there is a gap in existing theory (Barratt, Choi and Li, 2011). Thus, considering the phenomenon of interest is ill-understood, very complex and under-investigated, a case study seems to be a highly relevant method to employ. Case studies can produce deeper insights from multiple perspectives, so they are useful for capturing new layers of reality and developing new, testable and

empirically valid theoretical and practical insights (Eisenhardt, 1989; 2007). Finally, as argued by Yin (1994), case studies are the best approach when research questions are about the “how” and “why”.

Case study methodology is defined as an empirical inquiry that investigates a contemporary phenomenon within its real-life context, drawing on multiple sources of evidence (Ralph, 2019). This qualitative methodology is particularly well-suited to process-based research for several reasons. Firstly, process theories necessitate methodologies that capture the sequence of events and temporal progressions (Welch et al., 2014). Case studies are designed to examine phenomena over time, making them a preferred methodology for process research. They provide the necessary data to observe how processes unfold and enable researchers to trace event chronologies. Longitudinal case studies offer a wealth of temporal observations, effectively countering the misconception of being merely "samples of one".

Additionally, process research often engages with complex and multidimensional phenomena. Case studies excel in providing rich, contextualized explanations, allowing for a deep understanding of the subject matter. They illuminate the intricate interactions between the phenomenon and its context, which is essential for grasping the nuances of unfolding processes.

Furthermore, case studies support the practice of abduction, facilitating the connection between empirical observations and existing theoretical frameworks to generate novel insights (Langley et al., 2013). They are particularly adept at producing taxonomies and other concepts directly derived from data (Ralph, 2019). Given that complex phenomena such as innovation are evolutionary, relational, temporal, and cultural, qualitative case studies effectively address these complexities by providing rich contextualized explanations over time (Elsahn et al., 2020).

In essence, the case study methodology aligns closely with the core tenets of process theory by equipping researchers with the tools necessary to capture temporality, sequences of events, activities and contextual factors. Case studies allow for the collection of rich, temporal data, enabling deep exploration of the dynamic "how and why" questions inherent in research. This approach not only facilitates the building or evaluation of theories but also ensures that these theories accurately reflect the unfolding nature of complex phenomena.

Cresswell, in 1998, described the five available qualitative research methods: narrative (or biography), ethnography, phenomenological, grounded theory and case study. In order to select the most relevant method, I followed the guidance outlined by McCaslin-Scott (2003) in the book titled "Five-question method for framing a qualitative research study". Based on this guidance, the narrative method was not considered because this is very focused on stories of life experiences and is not relevant to the understanding of deal structuring. With regard to ethnography, researchers frequently live with the people they are studying, so this method would not have been suitable for the research. Phenomenology describes the "subjective reality" of an event, as perceived by the study population, and therefore this approach was also unsuitable. A grounded theory is based or "grounded" in the observations or data from which it was developed. It would be relevant only if the study planned to discover and build a theory around the phenomenon, which was not the intent here. This study intended to produce:

- an accurate, rich understanding of deal structuring
- unbiased data collection
- a conceptual model allowing me to connect these data with extant theories

5.2.2.Case study methodology - alignment with research stance

Given the descriptive, explanatory and theoretical/normative nature of my research questions, a case study design emerged as the most suitable methodological approach. This rationale is structured around the chosen research stance, which encompasses pragmatism, abductive reasoning, process-based analysis, qualitative depth and multi-theoretical integration.

With regards to pragmatism, my research aimed to map, explain and normatively guide deal structuring in the pharmaceutical R&D sector—a context characterized by asymmetry, uncertainty and multi-stage decision-making. A case study design was pragmatically justified because it allows for deep contextual immersion that captures the nuances of real-world deal structuring, avoiding artificial simplifications. This approach aligns with the pragmatic research philosophy, in which the choice of methodology is dictated by what best addresses the research questions rather than strict adherence to a single paradigm.

The research follows an abductive logic, facilitating a back-and-forth movement between empirical observations and theoretical frameworks to generate novel insights. Case studies are particularly well-suited to this form of reasoning, as they allow for the iterative refinement of emerging patterns—such as decision gates and outcome typologies—while remaining open to unexpected findings. They also enable contrastive analysis to explain differences in outcomes and support theory elaboration, helping to clarify when specific theories (such as TCE, RBV, RO, or ICT) are applicable.

Given that this research examined how deals unfold over time and why processes may lead to divergent outcomes, a longitudinal, processual case study approach was essential. Case studies excel at tracing sequences of events, decision gates and feedback loops, facilitating both within-case and cross-case comparisons that reveal how minor deviations in processes can result in significant differences in outcomes. This approach supports process theorizing by identifying critical junctures where theoretical frameworks become most relevant.

The research required rich, contextually embedded data to systematically map deal structuring through various sources, including interviews, documents and archival records. Case studies provide the description necessary to address these complex questions, in contrast to surveys or purely quantitative methods. This qualitative depth is crucial for explaining why seemingly similar deals diverge by uncovering the tacit decision-making logics involved. Additionally, one of the primary purposes of the case study is to 'confront' theory with the empirical world. It could help in assessing how and when theories apply by examining practitioners' reasoning in situ.

This research intentionally avoids privileging any single theory (such as TCE, RBV, RO or ICT) from the outset, instead inquiring into when and how each theory is applicable. Case studies facilitate this by allowing for simultaneous theory-testing and theory-building, identifying contingencies where different theories may explain various phases of deal structuring. They also enable contextualized theoretical insights, revealing how TCE might dominate early-stage risk allocation while RO could guide flexibility mechanisms later. Moreover, these insights can lead to normative guidance by uncovering theoretical blends relevant to practitioners, moving beyond abstract academic debates.

In conclusion, a case study methodology provided the strongest framework for my research. It effectively maps the deal-structuring process through temporally sensitive qualitative data, explains variations in outcomes through contrastive abduction and typology development, and integrates

theories by contextualizing their applicability across different deal phases. By adopting this design, my research would produce descriptive, explanatory, and normative contributions while remaining empirically grounded, theoretically nuanced, and pragmatically actionable — aligning perfectly with the complex nature of my research questions.

5.2.3.Case study methodology - purpose and design

Having chosen the case study as a methodology, the next step was to decide the purpose and design of the case study. Yin (1993) has identified three specific purposes for the case study: exploratory, descriptive and explanatory. The exploratory case study was not relevant here as there was not a plan to formulate questions or a hypothesis from this research. The descriptive case study was also not relevant as the plan was not to proceed with a simple description of the phenomenon only. The study objective was to go beyond simple description by interrogating, understanding and explaining the phenomenon of interest. Ultimately, the research objective is characterized by "how" and "why" questions, investigating context-specific antecedents and their causal relationships to the final deal structure. Therefore, according to Yin's (1993) terminology, I undertook explanatory case studies, excluding the *de facto* descriptive approach.

With respect to the case study design, one can distinguish between single and multiple case study design and between holistic (single unit of analysis) and embedded (multiple units of analysis) case study design (Yin, 1993). Considering these various possible designs and the fact that this study aimed to investigate multiple deals to capture as many insights as possible, the study would require a single unit of analysis for a multiple case study holistic design.

> multiple case studies are well suited to surface similarities and differences between cases, which is consistent with weak process approaches. We note however that there is nothing inherent in the multiple case study approach that prevents it from providing rich narratives that are temporally sensitive (Elsahn et al., 2020)

In his extensive bibliographic review, Elsahn (2020) found that 55% of studies utilizing a weak process approach employed multiple case studies. This prevalence underscores the advantages of such methodology in detecting phases, stages and patterns across various cases and contexts. By leveraging multiple case studies, researchers can gain richer insights into the dynamic aspects of processes and enhance their understanding of how different factors interact within diverse settings. The benefit of

multiple case studies is also to avoid single case study biases or idiosyncrasies. Lastly, in addition to each case being individually analyzed, the cases were compared to each other and aggregated to identify overall similar patterns and key differences. This comparison aimed to help produce more generalizable knowledge. Following Yin's terminology, the approach undertaken was therefore that of comparative case studies. Comparative case studies are useful when there is a need to understand and explain how features within the context influence the outcome (Goodrick, 2014).

In summary, a multiple-case, holistic, explanatory case study methodology that combines within-case process tracing with cross-case comparative analysis presents the most optimal framework for this research.

5.2.4. Case study - unit of analysis

5.2.4.1. Unit of analysis in process based perspective

The selection of a specific unit of analysis is fundamentally determined by the research questions and research stance being adopted. Process perspectives illustrate a departure from traditional, static units of analysis, moving toward a more dynamic and nuanced understanding of research phenomena. Rather than concentrating on fixed entities, process-oriented research emphasizes the ongoing flow of events, activities and interactions, and the meanings constructed around them (Langley, 2013).

Building on Langley's seminal work (2013) on process-based perspectives, established units of analysis can be classified into four categories. First, events and activities as a unit of analysis highlight the focus on "evolving phenomena" and theorizing that "explicitly incorporates temporal progressions of activities as elements of explanation and understanding". With this unit of analysis, process theoretical explanations rely on explicit chains of events, activities and interactions that unfold over time, representing a shift from static variables to the dynamic interplay of actions and occurrences. Second, temporal brackets or episodes as a unit of analysis provide a method for identifying comparative units of analysis within longitudinal data. These brackets signify "progressions of events and activities separated by identifiable discontinuities in the temporal flow" (Langley, 2013). This approach acknowledges the continuous flow of processes while allowing for meaningful segmentation for analysis, making it easier for researchers to understand the complexities involved. Third, practice and interactions as unit of analysis is based on the fact that process ontology posits that the world is

fundamentally composed of processes, indicating that even seemingly stable entities, such as organizations, are temporary manifestations of ongoing processes. This perspective shifts the focus toward "webs of dynamic relations and entanglements" as the core units of analysis, emphasizing the constant activities required to maintain the stability of practices and organizations. Fourth, narrative and discourse as unit of analysis is a growing trend in strategy research, which suggests a shift towards understanding processes through the stories and meanings that participants construct around them. This indicates an important evolution in research approaches, highlighting the significance of context and interpretation in the analysis of decision-making and organizational dynamics.

Considering these different categories and my intended research methodology, temporal brackets or episodes was the most relevant category of unit of analysis for the intended methodology because it involves analyzing multiple cases from initiation to closure, comparing cases and integrating temporal transitions fits seamlessly into this unit type. Indeed, for my research, the unit of analysis is not merely a singular event or an ongoing interaction; rather, it represents a structured, sequential process with a distinct beginning (initial contact), middle (negotiation and alignment), and end (contract signature and governance enactment). This process is frequently punctuated by decision gates or phase transitions, which aligns well with Langley's notion of "temporal brackets". These brackets encompass identifiable phases within an unfolding process that facilitate structured comparative analysis.

In contrast, the events and activities category is not optimal for my research methodology. This category focuses on detailed chains of micro-events, making it more suitable for ethnographic or interaction studies. While my research acknowledges individual events (such as key meetings), they serve as data points rather than the primary unit of analysis. The broader structure and complexity of the required unit of analysis exceed mere discrete events. Similarly, the practice and interactions category does not apply to my research. Although negotiation practices are part of my dataset, the unit of analysis of my research itself is a bounded, goal-oriented process that involves multiple structured decisions leading to formalization, rather than an ongoing practice. Lastly, narrative and discourse is not the central focus of my study either. While I will rely on output captured from participant narratives, these narratives serve as lenses or data sources rather than the primary object of analysis. My research is centered on understanding how deals are structured and how they evolve, not on how they are discussed or represented.

In conclusion, using Langley's typology, the unit of analysis, as needed for my study—a bounded, dyadic, temporal and strategic process with antecedents, decision points, governance and outcomes—most closely aligns with the category of temporal brackets or episodes.

5.2.4.2. The deal as unit of analysis

Extant research has relied on "contract" or "governance" as focal constructs. However, these units often offer only partial and static representations of what is, in practice, a dynamic and iterative process. Contracts and governance frameworks typically emphasize the formalized, structural or institutional aspects of collaborations—either as fixed legal artifacts or as control mechanisms designed to mitigate opportunism. Yet, they abstract away from the very processes through which such arrangements are formed, adapted and sometimes abandoned.

Therefore, if we consider that the unit of analysis is defined as "the major entity that is being analyzed in a study, e.g. the 'what' or 'who' that is being studied" (Cohen et al., 2011), then the new unit of analysis needed to entail more than governance and contract as conventionally used. Given that the research objective was to investigate the entire journey through the deal, including both process and outcome within the dyad, the most relevant unit of analysis seemed to be the deal itself (one case for one deal). Deal is a term that encompasses both the choice of governance and the choice of contract. In this sense, the deal represents the holistic process of designing and creating the relationship between the parties involved, taking into account both the choice of governance and the choice of contract. The deal as unit of analysis might thus constitute a more comprehensive and analytically powerful unit of analysis for understanding the deal-structuring process and outcome in pharmaceutical industry R&D (Table 5-1). Deals, conceptualized as temporally unfolding, dyadic and contextually embedded phenomena, integrate the full lifecycle of collaboration: antecedents such as strategic intent or partner selection, the structuring process itself, including negotiation and real-time adjustments, and a multiplicity of outcomes—formal, informal, expected and emergent. This makes the deal not merely a combination of contract and governance but a higher-order construct that subsumes both.

In addition, the processual orientation of the deal as a unit of analysis makes it particularly suitable for qualitative case study methodologies, in which the goal is to understand "how" and "why" phenomena unfold over time. Deals as units of analysis are inherently temporal; they evolve through stages of negotiation, decision gates and renegotiations, often shaped by trust-building, strategic inflections and

learning. This dynamic quality cannot be adequately captured by static units like governance structures or finalized contracts. As Langley et al. (2013) argue in process studies, strategy is not implemented in discrete steps but rather unfolds as an emergent and adaptive process. Viewing the deal as the unit of analysis aligns closely with this ontological perspective.

Unit of analysis	Antecedents	Process			Outcome (s)		
		Decision gates	Considerations	Dyadic perspective	Governance	Contract	Any other outcome
Contract	Yes	No	No	No	No	Yes	No
Governance	Yes	No	No	Limited	Yes	No	No
Deal	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**

Table 5-1 Comparative scope between units of analysis

Furthermore, deals as units of analysis are bounded and contextual. Each deal occurs within a specific organizational, industrial and regulatory environment, involving distinct actors, incentives and constraints. This boundedness facilitates comparative analysis while maintaining analytical depth. A single deal offers a coherent unit through which one can trace causal mechanisms across time, link antecedents to outcomes, and embed the analysis in its real-world setting. At the same time, its contextual richness supports nuanced theorizing about institutional and strategic contingencies that affect deal dynamics.

Importantly, the deal as unit of analysis also enables a genuinely dyadic analysis. Unlike contract-centric perspectives that often reflect the interests or strategies of a single party (typically the more powerful firm), the deal intrinsically involves at least two actors negotiating, adjusting and co-creating the collaboration. This dual perspective allows for a more accurate representation of inter-organizational interactions, including asymmetries of power, mutual adaptations, and conflict resolution mechanisms.

The comprehensiveness of the deal is further evidenced by its capacity to integrate a broad spectrum of outcomes. Beyond enforceable contractual terms or governance efficiency metrics, deals also give rise to non-contractible outcomes. These emergent outcomes are critical in innovation-intensive industries like pharma R&D but are often invisible in conventional studies focused on contracts or governance. By capturing both formal and informal dimensions, the deal offers a platform for multi-theoretical and abductive insights.

In conclusion, using the deal as the unit of analysis offers distinct advantages over contract or governance. It provides a holistic, dynamic and context-sensitive lens for capturing the complexity of deal-structuring process and outcome in pharmaceutical industry R&D. It recognizes deals as unfolding processes shaped by strategic decisions, dyadic interactions and path-dependent developments. It allows for the examination of multiple, interacting outcomes—both formal and informal—and supports theoretical integration across disciplines. Rather than replacing contract and governance as analytical lenses, the deal subsumes and contextualizes them, providing a higher-order conceptual framework. Thus, selecting the deal as the unit of analysis not only reflects the empirical realities of biopharma partnerships but also offers superior explanatory power for both scholars and practitioners.

5.2.5.Case study selection

A deliberate configuration and selection of case studies was undertaken according to context relevance and variability, as explained below.

5.2.5.1. Context relevance

First of all, cases were selected within the context of asymmetric dyadic relationships in R&D in the pharmaceutical industry. In practical terms, the selected cases consist of deals signed between small firms (for example, start-ups) and larger established pharmaceutical companies. Deals were chosen that had been signed within the five years preceding the interview stage, so that interviewees (from each side of the deal) would still remember the context and factors of the deal.

5.2.5.2. Variability (replication logic)

The selection of 15 cases was guided by a deliberate replication logic, as defined by Yin (2014), which serves as the case-study equivalent of experimental design. This approach involves selecting cases that either predict similar results under comparable conditions—termed literal replication—or predict contrasting results for predictable theoretical reasons—termed theoretical replication. To establish clear relationships between variables, it was essential to minimize extraneous variability; consequently, all cases were selected from the pharmaceutical R&D context. This controlled setting enabled meaningful comparisons, both within deals exhibiting similar structures and across deals with divergent outcomes.

Pragmatic considerations, as acknowledged by Seawright (2008)—including access to interviewees and resource constraints—justified a preference on cases within European geographical and network proximity. This deliberate restriction is not expected to introduce significant bias, as the deal structures under investigation are inherently global in nature. The final portfolio of fifteen cases, encompassing thirty interviews, was determined to offer sufficient variability while remaining practically feasible. This sample size strikes an optimal balance between the demands of replication logic and the constraints of time and access.

Each case represents a single deal, which may involve one or multiple contractual agreements. The case selection strategy deliberately incorporated diversity in ownership schemes and transaction direction (inbound versus outbound), ensuring variation across key antecedents, processes, and outcomes while maintaining a consistent industrial context. Within this framework, literal replication occurred where similar initial conditions, such as large firms licensing from cash-constrained biotechs, yielded predictably similar governance structures. Conversely, theoretical replication was achieved by selecting cases that varied on key theoretical dimensions—such as asset uniqueness—to test and refine emergent theoretical propositions, thereby defining the boundaries of the developed framework.

The essential value of a single case lies in its capacity for deep, processual explanation, enabling detailed tracing of the mechanisms and decision gates that lead from antecedents to outcomes. The multi-case approach, however, provides the foundation for robust theory-building by assessing whether observed processes are idiosyncratic or recurrent across different conditions. This establishes analytic generalizability, whereby theoretical propositions are generalized to a broader class of situations rather than to a statistical population. The variability embedded in the case selection was not random but theoretically guided, focusing on dimensions such as ownership structure and deal direction to illuminate when and for whom specific pathways are salient.

The sufficiency of fifteen cases is grounded in the principle of theoretical saturation, where additional cases ceased to yield new theoretical insights. This sample size supports analytic generalization within the defined context of pharmaceutical R&D alliances, as the recurring patterns of sequential decision-making and theoretical relevance observed across cases provide a robust foundation for the mid-range theory developed in this research. In summary, the case design employs a deliberate, theory-informed

selection to build a valid explanatory model, with the number of cases determined by saturation and replication logic rather than statistical representativeness.

5.3. Data collection approach

Each case was investigated using an explanatory approach (Johnson, 2007). This consisted of two complementary components (Figure 5.1):

- Individual in-depth interviews – providing qualitative data
- Document analysis – providing confirmatory qualitative data

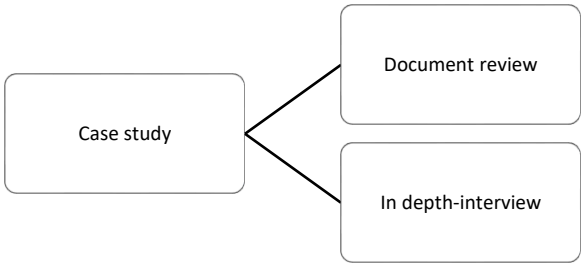

Figure 5-1 Case study components

5.3.1.Individual in-depth interviews

Each case study involved interviews with one key informant from each side of the dyad (buyer side and seller side), constantly "seeking for rival explanations" (Yin, 2012) and therefore avoiding one-sided understandings of the deal-structuring process and outcome. This approach is the most commonly used means of data collection in the case study method. As Schultze et al. (2011) argue, individual interviewing distinguishes itself from other approaches by engaging participants directly in a conversation. This allows the researcher to capture the nuanced insights necessary for the understanding of such a complex and specific phenomenon and was found to be broadly missing within the extant research. The approach also offers clear advantages for case studies: privacy/anonymity (not possible in focus groups), input from the interviewee (not possible in observations and document analysis) and being very interactive (not possible with quantitative deductive surveys and document analysis).

5.3.1.1. Interview structure

One can distinguish three types of interviews: unstructured, semi-structured and structured. While unstructured are more suitable for phenomenological or narrative studies, structured interviews are too rigid to allow for unexpected outcomes (Ritchie, 2003). Taking into account the complexity of the phenomenon and the qualitative study design, the semi-structured interview style was chosen because questions can be prepared in advance whilst still allowing flexibility in the discussion (Ritchie, 2003). This type of interview allows respondents to freely express their views and ideas, using their own terms. The semi-structured interview questions were piloted and modified before use, and the analysis template was applied, revised and re-applied during the interviews. This helped to provide comprehensive, reliable and comparable data, as needed in this study.

5.3.1.2. Interview design

"When developing theory, it is important to focus on what is surprising and unexpected in how the data relate to existing theory." (Grodal et al., 2021, p. 598)

Given the learnings from the literature review, the semi-structured interviews were designed to gain an understanding of deal structuring, allowing the emergence of any explanatory factors without the constraints of any particular theoretical perspective whilst indirectly checking hypothetical elements drawn from extant theories. The questions were designed to elicit responses that would provide an understanding of the phenomenon from a process and outcome perspective, and from strategic, economic, social and legal angles. As advocated by Ritchie (2003), a range of probes were used to achieve depth in the answers in terms of explanation.

After an introductory question to break the ice, the interview guide was structured around four key sections:

1. The first section was designed to understand the deal-structuring context, process and outcome.
2. The second section was designed to interrogate how, when and by whom decisions were made.
3. The third section of the interview aimed to gain a deeper understanding of the factors (antecedents) that influence deal structuring by utilizing a complementary approach. First, interviewees were asked to provide a spontaneous list of the antecedents that they believed to have

played a role in their own deal structuring. Then they were asked to rank, in order of importance, the antecedents on the following pre-defined list selected from the literature:

- Risk, as reinforced by TCE and RO. Risk is a key antecedent in deal structuring, as it can have a significant impact on the perceived value of a deal for both parties.
- Financial aspects (economics of the deal). According to authors such as Deli (2016), financial antecedents, such as cost and revenue projections, play a crucial role in shaping the structure of a deal.
- Asset-related antecedents. The specific characteristics of a product or technology can influence the structure of a deal, for example, by determining the type of intellectual property rights required.
- Social antecedents, such as prior ties, cultural differences and stakeholder expectations, could impact the shaping of deal-structuring decisions.
- Individual antecedents (personal agenda). Scholars like Baysinger and Hoskisson (2015) have argued that individual factors, such as personal motivations and prior experiences, can play a role in shaping deal-structuring decisions.
- Asymmetry – the imbalance in power and resources, which can have a significant impact on the structure of a deal, for example, by affecting the distribution of decision-making authority.
- Negotiation power – the role of negotiation power in shaping deal-structuring decisions, potentially leading to one party having more influence over the deal structure than the other.
- Strategic fit – the importance of strategic fit in deal structuring, with a poor fit potentially leading to a less favorable deal structure for one or both parties.
- Exchange of capabilities and resources. Literature by scholars such as Du and Wang (2015) has emphasized the role of the exchange of capabilities and resources in shaping deal-structuring decisions, with the specific capabilities and resources of each party potentially affecting the structure of the deal.

4. The last section was rather open-ended, allowing for any insights which might have been missed during the interview. It also aimed to solicit any additional documentation which could help the investigation.

Questions could be adjusted during the interview, allowing me as the interviewer to probe for details or discuss issues. This style led to a fairly open atmosphere, allowing for tailored, conversational, two-

way communication (Ritchie, 2003). One of the recurrent probes, due in part to my own practice experience, was challenging the decisions and choices made by the interviewees. As Ritchie (2003) suggests, researchers need to establish their credibility with participants. The fact that I too currently work in the pharmaceutical industry was expected to establish credibility and help facilitate the interaction, in that interviewees would not have to simplify their answers. I was also able to challenge or provocatively reformulate some statements without credibility concerns. This helped me to very rapidly understand the issues and focus on the content rather than on explanations or definitions. For instance, if the interviewee explained that they had chosen a license agreement to access an asset, one of the probing questions could be "why didn't you then consider acquiring the asset?" or "why didn't you sign an option beforehand?". Thanks to this, the study was able to benefit from much deeper insights and accurate descriptions of the deal-structuring process and outcome. The interview guide with tabular description is detailed in 5-1.

Section	Theme	Question
First section	**Conditions pre-deal**	Can you please describe your involvement in the deal?
	Deal-structuring process and outcome	Can you please describe how you designed and structured the deal?
		Retrospectively, why did you choose this specific deal structure and not another?
Second section	**Decisions**	Can you please tell me who have been the key stakeholders/functions involved in the decision-making process?
		At what moment in the decision-making process did your company decide on the type of deal?
		Retrospectively, what was the most critical or pivotal decision to be made? And when in the process?
Third section	**Antecedents**	In your opinion, and retrospectively, what have been the top three to five factors that influenced the main parameters influencing such a deal?
		I am going to cite a number of factors identified in the literature, can you please rank them by order of importance for the deal structuration?
Last section	**All themes**	Is there anything else about the context, the factors and their connection to the deal that we have not covered yet and that you would like to mention now?
		Are there any complementary documents, data or information that you would be kindly willing to provide?

Table 5-2 Interview guide structure and questions

5.3.2.Document analysis

Document analysis was used to complement the interview data, thereby strengthening the research. Document analysis refers to the various procedures involved in analyzing and interpreting data generated from the examination of documents and records relevant to a particular case study. As Bowen (2009) argues, "while being unobtrusive, it provides a 'behind the scenes' look at a program that may not be directly observable". This study focuses on written documents such as the following:

- Company documents (external and internal), which give information about the companies, their structure and their situation.
- Industry reports (e.g., Global Data, Medius Associates), which are produced by industry experts. They can give external insights and data about deals (deal values, deal structures and trends).
- Press and media articles, which are produced by journalists. They can give insights into the deal context and usually describe (from an external perspective) the factors leading to some deal structuration.

Given that deals can include very sensitive information and are, for the most part, confidential, collecting such documentation rapidly became complicated. As a result, the focus has been on collecting only public documentation, where available.

5.3.3.Triangulation

Triangulation is the process of checking the inferences drawn from one set of data sources by collecting data from other sources. In order to seek convergence and corroboration, qualitative researchers usually use at least two different data sources and methods (Bowen, 2009). In my case, for each case study, I interviewed at least one informant from each side of the deal. In addition, each informant was questioned by way of online survey and in-depth interview. Lastly, document analysis was part of the triangulation (Bowen, 2009).

5.4. Data processing and analysis

5.4.1.1. Data processing

Each interview transcript was fully transcribed, annotated and complemented with side notes on comments made during and after the interviews. In terms of analysis, the approach taken was content analysis. Whilst conventional thematic analysis is a method of pure qualitative data analysis, content analysis can be used for both qualitative and quantitative analysis. For this study, content analysis was employed to also be able to count instances of codes. The content analysis in this study consisted of qualitative pattern-matching complemented by coding-and-counting-based pattern analysis. Coding-and-counting-based pattern analysis entails a coding phase followed by a counting phase to determine the code frequency – the rate at which a code appears in the data – for each code within the data from each angle of analysis. In the context of this abductive qualitative study, so-called "corroborative counting" was used. As Hannah et al. (2011) explain, "corroborative counting is used to verify the conclusions reached by a purely qualitative analysis of the data". Due to my own practice experience, most practice-specific terminology and wording could be easily translated into relevant codes and interpretation. Memoing (writing notes during the interviews and analysis) as well as mind-mapping were effectively employed as a procedural and analytical strategy throughout the research process, therefore facilitating data exploration and analysis. They helped me to make conceptual leaps from raw data to abstractions.

<u>Unbiasedness strategies</u>

The study was designed to navigate the tension between empirical openness and theoretical guidance through a structured, abductive methodology. This approach explicitly acknowledges that all observation is theory-laden, but systematically harnesses theory as a starting point for inquiry rather than a foregone conclusion. Unbiasedness was operationalized as the commitment to following where the empirical evidence leads, even when it challenged initial theoretical expectations.

The following strategies were implemented to ensure this:

- Systematic and transparent process tracing**:** within each case, the analysis meticulously reconstructed the chronology of events, decisions, and interactions. This process forced the analysis to account for *all* relevant data in the narrative, not just data that conveniently illustrated

a theoretical point. Disconfirming evidence or anomalous sequences became critical points for refining the emerging framework.

- The principle of iteration between data and theory**:** The research process was not linear but cyclical. Initial theoretical lenses (RBV, TCE, RO, ICT) provided a "sensitizing" framework to begin coding. However, the emergent codes and patterns from the data were constantly compared back to these theories. When the data revealed phenomena that existing theories could not fully explain, the theoretical model itself was iteratively refined. This is the core of abduction: inference to the best explanation.
- Explicit coding protocol and aggregation**:** the coding process involved multiple rounds. While the initial codes were informed by theory, subsequent rounds were driven by themes that emerged directly from the interviewees' accounts.

5.4.1.2. Scope and levels of analysis

Once all the interviews were transcribed and coded, the analysis could be performed at five different levels:

- Individual interview analysis
- Within-case analysis – comparatively analyzing seller and buyer perspectives in each case
- Across-seller case analysis – comparatively analyzing all cases from the sellers' perspective
- Across-buyer case analysis – comparatively analyzing all cases from the buyers' perspective
- Multiple comparative overall case analysis – comparatively analyzing cases across all perspectives

This combination of analysis perspectives allowed the capture of diversified perspectives and comparison of the findings through different angles, including the possibility of identifying patterns specific to buyers or sellers, as well as at a meta level across all cases and interviews.

5.4.1.3. Within case study analysis

For each case study, a systematic description was produced and is presented in Chapter 4. As explained earlier, each case study included interviews with one key informant from each side of the dyad (buyer side and seller side), constantly "seeking for rival explanations" (Yin, 2012) therefore avoiding one-sided understandings of the deal-structuring process and outcome. The within case study analysis

consisted of comparing and consolidating the two perspectives (and coding) in terms of antecedents, the deal-structuring process, deal outcome and decisions.

Data analysis of each case involved both pattern matching and explanation building. Pattern matching involved the counting of codes and the analysis of their frequency. This analysis involved comparing the predicted patterns (for instance, in high-risk contexts, firms prefer a flexible type of deal structure) with the patterns that were empirically observed, and identifying any variances. Explanation building consisted of forming a set of causal links between antecedents, deal-structuring process and outcome, and was an iterative process.

5.4.1.4. Cross-case study analysis

The exact same coding procedure was followed across all interviews and all case studies. Thanks to the NVivo software, pattern matching via code counting could easily be performed across case studies and at different levels of analysis. The aggregation and consolidation of multiple codes was performed and tabulated to allow meta-analysis and cross-case comparisons. Differences between code frequencies across units of analysis in different conditions were then analyzed. Table 5-3 illustrates how analysis was conducted within and across case studies.

5.4.1.5. Data coding

Each annotated interview was coded using a codebook designed to be congruent with the interview guide and the research objectives. The coding of the documents was exclusively based on my own interpretation, though with clear theoretical definitions from the literature.

All the interviews and case studies were processed according to the three steps of qualitative abductive analysis developed by Timmermans and Tavory (2012 and 2014):

1. Generating an abductive codebook: the research started with a deductive codebook guided by extant theories and assumptions, and during the process of data collection and coding, the codebook was developed towards a more data-driven inductive format.
2. Abductive data reduction through code equations: NVivo qualitative data analysis software was used to combine codes to optimally capture the deal-structuring process and outcome.

3. In-depth abductive qualitative analysis: this consisted of a final round of inductive coding and qualitative analysis.

The initial codebook was designed using an initial deductive, theoretically based structure. It was designed to collect codes around the five following themes: conditions pre-deal, deal description (outcome), antecedents to deal structuring, deal-structuring process (or design), and decisions. For each theme, categories were defined and for each category, abductive-based and emerging codes were created. The codebook themes and categories are listed in Table 5-3.

Coding linked to theoretical frameworks involves aligning specific concepts or aspects of your data with the core principles and constructs of each theory. Here is a detailed explanation of how I allocated codes to each theory:

- Codes were linked to TCE when they reflected concerns about optimizing the deal from an economics and transaction perspective, self protection or asset specificity.
- Codes were linked to RBV when they reflected the strategic objectives, strategic fit, complementarity and/or exchange of resources between firms.
- Codes were linked to RO when they reflected flexibility, back-loading of decisions and financial structure, uncertainty and risk management from a value creation perspective.
- Codes were linked to ICT when they reflected the challenges of specifying all terms in a deal, the ownership and distribution of control rights

Figure 5-2 illustrates the extent to which the study planned to capture and understand the entire journey through the deal from the background context (conditions pre-deal) to the final deal outcome.

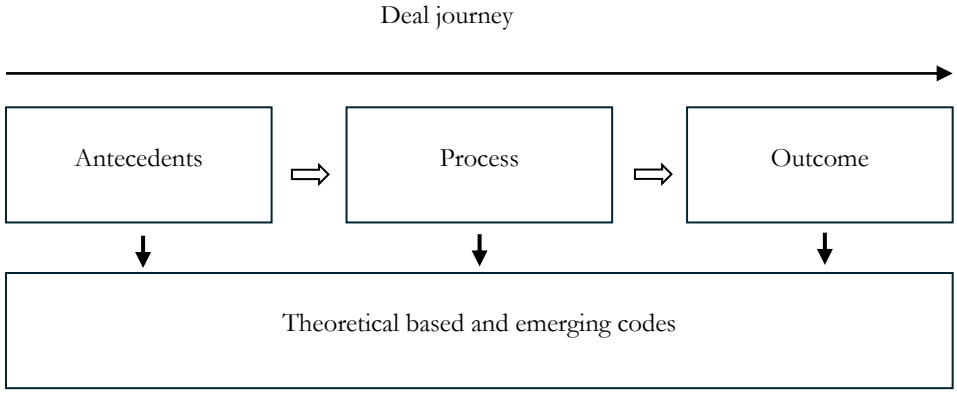

Figure 5-2 Journey through the deal and key decisions

Theme	Category
Conditions pre-deal	Asset attributes
	Firm attributes
Deal description (outcome)	Deal typology
	ICT-based allocation of rights
Antecedents to deal structuring	TCE-related antecedents
	RBV-related antecedents
	RO-related antecedents
	Non-theory/emergent antecedents
Deal-structuring process (or design)	TCE-related design
	RBV-related design
	RO-related design
	ICT-related design
	Non-theory/emergent design
Decisions	Key decisions
	Structure
	Timing

Table 5-3 Codebook categorization

5.5. Addressing the challenges of a multi-theoretical perspective

While such a multi-theoretical perspective promises a more holistic understanding of complex deal structuring in the pharma R&D context, it also introduces methodological and conceptual challenges that must be carefully addressed. This section systematically outlines these challenges and proposes methodological solutions grounded in a pragmatic, abductive and process-based research design to ensure theoretical rigor without sacrificing analytical clarity or practical relevance.

One challenge is that posed by disciplinary silos. Academic research on deal structuring often remains divided along disciplinary lines; economists tend to favor TCE, strategists emphasize RBV, and financial scholars focus on RO. This compartmentalization hinders the cross-theoretical dialogue necessary to develop comprehensive explanations, as it overlooks the interactions between governance, resources, and flexibility. To overcome these siloed perspectives, this study adopted a temporal process lens (Langley, 1999), which maps how different theories apply at distinct decision gates. Rather

than forcing theories into competition, the research aimed to identify phase-specific dominance—such as TCE for ex-ante governance and RO for milestone flexibility—while clarifying sequential interactions, like how RBV influences partner selection before ICT guides contract drafting. This process-oriented approach transcends disciplinary boundaries by demonstrating how theories complement one another across the deal lifecycle.

The study also confronts the attribution problem inherent in multi-theoretical models, which struggle to disentangle causal mechanisms and discern the contributions of transaction costs, resource synergies, or option value. To address this challenge, the research employed cross-case analysis to compare deals with similar initial conditions but divergent outcomes, thereby isolating the theoretical mechanisms activated in each case. Additionally, within-case process tracing was utilized to examine interview data to identify precisely when and why specific theoretical logics were invoked by practitioners. By focusing the analysis on observed decision-making, the study aimed to ground theoretical claims in empirical evidence.

Testing multi-theoretical models also requires granular data on all relevant variables, which is often challenging to access or compare across cases. To manage this complexity, the research focused on qualitative depth and abductive reasoning. Rather than relying solely on statistical controls, it leveraged rich case data obtained from longitudinal interviews, contract drafts and negotiation memos to capture the theoretical reasoning at play. This abductive logic facilitated iterative explanation refinement while remaining responsive to empirical puzzles that emerged during the research process.

Additionally, the issue of theoretical overlap and redundancy had to be addressed, as constructs like "uncertainty" exist across TCE, RO and ICT, potentially leading to conceptual blurring. To mitigate this risk, the research established clear conceptual demarcations, assigning core explanatory domains to each theory and identifying boundary conditions. By linking theories to specific deal phases and decision contexts, the study aimed to minimize overlap and clarify each theory's unique contributions.

In summary, while multi-theoretical research demands greater methodological care, its potential to unlock richer, more holistic insights into pharmaceutical deal structuring justifies its adoption—provided it is executed with the rigor and reflexivity outlined here.

5.6. Assessing reliability and validity

5.6.1. Reliability

The four main issues with reliability are participant error, participant bias, observer error and observer bias. They were anticipated and mitigated as detailed in the following sections.

5.6.1.1. Participant error

This type of error may involve inaccurate answers or an inability to answer certain questions. In order to mitigate participant error, the interview guide was written to ensure that questions were both open and explicit. In addition, questions could always be reformulated, sometimes with industry-related wording, to ensure proper understanding by the interviewee. Discussions were also recapped (when relevant) as a way to ensure that the questions had been answered appropriately. Finally, the selection of relevant interviewees with the right background and involvement in the deal was key and was done systematically.

5.6.1.1. Participant bias

This type of error could be due to participants giving biased views on the phenomenon under investigation. Given that this bias is unavoidable, the study was designed to get insights from both sides of every deal case. In addition, documentary analysis could help to reduce this bias.

5.6.1.2. Observer error

In this instance, the risk could reside in my inability as the interviewer to capture key elements by not understanding the answers. First, all interviews were fully audio recorded, transcribed and subjected to multiple rounds of listening and coding. In addition, using an iterative process, each new potential learning from one interview could be cross-validated with other interviews and cases. Moreover, the use of multiple complementary questions helped to reduce risk of misunderstanding. Finally, my own industry background and relevant experience could be a risk mitigation, as I was less likely to misunderstand what interviewees meant.

Case study	Seller	Buyer	Analysis
Case study 1	Individual interview	Individual interview	Within-case analysis
Case study 2	Individual interview	Individual interview	Within-case analysis
Case study 3	Individual interview	Individual interview	Within-case analysis
Case study 4	Individual interview	Individual interview	Within-case analysis
Case study 5	Individual interview	Individual interview	Within-case analysis
Case study 6	Individual interview	Individual interview	Within-case analysis
Case study 7	Individual interview	Individual interview	Within-case analysis
Case study 8	Individual interview	Individual interview	Within-case analysis
Case study 9	Individual interview	Individual interview	Within-case analysis
Case study 10	Individual interview	Individual interview	Within-case analysis
Case study 11	Individual interview	Individual interview	Within-case analysis
Case study 12	Individual interview	Individual interview	Within-case analysis
Case study 13	Individual interview	Individual interview	Within-case analysis
Case study 14	Individual interview	Individual interview	Within-case analysis
Case study 15	Individual interview	Individual interview	Within-case analysis
Analysis	Across-seller case analysis	Across-buyer case analysis	Multiple comparative overall case analysis

Table 5-4 Listing of different analysis levels

5.6.1.3. Observer bias

While my industry background and relevant experience could mitigate the risk of observer error, it also had the potential to introduce observer bias. To mitigate this, the interview was designed with objective questions to prevent me from using or sharing my own personal opinion during the interviews. In addition, systematic validation was undertaken – preliminary findings were discussed and challenged with academic supervisors and peers in the industry, and their feedback was constructively incorporated into the study analysis.

5.6.1.4. External validity

External validity concerns an evaluation of whether the research work can be generalized or not. In this specific research, generalization is possible because of the use of multiple diversified case studies (15 cases), according to replication logic. The diversity of cases is described in Appendix D. Among the diversified variables between cases are the following:

- Country base of involved companies
- Company size
- Type and number of contractual agreements per deal
- Deals inward and outward – inward means the transfer of an asset from a small firm to a large firm and outward refers to the transfer of assets in the opposite direction
- All types of financial status
- Product development stage – ranging from pre-clinical to phase 3
- Type of product or technology – small molecule, biologics and devices
- Technology platform deals vs one-product deals

However, it should be noted that generalizations will only be possible in the exact same context of dyadic asymmetric R&D relationships within the pharmaceutical industry.

5.6.1.5. Construct validity

Construct validity refers to the degree to which the measures used in a research study accurately represent the underlying construct being studied. In the context of deal structuring, construct validity can be assessed by evaluating the ability of the research findings and model to accurately describe the process and outcome of deal structuring. One method of assessing construct validity is through practical testing, as well as the use of multiple informants and sources of information. This enhances the reliability of the results and reduces the risk of an invalid construct. The use of multiple sources of information to evaluate construct validity is a commonly adopted method in research, as it provides a more comprehensive view of the construct under study. For example, Gudmundsson (2018) highlights the importance of triangulating data from multiple sources in order to enhance the validity of the results in strategic management research. Similarly, Chin (1998) advocates for the use of multiple methods of data collection and analysis to increase the validity of the findings in organizational research. In conclusion, in order to ensure the construct validity of research findings on deal structuring, it is important to incorporate multiple sources of information and practical testing, as well as to consider the use of multiple methods in data collection and analysis.

5.7. Summary

This chapter has outlined the methodology for this study, which was designed to enable us to better understand the complexity of the phenomenon of deal structuring with limited constraints from pre-existing theories, and to allow for depth and granularity of understanding. Table 5-5 below provides an overview of the research approach for this study.

Epistemological position	Pragmatic		
Reasoning	Abductive		
View	Weak Process based		
Research methodology	Qualitative		
Research method	Case study		
Case study typology	Explanatory		
	Multiple cases	Holistic	Comparative case studies
Unit of analysis	Deal (one case for one deal)		
Context	R&D asymmetric dyadic relationships in the pharmaceutical industry		
Case study selection	Deliberate non-random sampling	15 cases	Replication logic
Interviews	Semi-structured	Audio transcribed	Annotated
Data reduction	Abductive coding	Memoing	Mind-mapping
Analysis approach	Content analysis incl. corroborative count coding	Pattern matching	Explanation building
Scope and level of analysis	Individual interview analysis	Within case comparative analysis (seller vs buyer)	Cross-case comparative analysis (seller and/or buyer level)
	Overall cross-case comparative analysis		

Table 5-5 Summary of the overall research approach

Following a thorough description of the methodology, the subsequent chapter will undertake a within-case analysis.

6. Findings - within case analysis

6.1. Case Study 1

6.1.1.Deal outline

This Deal was held in 2017, between a large global healthcare company with 90 000 employees (buyer) and a start-up (seller) of 10 employees financed by VCs (Venture Capital Investors). The startup had developed a small molecule up to successful phase 2a study in Atopic Dermatitis (Eczema) with promising results in terms of itch reduction, a significant problem resulting from such a disease, especially for children. After some preliminary contacts, the large company decided to acquire the start up mainly because of its main asset. The license agreement between Buyer and Seller involved an upfront payment upon signature of the contract, and additional milestone payments tied to the development process and commercial performance. The first contact, evaluation, negotiation and closing of this Deal took approximately one year.

6.1.2.Deal structuring antecedents

6.1.2.1. Deal structuring antecedents (buyer perspective)

The interviewee first emphasized asset scarcity—namely, the uniqueness of the asset (as defined from RBV perspective)—and the magnitude of the unmet medical need as primary antecedents shaping the decision to pursue a transaction. This is exemplified by the observation:

> *"We realized there is actually no innovative oral treat atopic dermatitis, nothing new."*

The absence of innovative therapeutic options not only accentuated the asset's distinctiveness but also heightened its strategic attractiveness in light of a clear clinical gap. That is why the buyer also consistently highlighted strategic fit—defined as alignment between the asset and the acquirer's established strategic priorities. Deal design was adapted to reflect the degree of this fit. The process was described as iterative across organizational levels:

> *"In a way there is a stimulus bottom up but then a decision top down on what is the strategy and then confirmation. And then within the strategic framework then we do*

> *bottom up again. That's the asset that fits the strategy and goes bottom up again and it's decided up there."*

This underscores a cyclical interplay between top-down strategic direction and bottom-up asset selection. Furthermore, the buyer underscored that risk is intrinsic to the pharmaceutical R&D context and exerts a decisive influence on deal structuring. As stated,

> *"there is significant risk so we would never ever have acquired it with all upfront …. In pharma the biggest driver is the risk. How is this the risk spread whilst investment at risk until you know relatively sure it will succeed?"*

In addition, and contrary to expectations for a large pharmaceutical acquirer, the interviewee reported that negotiation power played a limited role. The buyer had to accommodate the seller's stance—specifically, the seller's reluctance to pursue a licensing arrangement—and align terms accordingly. As articulated:

> *"So if the company does not offer a license we don't usually try to push that. You always have to find a win win between what the company wants and the owners want and what you as buyer want."*

This suggests that bargaining dynamics were shaped less by size asymmetry and more by the seller's deal preferences and the asset's distinctiveness.

Furthermore, financial consideration emerged repeatedly as key economic antecedent. The interviewee noted that "deal appetite" functioned as a moderating rather than a direct causal factor: with lower appetite, execution would likely proceed more slowly; with higher appetite, the process would accelerate. Nonetheless, the core emphasis remained on economic structuring to balance acquisition costs, prospective returns, and development risk. As the buyer explained:

> *"I think this is then all about financial modelling. So we look at how much money does it cost? How much sales proceeds does it give if it's successful? What's the probability of*

> *success? And then we look how can we stage the payments such that the value is evenly shared."*

The logic points to disciplined financial modeling and staged consideration as mechanisms for value sharing under uncertainty.

Finally, prior relationships did not materially shape deal structuring. The interviewee indicated that straightforward acquisitions were culturally more feasible without prior ties in Western contexts; prior relationships served primarily as facilitators of negotiations rather than as primary antecedents. Moreover, inter-party asymmetry was not perceived as problematic, implying that negotiation power depended more on asset specificity than on organizational size differences.

6.1.2.2. Deal structuring antecedents (seller perspective)

First, investors serving on the seller's supervisory board (therefore controlling the start-up) targeted a minimum threefold return on their investment. This economic antecedent— defined as the economic and financial aspects of the deal —steered the transaction toward maximizing early value capture, notably through a substantial upfront payment. As noted:

> *"from the acceptance of the board investors, the financials were obviously a critical part of that, given that there was a significant amount of money paid upfront."*

Second, the seller sought to advance the asset aggressively and viewed the buyer as possessing both the necessary capabilities and the intention to elevate the program as a strategic priority. This reflects the strategic fit and resource access-exchange antecedents. As emphasized:

> *"it was important to us that there was the strategic fit with buyer and they had the resources and not just the resources, but the desire for this to be an important product for them."*

Third, the seller's broad set of options and multiple potential acquirers conferred significant negotiation power and leverage relative to the buyer. Supported by a third-party transaction advisor, the seller engaged parallel discussions, declined the buyer's initial option proposal, and articulated a preference for a structured acquisition featuring upfront, milestone, and royalty payments while

eliminating the option component. Shaped by the seller's mono-asset profile, this approach aimed for a comprehensive deal with the buyer, leveraging competitive tension and advisor-led process design.

Finally, trust functioned as a facilitating antecedent from the seller's perspective, enabling progress through inevitable execution challenges. As observed:

> *"there's a thousand ways this deal can't happen, you know, because of things that come up along the way. And so the trust between the principals involved is critical in terms of addressing those issues and just dealing with them and keeping it moving forward. And so that was the other key factor in making this all work."*

6.1.2.3. Deal structuring antecedents – similarities and differences between the parties

Both parties converge on strategic fit, asset related antecedents, economics related antecedents, and negotiation power as primary antecedents, indicating a shared recognition that the deal's rationale rests on complementary resources and financial logic alongside a clear understanding of each side's leverage. The buyer operationalizes this convergence through disciplined risk management—rejecting all-upfront exposure, staging consideration to de-risking milestones, and modeling probabilities to preserve scenario robustness—while acknowledging knowledge asymmetry on the asset and seeking safeguards to mitigate it. The seller, by contrast, amplifies resource access and trust as enabling conditions for collaboration, coupling investor-driven return thresholds with a preference for early value capture and advisor-orchestrated competition to shape structure. In both accounts, strategic fit functions as the ex ante gate, but it is enacted through distinct constraints: the buyer's risk discipline and governance capacity versus the seller's liquidity imperatives, resource needs, and relational assurance.

This empirical pattern aligns with the ranking of literature's pre-identified antecedents (appendix E) and with the spontaneous emphases voiced in interviews. Both sides rank strategic and economic factors most highly, with sellers assigning greater weight to social antecedents—particularly trust—than buyers, and buyers placing greater emphasis on risk-related antecedents, a foreseeable distinction given their exposure management mandate. Individual antecedents related to personal motivations occupy a similar, lower position for both parties, suggesting limited influence relative to organizational priorities and information-contingent economics. Finally, the comparable ranking of asymmetry

across buyer and seller indicates that it is not determinative; bargaining outcomes appear to be shaped more by asset distinctiveness, credible alternatives, and process design than by organizational scale alone.

6.1.3.Processual unfolding of the deal

6.1.3.1. Deal journey

6.1.3.1.1. Deal journey (buyer perspective)

The interviewee, a Senior Executive in Business Development & Licensing unit of Buyer, has managed the end-to-end deal process, collaborating with all company stakeholders (Executive committee, Board, R&D, Commercial, Finance).

The interviewee was initially impressed by the program and was familiar with the founding team, including the CEO. Subsequently, upon witnessing the positive results of the clinical phase 2a (Human clinical trial) proof of concept, they made an initial offer involving an Option for Acquisition. However, the start-up promptly rejected this offer. After further in-house assessment and extensive deliberations, the team came back with a revised offer for a structured Acquisition with upfront payments, milestone fees, and royalties, excluding the Option component, in alignment with the start-up's expectations. The proposed deal structure underwent validation by the Executive Committee, which also analyzed figures and requested risk mitigation measures.

The "Pre-Deal Phase" was deemed critical by the interviewee as the evaluation of the Asset significantly impacted the subsequent Deal Structure. The team conducted thorough Due Diligence on the Science, Clinical & Commercial aspects of the asset to determine its level of Strategic fit, Asset specificity, and Risk/Return profile.

The deal was concluded within a rapid 2-months timeframe without signing any exclusivity period. The team exhibited confidence in successfully closing the deal from the outset of their intent to make it.

Throughout the process, the company emphasized a win-win approach, as their reputation in this domain held great significance. This approach naturally led to an iterative and dyadic deal Structuration process.

6.1.3.1.2. Deal journey (seller perspective)

The interviewee, representative of the primary investor for the seller, assumed the position of chairman and interim CEO (in replacement of the departing CEO).

The seller achieved success with a small molecule, advancing it through a promising phase 2a study in Atopic Dermatitis (Eczema). Faced with a choice between securing funds for further development or engaging in a transaction with a pharmaceutical company, the seller prioritized the latter after garnering interest from various firms. Given its status as a venture capital-backed mono-asset company, acquisition emerged as the default option due to constraints posed by the single-asset nature and funding source. Licensing was deemed less viable for creating value and lacked interest from both the executive chair and investors, considering financial returns. Recognizing the complexity and lacking in-house expertise, the seller sought support from a transaction advisor, opting for a third-party advisory bank. Formal discussions with potential buyers ensued, and despite the swift rejection of the initial Option for Acquisition offer, both parties expressed interest in a structured acquisition. This structured acquisition involved upfront payment, milestone-based payments, and royalties, as communicated after thorough in-house assessments and deliberations.

6.1.3.1.3. Deal journey – similarities and differences between the parties

The buyer's deal journey emphasizes collaboration with key stakeholders, iterative structuration, and confidence in a rapid deal closure. In contrast, the seller's journey highlights prioritization of acquisition due to constraints, seeking external support, and structured negotiations.

Both perspectives underscore the importance of internal assessments, risk considerations, and the pursuit of a structured acquisition.

Both parties converge on a evidence-led trajectory from initial interest to a structured acquisition. The buyer frames this transition through internal governance and disciplined diligence across functions, with the Executive Committee validating structure and requesting risk mitigation. The seller frames it

through constraint-aware strategy—mono-asset, VC-backed profile—and advisor-led process design to maximize value and manage complexity.

They differ in emphasis and binding constraints. The buyer highlights iterative alignment between bottom-up asset evaluation and top-down strategic direction, adopting a "win–win" posture and adapting typology after the seller's rejection of an option. The seller emphasizes investor return thresholds and credible outside options, rejecting licensing and the option proposal as misaligned with value capture for a mono-asset enterprise.

6.1.3.2. Deal structuring considerations[2]

6.1.3.2.1. Deal structuring considerations (buyer perspective)

First, the buyer prioritized risk–return allocation as the primary consideration, defined as the balance between risks and returns within a given deal. Reflecting the high probability of drug development failure (with roughly 90% of clinical-stage products failing), the buyer emphasized structuring for fair risk sharing and explicitly avoided an all-upfront payment. As stated:

> *"So then the structuring is all about risk, all around the risks. How can we find fair risk sharing and how can we pay them as much as possible of the money after the derisking events."*

Second, building on this logic, the buyer advocated a *"structured payment – milestones"* framework, preferring a smaller upfront payment with larger tranches linked to de-risking milestones or inflection points (e.g., positive study readouts, regulatory approvals). This structured payment–milestones consideration — defined as a financial arrangement in which consideration is staged against specific development achievements— recurred throughout the interview and underscores the buyer's preference to align payments with progress, thereby mitigating uncertainty in the asset's trajectory. As explained:

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[2] as a reminder considerations are the critical points of negotiation and discussion between the parties

> *"You can structure the acquisition in a way where you pay only a certain amount upfront. And then the negotiations is how much upfront, how much the milestones and obviously you map it against your development plan."*

Third, the buyer pursued *"safeguard and risk mitigation"* consideration—defined as negotiations intended to shield the acquirer from predefined risks. Initially, the buyer proposed an option structure under which it would fund the next study and acquire the company at a pre-agreed price only if the data proved favorable, thereby further de-risking the commitment. The seller declined this option approach due to competitive pressure, prompting a shift to a structured acquisition with upfront, milestone, and royalty components. The rationale for safeguards is reflected in the observation:

> *"they need to wait a significant amount of period to get all the money because the project can die."*

Finally, the buyer emphasized contracting and organizational efficiency—defined as negotiations aimed at ensuring an efficient, resilient deal across scenarios. The goal was to shape terms that yield attractive economics for the acquirer under most outcomes and limit downside exposure outside of outright failure. As summarized:

> *"we try to structure deal terms where under all scenarios we have an attractive deal for us and ideally even after the worst scenarios - except failure- we don't lose money."*

6.1.3.2.2. Deal structuring considerations (seller perspective)

First, the seller and buyer converged around a structured-milestone-based payment design and a corresponding consideration around risk–return allocation. The inherent tension between upfront versus contingent consideration was explicitly acknowledged:

> *"when you're selling the company, the seller wants to get as much money upfront and the buyer wants to pay as little as possible upfront and pay all the success down the road. And that's just the natural tension between selling and buy in those circumstances. Given that it wasn't a fully developed asset, given that there was two indications being pursued. We always recognized it was going to be a structured transaction. So, you*

> *know, a certain amount of money upfront and then and then milestones on the achievement of certain activities."*

Second, achieving substantial financial returns for investors—targeting at least a threefold return—was a critical consideration. This objective translated into a deal architecture combining a meaningful upfront payment with a significant pool of contingent consideration. Consistent with value creation pathways, the seller sought milestones that were both proximal and closely tied to de-risking events, enabling earlier participation in the incremental value added as the program advanced. Most of the contingent value was linked to atopic dermatitis, with a smaller tranche tied to psoriasis, reflecting differential probability, timing, and market potential across indications.

Third, with respect to contracting and organizational efficiency, the seller favored the most straightforward route to liquidity—namely, a full acquisition—over a licensing arrangement. As articulated:

> *"for the investors, the main you know, the main consideration for them was what their return would be. So the financial aspects were very important for them. And so they want to make at least a 3x return on their investment."*

A trade sale was prioritized from the outset to deliver timely liquidity and avoid the protracted and uncertain return profile associated with a long-dated license (potentially 10–15 years), thereby better aligning with venture investors' capital return expectations.

Finally, the seller implemented safeguard and risk-mitigation measures to preserve optionality amid execution uncertainties. This involved running parallel processes for financing and a strategic transaction, navigating a compressed financing deadline against the buyer's verbal commitment, and persuading investors to accept terms that maintained flexibility. As noted:

> *"So actually, you allowed yourself in a smart way to mitigate the risk of not losing conflicts of interest for investors by keeping them like in a way involved in that transaction wouldn't happen with buyer. But that speaks to the critical decision you had to make."*

6.1.3.2.3. Deal structuring considerations – similarities and differences between the parties

Interestingly, both parties converge on risk–return allocation and staged consideration as the organizing principles of deal structure, yet they anchor these principles in different constraints and objectives.

The buyer frames structuring as an exercise in risk discipline under high clinical attrition, prioritizing fair risk sharing, smaller upfronts, and larger milestone tranches keyed to de-risking events. Safeguards are central: the initial option-to-acquire proposal was designed to fund the next study and crystallize acquisition only conditional on positive data; once rejected, the buyer translated the same logic into a structured acquisition with upfront, milestones, and royalties. Contracting efficiency is treated as a design criterion, targeting attractive economics across most scenarios and minimizing downside outside outright failure.

The seller accepts the same structural logic—staged payments aligned with de-risking—but calibrates it to investor return thresholds and liquidity preferences. A minimum threefold return, coupled with a mono-asset, VC-backed profile, makes a full acquisition preferable to licensing's long-dated, uncertain cash flows.

Overall, the similarities are substantive: both regard structured, milestone-based economics as necessary under uncertainty; both tie payments to clinically meaningful inflections; and both emphasize safeguards that protect against unfavorable states of the world. The differences lie in binding constraints and time preferences. The buyer optimizes for risk-adjusted value and scenario robustness, resisting all-upfront exposure; the seller optimizes for investor liquidity and return hurdles, resisting options and licenses that defer value realization.

6.1.3.3. Decision gates

6.1.3.3.1. Decision gates (buyer perspective)

The buyer's decision-making process was characterized by strategic filtering, risk assessment, and a multi-layered internal approval structure.

Initially, the buyer evaluated the program but did not join the small set of companies pursuing an outright acquisition. Instead, it proposed an option structure—a less financially committal approach intended to keep a foot in the door while allowing the seller to fund the next study and generate additional data, with no obligation to proceed if the data were not favorable. Following the stall in early discussions, the buyer reconsidered its position on the asset and the atopic dermatitis opportunity and chose to re-engage for a full acquisition, despite the existence of two different camps within the organization regarding the merits of the deal.

After the seller rejected the option construct due to competitive pressure, the buyer decided to shift toward a structured acquisition combining an upfront payment, development milestones, and royalties. This adaptation was critical to secure the asset in a competitive process. A key internal gate centered on aligning scientific and commercial assessments of value. The buyer worked to convince scientific teams that the drug mode of action represented a cutting-edge approach rather than an old-fashioned one, while commercial teams came to view the product as attractive even amid efficacy uncertainty, given the unmet need for an oral treatment in atopic dermatitis. The realization that there was effectively nothing else available—no other innovative oral treatment—reinforced the asset's commercial logic. When these insights aligned, the buyer was pushed to proceed and increased its offer.

The deal then advanced through a multi-tiered internal governance process in which bottom-up proposals required top-down approvals. At the franchise level, agreement was needed from the therapeutic area head, the commercial franchise head, and the development franchise head—stages described as long and intense opinion-forming. Corporate business development and licensing subsequently challenged the case, with the head of BD&L scrutinizing both the numbers and the science. Final approvals moved to executive leadership: the pharma CEO, the executive committee, and, depending on deal size, the board of directors. These higher levels often involved single-chance, approve-or-decline decisions.

Overall, according to the interviewee, the most pivotal decision, during this deal journey, surfaced relatively late in the discussions, occurring after the rejection of the initial option offer. It unfolded when teams from the buyer side, including R&D and commercial departments, acknowledged the innovative and unique nature of the asset (high asset specificity). This recognition, highlighting the

absence of readily available comparable alternatives, prompted the buyer not only to proceed with a deal but to actively prioritize an acquisition.

6.1.3.3.2. Decision gates (seller perspective)

Seller, as a small venture backed company with one asset only, had to make a number of key decisions.

First of. all, seller elected to pursue parallel paths by simultaneously raising a new financing round and exploring a trade sale or full acquisition. This approach preserved optionality and targeted timely investor liquidity, given that a licensing arrangement for the lead asset was not viewed as an attractive route for venture investors seeking quicker returns.

Then, acknowledging that the internal team was primarily scientific and relatively limited in business expertise, the seller engaged an investment bank as a transaction advisor. The advisor supported negotiations, informed deal structuring, and provided an additional line of communication with the buyer, thereby enhancing process rigor and coordination.

The buyer's initial option-based proposal—funding the next study with an option to acquire later at a predetermined price—was declined. The seller believed it could independently raise capital, generate additional value through study progress, and subsequently command a higher valuation. Competitive alternatives reinforced the decision to reject the option structure in favor of pursuing terms that better reflected the anticipated value creation.

As per the interviewee, during the deal journey, the most pivotal decision arose when the seller was on the verge of finalizing an investment term sheet with new investors, but the buyer re-engaged, expressing interest in the atopic dermatitis program. The seller faced the challenge of navigating negotiations with both parties and promptly deciding whether to proceed with this acquisition deal or not. The seller's leadership worked to persuade investors to accept terms that preserved flexibility and optionality, enabling concurrent negotiations and positioning the company to proceed with the acquisition if finalized.

The process culminated in acceptance of an acquisition offer comprising a significant upfront payment and substantial contingent consideration tied to milestones. The decision reflected the prospect of strong investor returns, alignment of the asset with the buyer's strategic priorities, and the buyer's

commitment to aggressively advance development—conditions deemed essential for realizing the contingent value.

6.1.3.3.3. Key decision gates – similarities and differences between the parties

The most pivotal decision, during the deal journey, for both parties revolves around the commitment to enter into a deal. The buyer's decision is primarily driven by interest in the asset, emphasizing an asset-centric perspective. In contrast, the seller's decision is motivated by interest in the buyer as a company, highlighting a partner-centric approach.

6.1.4.Deal outcome description

Deal structure can be described according to 3 typologies: TCE based, ICT based and Contractual.

First of all, following the deal-structuring outcome typology grounded in TCE-based integration (section 3.4.2.1), this deal structure would prima facie be classified as a M&A, within the acquisition category.

Secondly, following the deal structuring outcome typology built on the logic of ICT, this deal structure can be described as full transfer of control rights, indicating comprehensive consolidation of decision-making authority within the buyer.

Lastly, from a contractual standpoint, the deal signed between the firms is a company acquisition. This is a structured acquisition comprising upfront, milestone & royalty payments, for a total deal value beyond 1 billion dollars $.

6.1.5.Abductive assessment of RBV, TCE, RO and ICT explanatory power

This deal appears to be best interpreted through complementary theoretical lenses that together elucidate the deal journey and outcome.

6.1.5.1. Buyer's assessment

From Buyer's standpoint, the deal structuring was primarily driven by strategic fit, carefully managed risks, and an acknowledgment of contractual limitations inherent in complex transactions.

RBV profoundly influenced Buyer's approach from the outset and remained the foremost driver throughout the deal. Buyer's primary motivation was to acquire a valuable and rare asset that offered a perfect strategic fit within their existing and highly successful dermatology franchise.

RO was evidently at play in Buyer's initial preferred approach, particularly during the earlier phases of engagement. Buyer explicitly favored an "option deal" structure. While Seller ultimately refused this option due to other competitive offers, the principles of staging payments to mitigate risk and preserving flexibility remained central to the final deal structure through milestones.

The influence of TCE became more pronounced as the deal moved towards a definitive acquisition. Recognizing the significant risks associated with early-stage pharmaceutical assets (with 80-90% failure rates for clinical products), Buyer structured the acquisition with a sizeable upfront payment alongside development milestones and royalties. This deal structure served to share risk fairly and manage ex-post transaction costs.

Finally, ICT seemed to play little role in that deal on the buyer side.

6.1.5.2. Seller's assessment

From Seller's viewpoint, the deal structuring was a strategic balancing act between maximizing value for investors, leveraging their unique asset, and navigating the complexities of a transaction with a much larger entity, often relying on expert guidance.

TCE significantly influenced seller's operational approach to the deal. Recognizing their limitations as a *"small company"* with a *"relatively inexperienced team"* primarily composed of scientists rather than business development experts, Seller proactively recruited an investment Bank as a transaction advisor. This external engagement was a direct application of TCE principles aimed at reducing transaction costs associated with negotiation, information asymmetry, and ensuring the *"best possible deal"* for their board and investors. The bank's involvement provided *"tremendous experience"* and offered an *"alternative real communication"* channel with Buyer, streamlining complex discussions and contributing to a "positive and productive" overall process. The final structured transaction, with upfront and contingent payments tied to milestones, aimed to balance the seller's desire for immediate liquidity with the buyer's need for risk sharing, reflecting a negotiated effort to minimize future disputes and align incentives within a complex contractual framework.

RBV was fundamental to seller's strategic positioning from the beginning. Seller's value proposition rested almost entirely on its one significant asset. The company recognized that licensing this *"main asset"* would diminish its long-term strategic value and fail to provide the *"liquidity"* sought by its venture investors, making a full acquisition the preferred outcome. This highlights seller's focus on realizing the full value of its core, unique resource through a comprehensive sale rather than fragmented licensing.

RO was explicitly applied by seller in managing its strategic alternatives. Recognizing the need to maximize shareholder value and avoid being *"locked in to just one way to have a success,"* Seller decided to pursue both a financing round and a potential acquisition in parallel. This strategy allowed seller to create competitive tension among potential buyers and investors, effectively increasing their bargaining power. Crucially, seller rejected Buyer's initial *"option deal"* proposal, asserting that they could raise funds independently, conduct the next study themselves, and then *"market the drug or the company at that point in time with more value having been added and potentially get a higher price"*. This demonstrates Seller's active exercise of their real option to defer a sale or pursue an alternative path in pursuit of a higher valuation. The period where Seller was *"on the knife edge"* between securing financing and a verbal commitment from Buyer vividly illustrates a critical moment of exercising real options under a tight deadline to *"preserve a little more optionality"* with investors.

Lastly, ICT is comparatively less prominent because control rights transferred fully at signing, leaving limited scope for ex post renegotiation of residual decision rights. Nonetheless, the contingent consideration implicitly addressed contract incompleteness by linking payouts to observable milestone states, thereby reducing the need for elaborate state-contingent clauses.

6.1.5.3. Comparison of buyer and seller's assessment

Both parties converge on RBV as the primary driver but operationalize it differently. For the buyer, strategic fit anchored the entire process: the asset's rarity and complementarity with an existing dermatology franchise justified acquisition over narrower rights. For the seller, RBV framed a preference for a full sale rather than fragmentary licensing, which would have diluted the value of its core resource and not met investor liquidity needs.

TCE surfaces as a shared rationale for moving beyond licensing. The buyer used milestones and royalties within an acquisition to share risk and contain ex post transaction costs inherent in early-stage assets. The seller, acknowledging internal capability limits, engaged an investment bank to reduce negotiation frictions, address information asymmetries, and secure disciplined process management, ultimately converging on a structure that balanced immediate liquidity with contingent value.

Their approaches to uncertainty and financial design align but differ in emphasis. The buyer applied RO logic first through a preferred option-style construct and, after that was declined, through milestone-heavy consideration to stage risk over development outcomes. The seller also exercised RO by running parallel paths—financing and strategic sale—to preserve flexibility, elevate bargaining power, and defer commitment until value had been further de-risked. The refusal of the option deal and the willingness to proceed independently underline the seller's active use of deferral options to seek a higher valuation.

ICT appears comparatively muted on both sides. With control rights transferring at signing, little residual authority remained to renegotiate. Nonetheless, contingent consideration functioned as a pragmatic response to contract incompleteness by tying value realization to observable states, limiting the need for complex state-contingent clauses.

Preliminary inference: the deal's trajectory reflects a consistent RBV foundation, TCE-driven preference for unified governance, RO-shaped staging of consideration and timing choices, and limited but purposeful ICT instruments to handle residual uncertainty. The buyer's integration thesis and the seller's option-preserving dual-track process jointly produced a milestone-weighted acquisition that internalizes platform value while aligning incentives under uncertainty.

6.1.6. Case study summary

In summary, the deal's distinctiveness lies in the intersection of asset scarcity and deal structure. An unusually specific and scarce oral asset in atopic dermatitis, set against a competitive, option-rich context, precipitated a transition from an initial option construct to a fully structured acquisition featuring an upfront payment, milestones, and royalties.

Several implications follow. Strategic fit and asset scarcity can outweigh organizational size asymmetries, enabling smaller sellers to shape outcomes when credible alternatives are present. The

presence of true outside options materially improves seller terms and induces buyer adaptation. Structured consideration emerges as a pragmatic equilibrium under high R&D uncertainty, aligning capital outlay with information arrival. Governance discipline—via external advisory support on the sell side and hierarchical approvals on the buy side—mitigates execution risk and enables closing. Finally, timing choices are consequential: the knife-edge decision at the financing–acquisition inflection traded signaling benefits for transactional certainty.

The key decision for both revolves around the commitment to enter into a deal, with differing primary interests – the buyer driven by asset-centric considerations, and the seller focused on the partner-centric approach.

From a theoretical perspective, RBV explains why the parties entered the deal—strategic complementarity and asset uniqueness—while TCE accounts for the governance choice of acquisition over licensing and the incentive-aligned, milestone-based structure. RO theory captures the sequential decision-making and deliberate preservation of flexibility that culminated in a staged acquisition rather than an all-upfront purchase, thereby harmonizing risk sharing with timely investor liquidity.

6.2. Case Study 2

6.2.1. Deal outline

This Deal was held in 2017, between buyer, a mid size pharmaceutical company (4100 employees) and seller, and a start-up university spin off founded by academic scientists with 3 employees. The startup had developed a small molecule up to clinical stage for the treatment of a rare ocular disease. This small molecule already had the regulatory orphan designation. The deal signed was a global license agreement for a co-development, exclusive to this indication with option for a priority access other indication. The first contact, evaluation, negotiation and closing of this Deal took approximately one year.

6.2.2. Deal structuring antecedents

6.2.2.1. Deal structuring antecedents (buyer perspective)

First, buyer, being a company with a focus on the orphan drug space, found that partnering with the seller aligned effectively with its long-term objectives and also from a cultural perspective (strategic fit antecedent). This deal offered an opportunity for buyer to diversify its portfolio from selling over-the-counter generic drugs to entering the domain of developing and commercializing innovative drugs. Buyer also positively viewed the geographic and cultural proximity of the two companies, being from the same country. This is illustrated with the following quote:

> *"obviously there is a strong strategic fit with what we are doing because we are in the orphan space.... cultural and geographic proximity was it was important, but I must say that since the very beginning, we immediately felt we were dealing with high-level persons that could completely understand what we were saying, what we were proposing"*

Second, interviewee recognized that the company was risk averse and that the asset being discussed was relatively immature compared to others, indicating inherent risk due to its developmental stage but somewhat promising, as illustrated with the following quote:

> *"company is not very open to risk... in this case, we thought really that the data that we saw, we already suggested the, the potential of the product, which is normally not the*

> *case ... it was a project that, you know, is pretty early compared to the rest of the project ... So there was some let's say inherent risk to the proposition we made to the executive committee because most other products are more advanced in development than this one."*

Third, interviewee reinforced negotiation power by using financial resources and expertise in clinical development to assert buyer's position during negotiations, as illustrated with following quote:

> *"We there actually use our negotiation imbalance because we are not only paying the trials, but we are also the one that have the know-how in order to be able to judge what's appropriate to do or not."*

Fourth, buyer highlighted the significance of medical validation and the existence of proof-of-concept data in humans. This asset related antecedent reduced the inherent risks associated with the project, giving buyer the confidence to move forward with such a deal. Furthermore, the potential of the molecule to address various indications, not only in ophthalmology but also outside of it, contributed to the include an option for a priority access to these additional indications. This is illustrated with the following quote:

> *"this is a huge advantage if you have a project where you have very, very nice proof of concept data in humans, you know, in in the disease you are interested in. So this is what eventually really pushed us to move forward …. there are a number of applications in ophthalmology and outside of ophthalmology"*

Lastly, buyer emphasized complementarity and synergy between the firms as an important antecedent (resource access-exchange antecedents). This led to structuring the deal around a collaboration and co-development component, involving the sharing of expertise and resources. This is well illustrated with the following quote:

> *"it's probably a mix of our science and their science"*

6.2.2.2. Deal structuring antecedents (seller perspective)

First of all, resource access and exchange emerged as the dominant antecedents shaping both the motivation to transact and the eventual deal structure. From the seller's perspective, the buyer offered

a compelling alternative to continued venture financing, providing timely access to capital while reducing reliance on additional VC rounds. Equally important, the seller viewed the buyer as a partner capable of enabling knowledge exchange and mutual learning, underpinned by a strong appreciation for the buyer's scientific depth and expertise. These antecedents collectively steered the design of the transaction toward a structure that institutionalized collaboration benefits while delivering the liquidity and development resourcing the seller sought.. This is illustrated as per following quote:

> *"So given the substantial absence of the financial alternative, finding out a pharma company that was willing to discuss these scientific data in depth with us was the major point…. this more important on their part rather than from our part, because we provided technology and they provided the, they are providing, the development know-how."*

Second, the seller, being a small biotech company, emphasized the paramount importance of securing adequate funding to advance the development of their innovative drug. The availability of financial resources played a pivotal role in determining the viability and structure of the deal, as illustrated in the following quote:

> *"So the most important key element was the amount of money involved on our part. Basically, it turned out to be a good amount of money."*

Third, the seller acknowledged the strategic fit between the disease area of both companies and their development models. The buyer's newly appointed CEO implemented a strategy to transition the company from solely commercializing drugs to an organization capable of developing drugs through approval and commercialization. This strategic fit antecedent was in line with what the seller sought in a partner. This is illustrated with the following quote:

> *"so both strategies were actually meeting at the point, which was the final point of the deal. So I think that the fit was an excellent point."*

Fourth, social ties emerged as a key antecedents in shaping the deal structure. From the outset, there was a positive chemistry and constructive discussions, ultimately facilitating the successful conclusion of the agreement, as noted:

> *"I'd say the social factor, relationship with buyer's representative, who has played a really important, really important role its agreed. He is the person who convinced the management at buyer to bet on us, and he has had a very important role …… There was a complete availability from our side, from their side. So we met frequently. We met, we talk on the telephone many times. We made lots of discussions, but there was no particular limitation. So that was really easy."*

Lastly and similarly to buyer, cultural and geographic proximity played a key role in shaping the deal towards a collaborative deal structure.

6.2.2.3. Deal structuring antecedents – similarities and differences

Both sides converge on strategic fit, resource access, and economic logic as primary antecedents, indicating a shared recognition of economic synergy at both the strategic and resource levels. This alignment is reinforced by the salience of milestone-based, staged consideration tied to clinical inflections, which synchronizes cash flows with value realization.

Yet the locus of emphasis diverges in patterned ways. The buyer places greater weight on asset evaluation, bargaining dynamics, and risk, reflecting robust financial capacity coupled with an awareness of knowledge asymmetry on the asset—hence the insistence on safeguards, de-risking milestones, and contracting designs that remain attractive across scenarios. The seller, by contrast, foregrounds social and cultural antecedents that elevate the quality of interactions—particularly critical for R&D collaboration—alongside negotiation leverage derived from credible alternatives and advisor-orchestrated competition. These differences in emphasis yield a structure that balances early value capture with disciplined risk sharing: a full acquisition with meaningful upfront, milestones, and royalties, calibrated to investor return thresholds and buyer risk budgets.

When mapped against of antecedents pre-identified from the literature (appendix E), the observed prioritization performed by each party is consistent with established findings: both parties elevate resource access, asset-related antecedents, and strategic and economic factors. Sellers assign greater significance to social antecedents and negotiation, emphasizing relational quality and process design as determinants of outcome; buyers place more emphasis on risk-related antecedents, a foreseeable distinction given internal governance and exposure management. Notably, individual antecedents tied

to personal motivations of key decision-makers remain of limited importance for both parties, suggesting that organizational priorities, information arrival, and structural economics dominate decision-making.

6.2.3.Processual unfolding of the deal

6.2.3.1. Deal journey

6.2.3.1.1. Deal journey (buyer perspective)

The interviewee, who was responsible for the licensing group at buyer, received a call about a company (Seller) with an interesting project and initiated discussions with them. After presenting to a larger team within buyer, discussions continued over a year until seller provided proof of concept data in humans, leading to the deal's signing.

Interviewee was the initial champion of the project, pushing for a licensing deal with an option to explore all ophthalmic indications and a right of first refusal for other indications. The deal was structured step-by-step, with milestones tied to development progress.

6.2.3.1.2. Deal journey (seller perspective)

Interviewee, one of the founders of seller, played a central role in the deal with buyer. He and his co-founder sought support for their venture and explored various options, including financial agreements. Eventually, they deemed the deal with buyer to be the best fit. Interviewee led the with buyer, with assistance from a financial expert.

The deal journey was relatively smooth due to the alignment of interests and trust between Seller and Buyer. Seller's availability, along with the professionalism and intelligence of buyer's representatives, made the negotiations efficient and effective.

6.2.3.1.3. Deal journey – similarities and differences

The buyer's journey is characterized by a systematic and structured approach in decision-making, stakeholder management, and deal structuring. In contrast, the seller's journey places emphasis on social dynamics, fostering a healthy and constructive interaction with a win-win mindset. Notably, the

buyer navigates through multiple decision layers, while the seller follows a streamlined decision process (because of a simpler decision making structure as small firm).

6.2.3.2. Deal structuring considerations

6.2.3.2.1. Deal structuring considerations (buyer perspective)

First, negotiations repeatedly returned to the allocation of control rights, i.e. who would control clinical development, commercialization, manufacturing, and IP. The buyer, in particular, emphasized securing meaningful control over clinical development rights, as illustrated with the following quote:

> *"it was really more about the science and, you know, manufacturing and potential and extension, so medical science, CMC, IP, but not about the structure of the deal, that was pretty secondary…. And in sometimes, you know, for example, topics like, you know, during clinical development, who has the last say?"*

Second, on contracting and organizational efficiency, the interviewee stressed the need to design for deal execution rather than merely for signature. Anticipating the post-deal phase meant specifying a governance architecture that could make timely, high-quality decisions and resolve cross-functional tensions. This included defining clear decision rights, charters, and escalation paths for core committees spanning Clinical Development, CMC/Manufacturing, Commercial, IP, and Joint Steering, with unambiguous tie-break mechanisms and meeting cadences. As the interviewee put it:

> *"in my opinion, what is really difficult and challenging and the steps that do create value is the implementation of the deal ... which kind of committees you have, do you have a joint research committee, a joint development committee or just a joint steering committee? I think it already gives you a flavor of how the deal is lived."*

Third, on risk-return allocation, the interviewee emphasized the extent to which the deal had to be structured in a way to properly balance risks and returns, especially considering the area and the development stage, as illustrated with the following quote:

> *"So the balance between medical need and let's say an upside opportunity was there was very, very good"*

Fourth, on safeguards and risk mitigation, the interviewee emphasized that robust medical validation—specifically the presence of human proof-of-concept data and coherent mechanistic rationale—served as a dependable proxy for overall risk. In this case, the evidentiary package reduced risk to an acceptable level for proceeding with the deal. As the interviewee noted::

> *"there is a validation, so that's one, medical validation of the approach so the risk associated to the project is kind of manageable".*

Lastly, regarding structured payments and milestones, the buyer characterized the deal structure as an upfront anchored in today's evidence, with total value designed to evolve through contingent consideration tied to de-risking events. In practice, later tranches were to earned only as predefined clinical, regulatory, and commercial milestones, aligning capital deployment with information arrival and preserving downside protection while keeping upside participation intact. As the buyer explained:

> *"initial cash payment of USD325 million before purchase price adjustments and preliminary present value of contingent consideration of USD95 million."*

6.2.3.2.2. Deal structuring considerations (seller perspective)

From the seller's perspective, the unique consideration that was referred several times was the allocation of control rights. The interviewee highlighted two critical aspects related to the allocation of control rights in the deal-structuring process with Buyer.

Firstly, he emphasized the significance of the limited exclusivity granted to buyer for the indication of their molecules. This decision allowed the interviewee's company to retain the ownership and control over the remaining indications for their molecules. By restricting the scope of the license, the seller ensured that they retained, intellectual property rights, strategic control and decision-making authority for future applications in different therapeutic areas. This aspect influenced significantly to the deal structure.

Secondly, the interviewee underscored the importance of co-development rights and the willingness of buyer to share the development pathway. This collaborative element has also influenced the deal structure. This is illustrated with the following quote:

"the limited field of license, the fact that they allowed involvement of our company in the subsequent steps of the development process."

6.2.3.2.3. Deal structuring considerations – similarities and differences

Firstly, it is noteworthy that both buyer and seller have placed "allocation of control rights" as their key consideration for negotiation. This consensus highlights the paramount importance both parties attach to defining decision-making authority and power distribution for this deal. The alignment on this aspect signifies a shared understanding of the significance of effective governance and decision-making throughout the collaboration. However, the buyer is the only one to emphasize contracting & organizational Efficiency, risk-return allocation, safeguard & risk mitigation and structured payment – milestones. This might be due to the more sophisticated and experienced position of buyer.

Secondly, in contrast to the seller, the buyer appears to assign high importance to structured payment – milestones, contracting & organizational efficiency, risk-return allocation, safeguard & risk mitigation. This emphasis can be attributed to the buyer being an established firm with considerable experience in such deals, enabling them to incorporate multiple considerations into the deal-structuring process. Conversely, the seller, being a startup led by an academic scientist, may have less experience in deal-making, resulting in a more limited perspective on the various considerations relevant to this context.

6.2.3.3. Decision gates

6.2.3.3.1. Decision gates (buyer perspective)

The buyer's decision-making process unfolded as a deliberately cautious, sequential progression embedded within a multi-layered internal approval framework.

Initial discussions were grounded in preclinical evidence; however, the emergence of *"very, very nice proof of concept data in humans"* for the target disease provided a decisive inflection point. This human evidence was described as a *"huge advantage"* that *"really pushed"* the buyer to "move forward," as it significantly de-risked the opportunity relative to animal data and supplied a firmer evidentiary basis for commitment.

Consistent with the organization's conservative risk posture, the buyer then decided to design a flexible, milestone-based licensing deal structure. Characterized as a "step by step process," the design coupled an initial upfront payment with subsequent development-phase milestones (for example, phases 1–2 and 3) and sales-linked royalties. The economic logic was explicit: to *"just pay… development and what works."* This structure was perceived as "*natural,"* reflecting both the company's culture and the maturity of the available data, and it aligned capital deployment with progressive information arrival.

Another layer of decision required cross-functional alignment. The R&D, Commercial and Corporate Development units of buyer participated in iterative evaluation and design, including financial assessments. The following quote from interviewee highlights the generative role of internal debate in shaping the final offer.

> *"the most important is that somebody comes up with an idea and then that you can start having internal discussions,"*

According to buyer, the most pivotal decision, during this deal journey, was securing support from the executive committee to move forward with the asset, despite its comparatively less mature development stage compared to other programs. In essence, the crucial decision revolved around entering into this specific deal, for this specific asset. The committee's role functioned as a binary "yes or no decision" following presentation of the proposed solution, thereby institutionalizing discipline at the point of commitment. As interviewee emphasized:

> *"decision from the executive committee… to support the project and to move on" was pivotal. This was particularly salient because the seller's project was "pretty early compared to the rest of the project" in the buyer's portfolio, implying an elevated level of inherent risk.*

Finally, in translating alignment into contractual detail, the buyer decided to exercise targeted negotiation power in specific domains, notably reserving the "last say" in clinical development. This allocation of decision rights reflected the buyer's financial investment and scientific expertise, aiming

to preserve strategic coherence and execution discipline while maintaining overall balance across the agreement's governance and economics.

6.2.3.3.2. Decision gates (Seller perspective)

Seller's decision-making was fundamentally shaped by acute financing constraints and the imperative for external capabilities, reflecting the realities of a small company founded and funded by two individuals and their families.

In the early stage, the firm deliberately decided to prioritized partnership with a pharmaceutical company over venture capital, a choice explicitly driven by the "substantial absence of the financial alternative" in Europe and Italy, where VC funding was described as *"underdeveloped"* and difficult to secure on a *"solid base."* This strategic orientation redirected managerial attention to identifying a pharma partner willing to engage deeply with the scientific evidence.

In configuring the scope of the transaction, the seller decided to license a single indication while retaining ownership of the remaining applications. This decision—*"license just one of the possible indications for our molecules, retaining the property of the remaining ones"—was judged "definitely a good thing,"* as licensing the entire technology was expected to depress the financial offer. Preserving optionality across other indications not only sustained future exploratory avenues but also created a learning path to *"subsequent indications."*

The most pivotal decision according to seller concerned partner selection. Despite alternatives with "larger companies, Big Pharma," the seller was really convinced by this specific buyer identifying this choice as the "most critical point" and a "major flash point." Several criteria were decisive. The buyer's medium size enabled "important and fruitful scientific considerations before the legal aspects," in contrast to process-heavy large-pharma interactions. Interpersonal signals of quality—"high-level persons" and "exceptional intelligence"—cultivated early trust and professionalism. Crucially, the buyer's willingness to share the development pathway and exchange knowledge addressed the seller's organizational gaps, offering an opportunity to "learn how to do for subsequent indications" in the absence of a departmental structure. This general capability *"to deal with the entire process of development and commercializing the drugs"* was especially attractive. Cultural and geographic proximity—an *"added*

bonus" of an Italian counterpart—reinforced chemistry and trust, further reducing perceived coordination and relational risks.

6.2.3.3.3. Key decision gates – similarities and differences

In terms of similarities, both parties converged on a shared logic of structured risk management, emphasizing staged economic as the appropriate deal structure. For the buyer, milestones, royalties, and phased commitments were a natural extension of its conservative risk posture, ensuring that payments tracked verified progress. For the seller, the same architecture provided a viable pathway to liquidity and continued advancement in the face of financing constraints. This alignment was reinforced by a common emphasis on partner fit and trust: the buyer prioritized coherence and control to protect scientific and portfolio integrity, while the seller valued the counterparty's scientific depth, willingness to exchange knowledge, and cultural proximity, which together supported mutual learning and smoother execution. Both sides also recognized that governance clarity protects value. In practice, this meant carefully allocating decision rights—particularly in clinical development—to reduce execution risk and prevent value leakage.

In terms of differences, the decisions diverged predictably given their asymmetries. The buyer's primary constraint was organizational risk appetite and portfolio discipline, with the executive committee serving as a binary decision gate. The seller's primary constraint was financing scarcity and runway, which pushed it toward a strategic partnership rather than venture capital and toward a deal that delivered immediate resources. The buyer's priority was ultimate say in clinical development to align with internal standards and capital at risk; the seller's priority was to retain optionality by licensing only one indication and preserving rights over remaining applications, thereby protecting upside and learning potential. Correspondingly, the buyer's process was multi-layered and formal—cross-functional vetting, financial modeling, and executive sanction—whereas the seller's process was more entrepreneurial and pragmatic, shaped by founder leadership, speed, and the need for capability transfer.

With regards to the most pivotal decision, for both parties it revolves around the commitment to enter into a deal. The buyer's decision is primarily driven by interest in the asset, emphasizing an asset-centric perspective. In contrast, the seller's decision is motivated by interest in the buyer as a company, highlighting a partner-centric approach.

6.2.4.Deal outcome description

Deal structure can be described according to 3 typologies: TCE based, ICT based and Contractual.

First of all, following the deal-structuring outcome typology grounded in TCE-based integration (section 3.4.2.1), this deal structure would prima facie be classified as a non-equity alliance, within the unilateral contract category, and more specifically as a licensing agreement. However this typology offers only a partial account of the observed deal structure. In particular, the case evidence does not support a characterization of the deal as strictly unilateral. Indeed, this deal structure entails iterative interactions and inter dependencies that are not fully represented by the unilateral subcategory in the typology.

Secondly, following the deal structuring outcome typology built on the logic of ICT, this deal structure can be described as selective shared allocation of control rights with the buyer gaining primary control over technical capabilities and development while the seller retains significant control over background IP and manufacturing.

Lastly, from a contractual standpoint, the deal signed between the firms was a global license agreement for a co-development, exclusive to the indication with option for a priority access to other indications.

6.2.5.Abductive assessment of RBV, TCE, RO and ICT explanatory power

6.2.5.1. Buyer's assessment

From buyer's standpoint, the deal structuring was primarily driven by the strategic imperative to acquire a valuable asset, meticulously manage inherent risks, and navigate the practical limitations of contractual completeness.

RBV was a fundamental and prevailing driver for buyer from the initial evaluation through to the final decision. buyer's primary motivation was to acquire a "very, very nice proof of concept data in humans" for a molecule that offered a "huge advantage" in addressing an unmet medical need. The asset's potential to enter "other indications" further amplified its perceived value and strategic fit within buyer's existing orphan space. The pursuit of this specific, innovative molecule, rather than a

broad technology acquisition, underscores RBV's influence on what buyer sought to acquire and why this particular deal was deemed strategically compelling.

RO profoundly shaped buyer's approach to risk management and investment staging, prevailing particularly during the early conceptualization and detailed structuring of the agreement. Acknowledging that the company is "not very open to risk", buyer consciously designed the deal as a "licensing deal, a classical licensing deal for the lead indication" with "upfront milestones and royalties and sales related milestones". Crucially, the deal included an "option" to "explore all ophthalmic indications" and a "right of first refusal" for indications outside this primary field. This structure allowed buyer to commit limited capital upfront, with subsequent payments contingent on specific human clinical data or other de-risking events, meaning they would "just pay, you know, the development and what works, but the something doesn't work or we don't have to pay". This stepwise payment mechanism allowed buyer to defer larger, irreversible investments until key uncertainties were resolved, effectively exercising real options to mitigate the inherent high risks of early-stage drug development.

The principles of TCE were evident in buyer's meticulous approach to managing financial exposure and ensuring control, particularly during the negotiation and financial structuring phases. The company's aversion to risk naturally led to a structured deal with contingent payments, which helps align incentives and reduce ex-post transaction costs associated with project failure or misalignment. buyer also found the "transaction costs" to access seller's technology "reasonable," contrasting this with the "exorbitant" costs often seen in the orphan space. This focus on cost-effective access to external innovation highlights an effort to minimize bargaining costs.

ICT provides a lens through which to understand buyer's approach to the inevitable ambiguities and long-term relational aspects of the deal. While the "overall type of deal was... clear" from the beginning, buyer acknowledged that the specific "formalization came small by small" and that the "structure of the deal" was "pretty secondary" to the underlying science and operational aspects. This suggests an understanding that a complete, exhaustive contract was neither feasible nor necessary from the outset. Instead, buyer relied on a strong "common agreement" and emphasized the importance of seller's "reasonableness" and willingness to partner. The "cultural and geographic proximity" also fostered a smoother process, contributing to the "soft factors" that influenced the deal. Crucially, interviewee

explicitly stated that the "document signed is per se just the initiation of a long partnership between the two companies," and that "the implementation of the deal" and "how the working relationship is developing" are where "great value is created". This perspective highlights that despite formal agreements, the ongoing relationship, marked by trust and cooperation (e.g., through a joint steering committee), would be essential to manage unforeseen contingencies and realize the deal's full potential, thereby addressing the inherent incompleteness of the initial contract.

6.2.5.2. Seller's assessment

For seller, the deal structuring was a strategic effort to secure essential financing, leverage their unique scientific asset, retain future potential, and gain critical developmental know-how, all while navigating a power imbalance with a larger entity.

RBV was the primary and persistent driver of the seller's strategy. As a small company centered on a single pivotal asset, the seller aimed to maximize value from strong early clinical results for its novel molecule. Rather than licensing the entire technology, it chose to out-license a single indication while retaining ownership of the remaining ones, thereby preserving the option value embedded in its core resource. Beyond price, the seller prioritized access to the buyer's development pathway and know-how. Lacking a full departmental structure for end-to-end pharmaceutical development, the seller valued the opportunity to exchange knowledge, learn processes for subsequent indications, and absorb the industrial culture of a fully integrated pharmaceutical organization. Capability acquisition was thus as salient as financial terms.

RO shaped the seller's early choices and bargaining posture. Following self-funded studies, the company entered a financing gap and explored alternatives such as venture capital but did not reach acceptable terms. By advancing early clinical work to produce compelling results and obtaining regulatory alignment for a streamlined pivotal program, the seller substantially de-risked the asset. This reduced uncertainty strengthened its negotiating position, enabling it to decline pure financial instruments and secure a strategic partnership. Opting for a limited license rather than selling the entire technology also preserved flexibility to develop or license additional indications later, effectively exercising an option to retain control over future value.

TCE considerations guided the seller toward a structure that met pressing financing needs while managing hold-up and expropriation risks. The scale and timing of funding were decisive, but so too was the buyer's readiness to engage deeply with the science. The final arrangement—a limited-field license with continued seller involvement in clinical study design—constituted a hybrid governance solution. It delivered capital and access to expertise while maintaining influence over key decisions, thereby mitigating potential ex post transaction costs. Preference for a medium-sized acquirer over a large pharmaceutical company reflected an expectation of closer alignment, greater responsiveness, and lower oversight frictions for the specific project, reducing coordination and negotiation burdens consistent with TCE logic.

Lastly, ICT explains the explicit allocation of residual control and decision rights, particularly in domains where future contingencies and states of the world cannot be exhaustively specified ex ante. Clinical development rights were addressed as a key feature, with the buyer securing the "*last say"* to safeguard scientific rigor, timing discipline, and portfolio coherence in the face of uncertainty and potential divergences in incentives. The governance architecture thus anticipates adaptation needs, assigning decision authority to the party best positioned to manage performance risk and capitalize on new information. ICT thinking is most evident at the deal-design phase, where allocation of control rights are considered and discussed, serving as the bridge between formal terms and the inevitable incompleteness of R&D contracts.

6.2.5.3. Comparison of buyer and seller's assessment

Under both perspectives, RBV emerges as justifying the dominant antecedent to the deal structuring: each side centers strategic fit around the platform's distinctiveness and its complementarity with the buyer's therapeutic franchise. The buyer interprets fit as a rationale for internalization to capture multi-asset potential and human capital continuity, while the seller views a full sale as superior to fragmented licensing for realizing the full value of its core resource and investor liquidity.

TCE explains the shared drift toward unified governance. For the buyer, acquisition economizes on repeated contracting, reduces hold-up risks across follow-on programs, and clarifies control rights. For the seller, hybrid arrangements and advisory intermediation reduce negotiation frictions and information asymmetries while ensuring fair value and execution support.

Convergence also appears in risk management through RO-inspired staging. The buyer seeks to mitigate development uncertainty via option-like structures—initially preferring an explicit option and ultimately adopting milestone-heavy consideration to align payments with information arrival. The seller similarly preserves flexibility by running dual tracks—financing and strategic sale—to strengthen bargaining power and defer commitment until further de-risking, rejecting constructs that would unduly cap upside.

ICT is less prominent but remains implicit: contingent consideration substitutes for exhaustive state-contingent clauses, and leadership retention and tax modality choices address non-contractible elements.

6.2.6.Case study summary

In summary, although not explicitly mentioned by the seller, the deal has integrated a dyadic perspective, reflecting the convergence of both parties' aspirations. Notably, this deal goes beyond an arm's length license, incorporating a collaborative component influenced by cultural fit and social antecedents.

In terms of antecedents and considerations, strategic fit and complementarity came first. The buyer's strength in development and commercialization matched the seller's need for capital and know-how. This alignment overcame their asymmetries and led to a cooperative outcome. In addition, staged economics operated as a governance technology, balancing risk and aligning incentives while preserving option value; the buyer paid for what worked, while the seller secured upfront liquidity and retained exposure to upside without divesting the full platform. Moreover, the allocation of control rights mirrored risk-bearing: the buyer's last word in clinical development reflected financial and reputational exposure, while the seller's retention of other indications hedged against platform undervaluation and maintained a trajectory for organizational learning. Of note, buyer's considerations appear broader and more sophisticated than the seller's, with differences in their relative importance. The key decision for both parties revolves around the commitment to enter into a deal, driven by differing primary interests – the buyer's driven by asset-centric considerations, and the seller's focused on a partner-centric approach.

Lastly, TCE clarifies why the parties converged on an efficient, low-friction pathway under financing and market constraints; RBV specifies the value logic and strategic fit underpinning attraction and exchange; RO structures the economic exposure to match the information curve of development; and ICT secures residual control to manage unforeseeable contingencies.

6.3. Case Study 3

6.3.1.Deal outline

This Deal was held in 2018, between a mid size global pharmaceutical company with 25 000 employees (buyer) and a start-up (seller) of 50 employees financed by VCs (Venture Capital Investors). The start-up company was recognized for its leadership in the advancement of treatments related to the microbiome. The seller possessed a valuable non-antibiotic treatment preventing complicated infections at advanced development stage. Notably, this asset garnered considerable regulatory recognition, obtaining designations such as FDA (Food and Drug Administration) Fast Track, Breakthrough Therapy, and Orphan Drug Designation (ODD), thereby positioning it as a high-priority and promising program. It held the potential to become the pioneering approved product within the realm of human microbiome interventions. The duration of the deal journey spanned several years, including tentative discussions before intensifying into detailed negotiations. Ultimately, the company acquisition was deemed the optimal choice, driven by the long-term potential of Seller's platform, which aligned with Buyer's strategic goals.

6.3.2.Deal structuring antecedents

6.3.2.1. Deal structuring antecedents (buyer perspective)

First, with respect to strategic fit, buyer wanted to position itself in the area of microbiome and found seller to be a good fit for not only one asset but an overall acquisition, as illustrated in the following quote:

> *"once we made the decision that we are very interested and it's a good fit for us, of course we wanted to acquire the company".*

Second, on asset-related antecedents, the interviewee underscored the critical role of evaluating the overall science and pipeline, as opposed to focusing solely on one specific asset. This broader perspective was deemed essential in determining the strategic and competitive value of the acquisition. In addition, the retention of key personnel, notably the CEO of the seller, was identified as a significant human asset (in contrast to non-human asset). The interviewee underscored the importance of retaining this individual with specialized expertise and strategic insights, thereby ensuring a seamless

transition and continued value creation post-acquisition. A company acquisition was the best way to keep that talent, in contrast to asset purchase.

> *"It was a microbiome company, but they had a platform which could be of interest to us long term, not just for the first product, but for the second product and third product and fourth product and fifth."*

Third, regarding economics related antecedents, interviewee highlighted the paramount consideration of balancing immediate and deferred payments, outlining the pivotal aspect of "front-loaded versus back-loaded" payment arrangements. Interviewee also reinforced the accounting and tax related part, playing a significant role in steering the deal towards a full equity/company acquisition, as illustrated with the following quote:

> *"The second key consideration is the tax structure of the deal. ... in the end, we ended up with a company purchase. They were very firm about the huge impact for them on the tax side to do an asset deal.... we are conservative on the up front because, you know, up front is money out of our pocket. So there's a lot of risk associated with the up front."*

Fourth, buyer highlighted the extent to which the deal structure is influenced by uncertainty and risk, as illustrated with the following quote:

> *"They want more front loaded than backloaded because it's the great uncertainty ... risk we can manage by deal structure"*

Last, despite the buyer's status as a well-resourced pharmaceutical company, negotiation power was not unilaterally in its favor. The buyer initially sought a global license and subsequently explored an asset purchase, but the seller declined both proposals. These refusals compelled the buyer to reconsider and adapt its offers to align with the seller's expectations. The asymmetry, in practice, tilted toward the seller, which held a unique technology and was unwilling to divest it on unfavorable terms, remaining unimpressed by the buyer's size and resources a priori. At the same time, divergent financial positions—cash availability on the buyer's side and investment needs on the seller's side as a start-up—shaped the negotiation trajectory and ultimately steered discussions toward a company acquisition structure:

> *"we would have preferred an asset purchase, but we know that was not something we could do. It was part of the negotiations."*

6.3.2.2. Deal structuring antecedents (seller perspective)

First, interviewee highlighted how the strategic fit between the 2 organizations was essential in not only shaping the deal but even to engage into that deal, as well illustrated within the following quote:

> *" if there's not a good strategic fit, you're not going to have a deal. And so that even comes before there's even the expression of interest."*

Second, the interviewee highlighted the importance of designing a deal that would favor an optimal return for the company and the shareholders (economics antecedent). From that perspective, a first license deal proposed by buyer was not seen as able to generate sufficient returns for the shareholders. That is why the deal shifted towards an acquisition, as illustrated in the following quote:

> *"And at that point, that was such a significant percentage of our kind of current valuation that that changed the nature of the deal that we'd be interested in from a licensing transaction to an acquisition. And so that's what really drove the structure."*

Third, the interviewee emphasized that seller's resources could be highly valuable for the buyer (resource access and exchange related antecedents), as illustrated with the following quote

> *"The second factor is what is best for patients. In other words, what's going to give us the highest degree of success in getting our products to the marketplace?."*

Fourth and last, asset related antecedents, to some extent, fall into the justification of strategic fit, as stated:

> *"product or technology related aspects really to me falls under the strategic fit. That's one of the factors you're going to evaluate to see if there's a strategic fit."*

6.3.2.3. Deal structuring antecedents – similarities and differences

Both parties converge on strategic fit, economics, and asset-related qualities as the central antecedents guiding deal engagement and structure, reflecting a shared recognition that value creation rests on

complementary resources and disciplined financial logic. Strategic fit operates as an ex ante gatekeeper: the buyer viewed fit through entry into a new technological space (microbiome) space via a platform with multi-asset potential and retention of critical human capital thereby favoring a company acquisition over an asset purchase. The seller applied the same criterion even earlier in its funnel, subsuming product and technology features under strategic fit rather than treating them as standalone determinants.

Within this common foundation, the loci of emphasis diverge. The buyer uniquely acknowledges limited negotiation power, signaling sensitivity to knowledge asymmetry on the asset and to the seller's credible refusal options. The seller, in turn, foregrounds resource access and exchange, selecting a counterparty with the capabilities and prioritization necessary to advance the program end-to-end.

Economics and uncertainty translate into distinct structuring logics. The buyer calibrates front-loaded versus back-loaded consideration under risk, rejecting all-upfront exposure, staging payments to de-risking milestones, and incorporating tax and governance prudence; once the seller highlighted the tax burden of an asset deal, equity purchase became the pragmatic path. The seller prioritizes shareholder returns, moving away from licensing when it fails to reflect enterprise value and pressing for early value capture through meaningful upfronts complemented by milestones and royalties.

These patterns align with the ranking of antecedents pre-identified from the literature performed by each party (appendix E). Both sides elevate strategic, economic, and asset-related factors; sellers assign greater importance to social antecedents, while buyers emphasize risk-related antecedents—an expected distinction given exposure management. Notably, resource exchange appears more salient to the buyer than the seller's rankings suggest, reflecting the buyer's focus on execution capacity and integration benefits. Individual motives of key decision-makers rank low and similarly across parties, implying limited influence relative to organizational drivers. Finally, asymmetry is not determinative per se; outcomes are shaped more by asset distinctiveness, credible alternatives, and process design than by organizational size.

A final contrast lies in assessment scope and resource logic. The buyer appraises the overall science and pipeline, integrating leadership retention into the acquisition thesis; the seller frames resource exchange around maximizing the probability of patient benefit by partnering with an acquirer capable

of end-to-end development and sustaining momentum. The resulting synthesis is a company acquisition that times consideration to de-risking events, protects enterprise value, and aligns platform growth with human capital continuity and collaborative execution.

6.3.3.Processual unfolding of the deal

6.3.3.1. Deal journey

6.3.3.1.1. Deal journey (buyer perspective)

The interviewee, serving as the lead negotiator and a key member of the deal negotiation team, played a vital role throughout the acquisition process. Initially, the evaluation focused on securing ex-US rights to Seller's primary asset. However, seller had ambitious expectations, resulting in several iterations of the negotiation process. As discussions unfolded, it became evident that seller possessed a valuable platform extending beyond the primary asset. This realization prompted a transition from contemplating an asset-centric transaction to a comprehensive acquisition strategy.

6.3.3.1.2. Deal journey (seller perspective)

The interviewee described his involvement as Chief Business Officer in managing the deal process, which included coordinating diligence, legal processes, and pursuing venture financing concurrently with the strategic transaction.

The deal journey involved steps such as preliminary discussions, expressing interest in worldwide rights to assets, transitioning to acquisition talks, agreeing to a term sheet or letter of intent, and obtaining final approval from both parties' boards. According to interviewee, discussion shifted from a regional driven license around primary asset to a larger acquisition when Buyer requested global rights, and for the 2 main assets. Seller's acceptance of this larger geographic and portfolio scope led to the conclusion that an acquisition was the appropriate deal structure.

6.3.3.1.3. Deal journey – similarities and differences

Both narratives depict a dyadic, phased, and iterative progression in which scope and structure converge as information accumulates and bargaining positions crystallize.

On the buyer side, interest evolved from a restricted, regional licensing concept centered on the primary asset to a full acquisition once diligence surfaced platform breadth and coordination advantages across assets and geographies. This iterative and convergent approach aligned deal structure expectations with the recognition that integration, prioritization, and speed would be better served within a single ownership model.

On the seller side, high asset unicity and credible alternatives underpinned strong negotiation power, enabling the seller to steer the typology away from partial rights and toward an acquisition. The shift from licensing discussions to a comprehensive acquisition—triggered when the buyer requested worldwide rights over two main assets—illustrates how seller leverage and platform distinctiveness can endogenously migrate structure toward acquisition.

Taken together, the journeys reaffirm a shared iterative logic: both parties tested scope, refined assumptions through phased engagement, and ultimately converged on acquisition as the coherent endpoint once platform value, global ambitions, and integration needs became salient. The buyer's convergent learning and the seller's negotiation leadership jointly produced a structure that internalizes coordination across assets and regions, balancing execution efficiency with appropriate value capture.

6.3.3.2. Deal structuring considerations

6.3.3.2.1. Deal structuring considerations (buyer perspective)

First, contracting & organizational efficiency was a critical consideration mainly because of tax and legal perspectives. Indeed, buyer's initial preference was for an asset purchase, designed to facilitate the seamless allocation of assets and intellectual property into the headquarters' country while preserving tax benefits. Conversely, the opposing party aimed for a company acquisition, in contrast to an asset purchase, due to concerns related to double taxation in their country. After several back and forth, the company acquisition was deemed the optimal choice, driven by the long-term potential of seller's platform, which aligned with buyer's strategic goals. This is well illustrated with the following quote:

> *"in the end, we ended up with a company purchase. They were very firm about the huge impact for them on the tax side to do an asset deal. It was less of an impact for us because last year the US Congress passed a new corporate tax structure"*

Second. extensive discussions unfolded concerning the allocation of control rights around the lead product. Initially, the intention was to secure exclusive rights limited to ex-US (outside the US). However, the negotiation evolved towards considering an asset purchase (acquisition of all control rights except equity rights and human/technical capabilities). Subsequently, due to tax considerations, the deal encompassed equity rights, ultimately manifesting as an overall company acquisition deal. This journey is nicely described in the following quote:

> *"We were interested in their phase three product ... they also they also had a follow up product to the lead product .... So of course, we wanted both the lead product as well as the follow up product. ... In parallel to that, when we started looking at their phase three product, we also recognized the same thing, that the company has not just the product, but also a platform …. So, so at that point, getting an exclusive license to just one product did not make any sense, either from the seller standpoint or from the or from buyer's standpoint. So then we turned from basically it went from an ex US discussion to a US discussion licensing to basically a full company acquisition."*

Third, safeguarding assets and mitigating risks were crucial considerations so as to ensure scientific continuity post-acquisition, with a focus on retaining the CEO as a key figure. The potential departure of the CEO post-deal was identified as a risk, prompting the buyer to design a deal structure that would secure the CEO's continued involvement, as expressed in the following quote:

> *"we did not want to acquire the company and lose the CEO. So that was a very critical factor. And there was a lot of negotiations on keeping the CEO."*

Fourth, although interviewee reinforced the importance of backloading payments upon achievement of pre-defined milestones whilst in the same time reducing the financial risk of paying a high upfront. On this risk-return allocation consideration, the interviewee explicitly mentioned the following:

> *" the most critical decision was how much to pay up front. So we are a conservative company. We are willing to share in future milestones and future success very generously. But we are conservative on the up front because, you know, up front is money out of our pocket. So there's a lot of risk associated with the up front."*

With respect to, although the deal was an acquisition, there has been considerations around structured payment – milestones via backloading & deferred payments. To this consideration, the interviewee explicitly mentioned the following:

> *" the idea behind that was that we paid them an upfront for the company acquisition. Then the near-term milestones were based on the lead product, which is in phase three. We also had approval milestones "*

6.3.3.2.2. Deal structuring considerations (seller perspective)

First, the negotiation primarily revolved around the allocation of control rights, especially territoriality of these rights. Shifting from discussions on ex. US territory to a global territory reflected a transition from initially considering a licensing deal to eventually contemplating an acquisition. This highlights the strategic use of control rights allocation in shaping a mutually acceptable deal structure. As the interviewee noted:

> *"the scope of ownership that buyer was wanting to own has a major influence".*

Second, the interviewee emphasized contracting and organizational efficiency, arguing that acquisition was the optimal structure given both parties' interests. As he explained:

> *"They want worldwide exclusivity and they wanted a significant portion of our portfolio. And so those two things combined made it a very easy decision to say this was only going to be an acquisition."*

Third, on safeguard & risk mitigation, interviewee emphasized that it was essential for the seller to be reassured about the seriousness and commitment from the buyer's side, as illustrated within the following quote:

> *" And I think before we committed significant resources to the transaction, we wanted to ensure that they had discussed this at their highest board level and had general support for moving ahead."*

6.3.3.2.3. Deal structuring considerations – similarities and differences

Both accounts converge on an iterative, phased expansion of scope from partial rights to a full company acquisition, driven by the interplay of strategic fit, tax-legal feasibility, control rights, and risk allocation. On the buyer side, contracting and organizational efficiency initially favored an asset purchase to streamline IP allocation and preserve tax benefits in the headquarters' jurisdiction. However, the seller demonstrated that an asset deal would trigger materially adverse double taxation in their country, shifting the calculus toward an equity purchase. The buyer's narrative thus moves from ex-US licensing around the lead asset, to an asset purchase for broader control, and ultimately to a full acquisition once tax, platform breadth, and governance considerations were integrated.

Control-rights allocation was the second axis of convergence. What began as a territorial carve-out evolved as both parties recognized that the company's value resided not only in the phase 3 lead program but in the follow-on asset and the underlying platform. In this light, neither a limited ex-US license nor a single-asset license could efficiently capture value or minimize coordination frictions.

In synthesis, similarities include reliance on phased learning, alignment on acquisition once platform breadth and global scope became salient, and the use of milestone-weighted consideration to balance risk and value capture. Differences lie in initial postures and constraints: the buyer optimized for tax-legal efficiency, control rights coherence, and risk-adjusted economics; the seller leveraged asset uniqueness and bargaining power to secure a deal structure commensurate with shareholder's return expectations. The result is a full company acquisition that integrates control rights, mitigates tax frictions, preserves organizational continuity, and times cash flows to de-risking events.

6.3.3.3. Decision gates

6.3.3.3.1. Decision gates (buyer perspective)

Buyer's very first decision gate involved exploring a limited engagement: Buyer initially considered obtaining only ex-US rights for this phase three product. The context for this was Seller's high expectations for the US market and its perceived high value. However, Buyer quickly broadened its interest. As they evaluated the landscape, they realized that the US market offered significantly greater

value and a more advanced regulatory pathway for the lead product. Consequently, they made the decision to pursue US rights.

A key following decision for Buyer, and a significant turning point in the negotiations, occurred when they gained a crucial internal insight: they realized that Seller possessed not just individual products, but a valuable microbiome platform capable of generating multiple future products (number two, three, four, and five). This understanding emerged as they evaluated the company's products and, subsequently, its platform. Buyer's Head of R&D played a key role in this realization, seeing it as an unparalleled opportunity to "leapfrog" Buyer's internal microbiome efforts by "five, seven years immediately" and become a world leader in the field. He also encouraged his colleagues to look beyond the phase three product and consider their broader capabilities. This dual interest – commercial in the phase three product and R&D in the platform – solidified Buyer's shift from a product-focused license discussion to pursuing a full company acquisition. This shift happened early in the process, specifically when Buyer started negotiating US rights to the phase three product. The rationale was that an exclusive license to just one product no longer made strategic sense for Buyer, given the long-term value of the platform.

Following this, Buyer faced what they considered their most pivotal decision: how much to pay upfront. This decision was pivotal once Buyer had already committed to their strong interest and perceived Seller as a good strategic fit. According to the interviewee, this decision in this journey emerged relatively late, after agreeing on the overall deal format and structure.

Another key decision gate related to the deal structure itself. Buyer initially preferred an asset purchase to transfer intellectual property to their home country for tax benefits. However, Seller was very firm that they required a stock acquisition (company purchase) to avoid double taxation for their US investors. Ultimately, Buyer agreed to the company acquisition, a decision partly facilitated by a new US corporate tax law that mitigated the tax impact for them.

Finally, Buyer made the critical decision to prioritize the retention of Seller's CEO. Given her role as the scientific and regulatory lead, her continued involvement was seen as crucial for the continuity and success of the acquired company. This necessitated significant negotiation and the provision of financial incentives to ensure her stay, as any perceived risk of her departure would have been a major factor in Buyer's decision-making.

6.3.3.3.2. Decision gates (seller perspective)

Seller had a clear initial strategic goal: to remain a standalone entity and secure capital through an ex-US licensing collaboration for its lead product. This was intended to fund the continued development of its US program, and seller sought to achieve this through venture financing or a strategic partnership for these ex-US rights. However, when buyer expressed clear interest in worldwide rights to seller's lead and second asset, representing a significant percentage of their current valuation, seller faced a pivotal decision: to transition from licensing talks to discussing a full company acquisition. This was deemed a *"no-brainer"* and a *"very straightforward decision"* by seller, primarily at the board level with the direct involvement of CEO. The rationale was unequivocally clear: seller knew their shareholders would not support a worldwide license for their two primary assets under any other structure. This critical shift in seller's strategy occurred very early in the direct engagement with Buyer's senior management, specifically when the worldwide structure was first proposed.

Following the decision to pursue an acquisition, seller considered agreeing to the initial term sheet or letter of intent to be their most critical decision. At this point, both parties would have already committed to enter into the deal and would also have agreed on the acquisition deal format. This decision essentially centered around accepting the deal consideration terms. Once this document received board approval, it officially launched the deal process in earnest, leading to the engagement of external legal counsel and the drafting of definitive agreements.

Regarding the deal structure, seller held firm on its preference for a stock acquisition (company acquisition) over an asset purchase. Their rationale was to avoid double taxation for their US investors, a significant financial consideration for them.

Of note, throughout the deal journey, seller's decisions were guided by several key criteria: what was best for their shareholders, what was best for patients (ensuring the highest degree of success in getting products to the marketplace), and what was best for their employees. They also emphasized that strategic fit was paramount, even before financial aspects. Seller made a conscious effort to understand buyer's decision-making process, particularly as a privately-owned company, to assess the seriousness of the deal and secure high-level support early on, before committing significant resources. They also recognized the importance of timing and having a high-level "champion" within Buyer who was fully committed to the transaction.

6.3.3.3.3. Key decision gates – similarities and differences

The critical decision for both parties revolves around the deal financial considerations.

6.3.4. Deal outcome description

Deal structure can be described according to 3 typologies: TCE based, ICT based and Contractual.

First of all, following the deal-structuring outcome typology grounded in TCE-based integration (section 3.4.2.1), this deal structure would prima facie be classified as a M&A, within the acquisition category.

Secondly, following the deal structuring outcome typology built on the logic of ICT, this deal structure can be described as full transfer of control rights, indicating comprehensive consolidation of decision-making authority within the buyer.

Lastly, from a contractual standpoint, the deal signed between the firms is a company acquisition. This is a structured acquisition comprising upfront, milestone & royalty payments.

6.3.5. Abductive assessment of RBV, TCE, RO and ICT explanatory power

This transaction appears to be best interpreted through complementary theoretical lenses that together elucidate the deal journey and outcome.

6.3.5.1. Buyer's assessment

The buyer's initial approach was driven by RO and preliminary RBV considerations. They first explored obtaining only ex-US rights for the seller's phase three product, which represented a limited, low-risk option. This decision was based on an initial assessment of the product's commercial potential. As they evaluated further, they realized the US market offered greater value and a more advanced regulatory pathway, leading them to decide to pursue US rights for the lead product and also the follow-up product. This indicated an expansion of their option as more information became available.

A pivotal decision for the buyer, occurring early in the process when they started negotiating US rights to the phase three product, was the realization that the seller possessed not just individual products, but a valuable microbiome platform capable of generating multiple future products. This was a

profound Resource-Based View insight, which fundamentally shifted their strategy from a product-focused license discussion to pursuing a full company acquisition, demonstrating the strong influence of TCE (to avoid repeated, complex, and potentially incomplete licensing contracts for future products from the platform) and RBV (to acquire a strategic, inimitable platform).

Once the decision to pursue acquisition was made, the most critical decision for the buyer was how much to pay upfront. This decision, heavily influenced by RO, reflected the buyer's conservative nature, their willingness to be generous with future, success-based payments (milestones and royalties), but their aversion to high upfront risk.

This phase also saw the strong influence of ICT as the buyer preferred an asset related rights purchase for tax benefits, but ultimately conceded to a equity rights (stock) acquisition due to the seller's firm stance on avoiding double taxation for their US investors, a practical issue arising from contractual incompleteness and differing party interests. Finally, the buyer placed critical importance on the retention of the seller's CEO, the scientific and regulatory lead, which was heavily negotiated with financial incentives. This highlights a key challenge addressed by Incomplete Contract Theory in securing critical human capital post-acquisition.

6.3.5.2. Seller's assessment

The seller's initial strategy was primarily guided by RO and RBV: they sought an ex-US licensing collaboration for their lead product to fund their US program, aiming to remain a standalone entity. This represented an option to secure capital while retaining control over their most valuable asset.

However, a pivotal decision for the seller occurred when the buyer expressed interest in worldwide rights to their number one and number two assets, representing a "significant percentage" of their valuation. This immediately prompted a transition from licensing talks to discussing a full company acquisition. This shift, happening very early in direct engagement with the buyer's senior management, was primarily driven by TCE and RBV: the seller's shareholders would not support a worldwide license for their primary assets under any other structure (high transaction costs/complexity for a broad license), and the assets were clearly perceived as having significant strategic value (RBV).

Following this pivotal strategic shift, the seller considered agreeing to the initial term sheet or letter of intent to be their most critical decision. This decision formally launched the deal process and engaged

legal counsel, demonstrating an exercise of their option to proceed with a complex transaction under RO. Throughout the negotiations, the seller remained firm on a stock equity right acquisition due to significant tax implications for their investors, a clear application of ICT in shaping the deal structure to address their specific financial concerns.

6.3.5.3. Comparison of buyer and seller's assessment

Both parties anchor their decisions in RBV but translate it into distinct priorities. The buyer reads platform distinctiveness and complementarity with its franchise as a rationale for internalization, moving from a limited ex-US license concept to a full acquisition once the platform's multi-asset potential becomes evident. The seller likewise foregrounds the strategic value of its lead and follow-on assets, but treats a company sale as superior to a broad worldwide license, given investor expectations for liquidity and the risk of value dilution under fragmented rights.

TCE provides the shared logic for abandoning expansive licenses in favor of unified governance. For the buyer, acquisition avoids repeated, complex contracting and hold-up across future outputs. For the seller, a broad global license would be cumbersome and costly relative to a clean transfer, while advisory support and retained involvement in key areas reduce negotiation frictions and ex post coordination risks.

Approaches to uncertainty converge under RO but diverge in execution. The buyer initially sought an licensing posture—testing ex-US rights and later expanding scope as information improved—before settling on a milestone-weighted acquisition that stages consideration against de-risking. The seller ran a dual track of financing and strategic sale to preserve flexibility and bargaining power, deferring commitment until the buyer's appetite for global, multi-asset control justified an acquisition.

ICT is present but circumscribed: the buyer concedes stock acquisition to accommodate the seller's tax constraints, and both parties address non-contractibles—especially leadership retention—through targeted incentives and structure.

6.3.6. Case study summary

The distinctive feature of this deal is the endogenous progression from a narrow ex-US licensing concept to a full-company acquisition, a shift catalyzed by iterative learning about platform value, the necessity of global scope, and dependencies on critical human capital. Multiple rounds of negotiation transformed an initial proposal into a convergent structure, demonstrating that a unilateral approach would have failed to produce agreement. Both parties prioritized similar antecedents—largely consistent with the literature—while assigning different weights to them.

Strategic fit, as articulated by RBV, functioned as the dominant antecedent, with asset related antecedents viewed through that lens rather than as standalone determinants. Deal structure outcome then emerged as negotiated instruments of risk allocation and value protection: conservative upfronts and tax-aware design on the buyer side met the seller's imperative to safeguard shareholder value, converging on equity acquisition where licensing or asset purchase proved inferior. Bargaining power was contingent, not proportional to scale; unique resources and the ability to walk away reoriented the deal from partial rights to full acquisition. Knowledge asymmetry enhanced the seller's bargaining position: despite smaller scale and fewer resources, the seller leveraged asset specificity and credible refusal options to steer the typology toward acquisition.

Human capital continuity—central to the buyer's platform thesis—further justified acquisition over asset-only transfer when pipeline potential and execution knowledge were critical to value realization.

Decisive moments reflected party-specific constraints and aims: the buyer calibrated the upfront-versus-milestone balance to manage risk, while the seller's commitment at the LOI stage signaled alignment with enterprise-value preservation.

The selection of governance typology aligns with TCE: unified ownership was preferred to economize on repeated contracting, mitigate hold-up risks across follow-on programs, and reduce coordination costs inherent to an evolving platform. The economic architecture reflects RO principles, with milestone-weighted consideration deferring price to information arrival and de-risking events while preserving upside sharing. ICT appears in targeted form, addressing non-contractible elements such as tax exposure and leadership continuity without resorting to overly complex state-contingent clauses.

6.4. Case Study 4

6.4.1.Deal outline

This Deal was held in 2015, between a large global pharmaceutical company with 100'000 employees (buyer) and a start-up (seller) of 10 employees privately financed by its co-founders. Seller has entered into a research collaboration and exclusive license agreement with buyer for the development and commercialization of preclinical stage small molecule addressing cancer immunosuppression. The agreement covers the development of the seller lead preclinical asset and a research collaboration with buyer's research and early development organization to further explore the pathways of cancer immunosuppression addressed by seller. Under the terms of this deal, seller would receive an upfront payment and would be eligible to milestone payments based on achievement of certain predetermined events and sales levels as well as escalating royalties potentially reaching double digits for the first product from the collaboration developed and commercialized by buyer. Seller would also be eligible for milestones and royalties on any additional products resulting from the research collaboration. Buyer would fund future research, development, manufacturing and commercialization costs and will also provide additional research funding to seller for support of the research collaboration.

6.4.2.Deal structuring antecedents

6.4.2.1. Deal structuring antecedents (buyer perspective)

First, in considering economic-related antecedents, the interviewee emphasized the comprehensive nature of extending the deal, encompassing not only access to small molecule assets but also exploiting medicinal chemistry headcounts at a significantly lower cost due to the advantageous location in India. This key antecedent was underscored in the following quote:

> *"a lot of it really is accounting-driven where if we want to avoid, for example, having our research budgets negatively effected, quite often you can you can find ways through option agreements to do that. And this particular case, you know, seller the company that is based in India, the chemists, they're relatively speaking, are low cost. And the amount of research funding that we were providing wasn't so substantial from a budgetary standpoint"*

Second, the interviewee emphasized the imperative need for a swift conclusion of the deal to facilitate expeditious progress in terms of development, as indicated by the following quote:

> *"But essentially this deal was about moving very rapidly and doing the development of this compound to see if we can beat the competition to the market"*

Third, one the crucial aspect highlighted was not solely the non human asset but also the human asset within the company, as illustrated with the following quote:

> *"key element that maybe informs the structuring of this deal was really around our scientific assessment through technical due diligence of the company"*

Fourth, interviewee emphasized the importance of accessing not only the molecules but also the unique expertise in medicinal chemistry from this team (resources access-exchange antecedents), as highlighted in the following quote:

> *"we had a lot of respect for their capabilities on the chemistry side so that we could develop additional chemical matter, that that could diversify the potential sources of some compounds beyond the lead compound that we were looking at"*

Fifth, interviewee highlighted the extent to which the asset was a strategic fit to their current portfolio and pipeline was relevant, as illustrated with the following quote:

> *"In this particular case, it was it was whether to do the deal or not. In light of an additional compound in our internal pipeline that called into question whether we needed to do this".*

Lastly, on risk related antecedents, the deal structure was shaped by considering the technical risks associated with the asset, as illustrated with the following quote:

> *"We take into consideration their technical assessment in order to understand the risks and then structure the deal accordingly, report out to them so that they're comfortable that we've addressed the risks appropriately and then we move forward."*

6.4.2.2. Deal structuring antecedents (seller perspective)

First, interviewee made clear that the strategic fit was a key antecedent to this deal, as stated within the following quote:

> *"Strategic fit, I would say, is also very important."*

Second, on resource access and exchange related antecedents, seller was highly interested by dealing with a company having complementary capabilities to further develop their asset:

> *"And we thought that buyer Immuno Oncology Group is very capable, they have a good pipeline in which our asset gets really complementary and we'll have a lot of benefits going forward."*

Third, seller's motivation extended beyond the magnitude of the upfront financial return to encompass the timely and appropriate participation in future value generated by successful development. Their position emphasized not only initial liquidity, but also the assurance that downstream outcomes—arising from positive results and subsequent milestones—would be equitably shared and remitted without undue delay, as illustrated within the following quote.:

> *" It was just not that we should get only the upfront which is high or we should get something. The main thing was that we should have rewards as the drug moves forward in the clinic or if it becomes a drug. In short, in case of success, it should be shared with us"*

Fourth, seller emphasized the specificity, uniqueness, and competitiveness of their asset, reinforcing its role in shaping the deal structure, as illustrated by the following quote:

> *"unique asset, high demand"*

Lastly, seller highlighted the past risks taken to develop the asset up to its current stage:

> *"we are taking all the risk to first discover something new, novel, file IP"*

6.4.2.3. Deal structuring antecedents – similarities and differences

Both parties consistently identified economic antecedents, resource access and exchange antecedents, asset related antecedents, and risk as central antecedents, indicating a shared recognition of the levers

that shape deal architecture. Yet emphasis diverged: the buyer displayed a pronounced focus on timing and execution speed, reflecting competitive dynamics and internal budgeting constraints, whereas the seller placed greater weight on strategic fit, viewing alignment with the acquirer's franchise and development capabilities as essential to preserving and realizing the asset's value.

This pattern is reinforced when mapping the interview themes onto pre-identified antecedents from the literature (appendix E). Both sides prioritize economic antecedents, confirming their primacy in deal design. The seller elevates strategic fit and resource access–exchange, underscoring the importance of complementary capabilities, platform continuity, and pathways to scale. The buyer, by contrast, accords greater salience to negotiation power and risk-related antecedents, integrating technical due diligence, portfolio gates, and budget optics into the structuring calculus. Notably, both parties assign a relatively low rank to asymmetry, suggesting that perceived informational or capability imbalances exerted limited independent influence on the final structure once core economics, fit, and risk-sharing mechanisms were addressed.

6.4.3.Processual unfolding of the deal

6.4.3.1. Deal journey

6.4.3.1.1. Deal journey (buyer perspective)

The interviewee, as the executive lead in the partnering team of buyer, oversaw the entire negotiation process from end to end. According to the interviewee, buyer, embarked into an iterative deal journey centered first on one asset and then extended to firm capabilities. Initially drawn to the asset, they aimed to expedite the compound's progression to the clinic due to competitive pressures. The decision-making process involved evaluating various options, and the chosen deal structure integrated both a license and an R&D agreement. The interviewee acknowledged that they could have opted for an option agreement associated with an R&D agreement, but the decision was driven by considerations of control, cost/accounting effectiveness, and the strategic goal of conducting research in collaboration with seller's chemistry capabilities.

6.4.3.1.2. Deal journey (seller perspective)

The interviewee, one of the seller co-founder and acting CFO (Chief Financial Officer), shared the decision-making the other co-founder, CSO. According to the interviewee, the deal journey involved a strategic interaction between the seller and buyer, initiated with a contact during a partnering conference. The licensing deal was influenced by buyer's interest in seller's unique asset. Despite other offers from top pharma companies, buyer stood out due to the quality of interaction, trust, and transparency. The key elements considered for deal structuration included Buyer's complementary downstream capabilities and the collaborative development. The deal aligned with seller's initial preference for a licensing transaction and was driven by factors such as upfront payment, capabilities, and risk-sharing structures. The interactions with buyer were described as open, collaborative, and trustworthy, contributing to the decision in favor of the final deal structure.

6.4.3.1.3. Deal journey - similarities and differences between the parties

The deal journey involved an iterative process for the buyer, initially focusing on a unique asset and later extending considerations to the firm's capabilities. Both parties emphasized the importance of the unique assets. The decision-making process incorporated evaluations of various options, resulting in a deal structure combining a license and an R&D agreement. Notably, seller highlighted past risks and the asset's competitiveness, while buyer highlighted control, cost effectiveness, and strategic collaboration. Transparent and trustworthy interactions were pivotal for both parties. The recurrent invocation of the dyadic and phased perspectives underscores the dynamic and strategic nature of their interaction throughout the deal journey.

6.4.3.2. Deal structuring considerations

6.4.3.2.1. Deal structuring considerations (buyer perspective)

First, interviewee underscored contracting and organizational efficiency as primary consideration, emphasizing the need to optimize governance and enable swift decision-making on the buyer’s side. These priorities recurred throughout negotiations, reflecting a deliberate effort to streamline oversight, reduce coordination frictions, and accelerate execution from term agreement through development.:

> *" when it came to collaboration governance, it was, I think, quite important for us. We had a very limited government structure to this because we wanted to move the lead molecule quickly and we didn't want to be bogged down with a lot of back and forth with our partner."*

Second, risk-return allocation considerations played a pivotal role in the buyer's negotiation strategy, aiming to incorporate them effectively into the deal structure, as illustrated with the following quote:

> *"we structured the payments in a way to ensure that there was, you know, additional value only delivered at a point in time where certain key risks were removed."*

Third, a significant point of contention emerged as the seller sought involvement in the development of the lead asset, desiring influence, and a voice (allocation of control rights consideration). In contrast, the buyer emphasized the necessity for autonomy and flexibility in making swift development decisions without the need for constant alignment or consultation with the seller. This dynamic was succinctly captured in the following quote:

> *" it was probably the area that we had to negotiate quite a bit was the scope of involvement and the participation rights that seller would have in our governance. We really wanted this to be something where we ran with it and kept them at arm's length to it to a large extent. And they really wanted to stay involved and make sure that we were doing the things that we said we were going to do, and were pushing the thing forward and have the ability to voice their opinions and give their insights and so on."*

Fourth, interviewee strategically negotiated the deal to align milestone payments with development phases and associated risks, ensuring a structured and risk-mitigated approach to the agreement (structured payment-milestones consideration), as illustrated below:

> *"what I would call the drifting milestone payments that we that we put in some of the earlier phases of development such that, you know, some of the known risks were addressed"*

Lastly, the buyer, recognizing past challenges with non-reproducible data post-acquisition, implemented a systematic risk mitigation approach by instituting material transfer agreements in their evaluation process.

6.4.3.2.2. Deal structuring considerations (seller perspective)

First, seller placed considerable emphasis on risk–return allocation, seeking a structure that balanced a sufficient upfront—reflecting prior investments—with appropriately calibrated, success-contingent milestones. This configuration was a priority for the seller, as illustrated by the following quote.:

> *"when we wanted to have elements while we were structuring it. It was just not that we should get only the upfront which is high or we should get something. The main thing was that we should have rewards as the drug moves forward in the clinic or if it becomes a drug. In short, in case of success, it should be shared with us."*

Second, seller aimed to retain significant control over the future development of the asset, emphasizing their organization's flexibility and agility. In contrast, buyer sought exclusive control over the development rights, leading to a challenging decision-making process:

> *"The most critical decision, I would say, was to give up the control of the asset to the company"*

Lastly, seller strategically incorporated their capabilities to develop additional compounds into the deal. This provision not only served as a safeguard and risk mitigation consideration for the lead asset but also granted buyer access to a broader portfolio of potential drug candidates, enhancing risk mitigation strategies.

6.4.3.2.3. Deal structuring considerations – similarities and differences

Both parties prioritize risk–return allocation and the allocation of control rights, but they diverge in operational emphasis.

The buyer foregrounds contracting and organizational efficiency consideration, coupled with consideration around safeguards to mitigate execution risk. This orientation translated into early *"drifting milestone payments"* aligned with de-risking events and the use of material transfer agreements

to address reproducibility concerns—a response to prior post-acquisition challenges. Tensions around governance (allocation of control rights) followed: the buyer sought autonomy and arm's-length management to preserve speed and flexibility, while recognizing the seller's preference for continued participation and voice.

The seller's position centers on a balanced risk–return profile that combines a meaningful upfront, reflecting historical investment, with success-contingent milestones to ensure equitable participation in future value. Milestones are framed as instruments of fairness and temporal alignment rather than merely risk hedges. Governance was the most difficult consideration, as ceding control of the core asset conflicted with the desire to remain involved and to safeguard the intended development path. To dilute concentration risk and expand optionality, the seller incorporated access to its medicinal chemistry capabilities and the potential to generate additional compounds, thereby broadening the buyer's opportunity set.

In synthesis, both sides endorse economic discipline and risk-sensitive structuring but differ on control and pace. The buyer optimizes for lean governance, rapid decision-making, and milestone-weighted economics mapped to technical risk, reinforced by procedural safeguards. The seller optimizes for intertemporal fairness, preservation of influence, and recognition of prior risk-taking, while leveraging capabilities to diversify outcomes. The resulting equilibrium is a streamlined governance framework with phased payments and targeted participation mechanisms that reconcile the buyer's need for speed with the seller's claim to future upside.

6.4.3.3. Decision gates

6.4.3.3.1. Decision gates (buyer perspective)

Throughout the deal process, approval gates were crucial, involving multiple layers of internal stakeholders. Scientific endorsement for the deal came from the head of early research and development for oncology and the overall head of early research and development. Business approval was required from the head of partnering, and due to the size of the deal, it also necessitated approval from the group CEO and CFO. While Deal Structuration was primarily driven by the partnering team, they consulted closely with the research group to ensure the deal met their needs, had appropriate scope, and addressed identified risks.

The first decision gate was primarily informed by a scientific assessment derived from technical due diligence of Seller, coupled with an evaluation of the competitive landscape. The core rationale was to identify what would drive the value of Seller's compound, aiming to move very rapidly into development to potentially beat competition to market. This initial phase led to the understanding that while a license for seller's lead compound was desired, specific technical risks associated with the compound needed to be accounted for in the deal structure.

The most pivotal decision for Buyer was whether to proceed with the deal at all. This decision was complicated by the presence of an additional compound within Buyer's own internal pipeline, which called into question the necessity of the Seller deal. This critical "deal or no deal" issue surfaced multiple times during the process, emerging early, being addressed, and then resurfacing very late in the journey.

A following decision gate involved structuring payments to address technical risks. Buyer ensured that additional value was delivered only after certain key risks were removed, thus linking payments to de-risking milestones. Simultaneously, to diversify their own risk, Buyer made the decision to expand the scope of the collaboration beyond a single compound to include a research collaboration. This was influenced by a high regard for Seller's chemistry capabilities, with the aim of developing additional chemical matter to broaden the potential sources of compounds beyond just the initial lead. The suggestion to incorporate this research collaboration, and thus restructure payments to reduce the upfront contribution in favor of a more distributed cash flow, came from Buyer's head research scientist in their oncology group, rather than their partnering team.

A significant decision was to choose a license agreement over an option agreement, even though the financial structures could be mimicked. This choice was driven by the desire to maintain control over the conduct of the research. Given that the chemists at Seller were relatively low-cost, the research funding was not substantial enough to warrant giving up control for favorable accounting treatment that an option agreement might offer. This allowed Buyer to prioritize their ability to control the cost-effectiveness and operational aspects of the project.

6.4.3.3.2. Decision gates (seller perspective)

The seller's first decision gate was to identify a partner capable of carrying the product into the clinic and ultimately to market, while ensuring participation in value beyond an upfront payment. Among multiple potential partners, the buyer was selected primarily on the strength of its development capabilities, which were deemed essential for advancing the asset efficiently and credibly through clinical stages.

The evolution of the deal structure itself involved a decision to include a research collaboration, despite this not being part of the seller's initial preferences. This addition stemmed from the buyer's internal context and resulted in a two-year program in which the seller provided a backup, with jointly shared intellectual property arising from joint efforts. This adjustment reflects a pragmatic accommodation of the buyer's portfolio needs while preserving shared value creation mechanisms.

In addition, the seller explicitly ruled out acquisition proposals and option-based licensing. As articulated by the interviewee, acquisitions are typically oriented toward product or platform companies, whereas the seller positions itself as a classical drug discovery organization. Furthermore, perceptions of elevated risk associated with an Indian-based enterprise limited external confidence, and no acquisition proposals were available.

Overall, the most challenging decision for the seller concerned the cession of control over the asset to the partner. While financial terms are *"most critical"* for small biotechs that *"live and die by only two or three assets,"* the loss of control can "still kill it" even when financing is secured. This tension reflects a structural asymmetry: small firms excel in agility and speed during preclinical development, whereas clinical development is more process- and regulatorily driven, favoring larger organizations. In essence, the pivotal decision revolved around considerations related to the deal structure and the challenging choice to cede control of the asset.

6.4.3.3.3. Key decision gates – similarities and differences

Buyer's most pivotal decisions were driven by a commitment to initiate the deal and strategically expand their portfolio. In contrast, seller, while readily entering the deal, grappled with the challenging decision to surrender control of the asset as negotiations progressed.

The most pivotal decision in this deal journey, as noted by the interviewee, was the commitment to enter into the deal. Additionally, another crucial decision was made to expand the portfolio by including additional compounds.

6.4.4. Deal outcome description

Deal structure can be described according to 3 typologies: TCE based, ICT based and Contractual.

First of all, following the deal-structuring outcome typology grounded in TCE-based integration (section 3.4.2.1), this deal structure cannot be adequately described within the framework's existing categories, as it entails a combination of multiple contractual agreements that operate in concert rather than as discrete, standalone arrangements. This multi-agreement deal structure exceeds the descriptive capacity of this typology's design which assumes a singular classification.

Secondly, following the deal structuring outcome typology built on the logic of ICT, this deal structure can be described as fragmented control allocation where both parties maintain influence over different domains. The buyer gains control over specific technical areas and development activities, while the seller retains background IP control and manufacturing oversight, creating a collaborative deal structure.

Lastly, from a contractual standpoint, the deal signed between the firms includes an exclusive license associated to research collaboration agreement with buyer's research and early development organization.

6.4.5.Abductive assessment of RBV, TCE, RO and ICT explanatory power

6.4.5.1. Seller's assessment

The seller approached this deal with a dual objective: to secure a partner capable of advancing the asset through clinical development and commercialization, and to obtain fair, risk-sensitive financial rewards while managing the implications of ceding control.

From an RBV perspective, the seller sought complementary capabilities essential for realizing the asset's long-term value. As the interviewee noted, the priority was to license to a partner "who not only gives just a financial reward... but also which has a true potential to take it all the way up to the

market." This underscores a deliberate strategy to leverage the acquirer's superior clinical, regulatory, and commercialization assets to unlock value that the seller could not internalize alone.

RO thinking shaped financial expectations. While a higher upfront payment was meaningful, the *"main thing was that we should have rewards as the drug moves forward in the clinic or if it becomes a drug."* This design aligns payments with uncertainty resolution, ensuring that the seller participates in upside commensurate with prior risk-taking in discovery and IP formation.

TCE informed the decision to externalize later-stage development. The seller recognized its comparative advantage in the preclinical space—*"agile, nimble, have less bureaucratic processes and innovation"*—and acknowledged that clinical progression is "*a lot more regulatory, a lot more process driven,"* where large firms excel. Licensing thus economized on the costs, complexities, and time required to build clinical, regulatory, manufacturing, and commercial infrastructure, reducing coordination frictions outside the seller's core competence.

The most consequential issue under ICT was the allocation of control rights. The interviewee identified *"to give up the control of the asset to the company" as the "most difficult"* decision, warning that *"even if I have finance, and if I can't have the control of compound, that might still kill it."* This captures the seller's concern over relinquishing residual control in an environment where future contingencies cannot be fully specified ex ante. Although the seller feared bureaucratic drag that could impede progress, relational governance mitigated this risk: trust in the buyer's *"extremely professional and extremely transparent"* team reduced ex post hazards and made the transfer of control acceptable.

6.4.5.2. Buyer's assessment

From the buyer's standpoint, the deal structure was driven by strategic resource acquisition, disciplined risk management, and a premium on efficient execution under uncertainty, most visibly reflected in the allocation of control rights.

The engagement into this deal originated in an RBV logic. Through technical due diligence, the buyer assessed the scientific merits of the lead compound and, critically, the seller's chemistry capabilities, identifying valuable, specialized, and hard-to-imitate resources that would strengthen its pipeline more effectively than building them in-house. Strategic fit was explicitly ranked as important in structuring the deal.

RO considerations shaped the financial architecture. Payments were staged so that additional value would be delivered only once *"certain key risks were removed,"* deferring investment until technical uncertainties were reduced. The scope subsequently expanded to include a research agreement designed to *"diversify our risk" and generate "additional chemical matter,"* thereby creating multiple shots on goal. This evolution also enabled a redistribution of cash outlays, *"reducing how much we were going to be contributing just purely as an upfront payment,"* in exchange for added flexibility and option value.

ICT informed the prioritization of residual control in a high-uncertainty R&D environment. Given the competitive imperative to *"move very rapidly" and "beat the competition to the market,"* the buyer sought a light-touch governance model and resisted arrangements that would dilute decision rights. As the interviewee noted, the research budget was *"not so substantial"* as to warrant sacrificing control for favorable accounting under an option construct. Negotiations therefore concentrated on the seller's *"scope of involvement and participation rights,"* with the buyer aiming to *"run with it and keep them at arm's length," avoiding delays from "a lot of back and forth."*

TCE reinforced this deal structure decision by emphasizing speed and coordination efficiency. The combined license and research collaboration integrated the seller's specialized capabilities while preserving streamlined control over development, thereby minimizing contracting frictions and governance costs. In sum, the buyer's approach aligns RBV-driven fit with RO-based staging, ICT-informed control allocations, and TCE efficiency, yielding a structure that internalizes critical know-how, paces capital to information arrival, and accelerates execution under uncertainty.

6.4.5.3. Comparison of buyer and seller's assessment

First of all, RBV considerations were paramount for both parties, though oriented toward different assets. The seller prioritized the buyer's clinical development, manufacturing, and commercialization capabilities as essential complements to realize long-run value. The buyer, in turn, targeted the seller's novel lead compound and chemistry expertise as specialized, hard-to-imitate inputs that would strengthen its pipeline. Mutual recognition of complementary capabilities thus constituted the foundational rationale for the partnership.

RO considerations were likewise central but asymmetrically expressed. The buyer structured payments around milestone achievements to defer substantial expenditures until key technical risks were

mitigated, while expanding scope to include additional chemical matter to preserve flexibility and create multiple avenues to success. The seller viewed milestones as instruments to secure intertemporal participation in upside well beyond the upfront payment, transferring significant development risk while retaining exposure to favorable outcomes as uncertainty resolved.

TCE informed make-or-buy choices on both sides. The seller sought to externalize the high fixed costs, regulatory complexity, and temporal demands of later-stage development and commercialization, consistent with its comparative advantage in preclinical discovery. The buyer leveraged external innovation to accelerate time-to-market for a specific asset, economizing on internal development time and coordinating specialized inputs through a combined license and research collaboration. In both cases, specialization along core competencies minimized overall transaction costs.

The principal divergence arises under ICT in the allocation of control rights. For the seller, ceding control was the most difficult decision, given concerns that loss of autonomy could slow or derail development in a larger, less agile organization. The buyer, by contrast, actively pursued residual control through light-touch governance and minimal partner involvement to safeguard speed and adaptability in the face of R&D uncertainty. This tension over control reflects the non-contractible contingencies inherent in drug development and the premium each side places on execution under uncertainty.

Temporally, RBV and early-stage RO reasoning guided initial partner selection and the decision to pursue a transaction. As negotiations progressed, TCE considerations became more salient in structuring for efficient execution, while ICT issues—especially the precise delineation of control rights and governance—moved to the foreground, shaping the final design over the one-year negotiation period. The outcome integrates these lenses: RBV establishes strategic fit, RO calibrates payments to information arrival, TCE streamlines execution, and ICT resolves residual control in service of rapid, risk-aware development.

6.4.6.Case study summary

The distinctive feature of this case is its evolution from an asset-focused negotiation to a comprehensive structure that internalizes platform and human-capital value. What began as a narrow

lead-asset license transitioned into a construct combining research collaboration, milestone-weighted economics, and lean governance calibrated to speed. This shift emerged as both parties recognized complementary capabilities and the imperative to align control, timing, and risk sharing under uncertainty. The final deal structure design hinged on not only one but a combination of contractual instruments that together captured scientific know-how alongside the asset itself.

Antecedents centered on economic feasibility, resource complementarities, asset specificity, and technical risk. The buyer additionally emphasized speed and budget optics, while the seller prioritized strategic fit and fair intertemporal sharing. Correspondingly, key considerations included streamlined governance for rapid execution, the allocation of control rights, milestone structures tied to de-risking events, and integration of the seller's chemistry capacity to diversify outcomes.

Decision gates crystallized around the buyer's internal portfolio trade-offs and need for control, and the seller's willingness to relinquish asset control in exchange for credible development capability and upside participation. These gates guided the progression from initial scope to the final, multi-instrument arrangement.

The theoretical synthesis is coherent. RBV explains mutual capability acquisition; RO underpins staged economics and optionality; TCE supports specialization and low-friction execution; and ICT centers on residual control allocation, mitigated by trust. The main takeaway is clear: when platform breadth, speed, and human capital are pivotal, a lean-control architecture paired with milestone-heavy risk sharing and targeted collaboration most effectively aligns incentives while preserving flexibility.

6.5. Case Study 5

6.5.1. Deal outline

This Deal was held in 2015, between a mid-sized European company with 300 employees (buyer) and a 10-employee start-up (seller), privately financed by its co-founders. Seller had a unique technology platform for the discovery and early development of monoclonal antibodies and derivatives. Seller was engaged for the early discovery of a new biologics, specifically an antibody fragment targeting a clinically and commercially validated target associated with inflammatory bowel disorders but featuring a novel mode of administration. The deal was a preliminary research service arrangement linked to an option for an exclusive license, ultimately leading to a license. The license was restricted to European territory and to the therapeutic applications chosen by buyer. The first research service agreement allowed for the buyer to claim all intellectual property ownership and to initiate discovery activities rapidly without spending too much time on negotiating the license. The first research service agreement would serve as a pilot project and the second license agreement as a broader collaboration with defined success and royalty terms.

6.5.2. Deal structuring antecedents

6.5.2.1.1. Deal structuring antecedents (buyer perspective)

From the buyer's perspective, the most important antecedents encompassed timing and speed, resources access-exchange antecedents, strategic fit, asset-related antecedents and risk-related antecedents.

The interviewee highlighted the significance of timing and speed as an antecedent, stressing the crucial need for a swift conclusion of the deal. This urgency was driven by the imperative to initiate the discovery program promptly and ensure rapid access to the market. Buyer implemented incentivizes for the seller to rapidly progress.

Acknowledging a lack of in-house capabilities in discovering biologics, the buyer emphasized the importance of resource access and exchange in the deal. Given their limited experience in biologics discovery, the buyer decided to rely on the seller's expertise to lead the discovery phase. The deal

structure outlined a collaborative approach where the seller would take the lead in biologics discovery, while the buyer would assume responsibility for subsequent process and clinical development stages.

With respect to strategic fit, buyer noted that the capabilities and business model of the seller were a perfect match for their needs. Additionally, buyer considered seller's commitment to avoid direct competition as a key antecedent influencing the deal structure.

With respect to asset related antecedents, buyer emphasized the need for a unique asset against a clinically validated target with specific configuration requirements. The deal structure was tailored to address the challenges associated with discovering and developing such a specific asset.

With respect to risk-related antecedents, buyer prioritized protecting the territory, therapeutic area, and intellectual property (IP) ownership. To safeguard against shared IP, the buyer favored a service agreement where the full IP would be owned exclusively by the buyer, as opposed to a collaborative R&D agreement where IP is commonly shared between parties.

6.5.2.1.2. Deal structuring antecedents (seller perspective)

First of all, seller, operating as a self-funded entity without external investors, underscored the decisive influence of its financial position on the structuring of the deal. This economic antecedent shaped both the timing and composition of payments as well as the allocation of risk across development stages. To mitigate exposure in the early phases, the seller prioritized a structure that reduced immediate financial vulnerability while preserving participation in future upside as uncertainty resolved. In practice, this translated into calibrating the economics to defer substantial commitments to milestone-triggered points, thereby aligning cash flows with progressive de-risking and ensuring the seller's continuity, as highlighted by the following quote:

> *"So what we wanted to have is a nice mix of, let's say, quick money, because we needed some money because we were a young, start-up company with limited financial, therefore we wanted money early on"*

With respect to risk related antecedents, as emphasized earlier, the seller aimed to minimize risk, particularly considering the lack of strategic fit. The deal was structured to allocate the financial risk predominantly to the buyer, as illustrated by the following quote:

> *"the deal was not in that specific way risky, but it was important for the overall strategy of the company."*

Notably, the interviewee further emphasized that the absence of alignment with the seller's long-term strategic trajectory materially influenced the deal's structure. In the absence of a strategic rationale to internalize the asset's downstream development or to build complementary commercialization capabilities, the seller prioritized risk mitigation and financial returns over platform integration or portfolio coherence. This perspective reframed strategic fit as transactional complementarity—capital for technology—rather than as a basis for long-run capability development. Consequently, the economic architecture centered on milestone-linked compensation and downside protection, aligning the seller's objectives with near- to medium-term value realization and minimizing exposure to activities beyond its intended scope., as indicated by the following quote:

> *"Strategic fit I guess was true for buyer. For us, I guess it was also the strategic fit, I mean, not, not with regard to the product, but with regards to, we had the technology, they have the money for that. The fit for us was strategically important to get the money... There was no strategic fit in terms of any kind of long term strategy for seller."*

Furthermore, seller emphasized the exchange of their scientific and discovery resources in return for financial and development resources from the buyer as one of the antecedents to deal structuring, as illustrated by the following quote:

> *"we did have the know-how to do this and they had the money to pay us"*

Moreover, on negotiation power, interviewee highlighted the financially weak position of seller, therefore leaving no space for negotiation, as described in the following quote:

> *"we did not have much negotiations leverage in this deal because we want to have this deal, and its very important for us."*

Lastly, seller highlighted the shared decision (timing and speed antecedent) to advance rapidly into the execution phase, which is why they deferred the negotiation of licensing terms for later, as well described in the following quote:

> *" both parties want to move forward as quickly as possible and I mean, this is you have to negotiate basically two full agreements or arrangements like the research agreement as well as the license agreements, that takes much more time negotiating ... The most important, was really that both parties agreed that we wanted to move fast and postpone the negotiations of the license agreement"*

6.5.2.1.3. Deal structuring antecedents - similarities and differences

Both parties converged on a common set of antecedents, spontaneously emphasizing resource access and exchange, strategic fit, timing and speed, and risk. This alignment reflects a shared recognition that timely deal closure depends on complementary capabilities and strategic coherence, while necessarily confronting the risks inherent in scientific uncertainty and execution. Within this broad overlap, however, their emphases diverged in ways that shaped the deal's structure: the buyer placed greater weight on the asset itself—its distinctiveness, target validation, and configuration—whereas the seller foregrounded economic considerations and the realities of limited negotiation power arising from its financial position.

When mapped against the pre-identified antecedents from the literature (appendix E), the parties jointly prioritized asset-related factors, reinforcing prior findings about the centrality of asset quality and suitability to deal formation. The buyer's profile remained consistent with earlier observations, according greater salience to strategic fit and risk-related antecedents, including territorial safeguards, IP exclusivity, and the preservation of execution speed. By contrast, the seller introduced a more nuanced perspective by elevating asymmetry and social antecedents. This included attention to bargaining leverage, relational dynamics, and trust as complements to formal mechanisms—considerations that mediate exposure when financial constraints and strategic non-alignment limit the seller's scope to shape downstream development.

Taken together, the pattern reveals substantive common ground in the foundations of deal structure alongside role-specific priorities that reflect each party's position in the value chain and organizational constraints. The buyer's asset-centric orientation and risk governance are coherent with its responsibility for later-stage development and market access, while the seller's emphasis on economics, asymmetry, and social conditions is consistent with a transactional posture aimed at liquidity, protection, and credible participation under bounded leverage. The resulting configuration integrates

these perspectives, aligning a shared logic of timely, complementary exchange with differentiated safeguards that address each side's exposure and objectives without redundancy or conceptual overlap.

6.5.3.Processual unfolding of the deal

6.5.3.1. Deal journey

6.5.3.1.1. Deal journey (buyer perspective)

The interviewee was leading the Business Development & Licensing team in the buyer side. He was on the executive committee of the company and had a broad perspective on the buyer's strategic objectives and operational constraints.

Buyer sought to build its pipeline with a preclinical biologics program against clinically validated target. With a clear vision of their development goals, they engaged in scouting activities to identify a suitable partner with the necessary capabilities to discover assets meeting their criteria. Ultimately, they partnered with the seller, a start-up in the same country, for the discovery of this new biologics.

6.5.3.1.2. Deal journey (seller perspective)

As one of the co-founders and a key decision-maker on the seller side, the interviewee played a pivotal role in the deal. The seller, a self-funded start-up with a unique technology platform for monoclonal antibodies and derivatives, recognized the value of establishing revenue-generating deals around their scientific platform. Despite not being exceptionally enthusiastic about the buyer's chosen program and target, the seller agreed to a two-stage agreement. This involved a research agreement with defined goals and a success fee, followed by an option exercisable upon goal achievement, with pre-agreed licensing terms. The decision was driven by the strategic aim to retain long-term revenues through royalty.

6.5.3.1.3. Deal journey - similarities and differences

For the buyer, the deal was strategically salient and exposed to substantial scientific and execution risk, necessitating a structure that preserved speed while safeguarding future control. By contrast, the seller viewed the deal as less strategically attractive in the long term and therefore prioritized financial returns

and risk mitigation over deep integration. Interestingly, this asymmetry in strategic orientation shaped the negotiation dynamics but did not preclude convergence on a mutually acceptable pathway.

6.5.3.2. Deal structuring considerations

6.5.3.2.1. Deal structuring considerations (buyer perspective)

First and above all, buyer's negotiation primarily focused on the allocation of control rights such as intellectual property (IP), territory, and therapeutic area. The interviewee highlighted that the most delicate discussions revolved around IP ownership. The buyer and seller held differing perspectives on IP prosecution, with the buyer emphasizing reinforcing and securing patents, while the seller aimed to file as extensively as possible. The compromise led to IP ownership residing with the seller, but with restrictions on exploring all indications—a situation representing the IP ownership versus exploitation dilemma perceived as a zero-sum game.

Second, buyer prioritized protecting itself from potential competitive challenges by securing specific territories and therapeutic areas during negotiations. This safeguard and risk mitigation consideration played a crucial role in shaping the deal structure.

Third, seller strategically aimed to optimally allocate risks and return over time. Simultaneously, they negotiated a deal structure that included incentives and payment mechanisms to reward seller for achieving milestones swiftly, thereby aligning with the goal of expediting the development process.

Lastly, on contracting & organizational efficiency, the deal structure was intentionally divided into distinct steps to streamline negotiations and enhance efficiency. The initial step encompassed a dedicated service agreement linked to an option for a license, with comprehensive licensing terms already outlined. The final step entailed the execution of the license under pre-established terms, contributing to the overall efficiency of the deal.

6.5.3.2.2. Deal structuring considerations (seller perspective)

First, according to seller, negotiations over the allocation of control rights were intricate, acknowledging the inherent uncertainty in R&D and the necessity for certain decisions to be deferred to the buyer, leading to an incomplete contract, as exemplified by the following quote:

> *"we have always an interest to retain some upsides right in the form of royalties.... that was probably important for the license deal to know financial terms of the license, even though it's not yet the full agreement... because clearly it is the intention of buyer to get in the end to have all the rights to the compound we have discovered for them."*

As a second consideration, seller was willing to consider a risk sharing model, out which the most financial return would come as kind of a success fee, as illustrated with the following quote:

> *"What we wanted to have is a nice mix of, let's say, quick money, because we needed some money because we were a young, start-up company with limited financial, therefore we wanted money early on, but then also we wanted to retain the upside"*

Third, on safeguard and risk mitigation, seller highlighted how the deal was meticulously crafted, incorporating multiple steps to mitigate risks and ensure progress, with the initial phase focused on discovery and subsequent steps contingent upon achieving predefined goals, exemplifying the strategic approach outlined in the following quote:

> *" our preference is typically that we do a two stage arrangement, which we first do the research part and we sign specific criteria that need to be met, design goals, we then also typically ask for success fee if we do meet the design goals once these are met, or the other company, nevertheless, wants to move forward with that compound then they have an option that they can execute to conclude a license agreement."*

The seller identified contracting and organizational efficiency as a further consideration. In light of the shared imperative to progress swiftly, the interviewee argued that consolidating negotiations—rather than staging multiple, protracted bargaining rounds—was the most effective way to maintain momentum and minimize coordination drag. This approach prioritized clarity and speed over iterative renegotiation, as outlined in the following quote:

> *"both parties want to move forward as quickly as possible and I mean, this is you have to negotiate basically two full agreements or arrangements like the research agreement as well as the license agreements, that takes much more time negotiating."*

With respect to the, the slicing of payments according to milestones is already well illustrated in the previous quotes.

Lastly, structured payment-milestones was transversal consideration, aimed at aligning incentives under uncertainty and managing intertemporal risk. As already illustrated in the preceding quotations, the economics were deliberately sliced across well-defined development inflection points, calibrating cash flows to the progressive resolution of technical and execution risks.

6.5.3.2.3. Deal structuring considerations - similarities and differences

The buyer and seller converged on a staged and combined deal structure designed to balance speed, risk management, and future optionality, yet their priorities and interpretations of control rights created systematic divergences. From the buyer's perspective, the negotiation centered on the allocation of control across IP, territory, and therapeutic area. The buyer treated IP prosecution and exclusivity as foundational to protecting downstream development and market positioning, pressing for reinforced patents, territorial safeguards, and therapeutic exclusivity. The seller's stance on control rights was shaped by uncertainty and by an acceptance of incomplete contracting where certain decisions would be deferred to the buyer as development progressed. This orientation was consistent with a preference for retaining economic participation—royalties and success fees—over residual control. The seller's emphasis on payment architecture as a substitute for control translated into a deliberate slicing of economics across verifiable milestones and a two-step structure in which a research agreement with defined goals and a success fee was followed by an exercisable license option with pre-agreed terms. In this deal structure, the seller preserved upside while acknowledging the buyer's ultimate aim to consolidate rights over the discovered compound.

Both parties shared an interest in rapid execution and contracting efficiency, but operationalized it differently. The buyer separated the process into a service agreement linked to an option for a license, front-loading clarity on licensing terms to economize on later negotiation time and reduce re-contracting risk. The seller, facing liquidity constraints and limited bargaining leverage, favored consolidating terms to avoid iterative, protracted bargaining that could stall momentum; however, in practice the agreed sequencing—research first, license option second—achieved the same efficiency goals by anchoring essential economics ex ante and postponing only what required technical validation.

Risk allocation and incentive design reveal parallel logics shaped by role and capabilities. The buyer's insistence on territorial and therapeutic protections, coupled with exclusive IP exploitation, functioned as safeguards against competitive encroachment and as devices to preserve execution speed. The seller's preference for early cash mixed with retained upside operationalized risk sharing under uncertainty: quick money stabilized near-term operations, while milestone- and option-based payouts synchronized commitment with information revelation. In both views, milestone structuring served as the principal mechanism for aligning incentives intertemporally and for reducing renegotiation pressure as evidence accumulated.

6.5.3.3. Decision gates

6.5.3.3.1. Decision gates (buyer perspective)

The buyer's initial key decision gate involved defining strict criteria for potential compounds, prioritizing access to biologics, targeting clinically validated targets, and focusing on products suitable for European commercialization. This decision was driven by the buyer's existing commercialization infrastructure in Europe and its ambition to build expertise in biologics where it had none. After scouting several companies, the buyer quickly realized that these firms were seeking larger collaborations, which did not align with its immediate needs or expectations for asset value.

Subsequently, the buyer faced a pivotal decision regarding its partnering strategy. It decided to shift its focus towards a local partner, the seller, a startup with a technology platform capable of developing assets from scratch. The rationale behind this decision was the seller's geographical proximity and its ability to generate assets aligning with the buyer's specific requirements, offering a more tailored solution than larger, more complex deals. This decision also reflected the buyer's preference to spread risks over time rather than undertaking all risks at once.

A critical decision gate emerged concerning the deal structure itself. The buyer considered various options, including the acquisition of the seller, but this was rapidly dismissed due to the seller's high valuation expectations and the buyer's budget limitations, especially given that no products existed yet. The buyer ultimately defaulted to and proactively pursued a service agreement coupled with a licensing option. This deal structure was deemed most suitable because it allowed the buyer to initiate research rapidly, secure full ownership of intellectual property from the outset in case of success, and include

pre-agreed license terms within the service agreement. The deal was designed to be structured into three contracts aligned with development phases, allowing for a phased investment and risk mitigation.

The most pivotal decision for the buyer occurred early in the process, after initial discussions with the seller: the insistence on full IP control and clear IP regulation from the very beginning of the service agreement. The buyer knew that requesting comprehensive IP control, even if they could not exploit all potential indications immediately, would be a potential bottleneck. However, the ability to control and secure the patent portfolio was a guiding principle and a non-negotiable condition, making the "deal or no deal" contingent on this IP clarification. This decision reflected the buyer's strategic imperative to control the asset and its associated intellectual property, aligning with its long-term objective to potentially seek a co-development and marketing partner for the US market at a later stage, particularly for such antibodies.

6.5.3.3.2. Decision gates (seller perspective)

As a young company with limited financial resources, the seller operated with constrained negotiation leverage.

An early decision gate for the seller involved evaluating the buyer's proposed target, which the seller considered "old fashioned". Despite this initial lack of enthusiasm, the seller recognized the strategic importance of the collaboration for its growth.

The seller's next crucial decision concerned the optimal deal structure. It preferred a two-stage arrangement consisting of a research agreement followed by an option for a license agreement, with key financial terms for the license pre-agreed and attached as a term sheet to the initial research agreement. This approach was chosen to facilitate rapid progression of the research without the delays associated with negotiating a complete, hypothetical license agreement upfront.

The seller explicitly considered and dismissed alternative deal structures. It decided against a direct license agreement, an asset purchase, or a joint venture. A direct license was avoided due to the time-consuming nature of negotiating a full agreement for a compound yet to be discovered. An asset purchase was rejected because the seller sought to retain long-term upsides through royalties rather than a lump sum payment, emphasizing its role as a technology provider, not just a service provider. Joint ventures were deemed overly complicated and misaligned with the buyer's clear intention to

eventually own the compound rights for development, which was a separate task from the seller's discovery phase.

The most pivotal decision in this deal journey, as highlighted by the interviewee, revolved around financial and control rights considerations rather than the decision to enter the deal. Notably, the interviewee emphasized the challenge of balancing the need for financial support with the desire to avoid appearing financially weak and desperate, making it a delicate exercise for them. This involved consciously refraining from chasing the buyer during periods of "dead air" or delayed responses. This decision, made continuously during the negotiation journey, was crucial to securing acceptable terms, particularly regarding royalties, which were viewed as less critical in the short term but vital for long-term upside and avoiding less attractive investor financing. This strategic patience was a direct response to their limited bargaining power.

6.5.3.3.3. Key decision gates - similarities and differences

Comparing the buyer's and seller's decision processes reveals both similarities and profound differences in their strategic priorities and negotiation approaches. Both parties shared a mutual desire for speed in initiating the deal and subsequent collaboration, influencing their alignment on a phased deal structure (research/service agreement with a license option) with pre-negotiated terms. This deal structure served as a mechanism for risk mitigation, allowing the buyer to spread investment over time and the seller to secure early funding while deferring full license commitments until discovery success. Both also considered the deal strategically important, although for distinct reasons: the buyer to build its pipeline and capabilities, and the seller to secure funding and validate its technology.

However, fundamental differences underpin their decision-making. The buyer's decisions were driven by a clear imperative to acquire full intellectual property ownership and control over the developed asset, reflecting its long-term commercialization strategy and internal risk-aversion regarding new biologics ventures. Conversely, the seller's decisions were heavily influenced by its status as a startup with limited financial resources and negotiation leverage, prioritizing early revenue generation, retaining royalty upsides, and demonstrating technology validation to enhance company valuation. This asymmetry in power led to the buyer dictating the IP terms from the outset, while the seller's critical decision revolved around a psychological strategy to appear less desperate, thereby preserving better financial terms despite its urgent needs.

6.5.4. Deal outcome description

Deal structure can be described according to 3 typologies: TCE based, ICT based and Contractual.

First of all, following the deal-structuring outcome typology grounded in TCE-based integration (section 3.4.2.1), this deal structure cannot be adequately described within the framework's existing categories, as it entails a combination of multiple contractual agreements that operate in concert rather than as discrete, standalone arrangements. This multi-agreement deal structure exceeds the descriptive capacity of this typology's design which assumes a singular classification.

Secondly, following the deal structuring outcome typology built on the logic of ICT, this deal structure can be described as predominantly shared and negotiated control rights allocation. In this case, buyer has vigorously negotiated full transfer of IP foreground.

Lastly, from a contractual standpoint, the deal signed between the firms is a preliminary research service arrangement linked to an option for an exclusive license, ultimately leading to a license.

6.5.5. Abductive assessment of RBV, TCE, RO and ICT explanatory power

6.5.5.1. Buyer's assessment

First of all, initial strategic impetus aligns directly with the RBV, as the buyer sought to acquire critical resources and capabilities (biologics expertise and pipeline assets) that were absent from its existing resource base, thereby enhancing its competitive position. The buyer, an established life science company primarily skilled in small molecules, embarked on a strategic initiative to expand its pipeline by incorporating biologics, a domain where it lacked internal expertise and capabilities. The buyer established strict criteria for desired compounds, focusing on validated targets and products suitable for European commercialization, which reflected both its existing commercial strengths and its ambition to enter new therapeutic modalities.

Early in its scouting efforts, the buyer evaluated numerous potential partners but quickly discovered that larger companies sought more extensive collaborations that did not align with its requirements for asset value or deal size. This phase reflects an initial assessment through the lens of TCE. The buyer, seeking to "spread risks by the time" rather than taking "all risks at once", implicitly recognized

that larger, more complex deals with established entities might entail higher ex-ante transaction costs, including extensive negotiation, monitoring, and adaptation expenses for an uncertain outcome. Consequently, the buyer pivoted its strategy, choosing to engage with the seller, a local startup possessing a technology platform capable of developing assets from scratch. This decision was influenced by the seller's ability to generate tailor-made assets and likely lower coordination costs due to geographical proximity, further mitigating potential transaction costs. Moreover, the choice of deal structure became a subsequent critical decision gate for the buyer. Although acquisition of the seller was considered, it was swiftly dismissed due to the seller's high valuation expectations and the buyer's budget constraints, particularly given the absence of any developed products. This demonstrates a TCE rationale, as the perceived costs of integration and the inherent risk associated with acquiring a company with no tangible assets outweighed the potential benefits.

In addition, the buyer proactively pursued a service agreement coupled with a licensing option, structured into three distinct contracts aligned with development phases. This phased approach is a quintessential application of RO, allowing the buyer to make incremental investments and defer the larger licensing commitment until more information was available regarding the success of the research, thereby strategically managing risk and investment over time. The inclusion of pre-agreed license terms within the initial service agreement further solidified this option, defining the future exercise price.

The most pivotal decision for the buyer occurred early in the process, following initial discussions with the seller: the unwavering insistence on full intellectual property (IP) control and clear IP regulation from the very outset of the service agreement. This decision is a profound application of ICT, which posits that parties strategically allocate control rights over assets in contexts of high uncertainty, such as R&D, where future contingencies cannot be fully specified in advance. By securing residual control rights over the IP, the buyer aimed to mitigate future opportunism, ensure strategic flexibility for subsequent development, and facilitate potential co-development and marketing partnerships for the US market. This proactive approach to IP governance was central to the buyer's long-term strategy for pipeline development and resource protection.

6.5.5.2. Seller's assessment

The seller entered discussions with the buyer with a primary need for early revenue, given its limited financial resources and status as a young company. Although the buyer's proposed target (was deemed "old fashioned" by the seller, the strategic importance of the collaboration for securing funding and validating its technology was recognized. This foundational motivation for collaboration directly reflects the RBV, as the seller sought to leverage its unique technology platform and know-how to generate immediate revenue and enhance its long-term valuation, effectively monetizing its core resources.

In designing the deal structure, the seller explicitly favored a two-stage arrangement: a research agreement followed by an option for a license agreement, with key financial terms for the license pre-agreed and attached as a term sheet. This preference for a phased approach, similar to the buyer, also represents an application of RO. For the seller, this structure facilitated rapid progression of research and secured initial funding without the delays associated with negotiating a complete, hypothetical license agreement for a compound yet to be discovered. This approach allowed the seller to secure "quick money" while retaining significant "long-term upsides" through royalties. The incorporation of a "success fee" upon meeting design goals further aligned incentives and ensured profitability beyond mere cost recovery, which can be seen as an effort to mitigate potential moral hazard (a concept within TCE) and ensure higher performance.

The seller consciously dismissed alternative deal structures. A direct license agreement was rejected due to the time-consuming nature of negotiating a full agreement for an undiscovered compound, reflecting a TCE concern for ex-ante negotiation costs. An asset purchase was also ruled out because the seller sought to retain long-term upsides via royalties, emphasizing its identity as a technology provider rather than a pure service provider. Joint ventures were considered overly complicated and misaligned with the buyer's clear intent to ultimately own the compound rights for development, illustrating a recognition of the high governance and coordination costs often associated with such structures, again within the domain of TCE.

From an ICT principle, recognizing the impossibility of writing complete contracts for this program, both parties adopted a two-stage deal structure: a research agreement with pre-agreed license terms, followed by an exercisable option upon meeting design goals. This staged approach addressed

contractual incompleteness by deferring detailed specifications until experimental outcomes provided greater certainty. Control rights were strategically allocated across phases: the seller retained operational control during discovery, leveraging its proprietary technology and expertise, while the buyer secured future development control through option rights with predetermined financial terms. This arrangement balanced immediate operational needs with long-term development objectives while mitigating renegotiation risks. The seller deliberately preserved residual control rights and upside participation. The inclusion of success fees created risk-sharing mechanisms that aligned incentives while granting the seller quality control over research direction.

6.5.5.3. Comparison of buyer and seller's assessment

A comparative analysis of the buyer's and seller's decision processes reveals convergent applications of RBV, TCE, RO and ICT theories, alongside distinct priorities and temporalities in their theoretical manifestations.

First of all, the underlying motivations for both entities were rooted in the RBV. The buyer's entire initiative stemmed from a desire to acquire crucial biologics capabilities and expand its product pipeline, thereby augmenting its internal resource base. Conversely, the seller's objective was to leverage its unique technological know-how and platform to generate revenue, increase company valuation, and extend its portfolio, effectively monetizing its core resources. While the buyer focused on resource acquisition, the seller concentrated on resource exploitation and value retention.

Furthermore, both parties mutually embraced RO in adopting a phased service/research agreement coupled with a licensing option. For the buyer, this structure facilitated strategic risk mitigation and flexible pipeline development. For the seller, it provided immediate financial liquidity while preserving long-term royalty upsides, effectively de-risking its early operations and enhancing its future valuation. This shared preference highlights the robustness of RO as a framework for managing uncertainty in R&D collaborations.

In addition to that, both parties consistently applied principles of TCE to optimize their deal structures. The buyer strategically shifted from evaluating large, complex deals to a local, tailored service agreement to manage perceived higher transaction costs. The seller, in turn, prioritized swift deal closure and avoided more complicated structures like direct licenses or joint ventures, which would

have entailed higher ex-ante negotiation and governance costs. Both recognized the efficiency benefits of a phased approach for rapid initiation and reduced ex-post adaptation costs in an uncertain R&D environment.

On the other hand, the application and temporality of ICT presented a divergence. For the buyer, ICT was paramount and applied *early* in the deal journey. The buyer's most pivotal decision was the insistence on immediate and full IP control. This proactive allocation of control rights directly addressed the inherent uncertainties of R&D by establishing clear ownership of future assets, thereby mitigating potential ex-post contractual ambiguities and renegotiation costs over IP. This was a foundational contractual design choice that preceded much of the detailed financial negotiation. For the seller, while IP was a point of contention (reflecting a fundamental incomplete contract issue from the buyer's perspective), its most pivotal decision was not about allocating control rights *per se*, but rather a behavioral strategy to appear financially resilient during negotiations. This continuous decision aimed to counter the inherent power asymmetry and informational incompleteness in the contractual environment, influencing the final terms and the distribution of value within the incomplete contract rather than its initial deal structural design concerning control rights.

6.5.6.Case study summary

In summary, the deal between the buyer and seller exemplifies a partnership characterized by multiple contractual agreements that evolved through structured decision-making processes.

The most distinctive feature of this deal was the absence of a tangible asset at inception, necessitating a multiple agreement deal structure designed to enable discovery and subsequent development while appropriately allocating risks associated with this fundamental uncertainty.

Interestingly, a strategic fit gap existed between the parties, which they successfully bridged through careful risk and return allocation mechanisms. This gap, rather than precluding agreement, became a design parameter that shaped the deal's architecture to accommodate divergent long-term objectives while enabling immediate collaboration.

Power asymmetry significantly influenced negotiation dynamics, with the financially stable buyer able to impose stricter terms, particularly regarding intellectual property ownership. The resource-constrained seller employed strategic patience and self-control to achieve acceptable outcomes,

focusing on securing the deal under optimal available conditions rather than pursuing ideal terms. This dynamic highlights how bargaining position shapes not only outcomes but also the strategic frameworks parties employ to navigate incomplete contracting environments.

Control rights allocation constituted the primary negotiation challenge, reflecting fundamentally different risk profiles and strategic objectives. This control rights framework enabled rapid work commencement and technical learning generation, avoiding the protracted early-stage bargaining that often characterizes such partnerships. The two-stage configuration proved particularly effective in reconciling divergent positions by allowing early discovery to generate proof points that disciplined subsequent licensing decisions.

The theoretical underpinnings of each party's approach reveal distinct but complementary strategic logics. The buyer's decisions were initially guided by Resource-Based View considerations in identifying capability requirements and Transaction Cost Economics principles in structuring acquisition mechanisms. These quickly converged on Incomplete Contract Theory frameworks for establishing foundational control over future assets, operationalized through Real Options structures for risk management. The seller, motivated by resource monetization imperatives and transactional efficiency concerns, similarly embraced option-based structures while emphasizing strategic patience and behavioral adaptation to overcome bargaining disadvantages.

The deal ultimately achieved a workable equilibrium where the buyer secured autonomy and protected development pathways while the seller obtained liquidity and upside participation through disciplined, milestone-driven economics. This configuration demonstrates how phased, pre-agreed structures can effectively manage R&D collaboration between entities with asymmetric resources and strategic objectives, enabling rapid initiation, shared risk allocation, and future clarity while preserving each party's core interests within an adaptive contractual framework.

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6.6. Case Study 6

6.6.1.Deal outline

This Deal was held in 2019, between a large global healthcare company with 90 000 employees (seller) and a start-up (buyer) of 15 employees financed by VCs (Venture Capital Investors). In this particular case, the seller (larger company) has entered into a licensing agreement with the buyer (smaller company) for the development and commercialization of a clinical-stage ophthalmologic drug.

6.6.2.Deal structuring antecedents

6.6.2.1. Deal structuring antecedents (buyer perspective)

First, buyer reinforced the extent to which the program in-licensed from seller was exactly in line with their pre-defined criteria. This strategic fit was very clear from the beginning, as illustrated from the following quote:

> *"The product fits perfectly with our strategy in terms of portfolio. So we didn't go and we took something completely out of the box. We had full review, portfolio review and we identified 3 products, which made sense with our portfolio. So this product was one of them."*

Second, on resources access-exchange antecedents, the buyer's team diligently assessed the extent to which they possessed the right complementary resources and fit to further manage this program, as illustrated by the questions they asked themselves:

> *" The product fits perfectly with our strategy in terms of portfolio. So we didn't go and we took something completely out of the box. We had full review, portfolio review and we identified 3 products, which made sense with our portfolio. So this product was one of them."*

Third, on economics antecedents, the buyer's team diligently assessed the extent to which they possessed sufficient financial resources to further manage this program, as illustrated by the questions they asked themselves:

> *"can we develop it in terms of economics? Like are we able to have the money to develop it?"*

Fourth, interviewee highlighted the extent to which the asset was specific and fitting their criteria (asset related antecedents), as illustrated with the following quote:

> *"So the first opinion, first item is we know the market. We knew where we were going. We knew more or less about the product. The product fits perfectly with our strategy in terms of portfolio"*

Lastly, buyer wanted above all the manage the financial risk related to that deal, as illustrated with the following quote:

> *"we need to make sure that with all the money you put on the table and the risks you put on the table, it is worth it."*

6.6.2.2. Deal structuring antecedents (seller perspective)

First, economics emerged as fundamental antecedent of deal structure, with tax implications receiving particular emphasis given the seller's status as a large pharmaceutical company. The complexity of financial architecture required comprehensive coordination across multiple functional domains, as the interviewee explained:

> *"And lastly but not least you need to involve finance, tax, fund flow, i.e. all the people when it comes to the financial considerations and there is over all of these structural elements that we already discussed, milestone payments & royalties & those things. "*

Second, interviewee emphasized the extent to which the level of strategic fit played a role in the financial deal structure, as illustrated with the following quote:

> *" strategic fit will play into the risk versus financial aspects.... So if you don't see a strategic fit in your side, then you probably more likely to accept like a low financial package. "*

Third, seller's emphasis on established practices, particularly regarding royalties in deal structuring, underscores the importance of experience-driven antecedents. This reflects a reliance on past experiences and proven methodologies to inform and shape the current deal structure, as illustrated with the following quote:

> *"So that's normally how we structure our royalties. And that's basically very conventional."*

Fourth, on resource access and exchange related antecedents, seller highlighted how the knowledge transfer, especially around manufacturing, was a key factor to take into account into the deal structure, as illustrated in the following quote:

> *" Then basically we would transfer what we have and let the other company run with it because they may have like certain knowhow and specific technologies that we don't have and we are not interested in. But they think that they have a leverage to better develop these products than we do."*

Lastly, with regards to risk, seller emphasized the importance of safeguarding against competitive or self-opportunistic behaviors, as indicated by the following quote.:

> *"For example, would you want them to all of a sudden share the know-how that you've given them?"*

6.6.2.3. Deal structuring antecedents - similarities and differences

The buyer and seller demonstrated convergent strategic orientations centered on portfolio alignment and resource complementarity, yet diverged significantly in their risk assessment frameworks and structural priorities. Both parties emphasized strategic fit as a foundational criterion, with the buyer explicitly confirming that the licensed program aligned with predetermined portfolio criteria and the seller acknowledging that strategic alignment influences financial risk tolerance. This shared emphasis on strategic coherence suggests that successful deal formation requires mutual recognition of value creation potential beyond purely financial considerations.

Resource access and exchange considerations featured prominently in both perspectives, though with distinct operational emphases. The buyer focused on internal capability assessment, questioning whether they possessed adequate complementary resources and financial capacity to advance the program effectively. The seller emphasized knowledge transfer mechanisms, particularly around manufacturing expertise, viewing the transaction as an opportunity to leverage the buyer's specialized capabilities that exceeded their own technical scope. This asymmetry reflects different resource endowments and strategic priorities, with the buyer seeking to validate internal readiness while the seller aimed to optimize external capability utilization.

Economic antecedents revealed both convergence and divergence in financial structuring approaches. Both parties recognized the centrality of economic considerations, yet their operational focus differed substantially. The buyer prioritized risk-return optimization, emphasizing the need to ensure that financial commitments aligned with potential value creation. The seller, as a large pharmaceutical entity, highlighted the complexity of financial architecture, requiring coordination across tax, fund flow, and structural payment mechanisms. This organizational scale difference significantly influenced how economic considerations were operationalized in deal design.

Risk related antecedent emerged as the primary differentiator between the parties. The buyer's risk assessment centered on financial exposure and program development feasibility, reflecting a portfolio management perspective focused on capital allocation efficiency. The seller's risk concerns emphasized protection against competitive opportunism and knowledge appropriation, indicating a focus on preserving strategic assets and preventing value leakage. This divergence highlights how risk perception varies with organizational position and asset ownership, with buyers prioritizing execution risk and sellers emphasizing appropriation hazards.

The seller's reliance on established practices and conventional structuring approaches, particularly regarding royalty frameworks, contrasts with the buyer's analytical, criteria-driven assessment methodology. This difference reflects how experience and institutional memory play varying roles in deal structuring, with established entities drawing on proven methodologies while acquiring entities employ systematic evaluation frameworks. The seller's heightened focus on legal-tax-accounting and experience-routines can be attributed to its status as a large established company with greater institutional sensitivity compared to the smaller, more flexible buyer.

When evaluating pre-identified antecedents from the literature (appendix E), both parties prioritized economic and risk factors, aligning with established findings. Notably, strategic fit emerged as the highest-ranked antecedent when explicitly assessed, despite not being spontaneously mentioned during interviews, suggesting its implicit rather than explicit influence on deal formation. The alignment in lower rankings of asymmetry, social, and individual antecedents indicates their limited influence in shaping the observed deal structure, reinforcing the primacy of strategic, economic, and risk-related considerations in pharmaceutical licensing arrangements.

6.6.3.Processual unfolding of the deal

6.6.3.1. Deal journey

6.6.3.1.1. Deal journey (buyer perspective)

The interviewee, as the CEO of the buyer, personally oversaw the entire negotiation process. After defining the buyer's requirements, it was concluded that the seller had a high-strategic-fit program. The interviewee, with prior experience as an executive within the seller company, was familiar with the asset and decision-makers. The buyer aimed to lead development and commercialization, demonstrating its capabilities. The negotiation, though long, was deemed smooth. Given financial constraints on the seller's side, the buyer leveraged equity, particularly with the seller's corporate venture investment arm as an existing shareholder, to compensate for reduced cash upfront.

6.6.3.1.2. Deal journey (seller perspective)

The interviewee, the lead negotiator and a member of the seller Business & Development Licensing team responsible for divestment of seller deprioritized assets. Interestingly, interviewee emphasized that the deal was envisioned from the beginning as an out-licensing with full allocation of development control rights. This was considered non-negotiable as seller aimed to only allocate development control rights whilst keeping IP control rights, making licensing the most suitable deal structure. On the other hand, once the buyer was identified, some flexibility and negotiation room were demonstrated by seller around financial considerations and milestone definitions to accommodate buyer smaller financial size. The interviewee acknowledged the unique situation where the seller's corporate investment arm was already a shareholder of buyer, facilitating a deal structure with an equity component.

6.6.3.1.3. Deal journey - similarities and differences

In comparing the deal journey between the buyer and the seller, both parties recognized the high strategic fit of the program. The buyer aimed to lead in development and commercialization, emphasizing its capabilities. The negotiation, though lengthy, proceeded smoothly from the buyer's perspective, with a keen focus on leveraging equity due to financial constraints. On the other hand, the seller, from the outset, envisioned the deal as an out-licensing arrangement with full allocation of development control rights. The seller maintained a non-negotiable stance to retain IP control rights

6.6.3.2. Deal structuring considerations

6.6.3.2.1. Deal structuring considerations (buyer perspective)

First, on the consideration risk-return allocation, buyer aimed to reduce risk in the deal structure from the beginning, as illustrated by the following quote:

> *" it is an ongoing process where you are always balancing and trying to have the best deal for yourself, for your company, of course, which is the lowest risk possible and the maximum options possible"*

Second, regarding the allocation of control rights, buyer explained that the deal was negotiated to incorporate not only development but also commercialization rights, as illustrated by the following quote:

> *" In this case, seller does not have a right for the future of commercialization. So therefore our plan is to be ready to commercialize it. "*

Third, the deal was structured to incorporate an equity component as a milestone based way to reduce cash, as illustrated by the following quote:

> *" The deal also who have an equity component in it to reduce the upfront payment which was agreed with seller."*

6.6.3.2.2. Deal structuring considerations (seller perspective)

First, the interviewee emphasized the critical aspect of allocating the relevant level of rights to the buyer while retaining the rest for the seller, as illustrated by the following quote:

> *" buyer was basically saying that they want to develop this product into a certain direction ... And that was perfectly OK. But we wanted to avoid that they do other things. So therefore, we limited then also to the field definition of the scope of the license to what seller was comfortable with."*

Second, seller highlighted the importance of negotiating a deal structure allowing to protect itself (safeguard and risk mitigation), as illustrated with the following quote:

> *" But you may want to maintain the other rights in other indications to yourself, because you may have some ongoing other developments, or you have a concern that there may be an interest in the future because that particular asset could also be useful in some of the area where seller continues to be interested"*

Third, the seller highlighted how the level of strategic fit influences its expectations regarding the magnitude of anticipated returns, indicating a sophisticated risk-return allocation consideration that extends beyond simple financial metrics, as illustrated with the following quote:

> *" you can always accept equity into the newly founded company as a means of payment, which can be a win win situation, because this obviously lowers the cash burden early on for the company that wants to buy it... the strategic fit will play into the risk versus financial aspects, kind of in a way. So if you don't see a strategic fit in your side, then you probably more likely to accept like a low financial package"*

Fourth, on contracting & organizational efficiency, seller highlighted that acquiring additional equity via their corporate investment arm was a way to get compensation:

> *"And basically what we did with this transaction is we extended the seller overall investment, as you would say, into buyer by having additional share points, percentage points of buyer share on top of what's called buyer venture fund was already holding."*

Lastly, the seller highlighted not only the structuring of payments into milestone-based tranches but also emphasized that milestone definitions themselves became subject to negotiation, reflecting the adaptive and collaborative nature of deal architecture., as illustrated with the following quote:

> *" And yeah, then we had like a list of different milestones that we also discussed and that were reflected in the offer."*

6.6.3.2.3. Deal Structuring considerations - similarities and differences

Both parties demonstrated convergent priorities regarding risk-return allocation, control rights allocation, and milestone-based payment structures, reflecting shared recognition of these considerations as fundamental to successful deal structure. However, their operational approaches diverged significantly based on organizational characteristics and resource constraints, with the buyer prioritizing comprehensive risk minimization while the seller emphasized selective value preservation and strategic safeguarding.

The buyer's approach reflected the typical orientation of resource-constrained startups, focusing on risk-return optimization through consolidated control acquisition. By securing both development and commercialization rights, the buyer pursued a comprehensive risk-reduction strategy that maximized strategic options while minimizing coordination dependencies. This approach demonstrates how smaller entities leverage control consolidation to compensate for limited resources and higher risk sensitivity, seeking to preserve decision-making autonomy across the asset's entire lifecycle.

Conversely, the seller's considerations reflected the sophisticated risk management capabilities of established pharmaceutical entities, emphasizing selective rights allocation and strategic value preservation. Rather than pursuing blanket control retention, the seller focused on field-specific limitations that protected ongoing interests while enabling buyer autonomy within defined boundaries. This approach balances immediate monetization with future optionality, particularly regarding alternative indications that align with continuing strategic interests, demonstrating how larger organizations can afford more nuanced risk distribution strategies.

6.6.3.3. Decision gates

6.6.3.3.1. Decision gates (buyer perspective)

The deal journey began with an initial assessment focused on strategic fit and internal capabilities. The fundamental decision from the outset was to pursue an in-licensing deal. Buyer aimed to gain full responsibility for developing the product, deliberately avoiding complex structures like joint ventures or co-development due to the inherent asymmetry between a small startup and a large pharmaceutical company. This desire for complete control over the development process was a primary driver in their decision to pursue a straightforward licensing arrangement.

Internally, Buyer's decision-making process involved key management figures, including the CEO, CFO, and the company lawyer. The board of directors also played a significant role, not just in rubber-stamping proposals but actively engaging in discussions and providing influential input on the deal's structure. This indicated a collaborative environment where board insights were integrated into management's strategic proposals.

Throughout the negotiation, buyer maintained a continuous assessment of risks versus potential prospects. The most pivotal decision for Buyer was not a singular, discrete moment but an ongoing, iterative process of balancing risk and opportunity during the entire negotiation. This constant evaluation involved assessing the viability of developing the product, bringing it to market, and managing the associated financial and operational challenges. Their overarching objective was to minimize risks while maximizing future options. Key factors influencing this dynamic decision-making included a deep understanding of the market, the product's perfect strategic fit with buyer's portfolio, the specific financial terms, their internal capabilities to develop the asset, and crucially, the establishment of trust with seller. This trust was paramount for a successful collaboration, even though Buyer would have full control over the asset post-licensing.

Although the interviewee did not explicitly recognize a critical decision, the interpretation of the interview transcript and notes suggests that the most pivotal decision in this deal journey was the commitment to enter into the deal, driven by the choice of asset.

6.6.3.3.2. Decision gates (seller perspective)

The process for the seller, began with an inherent strategic determination regarding the asset. As the BD&L deal lead, interviewee's role focused on out-licensing development assets. For the deal with the buyer, the technology in question was categorized as a development asset. Thus, the initial, almost predefined, key decision was to pursue an out-licensing deal rather than a full divestment. This was based on the principle that for development assets, Seller aimed to retain some control over the intellectual property (IP) while allowing an external partner to develop the product within a defined scope.

Following this foundational strategic decision, the next key gate involved understanding the potential buyer's specific needs and tailoring an offering rather than initiating a broad auction. This approach aimed to identify a common interest that would lead to a suitable partnership. A practical, yet critical, early step was the establishment of a confidentiality agreement. This formal initiation allowed for the sharing of initial project information, leading to the buyer gaining access to a comprehensive data room. To support this, seller mobilized various internal functions—including technical, regulatory, chemical operations, clinical supply, medical affairs, and safety personnel—to gather all necessary information about the asset.

As offers emerged, a significant decision gate centered on the evaluation and negotiation of financial proposals. Seller's out-licensing strategy prioritized milestone payments, tied to specific development progress and commercialization thresholds, over a large upfront payment. This approach aimed to provide the buyer with financial flexibility for development. A particularly pivotal financial decision was the acceptance of equity in the buyer company as a means of payment. This was proposed by Seller, building on a historical equity stake, allowing the seller to potentially benefit from significant future upside if the product succeeded beyond initial expectations. This decision underscored a willingness to align long-term interests with the buyer.

Concurrently, a crucial decision revolved around precisely defining the scope of the license and the transfer of rights. Seller deliberately restricted the license to specific fields, such as topical administration for use in the front of the eye, to prevent potential competition with its own ongoing developments or future strategic interests. This involved intricate internal discussions to ensure that while the buyer received necessary rights, Seller retained control over its broader IP portfolio.

Throughout the process, the interviewee's BD&L lead's role involved coordinating a diverse internal team to address all aspects of the transaction, from business franchises determining residual interest in the asset, to preclinical research, finance, tax, legal, trademark, and patent specialists. These internal stakeholders often had conflicting perspectives, requiring reconciliation.

The most pivotal decision gate for the seller occurred during the formal management approval process. After extensive internal and external negotiations, the proposed deal terms were escalated through various organizational layers. The leadership team, comprising senior executives including the CEO of Seller Pharma, CFO, and Head of IP, rigorously reviewed the proposal. This approval stage was critical as management applied intense scrutiny, challenging the terms and potentially requiring renegotiation if the proposed conditions were deemed unacceptable. At this point, the initial objective of securing the best terms often transitioned into a collaborative effort with the buyer to finalize a mutually acceptable deal. In sum, the most pivotal decision in this deal journey revolved around financial and control rights considerations rather than the decision to enter the deal.

6.6.3.3.3. Key decisions - similarities and differences

Buyer's most pivotal decisions were driven by a commitment to initiate the deal. In contrast, seller, while readily entering the deal, grappled with the challenging financial and control rights considerations (especially IP).

6.6.4. Abductive assessment of RBV, TCE, RO and ICT explanatory power

6.6.4.1. Buyer's assessment

For the buyer, the deal journey commenced with a strong emphasis on RBV and TCE. Their fundamental decision was to pursue an in-licensing deal with the explicit aim of gaining "*full responsibility" and "more control on the development"* of the product. This directly reflects an RBV-driven assessment that the technology *"fits perfectly with our strategy in terms of portfolio"* and that buyer possessed the *"skills and capabilities to development" and could "add value to it"*.

Concurrently, TCE strongly influenced the choice of deal structure. The buyer deliberately avoided *"complex"* arrangements like joint ventures or co-development due to the inherent *"big asymmetry between very small company and very big company"*. Their experience suggested such structures do not work well

because *"the processes of different time" and are "just complex to implement"*. This indicates a clear desire to minimize future governance costs and coordination costs that would arise from shared control with a large pharmaceutical company. By seeking a straightforward licensing deal, the buyer aimed to reduce potential friction, delays, and disputes, thereby maximizing operational efficiency and control over the R&D process.

RO theory was paramount in the buyer's financial structuring. A key demand from buyer was to reduce the upfront cash payment, and they proactively proposed an equity component as part of the payment. This was quickly accepted by the seller. This demonstrates a strong RO strategy, allowing buyer to conserve cash for future development activities, effectively deferring a portion of the payment and managing their immediate financial burden. This financial flexibility provided them with an option to allocate their limited capital more efficiently towards the R&D process itself.

The buyer's perspective on the most critical decision was closely tied to RO and the practical implications of ICT in R&D. The buyer did not identify a singular pivotal moment but rather described the entire negotiation as an *"ongoing process" of "constant reassessment"* of risk versus potential prospects. Their continuous objective was to "lower your risks as much as possible as much as you can and you increase your options as much as you can". This constant balancing act directly reflects RO theory, where future uncertainties necessitate adaptive strategies and a focus on preserving and expanding future options. This continuous evaluation also embodies the spirit of ICT in an R&D context, as the buyer acknowledges that not all contingencies can be fully known or contracted for in advance. Therefore, managing risks and preserving flexibility in decision rights (e.g., ensuring they *"can develop it" and "can bring it to market")* became a continuous, iterative negotiation over implicit and explicit control rights in an uncertain R&D future.

6.6.4.2. Seller's assessment

From the seller's perspective, the initial stages of the deal were significantly shaped by the RBV and TCE. The fundamental decision to engage in an out-licensing deal rather than a full divestment of the technology was pre-defined by an internal strategic principle: development assets are generally out-licensed. This reflects an RBV-driven assessment that the asset, while possessing potential, no longer perfectly aligned with the seller's core strategic focus or internal capabilities for continued development. The seller recognized that an external partner might have a *"better and more attractive*

business case" due to specific know-how or market synergies. This strategic shift dictates that certain resources are more valuable when developed by another entity whose resource base and strategy provide a superior fit.

Concurrently, TCE influenced the choice of the out-licensing model itself. The seller aimed to *"get somebody external go with the product"* and explicitly avoided more complex structures like co-development or joint ventures. This preference was driven by internal accounting standards (IFRS) which make it *"very difficult to have a string attached to these products to bring them back into the market"*, indicating a desire to minimize future governance costs and complexities associated with shared control or potential re-acquisition. By opting for a full out-licensing, the seller effectively reduced the anticipated transaction costs of managing a long-term, entangled relationship for an asset no longer core to its portfolio. The early establishment of a confidentiality agreement and access to a data room also represent initial steps in managing information asymmetry, a key concern within TCE.

As the deal progressed into negotiation and structuring, ICT and RO became highly prominent. A critical decision for the seller revolved around the precise definition of the scope of the license and the allocation of control rights over the intellectual property (IP). The seller deliberately restricted the license to specific fields, such as topical administration for the front of the eye. This decision was to *"avoid that they do other things"* that could lead to *"open competition with some of the developments that we have"* or might be useful for future *"combination product"* ideas. This is a clear application of ICT in an R&D context, as it addresses the inherent uncertainty about future uses of the compound by explicitly allocating rights and limitations, thus safeguarding the seller's retained IP and future strategic flexibility. This also highlights RO theory, as the seller effectively retained an option to pursue other indications or uses of the compound in the future by not granting broad, unrestricted rights.

The financial structure also manifested RO theory. While prioritizing milestone payments to allow the buyer *"breathing space"* for development, the seller also proposed and accepted equity in the buyer company as a means of payment. This was a particularly pivotal financial decision, driven by RO theory, as it provided the seller with the *"possibility to benefit from any major upside that maybe even unexpected major upside"*. By taking equity, the seller secured an option to participate in the future success of the compound and the buyer company, mitigating the risk of underestimating the asset's long-term value in an uncertain R&D landscape.

6.6.4.3. Comparison of buyer and seller's assessment

Comparing the buyer's and seller's perspectives reveals both similarities and differences in the application and prevalence of these theories.

RBV was foundational for both, primarily at the very outset of their respective strategic considerations. For the seller, RBV drove the decision to divest/out-license an asset that no longer optimally fit its capabilities or strategic direction. For the buyer, RBV underpinned the decision to in-license an asset that perfectly complemented its existing portfolio and capabilities, allowing them to *"add value"*. In essence, RBV explains *why* the deal happened, as it represented a more efficient allocation of a specific R&D asset between two firms with complementary resource endowments.

TCE informed the deal type decision for both, albeit with different drivers. The seller's TCE application was largely driven by a desire to externalize a non-core asset and avoid future entanglement or high governance costs associated with retained control (e.g., IFRS accounting standards, difficulty of re-acquisition). For the buyer, TCE was paramount in explicitly rejecting complex structures like JVs, prioritizing a straightforward licensing deal to minimize governance and coordination costs arising from the *"asymmetry"* between a startup and a large pharma. Thus, both converged on a full licensing model to minimize different sets of transaction costs, with the seller looking to reduce externalized future costs and the buyer looking to reduce internal control costs.

RO theory was extensively applied by both parties throughout the negotiation, particularly in financial and IP structuring. The seller used RO to retain strategic flexibility over the IP (by restricting license scope) and to participate in potential future upside (through equity). The buyer utilized RO to manage financial risk (by proposing equity to reduce upfront cash burden) and viewed the entire negotiation as a continuous effort to *"lower risks" and "increase options"*. This highlights a shared understanding of R&D uncertainty, leading to the adoption of flexible contractual elements to manage future contingencies and preserve valuable strategic options. The seller's RO application was more about securing future *IP control*, while the buyer's was more about *financial agility* and *overall risk management*.

ICT, especially in relation to the allocation of control rights, was central during the detailed negotiation of terms. For the seller, this was a critical, explicit decision point focusing on *restricting* rights to protect their broader IP portfolio and prevent future competition. For the buyer, it was implicit in their strong

desire for *"full control on the development"* and their continuous *"reassessment of what may change"*, reflecting the need to secure effective decision rights in an inherently uncertain R&D process. The shared emphasis on "trust" further indicates an awareness of contractual incompleteness and the need for a cooperative relationship to adapt to unforeseen circumstances.

In terms of temporality and prevalence, RBV and the initial applications of TCE (for deal type) were most prevalent at the very beginning of the deal journey for both parties, driving the fundamental decision to engage. As the deal moved into structuring and negotiation, RO and ICT became highly prominent, dictating the detailed terms and managing future uncertainty.

6.6.5.Deal outcome

Deal structure can be described according to 3 typologies: TCE based, ICT based and Contractual.

First of all, following the deal-structuring outcome typology grounded in TCE-based integration (section 3.4.2.1), this deal structure cannot be adequately described within the framework's existing categories, as it entails a combination of multiple contractual agreements that operate in concert rather than as discrete, standalone arrangements. This multi-agreement deal structure exceeds the descriptive capacity of this typology's design which assumes a singular classification.

Secondly, following the deal structuring outcome typology built on the logic of ICT, this deal structure can be described as hybrid control allocation with extensive shared arrangements across development, commercialization and equity control rights.

Lastly, from a contractual standpoint, the deal signed between the firms is a licensing agreement including upfront, milestones and royalties. This licensing also includes an equity component, as part of the compensation for the seller and. This license provides global development and commercialization rights to the seller.

6.6.6.Case study summary

This case exemplifies a sophisticated deal structure between asymmetrically positioned parties, where a large established pharmaceutical company divested a deprioritized asset to a startup buyer through carefully structured terms that accommodated both parties' constraints and objectives. This deal

involved multiple contractual agreements that evolved through structured decision-making processes, with the distinctive feature being the inverted financial asymmetry where the smaller buyer possessed greater strategic alignment with the asset than the resource-rich seller.

The deal journey demonstrated that successful complex transactions require strategic alignment, structural clarity, and adaptive financial engineering. The seller's non-negotiable stance on control allocation provided a clear framework within which other terms could be optimized, while the buyer's willingness to accept these control constraints in exchange for development rights illustrated how asymmetric priorities can create value rather than impede agreement. The pre-existing relationship through the seller's corporate investment arm facilitated both information flow and creative structuring, underscoring the importance of relational capital in complex licensing arrangements, particularly when financial constraints require innovative solutions that transcend traditional cash-based transactions.

The antecedent analysis revealed that successful deal structuring required strategic fit alignment while accommodating divergent risk profiles and operational priorities. The buyer's focus on internal readiness and financial optimization complemented the seller's emphasis on knowledge transfer and competitive protection, creating mutually beneficial arrangements where each party's strengths addressed the other's concerns. The asymmetry in risk perception—with the buyer prioritizing financial risks and the seller emphasizing appropriation risks—necessitated deal structures that simultaneously addressed execution uncertainty and knowledge protection. The seller's institutional complexity regarding financial coordination influenced deal architecture to accommodate varying organizational capabilities and regulatory constraints, favoring approaches that minimized coordination costs while preserving flexibility for party-specific requirements.

The considerations revealed that effective deal structure requires balancing comprehensive control allocation with selective rights retention, enabling each party to optimize their risk-return profile within mutually acceptable boundaries. The buyer's pursuit of end-to-end control complemented the seller's strategy of selective divestment with protective limitations, creating a structure where operational autonomy coexisted with strategic safeguards. The integration of equity components and negotiable milestones indicated that the deal required hybrid financial instruments and adaptive performance framework that accommodate resource constraints while preserving strategic alignment.

6.7. Case Study 7

6.7.1.Deal outline

This Deal was held in 2018, between a medium publicly listed global healthcare company with 300 employees (buyer) and a publicly listed start-up (seller) of 100 employees. Seller, gearing up for an impending IPO, wished to divest the asset aligning with its future positioning. In this particular case, the seller has entered into an option for licensing agreement followed by a licensing agreement for the development and commercialization of a clinical-stage drug against a rare inflammatory disorder. To ensure the uninterrupted continuity of the ongoing clinical trial, both parties established a collaboration period spanning several months. This facilitated a seamless transition and handover between the involved parties in the deal. As part of this deal, seller retains full intellectual property rights whilst buyer takes responsibility for drug development, regulatory filings, and commercialization in this deal. The deal features also joint steering committee, but the buyer has the final say. Seller compensation includes upfront cash, payable in buyer's shares, contingent cash payments tied to various milestones, tiered royalty payments from future net sales, and additional milestone payments and royalties for advancing drug development in other diseases. Interestingly, milestones are time-bound, deviating from the usual practice. The option and license included a collaboration component to ensure the uninterrupted continuity of the ongoing clinical trial.

6.7.2.Deal structuring antecedents

6.7.2.1. Deal structuring antecedents (buyer perspective)

First, buyer highlighted several times the extent to which the asset was a good strategic fit for them as illustrated with the following quote:

> *" So this is why we went for the seller asset in the end, we also bought it a very good strategic fit with the disease area.... we looked at different things, that's for sure. Yeah. But this particular asset, which we liked very much from the strategic fit, was clear."*

Second, on economic related antecedents, buyer emphasized the significance of buyer's limited cash resources and the need to structure a deal with minimal upfront cash requirements, as illustrated with the following quote:

> *" I mean of course it was the question upfront or no upfront. Right. So at the beginning we said we basically said no upfront. We have to push it a little bit out because, you know, they know our situation. You know, we're not the most cash rich company"*

Third, buyer emphasized the urgency of advancing swiftly in the deal execution, leading to a structured approach with an option preceding the license agreement. This sequencing, involving a less negotiable option and a subsequent more detailed license agreement, aimed to expedite the overall process, as illustrated with the following quote:

> *" it was time-critical to get it done basically in February of 2018.... And then, of course, it's the timing. .... But I think we were relatively quickly in the corridor where we thought both sides felt this could be a fair deal."*

Fourth, due to previous connections and geographical proximity, buyer emphasized that the deal was facilitated by a foundation of trust (social antecedents), as indicated in the following quote:

> *"It's the right partner in the sense this is because, you know, it's seller around the corner. If this would have been a company completely unknown to us and backed by whatever some aggressive investors in whatever San Diego or the Boston area, you know, it would have taken longer.... You know, is it too complex for you to handle then maybe social factors, prior relationship or so on? This is a question about trust"*

Lastly, buyer emphasized that the deal was structured to garner positive market perception and to pre-emptively address potential negative impacts related to another more advanced program in the buyer's pipeline, as expressed in the following quote.:

> *" as a public company, you have to you know, you have to think about how the market reacts to this. Is it a good move or not? You know, can you have a convincing story?.....we wanted also to have news flow as a downside protection, if and this is what actually then happened, you know, our filing for the other product would not go through, right."*

6.7.2.2. Deal structuring antecedents (seller perspective)

First, seller's strategic assessment revealed a fundamental incongruence between the asset under consideration for out-licensing and the broader company portfolio strategy. This strategic misalignment became particularly acute when evaluated against the company's upcoming initial public offering positioning requirements. The seller's recognition of this strategic incongruence indicates the sophisticated evaluation process underlying divestiture decisions, particularly when companies are preparing for public market scrutiny. The seller articulated this disconnect by emphasizing how the asset failed to align with their carefully crafted corporate narrative, stating that:

> *" it didn't really fit the story of the company because we positioned ourselves as a late stage antibiotic oncology company. "*

Second, seller further emphasized the strategic value of knowledge exchange through participation in the joint steering committee structure. This collaborative governance mechanism was positioned as a means to leverage the seller's specialized expertise in clinical development processes. The seller articulated this knowledge-sharing opportunity by stating,:

> *" I think we have more knowledge in the clinical development in that area. Maybe then we can contribute something."*

Third, seller highlighted the extent to which the asset had a good level of maturity and readiness for a deal, as illustrated with the following quote:

> *"The big advantage of the drug or if it was basically ready to partner. Package was ready. It's a very clean package, nothing complicated. So there's nothing, no safety concerns or efficacy concerns about any animal data. Doable"*

Fourth, on economics related antecedents, seller explained why a worldwide license was favored as being the most optimal deal from a financial perspective, because of the deal size and expected returns, as illustrated with the following quote:

" We looked through regional deals ... But then first, the deal size would be much lower.... So it is simple deal to a certain extent and you maximize basically the cash you can get out of it at this stage"

Lastly, seller acknowledged that risk is inherent to this type of asset and related deal, as illustrated with the following quote:

"This is nothing unusual about this kind of product "

6.7.2.3. Deal structuring antecedents - similarities and differences

The analysis of deal structuring antecedents reveals both convergent priorities and distinctive emphases between buyer and seller perspectives. Both parties consistently underscore the fundamental importance of strategic fit, economic considerations, and temporal efficiency in deal execution, establishing these elements as core determinants of successful transaction structuring.

Strategic alignment emerged as the primary consideration for both parties, though manifesting differently in their respective contexts. The buyer emphasized the asset's exceptional fit within their disease area portfolio, while the seller recognized strategic incongruence with their core positioning, particularly given upcoming IPO requirements. This divergence illustrates how strategic fit operates as a bilateral evaluation criterion, where the same asset can simultaneously represent strategic value for the acquirer while creating portfolio misalignment for the divesting party.

Economic antecedents demonstrated complementary rather than conflicting priorities. The buyer's cash-constrained position necessitated minimal upfront payments, aligning favorably with the seller's preference for maximizing immediate cash generation through worldwide licensing arrangements. These compatible financial constraints created natural structuring opportunities that addressed both parties' economic imperatives without fundamental conflict.

Temporal considerations revealed shared urgency, with the buyer facing critical completion deadlines while the seller possessed a mature, partnership-ready asset package. This temporal convergence between acquisition urgency and divestiture readiness facilitated expedited negotiations and streamlined execution processes.

Notable distinctions emerged in secondary antecedents, where the buyer prioritized social and public market antecedents, reflecting the significance of interpersonal relationships and investor perception management. Conversely, the seller emphasized resource access-exchange and risk related antecedents, demonstrating focus on knowledge transfer mechanisms and portfolio risk management.

The evaluation of literature-derived antecedents (appendix E) confirmed these patterns, with both parties converging on strategic fit, economics, and risk as primary antecedents. However, the relative importance assigned to social antecedents and resource access-exchange varied significantly between parties, suggesting that these antecedents operate as differentiating rather than universal antecedents. The mutual de-emphasis of negotiation power and information asymmetry indicates their limited influence in shaping deal structures, potentially reflecting the collaborative rather than adversarial nature of this particular transaction context.

6.7.3.Processual unfolding of the deal

6.7.3.1. Deal journey

6.7.3.1.1. Deal journey (buyer perspective)

The interviewee, as the Executive Vice President of Business Development, personally oversaw the entire deal structuring and negotiation process. The buyer was at that time looking for new assets. The decision to expand the pipeline was strategic. Seller's asset emerged as the most attractive due to its strategic fit, broad applications, and innovation. The due diligence process was smooth, with easy access to seller's team and experts. As the lead in the deal, the buyer structured a worldwide licensing deal with equity and cash components, backloaded for flexibility. Key important aspects for buyer were the ability to have full control on the development, timing of the deal and trust. Other deal types were not extensively considered due to alignment from the start, and the deal differs from non-selected ones primarily due to its timing, option structure, and mutual trust. Indeed, the 2 companies were in the same town, with prior ties and some key employees knowing each other since some time.

6.7.3.1.2. Deal journey (seller perspective)

As the Chief Business Officer leading the deal, the interviewee played a pivotal role in its preparation, negotiation, and closure. Seller, gearing up for an impending IPO, wished to divest the asset aligning

with its future positioning. Time constraints, though not explicitly communicated to the buyer, were evident due to the IPO timeline. The interviewee emphasized the importance of preparation and deal readiness, taking a year to organize materials, data room, valuation, and overall plan. A pre-deal valuation was conducted to set financial expectations. The buyer, emerging as the best contender, proposed an equity payment, accepted by the seller. The deal, structured as a worldwide license, granted development and commercialization control rights to the buyer. Despite not engaging in co-development, the seller aimed to monitor progress through participation in a joint steering committee. The social component, with past interactions fostering comfort and trust between the parties, played a critical role, contributing to the seller's confidence in the buyer's ability to deliver. Trust and commitment were deemed crucial from the seller's perspective.

6.7.3.1.3. Deal journey - similarities and differences

In comparing the deal journey between the buyer and the seller, both parties exhibit similarities in prioritizing strategic decision-making, undergoing a smooth due diligence process, structuring the deal globally with integrated equity components, emphasizing the importance of control, and acknowledging the crucial role of the social component. Nevertheless, distinctions emerge as the buyer actively seeks new assets, contrasting with the seller's motivation to divest in preparation for an impending IPO. Additionally, the types of deal considerations and financing arrangements also differ, showcasing flexibility in adapting to the buyer's financial constraints.

6.7.3.2. Deal structuring considerations

6.7.3.2.1. Deal structuring considerations (buyer perspective)

First, on the allocation of control rights, interviewee underscored the significance of obtaining exclusive worldwide development rights for all therapeutic applications, with the ability to be the sole decision-maker, even when participating in a joint steering committee, as indicated in the following quote:

> *"for us, clearly, we wanted exclusive worldwide rights to the asset... we wanted, to license-in a molecule all indications, no co-development, et cetera, no rights staying with the other company. "*

Second, interviewee emphasized how the deal had to be structured with an equity payment to alleviate the upfront cash burden, as depicted in the following quote:

> *"Straight license with equity cash component at the start, milestones, royalties... It came through the discussions, actually, because it was clear from the start that we would want the deal rather back loaded, because buyer is also not a cash rich company. But of course, the other side also wanted some upfront component. So we made that proposal that some of the upfront could be paid in equity in the end"*

Third, on safeguard & risk mitigation, a collaboration period spanning several months was instituted to avoid any potential disruption to the ongoing clinical trial. This aimed to ensure a seamless transition and handover between the involved parties, prioritizing the continued progress of the program development, as illustrated with the following quote:

> *"We wanted to make sure that there's a good transition from, because it was in the middle of, just about to start a clinical trial. So we didn't want to lose time in the way. So we agreed also on a collaboration period of several months where due to the close situation here, that there was a good interaction going on - that was an important component."*

Fourth, with respect to risk-return allocation, interviewee highlighted that they wanted to backload the payment and they could do so by proposing an upfront equity payment, as illustrated with the following quote:

> *"It came through the discussions, actually, because it was clear from the start that we would want the deal rather back loaded, because buyer is also not a cash rich company. But of course, the other side also wanted some upfront component. So we made that proposal that some of the upfront could be paid in equity in the end."*

Lastly, interviewee highlighted they included a collaboration component to avoid disruption on the ongoing clinical trial (contracting & organizational efficiency), as illustrated with the following quote:

"We wanted to make sure that there's a good transition from, because it was in the middle of, just about to start a clinical trial. So we didn't want to lose time in the way. "

6.7.3.2.2. Deal structuring considerations (seller perspective)

First, on the allocation of control rights, interviewee highlighted that they were clear from the beginning on their expectations in terms of allocation, as illustrated with the following quote:

"we had no interest to retain major commercial rights like no territories and no indications... So buyer has all the rights "

Second, interviewee highlighted how seller did consider worldwide licensing as the most effective and simple deal (contracting & organizational efficiency), and how they wanted to maximize the deal by requesting their involvement in a joint steering committee, as illustrated with the following quote:

"So basically the good thing is from the structuring, we started with a relatively simple deal for worldwide licensing x We have, of course, a joint steering committee. This always, I think, exists. We have quite regular meetings. We can give input "

Third, interviewee described explicitly how the deal was structured around upfront and milestones, as illustrated with the following quote:

"it's a straight licensing deal, so including upfront milestones from the financial side and then royalties... we got six and a half million Swiss francs valued in shares. Buyer was not in a position to put that in cash "

Fourth, on risk-return allocation, interviewee underscored the backloaded nature of cash return for the seller, achieved through equity compensation, as depicted in the following quote:

" The only thing which is unusual for this deal was that the upfront had been paid in shares, not in cash. So we got buyer shares as an upfront and we could sell this year then on the market after a certain period. "

Lastly, considering safeguard & risk mitigation, interviewee elucidated that definitions and time limits for milestones were included in the deal structure, as indicated in the following quote:

> *"I have diligence obligations in the contract, so they have to do the development with a customary diligent effort as long as they do it. "*

6.7.3.2.3. Deal Structuring considerations - similarities and differences

Control rights allocation exhibited perfect alignment between the parties, with the buyer seeking exclusive worldwide development rights across all therapeutic applications and the seller explicitly stating their lack of interest in retaining major commercial rights. The seller's willingness to cede comprehensive control rights aligned seamlessly with the buyer's requirement for complete decision-making authority, demonstrating how complementary control preferences can facilitate deal structuring.

On the other hand, financial structuring revealed solutions to address mutual constraints through equity-based compensation mechanisms. Both parties acknowledged the buyer's cash limitations and the seller's need for upfront value, leading to the creative use of equity payments to bridge this gap.

Risk mitigation strategies showed complementary approaches to safeguarding respective interests. The buyer emphasized operational continuity through extended collaboration periods to ensure seamless clinical trial transitions, reflecting their concern for program momentum and execution risk. Conversely, the seller focused on contractual safeguards through diligence obligations and milestone definitions, ensuring continued development commitment from the buyer. These divergent but compatible risk management approaches created comprehensive protection for both parties' core concerns.

Organizational efficiency considerations revealed shared preferences for structural simplicity, with both parties favoring worldwide licensing arrangements over complex territorial divisions. However, the seller's emphasis on joint steering committee participation demonstrated their desire to maintain strategic involvement and knowledge exchange opportunities, while the buyer viewed this governance structure as acceptable provided their decision-making authority remained intact. This balance between simplicity and engagement reflects sophisticated deal architecture that accommodates both operational efficiency and strategic collaboration requirements.

6.7.3.3. Decision gates

6.7.3.3.1. Decision gates (buyer perspective)

First of all, the asset selection process involved prior comprehensive evaluation of multiple opportunities, with the seller's technology emerging as the optimal choice based on several convergent factors. The asset demonstrated exceptional strategic alignment within the rare disease therapeutic area, combining innovative mechanisms of action with broad applicability across multiple disease indications. Established relationships between business development teams and shared corporate history facilitated efficient due diligence processes and trust-building within the compressed timeline constraints.

The most pivotal decision was to pursue an early-stage clinical asset presented a fundamental strategic choice between risk tolerance and financial accessibility. While the Phase 1 status implied extended development timelines of five to seven years before potential market approval and revenue generation, this positioning reflected the buyer's realistic assessment of their competitive position and financial constraints. As a smaller entity, buyer recognized that more advanced assets would be financially prohibitive and subject to intensified competition from larger pharmaceutical companies. This strategic positioning enabled pipeline expansion within their resource limitations while accepting the inherent developmental risks associated with earlier-stage assets.

A further decision gate was to pursue a straight licensing deal for exclusive worldwide rights. Such decision of deal structure reflects buyer's preference for comprehensive control over development and commercialization activities. This approach eliminated co-development obligations and retained rights with the seller, providing the buyer with complete strategic autonomy over the asset's future trajectory. Financial structuring incorporated innovative equity-based upfront payments to address the buyer's cash constraints while achieving their preference for back-loaded deal economics. The accommodation of time-associated milestones, though considered somewhat unconventional, demonstrated the buyer's willingness to align with the seller's diligence expectations and program progression requirements.

Another critical decision was to proceed with the deal under a stringent and short timeframe. Temporal constraints emerged as a critical antecedent to the deal structure, driven by the convergence

of the seller's IPO timeline and the buyer's regulatory decision requirements. The implementation of an option agreement provided an relevant solution to these competing pressures, securing exclusive negotiation rights while enabling completion of due diligence and internal approval processes. This deal structure created a synchronized timing window that accommodated both parties' external deadlines while maintaining deal momentum.

Of note, the decision-making framework involved executive management collaboration between the CEO, CFO, General Counsel, Head of Development, and business development leadership, with board oversight focusing on strategic fit evaluation, financial structuring assessment, and market perception considerations. The prioritization of strategic alignment, financial parameters, and risk assessment as primary decision criteria reflects the sophisticated analytical framework underlying the transaction approval process.

6.7.3.3.2. Decision gates (seller perspective)

First of all, selection of the buyer was a key decision gate. The buyer offered the financial terms the seller sought and was perceived as the "best fit" among other interested parties. Crucially, the seller prioritized the buyer's commitment and capabilities. Managing relationships with external stakeholders, including patient associations, suppliers was also a critical criterion, as their principal support was essential for the deal's viability. The seller's comfort with the buyer's team and their dedicated impression during due diligence played a significant role.

Then, according to interviewee, the most pivotal decision in this journey, was about whether to enter or not into this deal. This decision, made at the very beginning of the deal journey, was the culmination of several months of internal discussion, despite some emotional attachment to the product as "their baby". The rationale was to clear the pipeline and focus on core strategic areas for the upcoming IPO. This decision effectively communicated to the market that the asset was for sale.

Following the initial decision to divest, the seller aimed for a straightforward worldwide licensing deal. Their rationale was to avoid retaining major commercial rights, indications, or territories, simplifying the transaction and maximizing the immediate cash potential at this early stage of development. Regional deals were considered but dismissed as they would result in lower deal size and contradict the company's new late-stage antibiotic and oncology positioning. Outright asset purchases for cash

were deemed highly unusual and unlikely to yield adequate value for a Phase 1 asset, as investors typically discount heavily due to inherent risks. Similarly, co-development or royalty buyout structures were deemed inappropriate for a Phase 1 product, being more suitable for later-stage assets.

Another decision gate during negotiations was accepting the upfront payment in shares instead of cash. This emerged from the buyer's cash-conscious position, as they were making revenues but still loss-making and needed to retain cash. The seller, driven by an interest to close the deal quickly before their IPO, accepted the shares. This flexibility was crucial to ensure the deal's completion without complicating their IPO narrative.

Finally, the approval of the non-binding offer by the board was the second main pivotal point in the process. Once business development presented a reasonable offer, the executive team discussed it internally before seeking a "yes or no" decision from the board. The overall corporate plan, the product's early stage (not considered a primary value driver for the IPO), and the "doability" of closing the deal within a relatively short timeframe were key parameters influencing the ultimate choice of this particular deal structure.

6.7.3.3.3. Key decisions - similarities and differences

For both parties, the most pivotal decision in this journey, was about whether to enter or not into this deal.

6.7.4. Abductive assessment of RBV, TCE, RO and ICT explanatory power

6.7.4.1. Buyer's assessment

From the buyer's standpoint, the deal structure was heavily influenced by strategic imperatives, risk management in an uncertain R&D landscape, and the desire for full control over a new asset.

RBV played a pivotal role in buyer's decision to acquire this asset. The strategic fit of the product within buyer's focus on rare diseases, specifically the cystic fibrosis community, was the most important factor. Buyer's existing prior experience in the field and its established relationships with patient organizations were crucial complementary resources that made them an attractive and capable

partner. The company's ability to seamlessly integrate the asset, leveraging its internal expertise, reinforced the RBV rationale for the acquisition.

TCE considerations were evident throughout the deal process, particularly in managing the costs and risks associated with uncertainty and securing control to mitigate potential opportunism. Buyer sought exclusive worldwide rights to the product, encompassing all territories and all therapeutic indications on exclusive basis. This comprehensive set of rights aimed to reduce future negotiation and monitoring costs that could arise from shared territories or indications.

RO theory is particularly applicable given the early-stage (Phase 1) nature of the asset. By licensing an early-stage asset, buyer effectively acquired an option to continue its development without committing the full financial outlay upfront. This structure provided the flexibility to invest incrementally and to potentially abandon the project if early data proved unfavorable, thereby limiting downside risk. The *"longer shot"* nature of a Phase 1 asset was explicitly acknowledged, making the RO framework highly relevant to Buyer's strategic decision to manage inherent R&D uncertainty. The equity component of the upfront payment further enhanced this financial flexibility, as Buyer, a cash-conscious company, could conserve its cash reserves. RO also provides explanatory power for the strategic decision to execute an option agreement prior to the formal licensing arrangement.

The application of Incomplete Contract Theory (ICT) principles reveals the buyer's sophisticated approach to managing developmental uncertainties through strategic control allocation mechanisms. The buyer's fundamental concern centered on securing exclusive worldwide control rights across all territories and therapeutic indications, establishing a comprehensive governance framework that would accommodate the inherent unpredictability of pharmaceutical development processes. Within the ICT analytical framework, the buyer's insistence on retaining final decision-making authority within the joint steering committee structure demonstrates a strategic approach to contractual incompleteness management. This control allocation strategy effectively minimized the potential for costly renegotiations over unforeseen contingencies that commonly arise during extended development timelines. By concentrating decision-making authority, the buyer created deal structure capable of adapting to emerging circumstances. The accommodation of time-associated milestones, despite their unusual nature, illustrates the buyer's pragmatic recognition of contractual limitations in this R&D context. The buyer's acceptance of these temporal commitments, while acknowledging the

inherent challenges of rigid enforcement given drug development's unpredictable nature, reflects a practical understanding of contractual incompleteness principles. This acceptance suggests reliance on mutual recognition that unforeseen circumstances would provide legitimate justification for timeline adjustments, thereby creating flexibility within an otherwise rigid contractual framework.

6.7.4.2. Seller's assessment

From the seller's perspective, the deal was driven by a need for strategic realignment, resource optimization, and a desire to de-risk an asset that no longer fit its core focus.

From a RBV, seller's decision was a clear strategic maneuver to reallocate its valuable, albeit limited, internal resources. The company positioned itself as a late-stage antibiotic and oncology company for its upcoming IPO. The asset, indicated for cystic fibrosis and inflammatory lung diseases, did not fit this refined strategic narrative and was *"not considered as a value driver at that point"*. By out-licensing, seller freed up internal capital, personnel, and managerial attention, allowing them to concentrate resources on strengthening their core capabilities and market position in antibiotics and oncology. The asset was described as *"ready to partner" with a "very clean package" and "nothing complicated,"* indicating its high transferability and low need for ongoing internal resources from seller.

TCE heavily influenced seller's decision to out-license the asset. With three products already in the clinic, the company of its size deemed it *"too many"*. The straightforward worldwide licensing deal with no retained commercial rights was chosen to achieve a "clean break" from the asset, minimizing future involvement in its development and supply, thereby reducing significant internal coordination and monitoring costs. This divestment allowed seller to reduce its overall transaction costs by streamlining its pipeline and focusing resources on other, more strategically aligned products. The process itself was designed to be efficient, running over *"around one year"*. Seller's explicit goal was to maximize the cash they could get at that stage while minimizing ongoing involvement.

RO perspective explains seller's decision to out-license an early-stage asset. By transferring its asset at this stage, seller exercised an option to de-risk its portfolio and realize immediate value through the upfront payment (even in shares). This allowed them to capture some value without bearing the significant future development costs and risks associated with bringing a Phase 1 asset to market. RO

also provides explanatory power for the strategic decision to execute an option agreement prior to the formal licensing arrangement.

ICT played a role in seller's approach to the deal's structure. While granting buyer full control, seller relied on general contractual clauses, such as diligence obligations, to ensure the buyer would *"do the development with a customary diligent effort"*. This acknowledges the inherent incompleteness of R&D contracts—it's impossible to specify every development step or outcome, but Seller sought a safeguard against opportunism (e.g., shelving the product). The existence of a joint steering committee allowed seller to *"give input"* and make recommendations, even without final decision power, providing a mechanism to share expertise and monitor progress without retaining formal control or increasing contractual complexity. This reflected a balance between a desire for a clean break and a reasonable expectation of the asset's continued development, navigating the unavoidable contractual gaps in an R&D context.

6.7.4.3. Comparison of buyer and seller's assessment

Comparing the buyer's and seller's perspectives reveals both complementary motivations and distinct priorities regarding the deal's importance and temporality of theoretical considerations.

Strategic Fit (RBV) was paramount for both parties, influencing the fundamental decision to pursue the deal. For buyer, it was about pipeline broadening and innovative asset acquisition to enhance its rare disease capabilities. For seller, it was about strategic realignment and focusing resources on core areas for its IPO. This foundational RBV driver was a pre-eminent consideration from the very start for both companies.

Timing and Risk Management (RO & TCE) were critical and interrelated for both. Both companies faced external time pressures – seller due to its IPO, buyer due to an awaited regulatory decision. This short timeframe elevated the importance of efficient negotiation and mutual trust. RO was crucial for seller in determining *when* to divest (early to de-risk and clean up the IPO story) and for buyer in deciding *what* to acquire (an early-stage asset that allowed financial flexibility). TCE considerations were present throughout, shaping the deal structure to minimize future transaction costs related to shared rights (for seller) and maximize control/reduce upfront financial commitment (for buyer). The

"option agreement" implemented by buyer directly addresses both RO (securing the right to acquire) and TCE (reducing uncertainty about closing and avoiding opportunism given external pressures).

Financial Aspects (TCE & RO) were significant for both. seller aimed to maximize upfront value while offloading costs. buyer, being cash-conscious, sought a back-loaded deal with an equity upfront component, which served both TCE (cost management) and RO (financial flexibility) objectives. This was a continuous negotiation point that directly impacted the final deal terms.

Control Allocation (ICT) was a key negotiation point. While seller sought to divest entirely to minimize future involvement and the complexities of an incomplete contract, buyer actively pursued full control to navigate the inherent uncertainties of R&D without constant renegotiation or shared decision-making. This fundamental difference in desired control allocation shaped specific contract clauses, such as buyer's final say in the JSC versus seller's reliance on general diligence obligations. For both, this was a temporal consideration during the structuring and negotiation phase, dictating the specific terms governing the long-term relationship.

6.7.5.Deal outcome

Deal structure can be described according to 3 typologies: TCE based, ICT based and Contractual.

First of all, following the deal-structuring outcome typology grounded in TCE-based integration (section 3.4.2.1), this deal structure cannot be adequately described within the framework's existing categories, as it entails a combination of multiple contractual agreements that operate in concert rather than as discrete, standalone arrangements. This multi-agreement deal structure exceeds the descriptive capacity of this typology's design which assumes a singular classification.

Secondly, following the deal structuring outcome typology built on the logic of ICT, it can be described as a sequential two-stage control allocation mechanism. The initial phase implies limited control transfer with concentrated authority blocks confined to specific technical domains, reflecting a staged governance approach wherein control rights expansion remains contingent upon option exercise. This preliminary option deal structure enables risk mitigation while preserving strategic flexibility for both parties during the evaluation period. The subsequent phase encompasses comprehensive control allocation transfer, whereby the buyer assumes primary authority over development, manufacturing, and commercial rights across all territories and indications. However,

the seller maintains IP control and strategic oversight through participation in the joint steering committee structure.

Lastly, from a contractual standpoint, the deal signed between the firms comprised a first option for licensing followed by a worldwide exclusive license to develop a clinical stage drug against a number of rare inflammatory and pulmonary disorders. These options and license were associated to a collaboration agreement.

6.7.6.Case study summary

First of all, It's also worth noting that this case involves a combination of multiple contractual agreements. The use of option agreement underscored its facilitative role for this deal. The distinctive aspect of this case lies in the fact that seemingly straightforward licensing deals can involve substantial creativity in financial structuring and milestone definition. In addition, social antecedents and public listing factors have uniquely influenced the deal dynamics for both parties. In addition, the deal's distinctiveness lies fundamentally in its perfect temporal convergence, where the seller's IPO preparation timeline intersected with the buyer's regulatory decision requirements, creating mutual urgency that facilitated rapid execution. This temporal alignment created a unique window of opportunity that both parties leveraged to achieve their respective strategic objectives.

The use of equity-based upfront payments, addressed the buyer's cash constraints while satisfying the seller's immediate value realization needs, indicating creative financial deal structure overcoming cash limitations. Building upon this financial structure, the staged control allocation mechanism represents another distinctive element, progressing systematically from limited option-based rights to comprehensive worldwide exclusivity. This approach exemplifies sophisticated risk management that accommodated both parties' uncertainty tolerance levels while maintaining strategic flexibility throughout the transaction process. The collaboration period spanning several months during clinical trial transition further distinguishes this transaction, representing an unusual operational continuity safeguard that prioritized program momentum over immediate control transfer, thereby ensuring seamless asset transition without compromising ongoing development activities.

6.8. Case Study 8

Technical issues during the interview with the seller have resulted in a lack of proper audio recording. Consequently, all information presented in this seller section is based on notes taken during the interview, and direct quotes will not be provided.

6.8.1.Deal outline

This Deal was held in 2018, between a global healthcare company with 150'000 employees (buyer) and a 15-employee privately owned start-up (seller). Seller had developed a prototype device technology for the specific delivery of therapeutics into some. Buyer was interested to use this device for the delivery of their own therapeutic. Buyer asked seller to first develop a tailored model able to specifically delivery their therapeutic. So the deal included a collaboration agreement linked to an option for future license agreement. The exercise of this license would be contingent upon the successful outcomes of the collaborative research agreement. As the program's value could not be predetermined, no license terms were pre-agreed upon initially. Therefore, the option included a right of first negotiation for the buyer to exercise before the conclusion of the R&D collaboration. This whole agreement took 6 months to be set in place.

6.8.2.Deal structuring antecedents

6.8.2.1. Deal structuring antecedents (buyer perspective)

First, in terms risk related antecedents, buyer emphasized the considerable uncertainty surrounding the program, encompassing uncertainties regarding outcomes, applications, and negotiable value. This uncertainty played a pivotal role in shaping the deal, leading the parties to abstain from including any predefined value or terms concerning the future license, as exemplified by the following quote.:

> *" So we left it opened. And the reason as to why we left it opened was that we could at that point in time, not value their assets. We didn't know in which indications we could go in.... which means that we will be negotiating terms for a budget that didn't exist at that point in time... So that's why we didn't pay, we didn't put any terms to it because we didn't know how broad the device could be used."*

Second, buyer emphasized the criticality of negotiating and finalizing an initial deal with broad terms to accommodate stringent schedules and timelines, as illustrated with the following quote:

> *"We needed to close the deal about before year end. So at that point, we had in mind the broader structure of the collaboration, but we had not yet spoken about terms. And that's when the discussion about the terms came up. And our view was that we can't negotiate that those terms now. "*

Lastly, buyer emphasized seller's commitment to ensuring successful delivery as a crucial aspect of the deal, as illustrated with the following quote:

> *"In a way, though, the expectations with Alcyon would have been that they would have done anything to deliver anyway."*

6.8.2.2. Deal structuring antecedents (seller perspective)

First of all, the interviewee underscored the importance of strategic fit, emphasizing the necessity for the seller to engage with an organization that shared a similar level of patient focus and centricity. Access to patients emerged as a critical criterion shaping the deal.

Regarding risk and economic antecedents, thorough analysis of R&D costs and commercial returns was pivotal in determining the transaction type, with a focus on properly capturing and mitigating risks. Compromises were made to maintain a patient-centric approach, demonstrating a willingness to forego more financially lucrative transactions in favor of patient-centric deals.

6.8.2.3. Deal structuring antecedents - similarities and differences

With respect to the antecedents spontaneously cited during the interviews, both parties underscore the significance of risk, indicating a shared engagement to implementing safeguards. However, the buyer's focus on timing and speed and commitment underscores a pressing need for swift committed deal execution, while the seller's emphasis on economic antecedents aligns with the start-up nature of their organization.

Regarding the evaluation of pre-identified antecedents from the literature (refer to appendix E), buyer and seller once again converge in prioritizing strategic fit as the primary antecedent, consistent with

prior finding. Seller, however, emphasize risk antecedents to a greater extent. While the seller assigns significance to economic antecedents, the buyer does not rank them as important. Additionally, antecedents such as social, individual, and asymmetry hold lower rankings for the seller and are not even ranked and considered as significant by the buyer.

6.8.3.Processual unfolding of the deal

6.8.3.1. Deal journey

6.8.3.1.1. Deal journey (buyer perspective)

The interviewee, acting as the lead negotiator representing the buyer, handled negotiations for the R&D collaboration agreement and the option. However, he was not involved in subsequent negotiations for the license. The seller had developed a prototype device technology tailored for therapeutic delivery. The buyer expressed interest in utilizing this device for their own therapeutic delivery but requested the development of a customized model to suit their needs. This technical development required a comprehensive definition of the scope of research, which took several months of internal alignment. Before reaching a legal agreement, this scope of research needed to be clearly outlined. Given the involvement of multiple therapeutic areas and decision-makers within buyer, determining success criteria and endpoints required significant internal negotiation. It was crucial for the buyer to establish exclusivity around development in the indications with a tail. As the buyer's therapeutics were in late-stage development (phase 3), the combination with the seller's device was strategically sensitive, particularly concerning data ownership.

6.8.3.1.2. Deal journey (seller perspective)

The interviewee, acting as the CEO on the seller side, led negotiations due to the absence of a dedicated business development team. Contact initiated by a consulting firm engaged by the buyer signaled initial interest in the seller's technology. Assessing the Probability of Success was crucial, focusing on risk analysis regarding R&D costs and commercial returns. Mechanisms to mitigate risks and align with the intended direction were emphasized, prioritizing the preservation of deal value. Notably, the interviewee highlighted an increasing trend among companies driven by purpose, emphasizing the importance of creating value for patients in collaborations and deals. Despite inquiries

about pricing and commercial models, patient-centricity remained paramount, leading to compromises and a willingness to forego more lucrative transactions.

6.8.3.1.3. Deal journey - similarities and differences

Both the buyer and the seller shared a common understanding of the necessity to establish a broad deal structure without delving into financial specifics initially, emphasizing risk management through the implementation of exclusivity measures. However, the buyer, given its larger size, encountered more complex discussions, particularly regarding the definition of success criteria, whereas the seller benefited from a streamlined decision process, with the CEO leading negotiations.

6.8.3.2. Deal structuring considerations

6.8.3.2.1. Deal structuring considerations (buyer perspective)

First, on allocation of control rights, interviewee recognized the incompleteness of contract details due to timing constraints and stressed the importance of at least establishing rights for future, more in-depth negotiations, as well as pre-empting residual rights, as illustrated with the following quote:

> *" And then based on the outcome of that, we had a right of first refusal. Right of first negotiation, actually, which is basically the same at the back end of that study where we could review the results and pull the trigger if we wanted to continue development, "*

Second, interviewee emphasized several times the importance of risk management with a degree of flexibility, emphasizing the need for expanded options and the ability to make decisions later in the event of positive outcomes, as illustrated with the following quote:

> *"But we maybe wanted to have any other indication included in a license, and then we would need to negotiate a new we would basically need to somehow do an amendment to the agreement that we could get those terms and so forth. And that would have been challenging .... So that's a win win. So that's good that we didn't negotiate with terms because that would have limited them now, basically."*

Third, interviewee highlighted the necessity of exclusivity as a safeguard against present and future competitive behaviors (safeguard & risk mitigation consideration), as illustrated with the following quote:

> *"So basically, I think for us it was really important to have an exclusivity around the development. We wouldn't let our partner seller parallel to develop the same device for any other indications or tumor types that we saw a potential ... The other aspect was obviously as always been, around the rights. We need to make sure that they would never gain any rights, any of our agents or compounds where they were very obviously very keen on us not gaining any rights to the device."*

Fourth, on contracting & organizational efficiency, interviewee emphasized the importance of implementing a simple deal structure to facilitate rapid entry into the agreement by minimizing negotiations initially. This choice was also deemed the most optimal for expediting the closing process, as illustrated with the following quote:

> *" I think we didn't spend much time on thinking about what kind of agreement this will be, because both seller and buyer were quite clear on that we wanted to have a collaboration... The more complicated you make the collaboration of the agreement or the structure, the longer it will take to negotiate, as long it will take to start. I think that was one of the key drivers: Speed, getting something in place that is not overdone, but working for that purpose. "*

Lastly, interviewee explicitly emphasized the importance of negotiating structured payment-milestones deal structure, as illustrated with the following quote:

> *" So what I negotiated was the first part: that was the R&D agreement with the rights to negotiate a commercial agreements or license agreements. And the license agreement would then be done when the trigger is pulled, basically if the trigger was pulled. So it's 2 steps basically "*

6.8.3.2.2. Deal structuring considerations (seller perspective)

From the seller perspective, the most important considerations encompassed allocation of control rights & contracting & organizational efficiency.

In terms of contracting & organizational efficiency, deals out which the financial return was ill defined and hard to predict have been discriminated (Licensing or acquisition),

With respect to the allocation of control rights, there was significant emphasis on considerations such as relinquishing all clinical rights, securing a right of first refusal for higher payment, expanding the scope to encompass broader indications and areas, and establishing trigger points for rights.

With respect to contracting & organizational efficiency, deals where the financial return was poorly defined and difficult to predict were discriminated against, particularly those involving licensing or acquisition arrangements.

6.8.3.2.3. Deal structuring considerations - similarities and differences

The comparative analysis of buyer and seller perspectives reveals both convergent strategic priorities and divergent tactical approaches in deal structuring considerations. Both parties demonstrated alignment on fundamental deal structure preferences, particularly regarding the prioritization of organizational efficiency and the strategic importance of control rights allocation.

The buyer's perspective emphasized sophisticated risk management through flexible option structures, recognizing contractual incompleteness as an inherent challenge. The buyer's insistence on establishing future negotiation rights and pre-empting residual rights reflects a forward-looking approach that acknowledges the evolutionary nature of such deals in R&D context. This perspective prioritized exclusivity as a competitive safeguard while simultaneously seeking expanded options for future decision-making flexibility, particularly regarding additional indications and broader therapeutic applications.

Conversely, the seller's approach demonstrated a more immediate value-realization focus, emphasizing the relinquishment of clinical rights in exchange for structured financial returns and strategic positioning advantages. The seller's willingness to transfer clinical control while securing rights of first

refusal for enhanced payments suggests a strategic trade-off between operational involvement and financial optimization. This perspective reflects a portfolio management approach where asset divestiture enables resource concentration on core competencies while maintaining upside participation through structured arrangements.

The convergence on organizational efficiency priorities reveals shared recognition of timing constraints and competitive pressures. Both parties explicitly prioritized deal structures that facilitated rapid agreement execution, suggesting that structural complexity represents a significant transaction cost that both buyers and sellers seek to minimize. This alignment indicates that speed-to-market considerations often outweigh deal structure sophistication.

However, the divergence in risk allocation preferences illuminates fundamental differences in strategic positioning and resource constraints. The buyer's emphasis on maintaining future flexibility and expanded options contrasts with the seller's focus on immediate value crystallization and clinical responsibility transfer. This divergence suggests that deal structuring outcomes reflect the intersection of strategic capabilities, resource constraints, and temporal priorities rather than purely theoretical optimization frameworks.

6.8.3.3. Decision gates

6.8.3.3.1. Decision gates (buyer perspective)

The buyer's journey began with a clear strategic impetus to access a novel device. This device was sought to enhance the efficacy of their drug compounds, particularly within the oncolytic virus therapeutic area, thereby providing a competitive advantage.

An initial decision gate, established within the first two to three months of the negotiation, was to structure the engagement as a two-step collaboration and development agreement with an option for a subsequent commercial license. The rationale for this deal structure was rooted in the inherent need for the buyer's compounds and the seller's device to function synergistically, making a full acquisition or other simpler deal structures less appropriate or viable. This decision was foundational, setting the framework for all subsequent negotiations.

Following the establishment of the broad deal structure, the buyer made several important decisions regarding the deal structure.

First, they decided to secure broad exclusivity for the device's development across various tumor types and indications, extending beyond the initial collaboration period. This was based on the buyer's foresight that the device's application could be much wider than initially considered, encompassing any solid tumors and specifically integrating with their emerging oncolytic virus strategy.

Second, a critical operational decision was that all testing involving the buyer's drug agents would be performed internally by the buyer. The rationale for this was to protect their sensitive Phase 3 drug trials from potentially adverse data, necessitating a robust knowledge transfer mechanism from the seller to enable the buyer to conduct these studies effectively.

Third, they decided to establish clear intellectual property rights, ensuring that neither party gained ownership of the other's core assets; the buyer would own their drug compounds, and the seller would own their device, with the understanding that the drug would be administered via the device. This allowed both entities to maintain control over their distinct portfolios.

The most pivotal decision for the buyer occurred towards the end of the negotiation phase, specifically, as they aimed to finalize the agreement before the year-end for budgeting purposes. This decision was to defer the negotiation of specific financial and commercial terms for the future license agreement. Instead of locking in prices or royalties, they opted to secure an exclusive right to negotiate these terms once the development milestones were met. The context for this critical choice was the buyer's inability to accurately assess the full market value and potential indications of the device at that early stage, given its nascent development and the buyer's evolving internal oncology strategy. While this approach carried the financial risk of potentially paying higher terms later if the device significantly outperformed expectations, it offered paramount flexibility regarding the device's future applications and significantly accelerated the completion of the initial R&D agreement.

6.8.3.3.2. Decision gates (seller perspective)

The seller's engagement with the buyer commenced through an external consulting company, with their CEO, playing a central role throughout the entire deal process. Early in the deal design, the seller focused on structuring a mutually viable agreement that would align strategically with the buyer,

envisioning an option for the buyer to exclusively negotiate broad rights concerning indications and therapeutic molecules, alongside provisions for various R&D fees, clinical program involvement, and potential commercial milestones. A primary criterion and key driver underpinning these early structural decisions was the imperative to maintain and build the overall value of their technology, which was still in development. Consequently, they consciously decided against an outright sale of the device or company, and also dismissed an upfront out-license for a larger payment, deeming it too risky given the unproven potential.

As negotiations progressed, the seller made detailed decisions concerning the scope of rights to be granted. They focused on designing aspects such as granting clinical rights to the buyer and securing a right of first refusal for future payments, while simultaneously aiming for broader indications and clearly defined trigger points for these rights. These decisions were underpinned by a rigorous Probability of Success (PoS) analysis for the transaction, ensuring that the deal offered a reasonable chance of success in terms of covering R&D costs and achieving future commercial returns, and establishing clear mechanisms for risk mitigation.

The most pivotal decision for the seller was an iterative process, involving their core management team and board, centered on defining precisely which rights to grant to the buyer and which to retain, and for how long. This complex decision was heavily influenced by several key factors: the strategic fit with the buyer's proposal, a comprehensive assessment of the risks involved, the economic implications of the deal structure, and the nature of resource and capability exchange.

Uniquely, the seller also underscored that their decisions were profoundly influenced by a patient-centric purpose, indicating a willingness to make compromises or even walk away from more financially attractive deals if they did not align with their core mission of creating value for patients and ensuring future access. This commitment added a significant qualitative layer to their decision-making criteria.

6.8.3.3.3. Key decisions - similarities and differences

Both parties demonstrated sophisticated multi-stage decision-making processes, yet their decision architectures reflected fundamentally different strategic priorities and risk tolerance profiles, creating complementary approaches that ultimately facilitated successful deal completion.

The buyer's decision gate architecture followed a systematic progression from strategic positioning to operational implementation, beginning with the foundational choice to structure the deal as a two-step collaboration framework. This initial decision reflected recognition of the synergistic requirements between their drug compounds and the seller's device technology, establishing a framework that accommodated both parties' developmental uncertainties while preserving future optionality. The buyer's subsequent decisions demonstrated increasing specificity, progressing from broad exclusivity securing across multiple tumor types to detailed operational arrangements regarding internal testing protocols and intellectual property delineation.

Conversely, the seller's decision gates exhibited a more iterative and consultative approach, characterized by continuous value optimization and strategic alignment assessment. The seller's early focus on maintaining technology value while avoiding premature monetization through outright sale or upfront licensing arrangements reflects a sophisticated understanding of asset valuation dynamics in early-stage pharmaceutical development. Their decision-making process incorporated rigorous Probability of Success analysis and comprehensive risk assessment frameworks, suggesting a more analytical approach to transaction structuring compared to the buyer's strategic positioning focus.

The temporal dynamics of critical decisions reveal interesting asymmetries between the parties. The buyer's most pivotal decision occurred toward the negotiation's conclusion, involving the strategic deferral of financial and commercial terms to preserve flexibility and accelerate agreement completion. This approach prioritized speed and adaptability over immediate cost certainty, reflecting confidence in their ability to negotiate favorable terms once developmental milestones provided greater clarity regarding the device's commercial potential. In contrast, the seller's most critical decisions emerged through iterative processes involving management and board consultation, focusing on rights allocation optimization and retention strategies. This approach suggests greater emphasis on consensus-building and comprehensive evaluation of long-term strategic implications, reflecting the seller's position as the technology originator with primary responsibility for asset value preservation. Overall, both the buyer and the seller made pivotal decisions centered around the configuration and structure of the deal. While buyer's decision primarily revolved around financial considerations, seller's decision focused on the allocation of control rights.

6.8.4. Abductive assessment of RBV, TCE, RO and ICT explanatory power

6.8.4.1. Buyer's assessment

The initial structuring decision to pursue a collaboration and development agreement with embedded commercial licensing options reflects the strategic application of RBV principles, wherein the buyer recognized the imperative to access complementary external capabilities that would augment their existing pharmaceutical development competencies and establish sustainable competitive advantages within the oncolytic virus therapeutic domain. The RBV framework provided the foundational logic for the buyer's strategic positioning, as they sought to leverage the seller's device technology as a complementary external resource that would enhance the efficacy of their proprietary drug compounds. This approach exemplifies sophisticated resource orchestration, where the buyer identified the potential for synergistic value creation through the strategic combination of disparate yet complementary technological capabilities. The buyer's recognition that device integration could enable them to leapfrog competitive positioning within the oncolytic virus space demonstrates advanced understanding of how external resource acquisition can accelerate internal capability development and market positioning.

TCE principles became increasingly prominent as structural negotiations progressed, particularly regarding risk mitigation strategies and asset specificity management. The buyer's recognition that their compounds and the seller's device required synergistic integration made collaborative arrangements the optimal governance mechanism, effectively minimizing transaction costs associated with alternative structural approaches that would have proven neither economically viable nor strategically sustainable for the seller. The decision to maintain internal control over all testing activities involving their proprietary drug agents reflects sophisticated application of TCE principles, as this allocation of responsibility minimized opportunism risks and potential adverse data exposure that could significantly impact ongoing Phase 3 clinical trials. In addition to that, buyer's pursuit of broad exclusivity across multiple tumor types and therapeutic indications represents strategic application of TCE frameworks to address hold-up problems characteristic of highly specific asset investments. This exclusivity arrangement effectively prevented the seller from developing competing applications for strategic competitors, thereby safeguarding the buyer's investment while reducing potential future transaction costs associated with competitive threats. The clear delineation of intellectual property

rights, ensuring mutual non-interference with core assets while mandating combined commercial utilization, demonstrates sophisticated contract design that minimizes future dispute potential and associated transaction costs.

RO Theory and ICT emerged as central analytical frameworks during the later negotiation stages, particularly regarding the buyer's pivotal decision to defer specific financial and commercial term negotiations.

This strategic choice, implemented during the critical year-end budgeting period, represents classic RO principles, treating the initial research and development agreement as a valuable option to pursue comprehensive commercial licensing arrangements. The rationale underlying this approach acknowledged significant uncertainty regarding the device's ultimate market value and therapeutic applications, particularly given the buyer's evolving internal oncology strategy toward broader therapeutic areas. The buyer's decision to maintain pricing and royalty flexibility, despite potential future cost increases, demonstrates sophisticated understanding of option value creation through strategic uncertainty management. This approach enabled adaptive responses to future information revelation and strategic shifts while preserving the ability to evaluate alternative device technologies simultaneously. The maintenance of parallel evaluation processes for competing device technologies further exemplifies RO thinking, preserving the ability to exercise rights on superior alternatives should they emerge during the evaluation period.

The structural acknowledgment of ICT principles reflects advanced understanding of contractual limitations in research and development contexts, where comprehensive ex-ante specification of all future contingencies proves both impractical and economically inefficient. The two-step process architecture, progressing from development agreement to optional licensing arrangement, inherently represents sophisticated incomplete contract design that accommodates uncertainty while establishing frameworks for ex-post negotiation contingent on milestone achievement. The strategic allocation of control rights demonstrates how sophisticated contract design can achieve strategic objectives despite intentional contractual incompleteness regarding future financial terms. The buyer's securing of exclusivity arrangements, including post-collaboration tail periods, effectively carved out future commercial opportunities while preventing competitive development activities. The maintenance of testing control, requiring seller knowledge transfer and on-site supervision under buyer direction,

enabled protection of sensitive clinical trial data while ensuring operational continuity. The innovative intellectual property arrangement, where each party retained core asset ownership while mandating combined commercial utilization, represents creative contract design that balanced autonomy preservation with collaborative value creation requirements.

6.8.4.2. Seller's assessment

The seller's strategic approach to deal structuring demonstrates sophisticated theoretical integration that prioritized long-term value optimization over immediate financial maximization, reflecting advanced understanding of how RBV and TCE principles can be leveraged to preserve and enhance core asset value during early-stage technology development. The initial deal design, structured as an exclusive negotiation option encompassing broad rights with embedded research and development fees and future commercial milestones, exemplifies strategic application of RBV principles wherein the seller recognized their device technology as the foundational asset requiring careful value cultivation and protection.

The RBV framework provided the analytical foundation for the seller's strategic positioning, as they consciously rejected alternative transaction structures that would have compromised long-term value creation potential. The deliberate decision against outright asset sale or comprehensive upfront licensing arrangements reflects sophisticated understanding of how premature monetization can undermine the value-building process for technologies with unproven but substantial commercial potential. The seller's characterization of their device as the portfolio's backbone demonstrates advanced appreciation for how core asset preservation enables sustained competitive advantage development and strategic flexibility maintenance throughout the technology maturation process.

TCE principles significantly influenced the seller's assessment of transaction viability and risk mitigation strategies, particularly through the implementation of rigorous Probability of Success analysis frameworks designed to ensure minimum thresholds for research and development cost recovery and future commercial return achievement. The seller's emphasis on establishing clear risk discharge mechanisms reflects sophisticated understanding of how transactional hazards can be mitigated through appropriate governance structures and collaborative development processes. The strategic accommodation of the buyer's testing control requirements, balanced with comprehensive

knowledge transfer mechanisms and on-site guidance provisions, demonstrates advanced application of TCE principles to manage asset specificity issues while ensuring successful collaborative outcomes.

The seller's acceptance of the buyer's operational control over sensitive testing activities, contingent upon robust knowledge transfer protocols and mandatory on-site supervision, exemplifies sophisticated transaction cost management that balanced the buyer's risk mitigation needs with the seller's asset protection requirements. This arrangement effectively addressed potential asset specificity concerns while ensuring proper device handling and integration with the buyer's development processes, creating a governance structure that minimized opportunism risks while preserving collaborative effectiveness.

RO and ICT emerged as paramount analytical frameworks for the seller's most critical strategic decisions, particularly regarding rights allocation optimization and temporal control arrangements. The seller's positive reception of the buyer's decision to defer commercial term negotiations reflects sophisticated Real Options principles, wherein they recognized the potential for enhanced value realization through strategic patience and uncertainty resolution. The seller's confidence in their device's commercial potential enabled them to view the initial research and development agreement as a valuable option to achieve superior commercial terms following successful technology validation and market development.

This strategic approach demonstrates advanced understanding of how option value can be maximized through strategic timing and uncertainty management, accepting immediate research and development payments as option premiums while preserving substantial upside potential contingent upon technology maturation and market validation. The seller's willingness to accept deferred commercial terms reflects sophisticated appreciation for how uncertainty resolution can enhance negotiating position and value realization potential.

The explicit embrace of ICT principles reflects the seller's advanced understanding of contractual limitations in research and development contexts, where comprehensive ex-ante specification of future commercial arrangements proves both impractical and potentially value-destructive. The strategic choice to leave future commercial terms open for ex-post negotiation, contingent upon successful research and development outcomes, demonstrates sophisticated contract design that accommodates uncertainty while preserving value optimization opportunities.

A distinctive element of the seller's theoretical application involves the integration of patient-centric mission considerations with traditional economic optimization frameworks, creating a unique decision-making paradigm that transcends purely financial maximization objectives. This ethical dimension enabled the seller to prioritize collaborative development potential over immediate financial returns, accepting contractual incompleteness as a necessary accommodation for broader mission alignment and long-term value creation.

The seller's strategic rights allocation decisions reflect sophisticated application of ICT principles, particularly regarding the temporal dimension of control arrangements and the balance between immediate concessions and future value preservation. The decision to transfer comprehensive clinical rights to the buyer, while maintaining strategic leverage through right of first refusal arrangements, demonstrates advanced understanding of how control allocation can be optimized to achieve mutual benefit while preserving future negotiating flexibility.

The seller's focus on broad indication coverage and strategic trigger point establishment reflects sophisticated option design that maximizes future value realization potential while accommodating immediate collaborative requirements. The retention of right of first refusal mechanisms for enhanced payment arrangements exemplifies strategic contract design that preserves seller leverage while enabling buyer option exercise, creating a balanced framework that aligns incentives while maintaining competitive dynamics that can enhance ultimate value realization.

6.8.4.3. Comparison of buyer and seller's assessment

TCE and RBV were highly prevalent for both parties in the early stages, dictating the choice of a collaborative R&D agreement over alternatives like acquisition. Both aimed to combine complementary core resources (RBV) while managing the transaction costs associated with asset specificity and the potential for opportunism. However, their specific applications differed. The buyer's TCE considerations were heavily focused on protecting its sensitive drug trials and securing broad exclusivity to mitigate future competitive risks and control specific market segments. In contrast, the seller's TCE considerations focused on protecting the core value of its device itself and ensuring a viable path to market without premature divestiture.

A striking similarity between both parties is the profound and timely influence of RO and ICT during the most pivotal phase of the deal structuring: the mutual decision to defer negotiation of the definitive commercial terms for the future license agreement. Both recognized the high uncertainty surrounding the device's full potential and market applications at the nascent R&D stage. For the buyer, this deferred negotiation represented an option for strategic flexibility to integrate the device into a broader, evolving oncology strategy without being constrained by premature valuation. For the seller, it represented an upside option, allowing them to build value for their technology and command potentially higher terms upon successful development. This alignment, despite different underlying motivations, highlights how the principles of RO and ICT converged to facilitate agreement by allowing a staged commitment where future decisions could be made with more complete information.

In terms of temporality, RBV and the foundational aspects of TCE (e.g., why a collaboration vs. acquisition) were the earliest and most consistently applied theories, shaping the fundamental decision for a collaborative R&D structure within the first few months. These theories provided the 'why' behind the deal. Subsequently, ICT and RO gained prominence, particularly in the later stages of negotiation, culminating in the pivotal decision to defer commercial terms. These theories provided the 'how' for managing the inherent uncertainties and creating a flexible framework. The buyer's internal complexities in aligning expectations across its pharma and medical device sectors, driven by differing internal resource priorities and perceived value, illustrate that internal TCE considerations for large organizations can be as, if not more, challenging than external negotiations. The seller's emphasis on a patient-centric purpose introduced an additional, non-economic criterion that likely facilitated the acceptance of an incomplete contract, as it allowed for a focus on broader societal value rather than immediate financial maximization, potentially making them more flexible in negotiation.

6.8.5.Deal outcome

Deal structure can be described according to 3 typologies: TCE based, ICT based and Contractual.

First of all, following the deal-structuring outcome typology grounded in TCE-based integration (section 3.4.2.1), this deal structure cannot be adequately described within the framework's existing categories, as it entails a combination of multiple contractual agreements that operate in concert rather than as discrete, standalone arrangements. This multi-agreement deal structure exceeds the descriptive capacity of this typology's design which assumes a singular classification.

Secondly, following the deal structuring outcome typology built on the logic of ICT, this deal structure can be described as selective control allocation with the buyer option holder securing specific technical and development rights while background IP and manufacturing remain with the seller, creating a framework for potential future expansion of control rights.

Lastly, from a contractual standpoint, the deal signed between the firms included a collaborative research agreement, financially supported by a research technology fee and subsequent payments. This collaboration agreement was linked to an option for a license that would encompass multiple indications.

6.8.6.Case study summary

This case exemplifies sophisticated deal architecture through its integration of multiple contractual mechanisms within a strategically designed two-stage framework. The deal's fundamental distinction emerges from its conscious use of contractual incompleteness as a strategic advantage, wherein critical commercial terms were deliberately deferred to enable both parties to capitalize on uncertainty resolution over time. This approach represents a shift from conventional arm's length licensing arrangements that attempt comprehensive ex-ante specification of all contractual elements.

The strategic utilization of option agreements proved pivotal in achieving multiple objectives simultaneously: pre-empting asset access, securing comprehensive exclusivity arrangements, and providing temporal space for thorough financial term assessment. This deal structure enabled the parties to navigate the inherent complexity arising from the combination of the seller's device technology with the buyer's pharmaceutical assets, creating sophisticated challenges in future rights ownership definition and intellectual property protection. The strategic importance of establishing clear control rights allocation and exclusivity parameters from the deal's inception became paramount in addressing these multifaceted ownership considerations.

The theoretical sophistication of this approach manifests through its advanced application of RO Theory, where the initial collaboration agreement functioned as a valuable option instrument enabling pursuit of comprehensive commercial arrangements contingent upon successful technology validation. This framework demonstrates how uncertainty can be transformed from a transactional impediment into a strategic value creation mechanism through appropriate structural design.

The deal's control rights architecture represents another distinctive structural innovation, characterized by a carefully calibrated allocation that balanced competing operational and strategic requirements. The buyer secured operational control over sensitive testing activities while the seller maintained strategic oversight through mandatory knowledge transfer protocols and on-site supervision arrangements. This deal structure effectively addressed asset specificity concerns while facilitating collaborative value creation, demonstrating how sophisticated contractual design can accommodate competing control requirements without compromising either party's fundamental strategic objectives.

The integration of patient-centric mission antecedents with traditional economic optimization frameworks constitutes another distinctive aspect of this deal's decision-making paradigm. The seller's explicit commitment to patient value creation and access enhancement, coupled with their demonstrated willingness to accept potentially suboptimal financial terms in service of broader mission alignment, represents a notable evolution in pharmaceutical licensing approaches. This framework transcends purely financial maximization objectives, creating a decision-making architecture that balances commercial optimization with meaningful social impact considerations.

The comparative analysis of decision-making processes reveals how complementary approaches can enhance transaction success through strategic temporal coordination and alignment. The buyer's systematic progression from strategic positioning to operational implementation effectively complemented the seller's iterative value optimization methodology, creating a decision architecture that accommodated both parties' operational constraints while enabling creative problem-solving around complex technical and commercial challenges. This coordination required sophisticated understanding of both parties' decision-making rhythms and strategic priorities, where convergence on organizational efficiency and speed-to-market considerations provided negotiation foundations, while divergent approaches to risk allocation and value realization created opportunities for mutually beneficial optimization through strategic control and financial arrangement design.

The transaction's theoretical foundation indicates integration of multiple analytical frameworks, revealing how Resource-Based View, Transaction Cost Economics, Real Options Theory, and Incomplete Contract Theory can be synergistically applied to create comprehensive foundations for complex deal-structuring decisions. The buyer's strategic approach exemplified advanced resource

orchestration principles, leveraging external device technology to augment internal pharmaceutical development capabilities while establishing sustainable competitive advantages within the oncolytic virus therapeutic domain. Transaction Cost Economics principles proved particularly valuable in addressing structural challenges associated with highly specific asset investments and collaborative development requirements, while Real Options Theory enabled both parties to maximize value creation through strategic uncertainty management and temporal optimization.

6.9. Case Study 9

6.9.1.Deal outline

This Deal was held in 2014, between a large global healthcare company with 150 000 employees (seller) and a start-up (buyer) of 10 employees financed by VCs (Venture Capital Investors). Buyer had a distinctive business model centered on (co-)developing late-stage clinical assets licensed from a company committed to reassuming ownership of the asset post-approval for commercialization. Buyer has entered into an exclusive collaborative development agreement with a leading pharmaceutical company, to conduct a global Phase 3 clinical trial of the seller's onco-hematology drug (which had previously failed a phase 3 trial). Under the agreement, the buyer would fund and conduct the trial to generate clinical data for potential regulatory approval of the drug. If approved, the buyer stands to receive milestone payments from the seller, while the seller retains global commercialization rights (taking back the asset to directly commercialize it). This collaboration leveraged buyer's expertise in late-stage drug development and regulatory approval, offering an avenue for seller to extend the development of this drug into new indications. Given the organizations' familiarity with this type of deal, there was no exploration into alternative deal structures.

6.9.2.Deal structuring antecedents

6.9.2.1. Deal structuring antecedents (buyer perspective)

Firstly, buyer emphasized the critical need to structure the deal in alignment with the seller's tax and accounting constraints. Compliance with these constraints was deemed essential for the deal's feasibility, as exemplified by the following quote:

> *" Ok so the key elements really have been very much driven by accounting. ... And that was the key issue for seller to do this deal as in it didn't hit their P&L..... If the accounting hadn't worked, obviously, we wouldn't have done the deal. "*

Secondly, buyer underscored the substantial risk shouldered on their side, primarily concerning the upfront investment needed for clinical development and regulatory approval, thereby influencing the deal structure. This necessitated a significant temporary transfer of control during the deal, as depicted in the following quote:

> *"That's the issue that we took the whole risk, the controls with us, and actually they only paid us back and hit their P&L on success. Right, so all the risk was transferred to us... So we're upfront doing everything at risk, and maybe that is the biggest differentiator"*

Thirdly, buyer emphasized its high interest in the asset, viewing it as a worthwhile risk among several opportunities considered, as illustrated in the following quote:

> *"I think it's up front, it's about the assets, it's about taking on the total risk around the assets being approved. And just to give you some background before we sign the deal with seller, I have personally done due diligence on a hundred assets ... And if the asset hadn't been good enough for us to take the risk, we wouldn't have done the deal"*

Lastly, buyer emphasized seller's past experience with routinely structuring this type of deal, which limited the flexibility for considering alternative deal structures, as evidenced by the following quote.:

> *" They had done a lot of this type of deals before so they were very familiar, so they knew what needed to work for their own accounting. So it was very much driven by them, if you like, from that perspective"*

6.9.2.2. Deal structuring antecedents (seller perspective)

First, seller emphasized that besides securing a financial return, the primary (economics) antecedent was to ensure compliance with accounting and auditing requirements. The deal was carefully structured to align with optimal commercialization assumptions, as described with the following quote:

> *" also importantly from the accounting standpoint, in conjunction with that would allow that R&D expense to be off seller's books... So the accounting element was a very important part of the of what went into structuring deals of this nature more generally.... I would say that the deal structure had to comply with our accounting requirements ..... and also worked very carefully on looking at different financial sensitivities to it in order to understand, you know, if you wish at what point, how for example, how low would the sales have to be to just break even on the deal?"*

Second, seller highlighted its extensive experience in setting up such deal structures and the extent to which it has influenced this deal, as illustrated with the following quote:

> *"So the it was an interesting time at seller and there had been contemplation of deals of this nature, as well as some deals that were actually executed of a similar nature around this time period. "*

Third, seller acknowledged the explicit distribution of risk between buyer (clinical and regulatory risk) and seller (commercial risk) and emphasized the importance of being reassured that buyer had capabilities to manage the allocated risks. Proper estimation of commercial risk was essential from seller's risk management perspective, as thoroughly described within the following quote:

> *"business development group in general was tasked with exploring different financial structures whereby we could find third parties that would be willing to take risk from the clinical and regulatory standpoint on running late stage trials... what was newer was buyer was a newer entity and so a lot of what we had, you know, if we think about the third element of who is going to be running the trial and the comfort with that, that was something that we also looked at carefully and we looked at the management team and got to know them well and became very comfortable that this was an entity that had the real true capabilities. .. Yeah. so if you think about risk in drug and drug development and commercialization, there is clinical, regulatory, and there's commercial. Yeah. So the clinical and regulatory risk in this case were being completely taken on by buyer. The remaining risk was commercial. And so the focus for us was clearly on that. "*

Fourth, seller emphasized the strategic fit and synergy in business models between themselves and buyer, particularly noting that buyer solely possessed development capabilities and had no intention to commercialize, thereby safeguarding seller against potential competitive actions in the commercial sphere by the buyer, as illustrated with the following quote:

> *"And so it was a very strong fit from that perspective, because buyer was not an entity with an interest in developing a commercial sales force and commercializing the product. So it was important to seller. And it was a big reason also why seller chose to do this*

> *deal with buyer as opposed to, again, doing a different kind of deal with like a more of a classic partnership with another pharmaceutical company."*

Fifth, seller highlighted how important it was to deal with a company with the right capabilities and sufficient financial resources (resources access-exchange antecedents), as illustrated with the following quote:

> *" finding partner that we felt we could trust to run a study on a product that we were already marketing. So that was another consideration was sort of a comfort with the capabilities of the group that would be taking on.... that were willing to take that risk and provide the funds."*

Lastly, seller highlighted that the asset was unique its profile from buyer's perspective, as illustrated with the following quote:

> *" And buyer looked at that data and they believed that they understood why that trial failed and how they could design a trial differently and manage it differently in such a way that it would be successful "*

6.9.2.3. Deal structuring antecedents - similarities and differences

The comparative examination of deal structuring antecedents reveals a complex interplay of convergent priorities and divergent strategic emphases that collectively shaped the deal structure. Both parties demonstrated alignment on the necessity of establishing economically viable deals grounded in sound accounting principles, with risk management considerations serving as pivotal antecedents in structural design decisions. This convergence reflects sophisticated understanding of how financial viability and regulatory compliance function as foundational prerequisites for such deals.

The influence of experiential factors manifests differently across both parties' strategic approaches, with the seller's extensive transactional experience in similar deal structures wielding significant influence over deal-structuring decisions. While the buyer acknowledged this experiential advantage, their strategic positioning reflected relatively lesser dependence on historical precedent, suggesting confidence in their analytical capabilities and internal assessment frameworks. This asymmetry in

experiential reliance indicates how organizational learning and institutional memory can create differential strategic positioning within complex licensing negotiations.

Strategic emphasis patterns reveal more pronounced divergences in value creation philosophies and asset evaluation approaches. The seller's perspective prioritized strategic complementarity considerations, emphasizing how business model alignment and resource synergies could enhance long-term value creation potential beyond immediate financial optimization. Conversely, the buyer's approach concentrated more intensively on intrinsic asset value assessment, reflecting confidence in their ability to extract value through superior development and commercialization capabilities regardless of strategic complementarity considerations.

The systematic evaluation of literature-derived antecedents (appendix E) confirms these observed patterns while revealing additional nuances in strategic prioritization. Both parties demonstrated convergent emphasis on asset quality and economic viability as primary determinants, reinforcing the fundamental importance of these factors in pharmaceutical licensing contexts. However, their approaches to secondary considerations revealed meaningful differences in strategic orientation and stakeholder prioritization frameworks.

The buyer's elevated emphasis on social antecedents suggests sophisticated appreciation for how stakeholder alignment and broader social impact considerations can enhance long-term value creation and competitive positioning. This perspective reflects growing recognition within pharmaceutical development that sustainable competitive advantage increasingly requires demonstration of meaningful social value creation beyond traditional financial metrics. The seller's relatively lower prioritization of social factors may reflect their more focused emphasis on immediate strategic and operational considerations within their resource-constrained organizational context.

Conversely, the seller's heightened attention to strategic fit and resource exchange mechanisms demonstrates sophisticated understanding of how complementary capabilities and resource optimization can create sustainable competitive advantages through partnership arrangements. This emphasis reflects their strategic positioning as a technology provider seeking to maximize value through strategic partnerships that leverage complementary organizational strengths and market access capabilities.

The asymmetric concern regarding negotiation power and information asymmetries reveals fundamental differences in perceived strategic positioning and vulnerability assessment. The seller's attention to these factors suggests recognition of their relatively disadvantaged position in terms of organizational scale and market access capabilities, necessitating careful attention to power dynamics and information management throughout the negotiation process. The buyer's apparent lack of concern regarding these factors likely reflects confidence in their superior organizational capabilities and market positioning, enabling them to focus primarily on asset evaluation and value extraction optimization.

These divergent perspectives on power dynamics and strategic positioning ultimately contributed to the transaction's innovative structure, where the seller's concerns about asymmetric positioning were addressed through creative risk allocation and control rights mechanisms that preserved their strategic participation while accommodating the buyer's operational requirements. The resulting arrangement demonstrates how sophisticated understanding of both parties' strategic priorities and concerns can enable creative problem-solving that transforms potential negotiation impediments into value creation opportunities through innovative governance design.

6.9.3.Processual unfolding of the deal

6.9.3.1. Deal journey

6.9.3.1.1. Deal journey (buyer perspective)

The interviewee, transitioning from Chief Medical Officer to CEO of the buyer, took personal responsibility for overseeing the entire due diligence process. With a role in sourcing deal opportunities, she proactively reached out to the seller, leveraging her prior knowledge and experience with similar assets. Aware that the asset had previously failed a Phase 3 clinical trial, she recognized the potential for reinvestigation by the buyer in a newly designed Phase 3 study.

6.9.3.1.2. Deal journey (seller perspective)

The interviewee served as the transaction lead within seller's Business Development and Corporate Development Group, responsible for overseeing the entire deal process from initial discussions with buyer, structuring the deal, negotiating financial terms, to final contract signing. They also managed

corporate governance and ensured approval from key stakeholders within seller, including finance divisions, the head of business development, the CFO, the head of the business unit, and senior executives. The deal was structured amidst Seller's R&D expense constraints, with a focus on finding third parties willing to take on clinical and regulatory risk for late-stage trials to bolster Seller's pipeline. Financial structures were explored to shift R&D expenses off seller's books until successful trial outcomes were achieved, aligning with accounting considerations. This approach allowed seller to leverage external resources while managing financial constraints and accounting implications effectively.

6.9.3.1.3. Deal journey - similarities and differences

Buyer's focus on due diligence and asset evaluation aligned with a strategic vision for portfolio enhancement, while the seller's emphasis on financial structures reflected a pragmatic response to R&D expense constraints. Ultimately, the convergence of these perspectives facilitated a mutually beneficial agreement, underscoring the importance of collaboration and strategic alignment in deal execution.

6.9.3.2. Deal structuring considerations

6.9.3.2.1. Deal structuring considerations (buyer perspective)

First, interviewee acknowledged the substantial risk shouldered primarily by the buyer, necessitating a considerable return upon success, as exemplified by the following quote:

> *"That's the issue that we took the whole risk, the controls with us, and actually they only paid us back and hit their P&L on success. Right, so all the risk was transferred to us... the return on investment had to be there "*

Second, interviewee underscored the necessity of establishing shared governance whilst allowing buyer to operationally keep some control and decision-making power (contracting & organizational efficiency consideration), as depicted in the following quote:

> *" so all the key decisions, so the protocol design was jointly decided by them, the CRA, was jointly decided by them, we had a Joint Development Committee, which met monthly,*

> *we had a Joint Steering Committee that met quarterly. I mean, you know, so a lot of this stuff was jointly decided in terms of the strategic pieces, I would say .... So there was some overarching governance, but clearly the day to day decisions and anything that may impact our risk around regulatory approval that was buyer, the final call was going to be buyer. "*

Third, interviewee's emphasis on a tailored allocation of control rights underscores the strategic consideration of maintaining intellectual property ownership and commercialization rights with the seller, while the buyer assumes responsibility for development. This deal structure likely reflects a careful balance of rights, ensuring alignment with both parties' objectives and expectations, as illustrated with the following quote:

> *"So one of the things with this model is the IP stays at the pharma company, which is obviously attractive for them. And again, they had to guarantee that they would take the drug back and commercialize it as well ... We were granted a license by seller in the IP to run the clinical trial. But everything else sat with seller. "*

Fourth, interviewee's observations regarding the backloading of returns, primarily deriving from later approval rather than further commercial returns, contrasts with typical licensing deals. This structured payment-milestones consideration indicates a strategic decision to align incentives with long-term success milestones rather than immediate profitability.:

> *"On approval, however, that set a stream of milestone payments due to a billion, irrespective of commercial sales. So basically, our payback is very much from achieving approval of the drug opposed to its commercial success... And again, they had to guarantee that they would take the drug back and commercialize it as well. "*

Lastly, interviewee emphasized the need to safeguard against the possibility of the seller opting out of asset commercialization post-approval by implementing penalties as a deterrent, as illustrated with the following quote:

> *" as you know, many Pharma make strategic decisions to kind of pull away from various therapy areas. And we were very clear we didn't want to be left with the baby.*

So, in fact, there were some penalties if they didn't take the drug back, which again, I'm sure wouldn't surprise you."

6.9.3.2.2. Deal structuring considerations (seller perspective)

First, interviewee delineated the allocation of control rights, wherein the buyer would assume partial and restricted clinical, development, and regulatory rights with some oversight from the seller, while the seller retained intellectual property and commercialization rights, as described with the following quote:

" So with all those pieces fitting together, we were able to put the deal in place... Intuitively, one would think that it would be very critical for seller to feel that they have final say on many things. But in order to make the accounting treatment of a material transfer of the risk, the decision-making power, with seller's input, had to be in many situations in buyer's control fundamentally... Seller wanted to maintain its commercialization rights for the product. Seller had no interest in giving that to a third party... if you want to think of it that way, yes, its a license to conduct clinical work, but it's not a license to control the IP and you know, and again, in the way that usually when we talk about licensing agreements in business development in pharmaceuticals, we think about really a full transfer of intellectual property and this is not a full transfer. This is just providing the limited rights that are required to be able to conduct clinical work. "

Second, interviewee underscored the timing and manner of risk and return allocation for each party, with the buyer assuming development risk for a return upon approval and the seller undertaking transfer risk for a return upon commercialization, as illustrated with the following quote:

"There was a structured return that was based on successful approval. Approval of the indication for the first line indication... the return was not based on commercial sales at all. it was purely based on approval... The return is tied to approval. That's the way I'd have to characterize it "

Third, on contracting & organizational efficiency, interviewee highlighted optimal choice based on experience and accounting restrictions, with some oversight from the seller, as illustrated with the following quote:

> *"So we're really looking at alternative financial structures that, again, could achieve offloading risk and also offloading the accounting treatment... Seller may be in the lead role in terms of running the trial but these deals are structured such that we have governance committees, joint development committees, joint steering committee for decision making... And there had been precedented deals of a similar general nature. In this case, we didn't really spend a lot of time thinking about alternative structures"*

With respect to structured payment-milestones, interviewee highlighted how the return was structured according to approval milestone rather than commercialization milestone, as illustrated with the following quote:

> *"there was a structured return that was based on successful approval. Approval of the indication for the first line indication ... the return was not based on commercial sales at all. it was purely based on approval. "*

Lastly, interviewee emphasized how seller protected itself by granting rights restricted to clinical development, without commercialization rights, in contrast to usual licensing deals, as a safeguard against potential competitive commercial behaviors, as illustrated with the following quote:

> *"So if you want to think of it that way, yes, it's a license to conduct clinical work, but it's not a license to control the IP and you know, and again, in the way that usually when we talk about licensing agreements in business development in pharmaceuticals, we think about really a full transfer of intellectual property and this is not a full transfer. This is just providing the limited rights that are required to be able to conduct clinical work "*

6.9.3.2.3. Deal Structuring considerations - similarities and differences

The examination of deal structuring considerations reveals convergence on consideration types, coupled with differential prioritization, suggesting sophisticated mutual understanding that enabled complementary value creation through deal structure design.

The buyer's emphasis on risk-return allocation reflects their comprehensive assumption of development uncertainties, necessitating optimization of returns commensurate with substantial upfront commitments. This prioritization demonstrates understanding of how risk assumption can become strategic advantage through superior execution capabilities. Simultaneously, their attention to contracting and organizational efficiency indicates appreciation for how structure design can minimize coordination costs while maximizing operational effectiveness, recognizing that complex partnerships require streamlined governance preserving decision-making agility.

Conversely, the seller's heightened emphasis on control rights allocation reveals commitment to preserving meaningful influence despite accepting reduced operational responsibilities. This prioritization reflects understanding of how strategic oversight can be maintained through appropriate governance design, enabling continued participation while leveraging buyer capabilities. The seller's focus on structured payment-milestones demonstrates optimization of cash flow timing through performance-contingent mechanisms, reflecting preference for success-based realization that preserves accounting neutrality.

While both parties acknowledged risk-return allocation as fundamental, differential emphasis patterns reveal complementary positioning that enabled innovative transaction design. The buyer's heightened focus reflects comprehensive risk responsibilities, while the seller's moderated emphasis suggests confidence in buyer capabilities combined with focus on influence preservation and payment optimization.

6.9.3.3. Decision gates

6.9.3.3.1. Decision gates ((buyer perspective)

The buyer's strategic engagement in this deal unfolded through three distinct and sequential decision gates, each representing critical evaluation points that collectively determined the deal's viability and structural design.

The first decision gate emerged from existing professional relationships between the buyer's Chief Medical Officer and the seller's Head of Oncology, establishing the foundational context for strategic exploration. This initial engagement constituted a comprehensive strategic fit evaluation, where the buyer systematically assessed whether their distinctive business model of assuming overarching clinical and regulatory development responsibilities could align with the seller's asset disposition needs. The decision criteria at this gate centered on identifying assets that could benefit from the buyer's unique risk-transfer capabilities, representing a deliberate screening process to determine whether further evaluation warranted the substantial resource commitment required for comprehensive due diligence. The successful navigation of this first gate reflected the buyer's confidence that the seller's asset profile matched their strategic acquisition parameters and risk assumption capabilities.

The second decision gate manifested as an intensive clinical due diligence process completed within approximately six weeks, representing the most analytically rigorous phase of the buyer's evaluation sequence. This gate's outcome directly determined the viability of proceeding with the transaction, as the buyer systematically investigated the underlying reasons for the seller's previous Phase 3 study failure rather than accepting historical results as definitive. The decision-making criteria encompassed comprehensive scientific rationale assessment, evaluation of feasibility for design modifications or dosing adjustments, and determination of whether a redesigned study could achieve regulatory approval and market access. The buyer's approach demonstrated sophisticated analytical capabilities that enabled identification of value creation opportunities where others might perceive only development risk, with the successful completion of this gate reflecting confidence in their ability to remediate previous study limitations through superior execution and strategic modifications.

The third and most pivotal decision gate emerged as a binary "deal or no deal" determination regarding the buyer's willingness to assume total responsibility for the asset's approval risk. This critical decision

point was reached during the term sheet phase, where the buyer made their definitive commitment based on achieving confidence that the probability of success exceeded 75%. This threshold-based approach demonstrates sophisticated quantitative risk assessment methodologies that enabled the buyer to commit substantial resources based on analytical confidence rather than traditional risk-sharing mechanisms. The decision at this gate was fundamentally binary in nature, requiring complete commitment to comprehensive risk assumption or complete withdrawal from the transaction, reflecting the buyer's understanding that partial risk-sharing arrangements would be incompatible with their business model and the regulatory requirements governing the transaction structure.

The journey through these three decision gates enabled the buyer to proceed with a deal structure that transformed regulatory constraints into strategic advantages. The accommodation of US GAAP accounting requirements, which necessitated complete risk transfer to avoid adverse impact on the seller's profit and loss statements, became the foundation for the deal structure that balanced accounting compliance with operational effectiveness. The buyer's acceptance of full control and ownership responsibilities for clinical trial execution, while maintaining collaborative oversight through joint decision committees for protocol design and contract research organization selection, reflects sophisticated understanding of how regulatory requirements can be leveraged to create sustainable competitive advantages.

6.9.3.3.2. Decision gates (seller perspective)

The seller's strategic engagement in this deal evolved through a series of interconnected decision gates that reflected both external market pressures and internal strategic imperatives emerging in the deal journey.

The first decision gate manifested as a fundamental strategic reorientation driven by escalating R&D expense constraints that necessitated identification of third parties willing to assume clinical and regulatory risk for late-stage clinical trials. This initial decision gate represented more than mere cost optimization; it constituted a comprehensive evaluation of how the seller could continue building their development pipeline without incurring immediate financial burden through traditional internal development approaches. The decision criteria at this gate centered on the imperative to offload R&D expenses from their financial statements, establishing accounting treatment requirements as the foundational constraint that would influence all subsequent structural decisions. The successful

navigation of this first gate reflected the seller's recognition that innovative risk-sharing mechanisms could enable continued pipeline expansion while preserving financial flexibility for other strategic initiatives.

The second decision gate emerged as a structural feasibility assessment that systematically eliminated traditional licensing alternatives due to the seller's strategic requirement to retain commercialization rights for an already marketed product. This gate represented a critical constraint-based evaluation where conventional out-licensing models were deemed incompatible with the seller's commercial objectives, fundamentally narrowing the universe of viable transaction structures. The decision-making process at this gate was significantly influenced by the seller's prior experience with similar co-development arrangements. This precedent experience transformed what might have been a complex structural evaluation into a relatively straightforward adoption of an established template, making the selection of this specific co-development model almost a default choice rather than a comprehensive evaluation of multiple deal structural alternatives.

The third and most critical decision gate focused on partner selection and capability assessment, representing the seller's most intensive due diligence process within the transaction sequence. This gate's evaluation criteria centered on building confidence in the buyer's management team capabilities, with particular emphasis on the Chief Medical Officer's extensive experience in drug development and oncology therapeutic areas. The decision to entrust the buyer with conducting clinical studies on an already marketed product elevated the importance of this trust-building process beyond typical partnership evaluations. The seller's assessment encompassed not only technical capabilities but also operational execution competencies that would be essential for successful study completion and regulatory approval achievement.

The fourth decision gate involved the critical determination of control rights allocation, driven by accounting rule requirements for effective risk transfer that necessitated the seller relinquishing more operational control than would typically occur in conventional co-development arrangements. This decision gate represented a fundamental shift in decision-making authority, where the buyer assumed final authority over operational aspects related to regulatory approval while strategic decisions remained subject to joint governance committee oversight. The seller's navigation of this gate required careful balance between maintaining strategic input and satisfying regulatory requirements for

complete risk transfer, ultimately accepting reduced operational control in exchange for achieving desired accounting treatment and financial optimization objectives.

The fifth decision gate encompassed financial structure determination, where the seller designed a unique return mechanism based purely on regulatory approval achievement rather than commercial sales performance. This structural innovation reflected sophisticated internal financial analysis that ensured future sales and profit projections from the approved indication would comfortably cover the return obligations to the buyer. The decision-making process at this gate involved extensive commercial forecasting and scenario analysis to pressure-test underlying assumptions across various market conditions, ensuring long-term financial viability for the seller regardless of commercial performance variations. The negotiation of specific financial terms was facilitated by existing market understanding of investor expectations derived from similar prior transactions, enabling efficient term determination without extensive benchmarking processes.

In sum, the journey through these five decision gates enabled the seller to achieve their primary objective of R&D expense optimization while preserving commercialization rights and maintaining strategic oversight capabilities.

6.9.3.3.3. Key decisions - similarities and differences

Buyer's most pivotal decisions were driven by the risk and economically driven commitment to initiate the deal. In contrast, seller, while readily entering the deal, grappled with the deal financial structure and balance between risks and returns.

6.9.4. Abductive assessment of RBV, TCE, RO and ICT explanatory power

6.9.4.1. Buyer's assessment

TCE provided the foundational rationale for the buyer's market entry and strategic positioning, where their specialized business model directly addressed pervasive market inefficiencies within the pharmaceutical development landscape. The buyer's core value proposition centered on assuming overarching clinical and regulatory risk for drug development, effectively providing pharmaceutical companies with mechanisms to externalize research and development costs and associated risks that had become increasingly burdensome due to escalating expense constraints. This strategic approach

represented sophisticated understanding of how transaction cost optimization could create sustainable competitive advantages by offering specialized services that enabled pharmaceutical companies to mitigate internal transaction costs associated with developing every potential pipeline asset through traditional internal development approaches. The buyer's systematic search for opportunities to apply their unique risk assumption model reflected deliberate market positioning designed to capture value from transaction cost inefficiencies that constrained traditional pharmaceutical development strategies.

RBV theory became particularly evident in the buyer's ability to leverage highly specialized human capital and operational capabilities that created distinctive competitive advantages despite their limited organizational scale. As a small entity with only four individuals, the buyer's strategic value derived primarily from their Chief Medical Officer's extensive experience in oncology and drug development, representing rare and valuable human capital that could not be easily replicated or substituted by larger pharmaceutical organizations. This specialized expertise, combined with the buyer's operational capacity to design and execute clinical trials, constituted complementary resources that addressed critical capability gaps for pharmaceutical companies facing internal funding limitations and resource allocation constraints. The buyer's value proposition demonstrated how concentrated specialized capabilities could create competitive advantages that enabled successful competition against larger, more resource-rich organizations through superior expertise application rather than scale-based advantages.

RO theory provided the analytical framework for the buyer's investment decision-making process, where substantial capital commitments between fifty million and two hundred million dollars were structured as contingent investments with returns exclusively tied to successful regulatory approval achievement. The buyer's binary decision regarding total risk assumption for asset approval represented classic real option valuation, where intensive clinical due diligence conducted over approximately six weeks enabled assessment of probability of success exceeding seventy-five percent as the threshold for investment commitment. This real options approach enabled the buyer to manage future uncertainty through sequential investment decisions, where upfront capital commitment during the term sheet phase effectively purchased the option to achieve significant payoffs contingent on successful development outcomes. The real options framework provided sophisticated risk management capabilities that enabled the buyer to commit substantial resources based on quantitative

probability assessments rather than traditional risk-sharing mechanisms, creating sustainable competitive advantages through superior risk evaluation and management capabilities.

ICT considerations fundamentally shaped the deal structure and control rights allocation, where adherence to US GAAP accounting requirements necessitated comprehensive risk transfer mechanisms that went beyond traditional collaborative development arrangements. The buyer's acceptance of complete control over day-to-day operational decisions and regulatory approval processes reflected sophisticated understanding of how control rights allocation could satisfy accounting requirements while managing inherent uncertainties in pharmaceutical development contexts. While strategic decisions regarding protocol design and contract research organization selection remained subject to joint governance committee oversight, the buyer's retention of final authority over operational matters demonstrated how incomplete contract theory principles could be applied to balance collaborative oversight with operational autonomy requirements. The inclusion of contractual penalties for seller non-commercialization decisions represented advanced application of incomplete contract theory, where anticipated behavioral risks were addressed through ex-ante contractual provisions designed to mitigate potential opportunistic behavior within inherently uncertain development environments.

6.9.4.2. Seller's assessment

First of all, TCE fundamentally drove the seller's initial strategic reorientation, as escalating R&D expense constraints necessitated innovative approaches to minimize internal development costs while maintaining pipeline expansion capabilities. The seller's pursuit of third parties willing to assume clinical and regulatory risk represented a direct application of transaction cost minimization principles, where externalization of development activities enabled continued asset advancement without incurring immediate internal resource commitments. This strategic decision reflected sophisticated understanding of how transaction cost optimization could transform traditional pharmaceutical development models, allowing the seller to preserve financial flexibility while accessing specialized development capabilities that would be prohibitively expensive to maintain internally across all potential therapeutic indications.

RBV theory became particularly evident in the seller's systematic evaluation and selection of the buyer as a strategic partner, where the seller's recognition of their own resource constraints in fully funding

all potential indications led to careful assessment of complementary external capabilities. While the seller retained control over valuable intellectual property and commercialization rights for their marketed asset, they identified the buyer's specialized risk assumption capabilities and proven management expertise, particularly the Chief Medical Officer's extensive development experience, as crucial complementary resources that could enhance the value extraction from their existing asset base. The seller's intensive due diligence process focused on establishing confidence in the buyer's ability to successfully execute clinical trials on already marketed products, demonstrating how resource-based strategic thinking enabled identification of partnership opportunities that leveraged external specialized capabilities to maximize asset value without diluting core competitive advantages.

RO theory provided the analytical framework for the seller's comprehensive financial evaluation and internal decision-making processes, where the deal effectively created a valuable option to expand commercial market opportunities for their marketed asset into new therapeutic indications without bearing immediate development costs and associated risks. The seller's return structure, based purely on regulatory approval achievement rather than commercial sales performance, required extensive commercial forecasting and rigorous scenario analysis to ensure that projected future sales and profit margins from newly approved indications would comfortably exceed contractual obligations to the buyer. This thorough financial analysis represented continuous real option valuation, where the seller systematically assessed whether the anticipated value of expanded market opportunities justified the contractual payments required upon successful option exercise through regulatory approval achievement. The real options framework enabled sophisticated risk-adjusted valuation that accounted for both the probability of successful development outcomes and the magnitude of potential commercial returns across various market scenarios.

Incomplete Contract Theory considerations became paramount in the seller's navigation of control rights allocation, where the achievement of critical accounting objectives required fundamental departures from traditional co-development governance structures. The seller's requirement to transfer research and development expenses off their financial statements necessitated ceding substantially more operational control than would typically occur in conventional collaborative arrangements, with decision-making authority residing primarily with the buyer to demonstrate genuine risk transfer for US GAAP compliance purposes. This control allocation represented an externally imposed constraint rather than a negotiated outcome, illustrating how regulatory and

accounting requirements can significantly constrain contractual design options in research and development contexts characterized by inherent uncertainty and information asymmetries. The seller's prior experience with similar templated arrangements facilitated acceptance of these specific control structures, demonstrating how institutional learning can reduce transaction costs associated with complex contractual negotiations.

6.9.4.3. Comparison of buyer and seller's assessment

The comparative analysis of both parties' strategic engagement in this deal reveals sophisticated theoretical convergence that demonstrates how multiple economic frameworks interact to shape complex deal structures within highly regulated environments. The deal's bilateral dynamics illustrate how external institutional constraints and internal strategic imperatives collectively determine contractual outcomes through systematic application of established economic theories.

TCE provided the foundational impetus for both parties' engagement, where the seller's escalating R&D expense constraints created market opportunities that the buyer's specialized business model was designed to address through innovative risk transfer mechanisms. The seller's systematic search for external development partners reflected direct application of transaction cost minimization principles, where externalization of development activities enabled continued pipeline advancement without incurring prohibitive internal resource commitments. However, the transaction's ultimate structural form demonstrates how pure transaction cost minimization objectives can be significantly constrained by external regulatory requirements, suggesting that while transaction cost economics often initiates searches for alternative governance structures, the resulting contractual arrangements may be heavily influenced by factors beyond traditional cost optimization considerations.

ICT emerges as the dominant theoretical framework governing both parties' strategic behavior, where external institutional factors, particularly US GAAP accounting requirements, fundamentally predetermined the transaction's structural parameters rather than allowing traditional negotiation-based control allocation mechanisms. The seller's imperative to transfer R&D expenses off their financial statements necessitated comprehensive control rights transfer that exceeded typical collaborative development arrangements, while the buyer's acceptance of these control mechanisms reflected recognition that structural requirements were externally mandated rather than internally negotiated. This mutual constraint demonstrates how regulatory and accounting frameworks can

fundamentally predetermine contractual forms, effectively limiting the scope for traditional bargaining processes over control rights allocation and highlighting how incomplete contract theory applications must account for external institutional constraints that supersede bilateral negotiation dynamics.

Resource-Based View principles provided critical strategic foundations for both parties, though with distinctly different temporal applications and strategic priorities that reflected their respective competitive positions and capability requirements. The buyer's initial market engagement demonstrated sophisticated application of resource-based strategic thinking, where their unique combination of specialized risk capital and clinical expertise created distinctive competitive advantages that enabled successful competition against larger pharmaceutical organizations through superior capability application rather than scale-based advantages. The seller's subsequent partner selection process reflected intensive resource-based evaluation, where meticulous assessment of the buyer's management capabilities and operational expertise became prerequisite for entrusting valuable intellectual property assets to external development partners, demonstrating how resource complementarity can enable value creation through strategic collaboration between organizations with asymmetric capability profiles.

Real Options theory provided analytical frameworks for both parties' investment decision-making processes, though with different temporal focuses and risk assessment methodologies that reflected their respective strategic objectives and financial constraints. The buyer's application of real options principles centered on upfront binary decision-making regarding total risk assumption for asset development, where intensive due diligence enabled quantitative probability assessment that supported substantial capital commitments based on analytical confidence rather than traditional risk-sharing mechanisms. The seller's real options approach operated continuously throughout financial structuring and approval phases, manifested through rigorous commercial forecasting and scenario analysis designed to ensure long-term viability of exercising commercialization options for newly approved therapeutic indications, demonstrating how real options theory can support both discrete investment decisions and ongoing strategic evaluation processes.

The transaction's theoretical complexity reveals sophisticated interweaving of multiple economic frameworks, where each theory illuminates different facets of the decision-making processes inherent in innovative pharmaceutical development arrangements. The seller's reliance on previously

established templated deal structures suggests path-dependent approaches to complex transaction design, where successful models for managing external constraints become institutionalized templates that reduce future transaction costs while ensuring regulatory compliance.

6.9.5.Deal outcome

Deal structure can be described according to 3 typologies: TCE based, ICT based and Contractual.

First of all, following the deal-structuring outcome typology grounded in TCE-based integration (section 3.4.2.1), this deal structure cannot be adequately described within the framework's existing categories, as it entails a combination of multiple contractual agreements that operate in concert rather than as discrete, standalone arrangements. This multi-agreement deal structure exceeds the descriptive capacity of this typology's design which assumes a singular classification.

Secondly, following the deal structuring outcome typology built on the logic of ICT, this deal structure can be described as restricted transfer of development and regulatory rights from seller to buyer.

Lastly, from a contractual standpoint, the deal signed between the firms entails a collaborative license agreement focused on clinical development and regulatory approval. Buyer would fully fund the development of the asset up to approval and then get compensated by seller at this stage with a pre-defined undisclosed payment. Seller would then take back the asset and commercialize it.

6.9.6.Case study summary

The deal's uniqueness emerges from its hybrid organizational form that reconciles contradictory objectives: enabling a pharmaceutical company to externalize development risk while maintaining asset ownership, and providing venture capital-backed startups with substantial investment opportunities tied exclusively to regulatory approval outcomes. This deal structure feature creates a specialized development model where complete clinical risk assumption occurs without permanent asset transfer.

The seller's escalating R&D expense constraints necessitated innovative pipeline development approaches without prohibitive internal resource commitments. Regulatory constraints fundamentally predetermined deal structure while requiring intensive capability evaluation. US GAAP accounting requirements emerged as the dominant structural antecedent, necessitating complete control transfer

for legitimate risk transfer recognition. This regulatory imperative required both parties to navigate complex trade-offs between operational autonomy and collaborative oversight, resulting in governance structures balancing joint strategic decision-making with unilateral operational control.

The decision gates reveal sequential progression through increasingly complex strategic and operational considerations requiring systematic risk assessment. The seller progressed through strategic reorientation, structural feasibility, partner selection, control allocation, and financial structuring. The buyer navigated strategic fit evaluation, intensive clinical due diligence, and binary risk assumption decisions based on quantitative probability assessments exceeding seventy-five percent.

From a typological perspective, this transaction represents an innovative co-development hybrid transcending established licensing categories by combining risk-sharing partnerships, venture capital investment, and licensing while maintaining asset ownership continuity. This hybrid structure challenges conventional taxonomies by creating a specialized category where complete risk assumption occurs without permanent asset transfer, enabling buyer to access external development capabilities while preserving commercialization opportunities.

The theoretical perspectives demonstrate sophisticated convergence of multiple economic frameworks explaining how innovative deal structures address complex industry challenges.

6.10. Case Study 10

Technical issues during the interview with the seller have resulted in a lack of proper audio recording. Consequently, all information presented in this seller section is based on notes taken during the interview, and direct quotes will not be provided.

6.10.1. Deal outline

This Deal was held in 2018, between a mid size global healthcare company with 10 000 employees (buyer) and a growing, privately owned, service based companion diagnostics and digital health company (seller) of 70 employees. Buyer identified a need for a device in overactive bladder and sought to accelerate diagnostics by partnering with seller, who offered a digital and device platform solution. buyer engaged in discussions and meetings with seller over 18 months, ultimately opting for an exclusive license agreement heavily focused on research and development. In a collaborative effort, both firms have partnered for the first ever time to develop and distribute a device for the detection and medical monitoring of urinary disorders. Buyer would co-finance the R&D and have exclusive commercialization rights globally.

6.10.2. Deal structuring antecedents

6.10.2.1. Deal structuring antecedents (buyer perspective)

First, buyer emphasized the asset's potential to address a significant medical need while also facilitating knowledge building through data collection, as illustrated with the following quote:

> *"And this is something that clearly was seen as a strong unmet need and explains why a lot of patients are not doing the exam. So here what we bring is a product that allows us to do these measures without needing to intubate the patient in any ways... And the good thing is you could imagine doing long term collection of data, which isn't the case today and in a natural setting. So really, you could bring in some interesting information for prescribers and for patients and allow them many things "*

Second, on economic-related antecedents, buyer emphasized the necessity of external legal support due to the unique legal framework surrounding a digital asset. Additionally, the deal's viability was

contingent upon the potential reimbursement of the final product by health insurers, underscoring the critical importance of assessing its commercial feasibility, as illustrated with the following quote:

> *" We decided to take external lawyers for this project, even if it's not a big one. Usually we tend to do it internally for a small project. But this one was a very new one for us and we needed to have external expertise to make sure to get the right contracts that situation ... Well, the first thing is that one of the key aspects of this project was its ability to be reimbursed."*

Third, on strategic fit, buyer emphasized that while the field was important, it didn't strategically warrant a larger investment like acquisition or direct investment into the seller. Hence, they favored a collaborative deal structure, leveraging the seller's human capabilities, as illustrated with the following quote:

> *" So it wasn't strategic enough for us to decide to invest in the company... And clearly, BD (Business Development), but not only BD mainly but the management of buyer, they were convinced that seller was a very good team and hands-on with good idea. And we wanted to be with them because we felt that they could be doing good business. "*

Fourth, with respect to resources access-exchange antecedents, buyer underscored their reliance in the financial resources and complementary human capabilities of seller, particularly crucial when engaging in a co-development endeavor, as described with the following quote:

> *"they had money and they had several projects ongoing...The second key reason is that we were buying the team and it's often the case for a project early stage like this on a startup that you, it's not only the project that you buy, but it's the people.... if you put something like complementarity in expertise something like this is something that, in fact, the way we've done the structuration of this deal and the contract. The idea on our side is really you're very good at doing this and we are very good at doing that"*

Lastly, buyer noted that the novelty of the field, coupled with concerns about intellectual property protection and the established position of the seller, led to the exclusion of several deal structures due to perceived risks, as justified with the following quote:

> *" First one is that it's a very new area for buyer, going in that kind of business, we are not there yet. So it would have been a very risky and surprising move to acquire the whole company, especially if you consider that seller was already what we what we would call the big spot... And when we signed, they really had a few things ongoing. So we were not starting from no IP, we were starting from a few new IP submissions with the caveat that I just said, I mean, in this field, you need to, of course, protect yourself. "*

6.10.2.2. Deal structuring antecedents (seller perspective)

From the seller's perspective, the most important antecedents encompassed social antecedents, resources access-exchange antecedents, strategic fit and commitment.

With respect to social antecedents, seller highlighted the importance of prior relationships, and cultural fit. Indeed, prior relationships and interactions between individuals or organizations can influence deal structuring. These relationships could have facilitated communication, trust-building, and collaboration between firms, ultimately shaping the structure of the deal. In addition, trust built between both firms, through ongoing interactions, likely influenced the negotiation process and the willingness of both parties to commit to the deal. Additionally, engagement and open communication between stakeholders, fostered a collaborative environment conducive to structuring a mutually beneficial agreement. Lastly, a cultural fit (alignment) between the organizations could have contributed to smoother negotiations, decision-making, and implementation of the partnership.

With respect to resources access-exchange antecedents, seller highlighted the deal structure was influenced by the access to resources and capabilities that seller offered. Buyer identified seller as a suitable partner due to its IT data platforms and expertise in companion diagnostics solutions. The commitment to exclusive rights for buyer on urology and discussions around sublicenses for other sectors and regions demonstrate the strategic exchange of capabilities and resources between the partners.

With respect to strategic fit, the alignment between buyer and seller in terms of their strategic objectives and capabilities was fundamental. Buyer recognized the need for a device in overactive bladder and sought to leverage seller's platform to accelerate diagnostics, indicating a strategic fit between their goals and seller's offerings.

With respect to commitment, from the beginning, both parties committed to achieving specific milestones, reflecting their dedication to the success of the partnership. The decision to invest significant resources and time into the project, despite its complexity and uncertainty, underscores the commitment of both buyer and seller to the collaboration. Seller valued the high engagement proven by the direct involvement of key decision makers within the discussion.

6.10.2.1. Deal structuring antecedents - similarities and differences

Both parties demonstrate alignment in their recognition of asset-related and resource exchange antecedents as critical determinants of deal structure. This convergent assessment extends to their mutual dismissal of individual antecedents and negotiation power as irrelevant factors, indicating sophisticated recognition that such complex deals transcend personal relationships and power dynamics to rely instead on objective capability assessments and strategic complementarity for value creation.

However, fundamental differences emerge in their prioritization of risk-related and strategic antecedents, revealing distinct organizational perspectives shaped by their respective technology and market positions. The buyer demonstrates greater emphasis on risk and social antecedents, reflecting the need to manage comprehensive clinical and regulatory exposure. Conversely, the seller prioritizes risk management and economic antecedents, indicating the focus on portfolio optimization and financial efficiency within such deal structures.

The seller's unique consideration of strategic fit as a relevant antecedent underlines its emphasis on aligning deal structures with broader strategic objectives, while the buyer's focus remains concentrated on execution capabilities and regulatory approval probabilities.

Regarding the evaluation of pre-identified antecedents from the literature (refer to appendix E), both buyer and seller accorded significance to asset-related and resource exchange antecedents, recognizing the importance of asset value and resource utilization in shaping the deal. However, while buyer focused more on risk mitigation and social antecedents, the seller prioritized risk management and economic antecedents. Additionally, strategic fit was relevant only for the seller, underlining its emphasis on aligning with strategic objectives. Individual antecedents and negotiation power were

deemed irrelevant by both parties, indicating a shared understanding of their limited impact on deal structuring.

6.10.3. Processual unfolding of the deal

6.10.3.1. Deal journey

6.10.3.1.1. Deal journey (buyer perspective)

Interviewee, as the Business Development leader of the transaction, took a hands-on approach in coordinating the collaboration with external consultants and collecting information from interviews, workshops, and studies. Unlike traditional deals, this project involved extensive workshops and collaboration between buyer and seller due to the novelty of the digital health field. The decision to structure the deal into a co-development license was driven by buyer's familiarity with such structures and the desire for a long-term relationship with seller. Key considerations in structuring the deal included the product's potential for reimbursement, given its innovative nature and potential market access challenges in Europe. Acquisition or joint venture deals were not considered feasible due to the novelty of the field for buyer and seller's existing projects outside buyer's focus areas.

6.10.3.1.2. Deal journey (seller perspective)

In this deal journey, seller's CEO took charge of discussions and negotiations from start to finish. The decision-making process primarily involved the CEO, with a straightforward governance structure and limited interference from expert or silent investors. Recognizing the buyer's lack of domain experience, seller led negotiations and proposed various options throughout. They prioritized avoiding conflicts of interest and selecting the path of least resistance. Ultimately, they opted for a license agreement heavily focused on research and development, with commitments to results from the outset. Key considerations included assigning exclusive rights to the buyer for urology while allowing freedom in other indications and addressing questions regarding industrial delivery, milestones, and sublicensing arrangements.

6.10.3.1.3. Deal journey - similarities and differences

First of all, both buyer and seller invoked the dyadic, phased, and iterative perspectives. In comparing the deal journey between the buyer and the seller, both prioritized long-term relationships and sought to structure the deal around familiar frameworks, with the buyer opting for a co-development license and the seller choosing a license agreement heavily focused on research and development.

However, differences emerge in their areas of expertise. The buyer's focus on market access challenges and reimbursement potential reflects their familiarity with the pharmaceutical industry and regulatory landscape, while the seller's emphasis on avoiding conflicts of interest and selecting the path of least resistance suggests a strategic approach based on their experience in the digital health field.

Overall, while both parties worked collaboratively to navigate the complexities of the deal, their distinct perspectives and priorities shaped the negotiation process and the ultimate agreement reached.

6.10.3.2. Deal structuring considerations

6.10.3.2.1. Deal structuring considerations (buyer perspective)

First, on risk-return allocation, interviewee underscored that the deal was designed to mitigate the uncertainty of reimbursement by structuring it around milestones and limiting the risk by relying on the seller's expertise, as illustrated with the following quote:

> *"in Europe, if you want to have a product such as this one being a success, you need to be reimbursed. So this I mean, this is the reason why if you look at the milestones we've built, most of them are related to this ability to be reimbursed... therefore the license was an easy way to move together in a very hands-on and constructive way, but that would not on our side require too much involvement. "*

Second, interviewee described the deal as being structured around upfront, regulatory and reimbursement milestones, as illustrated with the following quote:

> *"So we have an upfront that we paid when we signed the contract. And then we had specific milestones related to different events. The first one was regulatory one, and then*

> *we had one on pricing and reimbursement, and then we had a sales milestone and royalties."*

Third, on contracting & organizational efficiency, interviewee emphasized the utilization of a familiar deal structure (license) and the exclusion of other deal structures due to their perceived high cost, complexity, and commitment, as illustrated with the following quote:

> *"And the reason why we decided to do that is, well, first of all, the way we are structured, that allows us to be more efficient if we work in a way that we know already quite well to do, that's the first thing. So I would say a comfort in the deal structure that we are used to... we wouldn't do an acquisition, a joint venture was too complex and costly considering the future potential of this biotech and therefore the license was an easy way to move together in a very hands-on and constructive way, but that would not on our side require too much involvement. "*

Fourth, with respect to safeguard & risk mitigation, interviewee recognized the knowledge asymmetry with seller and protecting against self-opportunistic behavior of seller, as illustrated with the following quote:

> *" But we've accepted to be quite open minded in the fact that they could use some approach we developed with our product, provided that they were not considered a competitive product... we've tried to adapt to make sure that this asymmetry wouldn't lead to a failure "*

Lastly, with respect to allocation of control rights, interviewee emphasized the challenge of predicting future supply and support scenarios, as well as the importance of allocating intellectual property rights, as illustrated with the following quote:

> *"And in the contract, we were not able to craft the future supply agreement and the support agreement but we drafted a few things as you could imagine, we don't want to end up in a complex situation tomorrow because supply costs are too high, the business wouldn't fly anymore. ... And IP, of course, we do have IP on what's still up there. What we said is that IP specifically related to the device is owned by buyer, IP that can*

be applied to all types of projects like a new way of measuring that could be used in cardiology, neurology, whatever, oncology would belong to seller. "

6.10.3.2.2. Deal structuring considerations (seller perspective)

From the seller perspective, the most important considerations encompassed allocation of control rights, contracting & organizational efficiency & structured payment-milestones.

With respect to the allocation of control rights, the negotiation process involved delineating exclusive rights for buyer in the field of urology while allowing freedom for other domains.

With respect to structured payment-milestones, there has been several discussions for defining milestones and sublicensing agreements for various sectors and regions.

With respect to contracting & organizational efficiency the decision to opt for a license agreement with a heavy emphasis on research and development was driven by buyer's limited experience and capability in the area. Seller acknowledged the imperative of identifying a deal structure that represented the path of least resistance. This consideration reflects an understanding of the importance of streamlining the negotiation process and minimizing potential obstacles or complexities that could impede the successful conclusion of the deal.

6.10.3.2.3. Deal structuring considerations - similarities and differences

First of all, both parties demonstrate notable alignment in their prioritization of structured payment-milestones as a key consideration, recognizing that milestone-based arrangements provide essential risk management mechanisms while enabling performance-based value realization. The buyer's emphasis on regulatory and reimbursement milestones mirrors the seller's focus on defining comprehensive milestone structures across various sectors and regions.

Similarly, both organizations accord significant importance to contracting and organizational efficiency considerations, though their underlying motivations reflect distinct operational contexts. The buyer's preference for familiar licensing structures stems from organizational comfort and proven execution capabilities, while the seller's emphasis on identifying the path of least resistance reflects strategic recognition of the buyer's limited experience and the imperative to minimize negotiation

complexities. This convergent focus on efficiency optimization demonstrates how successful deals require structures that accommodate both parties' operational capabilities and strategic constraints.

However, fundamental differences emerge in their approaches to risk allocation and control rights management, revealing distinct organizational priorities shaped by their respective market positions and stakeholder obligations. The buyer demonstrates comprehensive focus on risk-return allocation through reimbursement uncertainty mitigation and safeguard mechanisms against knowledge asymmetry, reflecting the specialized entity's need to manage comprehensive exposure while protecting against opportunistic behavior. Conversely, the seller's primary concern centers on allocation of control rights through exclusive territorial delineation and intellectual property segmentation. The contrasting approaches to intellectual property allocation further illuminate their divergent strategic orientations, with the buyer accepting device-specific ownership while the seller retains broader platform applications.

6.10.3.3. Decision gates

6.10.3.3.1. Decision gates (buyer perspective)

The buyer's deal journey indicates a systematic progression through three distinct decision gates, each characterized by increasingly sophisticated evaluation criteria and resource commitment levels.

The initial decision gate centered on partner identification and strategic alignment assessment, spanning an eighteen-month evaluation period that established the foundational basis for subsequent collaboration. The buyer's specialized business model, focused on comprehensive clinical and regulatory risk assumption for pharmaceutical development projects, created specific partner selection criteria emphasizing complementary capability requirements and strategic fit optimization. The seller's expressed need aligned precisely with the buyer's platform capabilities, generating the strategic rationale for engagement initiation.

The second and most pivotal decision in this deal journey, as highlighted by the interviewee, revolved around the deal financial structure and configuration. It entailed careful forecast and assessment of whether or not the final asset would be reimbursed post development and approval. This decision gate established the foundation for substantial organizational commitment and determined the buyer's capacity for comprehensive deal execution.

The final decision gate focused on deal structuring optimization, with substantial research and development commitments. The buyer's approach prioritized adaptation to established sector practices while leveraging their specialized understanding of such deal structures to create mutually beneficial structural frameworks. The structuring decisions incorporated exclusive territorial rights allocation, milestone-based payment mechanisms, and sublicense agreement provisions designed to ensure commitment to results while establishing clear capability and resource exchange synergies.

6.10.3.3.2. Decision gates (seller perspective)

The seller's strategic decision-making process demonstrates a systematic progression through three critical decision gates, each characterized by increasingly sophisticated risk assessment frameworks and strategic alignment evaluations that ultimately determined the viability and structure of the pharmaceutical licensing collaboration.

The initial decision gate focused on external partnership exploration for digital solutions with connected devices, representing a strategic expansion into unfamiliar technological domains where the seller lacked substantial expertise and operational capacity. The decision emerged from internal recognition that promising diagnostic applications, required fundamentally different business models and development approaches compared to their prior deal structures. The strategic rationale centered on accessing specialized knowledge and capabilities to advance novel product development while complementing existing intellectual property assets without assuming comprehensive development burdens. This decision gate required demonstration of strategic market need identification coupled with clear internal resource gap recognition that justified external partnership exploration.

The second decision gate involved comprehensive deal structure evaluation through systematic assessment of alternative collaboration frameworks, including acquisition, joint venture, and equity investment scenarios. The acquisition option was eliminated due to the digital field's novelty for the seller and the strategic misalignment of acquiring an entity engaged in multiple non-core therapeutic areas including cardiology and neurology. Joint venture structures were dismissed as excessively complex and costly for product-focused collaborations, while equity investment was ultimately rejected because digital solutions had not yet achieved core growth strategy status within the seller's diversified portfolio, particularly in urology which maintained lower strategic priority compared to oncology. The decision criteria emphasized risk mitigation, cost-efficiency optimization, and strategic

alignment with evolving group priorities, requiring identification of structural frameworks that enabled long-term relationships and shared risk allocation without disproportionate internal investment or strategic diversion.

The most pivotal decision gate centered on fundamental business model viability assessment and reimbursement potential evaluation, particularly within the challenging European regulatory and market access environment. This critical evaluation represented the ultimate project viability determination, as any perspective of reimbursement failure post development and approval would not be acceptable. The decision criteria required confident belief in the product's reimbursement achievement potential, directly influencing milestone construction focused on regulatory approval and market access objectives. The decision occurred during early negotiation phases through transparent discussions with the buyer, emphasizing the imperative of avoiding resource waste if fundamental commercial viability could not be established.

6.10.3.3.3. Key decisions

Buyer's most pivotal decisions revolved around the deal financial structure and configuration. In contrast, seller's most pivotal decision revolved around proceeding with the deal.

6.10.4. Abductive assessment of RBV, TCE, RO and ICT explanatory power

6.10.4.1. Buyer's assessment

The initial strategic assessment phase exemplifies theoretical multiplicity, where RBV foundations intersect with RO to create strategic opportunity identification mechanisms. The buyer's specialized business model, centered on clinical and regulatory risk assumption through distinctive companion diagnostics and IT data platforms, represents core competency deployment consistent with Resource-Based View principles of sustainable competitive advantage through unique capability configurations. Simultaneously, Real Options Theory governs the exploration phase, as the buyer acquires strategic options to invest without substantial upfront commitments, maintaining flexibility while evaluating potential value creation opportunities. The proactive engagement approach reflects confidence in distinctive capabilities to accelerate diagnostics where traditional pharmaceutical entities lack established track records, demonstrating how resource-based advantages create option value through specialized market positioning.

The critical resource commitment decision reveals TCE dominance while maintaining RO relevance through explicit option exercise mechanisms. The substantial internal resource allocation, particularly specialized human capital deployment, signifies recognition of high asset specificity. This strategic choice represents TCE optimization, as the buyer minimizes future coordination costs by leveraging their unique risk-assumption model rather than engaging in complex external contracting arrangements.

The deal structuring phase demonstrates theoretical integration complexity, where Transaction Cost Economics and Incomplete Contract Theory converge to create final deal structure. The explicit pursuit of the path of least resistance reflects TCE optimization through reduced bargaining and coordination costs, while the systematic rejection of acquisition and joint venture alternatives demonstrates deal cost minimization strategies. ICT becomes paramount given inherent research and development unpredictability in novel technological domains, necessitating control rights allocation through exclusive territorial arrangements and intellectual property ownership specifications. Milestone-based payment structures provide Real Options Theory applications through staged investment mechanisms that enable continuation or cessation decisions based on predefined achievement criteria.

6.10.4.2. Seller's assessment

The initial deal exploration phase exemplifies RBV dominance while establishing foundations for subsequent theoretical applications. The seller's recognition of substantial expertise and operational capacity deficiencies represents classic resource gap identification consistent with RBV principles of external resource acquisition to overcome internal limitations and pursue novel market opportunities. This strategic acknowledgment of capability constraints creates the theoretical foundation for subsequent deal exploration, where accessing complementary assets and specialized knowledge becomes imperative for competitive advantage development.

The deal structure evaluation phase demonstrates TCE dominance while incorporating RO Theory and RBV considerations through systematic alternative assessment mechanisms. The explicit rejection of acquisition structures reflects governance cost avoidance strategies, as integrating strategically misaligned entities with diverse ongoing projects in non-core therapeutic areas would generate prohibitively high coordination and management expenses. Joint venture dismissal as excessively

complex and costly for single product development indicates sophisticated bargaining and coordination cost recognition, while equity investment abandonment reflects strategic prioritization where digital solutions had not achieved core growth strategy status within the diversified portfolio. The chosen license and co-development model represents TCE optimization through reduced structural complexity, while RO governs the abandonment of more integrated alternatives to preserve strategic flexibility and capital allocation for core future investments.

The pivotal reimbursement viability decision reveals theoretical integration complexity, where TCE, RO, and ICT converge to create sophisticated risk management mechanisms. The fundamental go/no-go determination based on European market reimbursement potential demonstrates TCE application through ex-post cost avoidance for commercially unviable product development, while simultaneously representing RO through explicit project option exercise or abandonment mechanisms. The inherent uncertainty of market access for novel digital products necessitates ICT application, as formal agreements cannot guarantee commercial success, requiring deal structures to address fundamental unknowns through transparent communication and adaptive milestone structures. The specific alignment of regulatory approval and reimbursement milestones demonstrates deal structure adaptation to core uncertainties, enabling staged investment decisions based on viability assessments while maintaining RBV relevance through combined resource and capability value proposition evaluation.

6.10.4.3. Comparison of buyer and seller's assessment

Both parties demonstrate notable theoretical alignment in their systematic application of TCE principles through shared aversion to highly integrated structural alternatives, recognizing that acquisitions and joint ventures would impose exorbitant complexity, cost, and strategic misalignment burdens on novel research and development endeavors. This convergent TCE application reflects sophisticated understanding that lower transaction cost models with enhanced flexibility provide optimal frameworks for uncertain technological development projects.

Similarly, both organizations consistently employ ICT recognition, acknowledging inherent research and development uncertainties in novel domains that necessitate deal structure and governance to manage unforeseeable contingencies and allocate residual control rights within contractual environments that cannot fully specify future outcomes.

The shared RO application through critical go/no-go decision points demonstrates convergent staged investment approaches, where subsequent commitments depend on favorable intermediate outcomes, whether through the buyer's internal resource commitment evaluation or the seller's market reimbursement potential assessment.

However, fundamental differences emerge in theoretical temporality and operational emphasis, revealing distinct organizational priorities shaped by their respective market positions and strategic orientations. The buyer's theoretical progression demonstrates RBV and RO prominence during early engagement phases, reflecting their specialized research and development service provider status that prioritizes unique capability application and risk-taking business model deployment toward novel opportunities viewed as strategic investment options. As deal progression advances, TCE and ICT assume greater centrality in deal structuring to minimize governance costs and effectively manage contractual incompleteness in intellectual property and research and development commitments. Conversely, the seller exhibits TCE dominance from initial partnership exploration through deal structure rejection based on high transaction cost profiles, while RBV application focuses specifically on accessing external complementary capabilities to address internal capability gaps rather than leveraging existing strengths.

6.10.5. Deal outcome

Deal structure can be described according to 3 typologies: TCE based, ICT based and Contractual.

First of all, following the deal-structuring outcome typology grounded in TCE-based integration (section 3.4.2.1), this deal structure cannot be adequately described within the framework's existing categories, as it entails a combination of multiple contractual agreements that operate in concert rather than as discrete, standalone arrangements. This multi-agreement deal structure exceeds the descriptive capacity of this typology's design which assumes a singular classification.

Secondly, following the deal structuring outcome typology built on the logic of ICT, this deal structure can be described as balanced control rights distribution emphasizing shared operational collaboration. The deal structure features negotiated allocation in most strategic areas, shared allocation in intellectual property foreground, capabilities, and development.

Lastly, from a contractual standpoint, the deal signed between the firms is a co-development license.

6.10.6. Case study summary

First of all, the unique aspect of this case lies in the seller's distinctive asset and business model as a digital health company, marking the convergence of two different industries.

The antecedent conditions reveal a sophisticated strategic alignment between a mid-sized global healthcare company seeking diagnostic acceleration and a specialized companion diagnostics firm offering integrated digital and device platform solutions. The strategic antecedents underlying this deal indicate complex risk assessment frameworks that extend beyond traditional pharmaceutical development paradigms. The deal's fundamental viability remained contingent upon potential reimbursement approval from health insurance systems, creating an additional layer of commercial uncertainty that distinguished this arrangement from conventional pharmaceutical licensing agreements.

As both firms embarked on their first-time deal together, they underwent a mutual learning process, underscoring the temporal and dyadic nature of this deal agreement. This underscores the importance of time and effort in crafting the appropriate deal structure, even when there is mutual interest between parties.

From a typological perspective, this deal structure outcome exemplifies a hybrid collaborative development model that combines exclusive commercialization rights with shared research and development financing responsibilities. This structural design enables the seller to maintain operational independence while providing the buyer with comprehensive market control over the resulting innovations. It's also worth noting that this case involves a combination of multiple contractual agreements.

6.11.Case Study 11

6.11.1. Deal outline

This Deal was held in 2019, between a mid size global pharmaceutical company with 10 000 employees (buyer) and a privately owned, service based contract research organization (seller) of 100 employees. The partnership aims to advance the development of potential drug candidates for Parkinson's disease, focusing on small molecules derived from seller's proprietary medicinal chemistry platform combined with buyer's expertise in neurodegenerative diseases. As per the terms of the agreement, buyer would finance the entire research program and has been granted an exclusive worldwide licensing option on the program, exercisable upon obtaining approval to enter into human clinical trials. Seller would be responsible for conducting the research program, including the identification of preclinical candidates, with activities primarily conducted at its research site. To facilitate the collaboration, seller would receive an upfront payment upon partnership signing, followed by significant milestone payments linked to program progress and validation for entry into human clinical trials. Additionally, seller would benefit from annual research funding of single digit million for project-related activities.

6.11.2. Deal structuring antecedents

6.11.2.1. Deal structuring antecedents (buyer perspective)

First, buyer emphasized that this collaborative deal structure was designed to mitigate the risk associated with the neurology area, in contrast to other deal structures, making it also less costly, as illustrated with the following quote:

> *"And the other reason why this structure was suited to both parties is because if you choose to do a collaboration first it obviously there's a decreased risk for the licensee because the investment required to enter into collaboration is relatively smaller because the licensee will then also contribute to the advancement of the program. ... And then the cost and risk obviously are related... So I think it was mostly because of the risk associated with the program. It's not to say that this program is particularly risky. I think our approach in the field of neurology is such that .... we probably do more risk mitigation than in some other areas."*

Second, on economics related antecedents, buyer highlighted that they did not want to get into a non-affordable transaction at this stage, as illustrated with the following quote:

> *" The third one certainly was the affordability of the deal. In other words a consideration that we can afford."*

Third, buyer underscore strategic fit as a sine qua non to the deal itself, as illustrated with the following quote:

> *"So I'd say probably you know things like strategic fit is very important. The reason why we haven't spoken about that is because if it wasn't strategically suited for us then we would not even speak to the company. So you know it's sort of a screening criteria before you get to talking to a partner about the deal."*

Fourth, on resources access-exchange antecedent, buyer emphasized the significance of accessing and benefiting from the technical expertise in medicinal chemistry, thereby justifying the collaborative deal, as illustrated with the following quote:

> *"One was the sort of I suppose we can call it competencies of the two companies, what both parties can bring to the deal is one. In this case it made sense for it to be a collaboration.... because the programs still require quite a bit of specific chemistry work that seller is excellent at, we needed them to be highly involved, which is why the collaboration stage with option made the most sense."*

6.11.2.2. Deal structuring antecedents - (seller perspective)

First, on resources access-exchange antecedents, seller emphasized the significance of engaging with a company possessing complementary expertise in the disease area, as illustrated with the following quote:

> *" So we obviously want to have a company with strong expertise in Parkinson's disease to take this forward"*

Second, strategic fit was determined through an evaluation of the degree of complementarity in expertise, as emphasized by the following quote:

> *"strategic fit with buyer's strategy to keep the investment in the acquisition of a team in Parkinson's disease ... I also called it to complementarity "*

Third, seller highlighted that past experience and established routines significantly influenced the deal structure, as indicated by the statement:

> *"But to be honest I think this is for me is quite a logical structure because it's exactly the same as we did with XXX.... This was the one (deal) we knew best... I must say I done between 5 and 10 of those deals and each time people consider this to be the normal deal to be done."*

Fourth, on asset related antecedents, seller emphasized the uniqueness of their medicinal chemistry technology as the sole solution capable of addressing a challenging therapeutic target pertinent to Parkinson's disease, as illustrated with the following quote:

> *"This was actually a target that had been identified long time before or in 2004 and many companies were working on it but have not been very successful in bringing any compound to the candidate stage and certainly not to the clinic because of the difficulty of making very potent, very selective and brain penetrable type of compound ... we actually had very nice technology to achieve this goal... The only thing is that it was considered as a very important target for Parkinson's disease but also considered as a pretty intractable and very difficult one for the reasons I just said"*

Lastly, seller indicated that buyer's contribution of expertise and full funding alleviates the economic burden on the seller, as they acknowledge the substantial investment required for the research collaboration, which they deemed beyond their financial capacity alone, as illustrated with the following quote:

> *"So they're bringing a lot of expertise in the program. And in the end, it's still our program and it's fully funded by them. So that's actually the, because, you know, every year of collaboration, research collaboration is valued at more than three million euro, typically we expected to run this for about two to three years before finding our candidate. So that brings it close to 10 million as an investment. And that's not the level of*

investment we want to do ourselves.... Clearly, we wouldn't have been able to fund the program ourselves."

6.11.2.3. Deal structuring antecedents - similarities and differences

The comparative analysis of buyer and seller perspectives reveals both convergent strategic thinking and divergent operational priorities in their approach to this deal structure. Both parties demonstrate sophisticated risk assessment capabilities, though their risk mitigation strategies reflect fundamentally different organizational positions and resource constraints.

The most striking similarity between buyer and seller perspectives lies in their mutual emphasis on strategic fit as a foundational antecedents for deal structuring. Both organizations approached the deal with clear recognition that complementary expertise represented the primary value driver, with the buyer acknowledging seller's excellence in medicinal chemistry and the seller recognizing buyer's specialized knowledge in Parkinson's disease.

However, their risk perception and mitigation approaches reveal significant differences in strategic priorities and organizational constraints. The buyer's perspective emphasizes risk mitigation through collaborative deal structures that reduce investment exposure while maintaining access to specialized capabilities, reflecting the cautious approach typical of larger pharmaceutical organizations operating in high-uncertainty therapeutic areas. Their focus on affordability and decreased risk exposure through shared investment demonstrates systematic risk management that balances strategic opportunity with financial prudence.

In contrast, the seller's risk assessment centers primarily on resource access and funding limitations rather than technical or commercial uncertainties. Their perspective reveals acute awareness of financial constraints that would prevent independent program advancement, with the collaboration representing not merely risk mitigation but essential resource acquisition for program viability. The seller's emphasis on full funding by the buyer underscores their position as a resource-constrained organization seeking strategic partnerships to overcome capital limitations.

The economic related antecedents further illuminate these divergent positions, with the buyer emphasizing transaction affordability as a key decision criterion while the seller focuses on funding access as a program enabler. This asymmetry reflects different organizational priorities, where the

buyer seeks cost-effective access to specialized capabilities while the seller requires comprehensive funding support to advance their proprietary technology platform.

Both parties demonstrate sophisticated understanding of their respective competitive advantages, with the buyer recognizing their disease area expertise and the seller emphasizing their unique medicinal chemistry technology. However, their approaches to leveraging these advantages differ significantly, with the buyer seeking to access external capabilities while maintaining strategic control, and the seller aiming to monetize their technological assets through partnership structures that provide both funding and complementary expertise.

The influence of organizational experience emerges as another point of convergence, with both parties drawing upon established partnership models and proven deal structures. The seller's explicit reference to previous successful collaborations suggests that institutional learning shapes structural preferences, while the buyer's systematic approach to risk assessment reflects accumulated experience in neurology partnerships. This shared reliance on proven models indicates that both organizations prioritize structural familiarity and reduced transaction complexity in their partnership strategies.

Regarding the evaluation of pre-identified antecedents from the literature (refer to appendix E), buyer and seller converge in prioritizing asset related and resource exchange as the primary antecedents, consistent with prior finding. Buyer, however, prioritizes strategic fit, placing it at the top position, emphasizing alignment with strategic objectives. Conversely, the seller ranks strategic fit lower at position 4, indicating a lesser focus on strategic alignment. Furthermore, the buyer places a stronger emphasis on social antecedents (prior relationships), ranking them at position 3, compared to the seller's ranking of 5, suggesting a greater reliance on existing relationships in the buyer's decision-making process (or more confidence in the deal to succeed without relationships). Lastly, the alignment in the lower ranking of asymmetry, negotiation power and individual agenda for both parties suggest their limited influence in shaping the deal structure.

6.11.3. Processual unfolding of the deal

6.11.3.1. Deal journey

6.11.3.1.1. Deal journey (buyer perspective)

Interviewee outlined his role in the deal process, which included sourcing opportunities, leading evaluations, conducting due diligence, and negotiating the agreement. The deal structure, a collaboration with an option to license, was deemed suitable due to the shared value each party brought to the collaboration and the mitigated risk for buyer. Interviewee emphasized the importance of defining clear milestones and targets in the agreement to ensure both parties understood the progression of the program. The decision-making process at buyer involved key stakeholders from various functions, with final approval from the strategic and executive committees. Ultimately, the deal was structured to mitigate risk while maximizing value for both parties involved.

6.11.3.1.2. Deal journey (seller perspective)

Interviewee's journey with seller began when he joined seller, a Contract Research Organization (CRO) as the Chief Scientific Officer. By definition, a Contract Research Organization (CRO) is an entity that provides research services to pharmaceutical firms on a contractual basis. CROs are typically contracted to conduct various aspects of drug development, outsourcing tasks that these companies may not have the capacity or expertise to handle internally.

Interviewee orchestrated the deal around a medicinal chemistry technology crucial for targeting Parkinson's disease. This technology, showed promise in overcoming challenges in developing potent, selective, and brain-penetrable compounds. An early deal with a mid size pharmaceutical company, structured as an option-based agreement, allowed for collaboration and R&D funding. However, this company's strategic shift led them to return the program to seller, which had by then acquired necessary expertise and resources. Subsequently, seller re-licensed the program to buyer, continuing its developmental trajectory. Interviewee's pivotal role extended from initial discussions to deal closure, shaping the structure akin to previous agreements. This involved upfront payments, funded research phases, milestone achievements, and a critical decision point for buyer to exercise the license option, reflecting the program's maturity and potential.

6.11.3.1.3. Deal journey - similarities and differences

First of all, both buyer and seller invoked the dyadic, phased, and iterative perspectives. In comparing the deal journey between the buyer and the seller, both parties recognized the importance of collaboration, as reflected in the deal structure involving a collaboration with an option to license. Both parties emphasize the significance of clear milestones and targets in the agreement to ensure mutual understanding of program progression, indicative of their commitment to effective project management. However, differences arise in their roles and objectives within the deal. Buyer highlights focus on risk assessment and strategic alignment. In contrast, the seller's journey showcases its strategic positioning as a technology provider and program owner.

6.11.3.2. Deal structuring considerations

6.11.3.2.1. Deal structuring considerations (buyer perspective)

First, on structured payment-milestones, interviewee highlighted the staging (between option and license) of this deal as well as the importance placed on properly defining milestones especially the one to transition from option to license, as illustrated with the following quote:

> *"when we get to a stage where buyer should be the lead partner, that would be the stage at which the option would be exercised by buyer and the license would be taken from seller for buyer to continue all the subsequent work. So again as much as for an option, for any milestone, we tend to define in very clear terms what those milestones are.. "*

Second, interviewee emphasized explicitly risk-return allocation and the relationship perceived between risk and cost, as a key consideration for the deal negotiation, as illustrated with the following quote:

> *"And then the cost and risk obviously are related.... And then the cost and risk obviously are related. "*

Third, on safeguard & risk mitigation, interviewee highlighted that such a deal structure results from the need to decrease risk, as illustrated with the following quote:

> *"And the other reason why this structure was suited to both parties is because if you choose to do a collaboration first it obviously there's a decreased risk for the licensee because the investment required to enter into collaboration is relatively smaller because the licensee will then also contribute to the advancement of the program. "*

Fourth, on the allocation of control rights, interviewee emphasized that although the research chemistry aspect was conducted by the seller, buyer aimed to retain a degree of control over the development process, considering that it would ultimately assume ownership of the asset for further development, as illustrated with the following quote:

> *"There is an element of control, I would say in this kind of case it's quite soft but certainly we want to be able to contribute and steer the program even though the skills and the competencies required at the beginning of the collaboration are with seller, we did want to give our input because as you're moving a program forward towards preclinical and clinical development that is something where we have strengths and seller has no experience in this. "*

Lastly, with respect to contracting & organizational efficiency, interviewee underscored the discriminating approach in selecting the most optimal deal, as illustrated with the following quote:

> *"I think that, during the process you know, you just sort of eliminate all types of deals that are less suited to the particular opportunity."*

6.11.3.2.2. Deal structuring considerations - (seller perspective)

First, interviewee emphasized that the payment structure comprises both an upfront payment and milestone payments, alongside securing funding for research activities, as illustrated with the following quote:

> *"there's an upfront payment which is typically for the work that has already been done and obviously also is dependent on future value potentially of the asset .... The things you get upfront is obviously the upfront (down-payment), the funding of the research for a number of years. "*

Second, interviewee emphasized that this specific deal structure was preferred by the seller due to contracting & organizational efficiency, and other deal structures were dismissed because they were deemed unaffordable for the buyer, as illustrated with the following quote:

> *"This was the one (deal) we knew best.... So that excluded actually the two other deal types that I would have liked to consider the first from being an immediate Licensing with a much higher upfront payment. The second one being the introduction of an equity-based component into the deal structure. But the fact that they said quite early we don't really have too much money was actually excluding those two options"*

Third, on risk-return allocation, interviewee highlighted that the "license option step" entails a decision balancing perceived risks with expected returns, reflecting acceptance of risks for potential rewards in a successful program, as illustrated with the following quote:

> *" In the middle of somewhere of the program, there is a very important step which is a license option step & that's quite a big payment which is a step where actually your partner takes the license or not. If they take the license then that's obviously very nice because that means it has become a very significant program and they will continue to develop it of course with additional potential milestones. "*

Fourth, with respect to safeguard & risk mitigation, the ability to reclaim the asset if the buyer lost interest emerged as a crucial consideration from the seller's viewpoint, as illustrated with the following quote:

> *"Because I have to be honest, in my experience the attention of pharmaceutical leaderships in such a program is the maximum three to four years and they change management then they might actually decide to stop the program. But that's why we wanted to have an option-based program. So if that would happen without actually any fault of the program, we wanted to take the program back in. So that was the first very important part "*

Lastly, on the allocation of control rights, interviewee highlighted that despite buyer's substantial financial investment and contribution of expertise, the program remained under seller's ownership and control, as illustrated with the following quote:

> *"So they're bringing a lot of expertise in the program. And in the end, it's still our program and it's fully funded by them. So that's actually the, because, you know, every year of collaboration, research collaboration is valued at more than three million euro, typically we expected to run this for about two to three years before finding our candidate. So that brings it close to 10 million as an investment. And that's not the level of investment we want to do ourselves "*

6.11.3.2.3. Deal structuring considerations - similarities and differences

Both buyer and seller converge in recognizing the collaborative deal structure as an optimal risk mitigation mechanism, though their risk perception frameworks differ substantially.

The buyer's perspective emphasizes systematic risk reduction through staged investment and shared development responsibilities, viewing the collaboration-to-license progression as a strategic option that minimizes upfront exposure while maintaining access to specialized capabilities. Their focus on clearly defined milestones and transition criteria reflects institutional risk management practices that prioritize measurable progress indicators and controlled investment escalation.

Conversely, the seller's risk assessment centers on capability complementarity and resource optimization rather than financial exposure management. Their emphasis on the buyer's disease area expertise and regulatory capabilities suggests that risk mitigation occurs through accessing complementary competencies rather than merely sharing financial burdens. This perspective reveals a more holistic view of risk that encompasses technical, regulatory, and commercial uncertainties beyond pure financial considerations.

The economic considerations further illuminate these divergent organizational positions, with the buyer explicitly linking cost and risk relationships in their decision-making framework. Their systematic approach to risk-return allocation demonstrates sophisticated financial modeling that balances investment exposure with potential returns through structured milestone payments and option mechanisms. This perspective reflects the buyer's position as a resource-abundant organization capable of systematic investment staging and portfolio risk management.

In contrast, the seller's economic perspective focuses on value maximization through partnership leverage rather than cost minimization. Their recognition of the buyer's superior capabilities in later-

stage development suggests strategic positioning that prioritizes access to complementary resources over financial risk sharing. The seller's emphasis on maintaining program ownership while benefiting from buyer expertise indicates sophisticated value capture strategies that balance control retention with capability enhancement.

Both parties demonstrate alignment in their preference for structured progression mechanisms, though their motivations differ significantly. The buyer's emphasis on milestone definition and option exercise criteria reflects systematic project management approaches that enable controlled investment escalation and exit flexibility. The seller's acceptance of this structure suggests confidence in their technology platform's ability to meet defined progression criteria while maintaining strategic partnership benefits.

The governance considerations reveal another area of convergence, with both parties recognizing the importance of clear role definition and responsibility allocation throughout the collaboration phases. However, their perspectives on control and decision-making authority reflect different strategic priorities, with the buyer seeking systematic control acquisition through milestone achievement and the seller focusing on maintaining technical leadership while accessing complementary capabilities

6.11.3.3. Decision gates

6.11.3.3.1. Decision gates - (buyer perspective)

The first decision gate evaluated alignment with strategic priorities and feasibility for collaboration. It is defined by three screening pillars—strategic fit, conviction in the product or technology, and collaborative chemistry with the prospective partner—that together determine whether an opportunity merits structured engagement. Recognition of passing this gate occurred when the opportunity moved from broad market scanning to formalized dialogue with the seller. The process commenced approximately one year prior to signing, targeting in-licensing opportunities in Parkinson's disease that matched the buyer's development capabilities. Strategic fit functioned as a non-negotiable precondition, excluding non-aligned options. Confidence in scientific and technological merits justified resource allocation, and, for collaborative routes, the ability to work effectively with the partner remained essential.

The second decision gate determined the optimal deal structure given program maturity and complementary capabilities. It is defined by a structured comparison of deal forms—collaboration with option, straight license, asset purchase, or research-only agreement—against criteria of capability complementarity, risk mitigation, affordability, and directional control. Recognition of passage occurred when both parties converged on a collaboration with an option to license, reflecting rapid alignment early in discussions. The program's position prior to preclinical candidate selection favored the seller's early-stage medicinal chemistry strengths and the buyer's preclinical and clinical capabilities. Risk mitigation was operationalized through staged investment and direct R&D contribution rather than a high upfront commitment. Financial discipline was preserved by limiting upfront cash and substituting resources and funding. Critically, this structure secured early influence and technical input from the buyer, improving downstream suitability.

The third decision gate provided institutional validation to proceed into formal negotiations. It is defined by a comprehensive assessment integrating scientific rationale, clinical potential, commercial outlook, and financial implications presented by the deal team. Recognition of successful passage is evidenced by a binary authorization to negotiate, signaling alignment with corporate priorities and endorsement of the integrated value case. Following due diligence, the Strategic Committee's approval marked the shift from evaluative analysis to transactional engagement.

The fourth decision gate calibrated the price–quality–risk equilibrium acceptable to both parties and to internal governance. It is defined by the reconciliation of divergent financial expectations through disciplined risk–return assessment and portfolio consistency. Recognition of the gate's decisive moment occurred when the buyer advanced a final proposal, accepting the possibility of rejection and termination. This "make or break" inflection crystallized the buyer's willingness to proceed only on terms consistent with risk posture and strategic priorities. Agreement on a financially and strategically defensible package marked passage through this decision gate and prepared the deal for executive ratification.

The last decision gate authorized execution of the negotiated agreement at the corporate level. It is defined by ultimate governance review of strategic congruence, scientific and clinical integrity, commercial rationale, and financial terms. Recognition of passage is the Executive Committee's binary approval, which ratifies the transaction and transitions governance from negotiation to

implementation. With this endorsement, the sequence of decision gates concluded and the agreement proceeded to execution.

Across the decision gates, the most pivotal decision in this deal journey, as highlighted by the interviewee, revolved around the deal financial structure and configuration. It entailed careful consideration of whether or not to align with seller's financial expectations.

6.11.3.3.2. Decision gates - (seller perspective)

First decision gate encompassed partner selection and capability validation The seller's partner evaluation process encompassed multiple potential collaborators, with the buyer initially presenting uncertainty regarding their Parkinson's disease expertise. This gate was defined by the assessment of partner capabilities, commitment demonstration, and strategic alignment with program requirements. The decision criteria emphasized proven expertise in the therapeutic area, demonstrated commitment through tangible investments, and established trust through prior business relationships. Recognition of gate passage materialized when the buyer acquired a well-regarded research team specializing in Parkinson's disease, providing concrete evidence of their commitment and capability. The pre-existing business relationship and established trust further reinforced confidence in the buyer's reliability and quality, ultimately leading to the decision to focus negotiations exclusively with this partner.

Second decision gate encompassed deal architecture selection and risk mitigation framework. The collaboration with option to license structure represented a familiar framework for the seller, having been successfully employed in the previous Ipsen arrangement. This gate was defined by the alignment of transaction structure with both parties' financial constraints and strategic objectives. The decision criteria encompassed four critical elements: securing comprehensive funding for ongoing research activities, maintaining asset recapture rights in case of program discontinuation, leveraging partner expertise through active collaboration, and accommodating the buyer's financial limitations following their recent large acquisition. Recognition of gate passage occurred through the mutual acceptance of this structure, which addressed the seller's inability to independently fund the required ten million euro investment over two to three years while preserving their ability to reclaim the asset at no cost if the buyer discontinued the program. This architecture effectively balanced funding security with strategic flexibility.

Third and most pivotal decision gate encompassed financial valuation negotiation and value assertion. This was characterized by substantial valuation discrepancies between the parties. This gate was defined by the seller's assessment that the buyer's initial proposal was fundamentally inadequate and significantly below previous transaction benchmarks. The decision criteria focused on achieving financial terms that reflected the program's advanced development stage and therapeutic potential, referencing comparable industry transactions for disease-modifying Parkinson's treatments. Recognition of the gate's critical moment occurred when the seller made the strategic decision to completely reject incremental negotiation and instead present a substantially higher counterproposal. This aggressive repositioning risked deal termination but aimed to fundamentally reset financial expectations and establish appropriate valuation parameters for the advanced program.

As part of the last decision gate, following intensive negotiations, the parties achieved convergence on significantly improved financial terms that addressed the seller's valuation concerns. This final gate was defined by the mutual acceptance of revised financial parameters and overall transaction structure. The decision criteria centered on the adequacy of the negotiated financial package and the structural elements that would govern the collaborative relationship. Recognition of successful gate passage occurred with the formal execution of the collaboration with option to license agreement, transitioning the relationship from negotiation to active partnership and research collaboration.

6.11.3.3.3. Key decisions - similarities and differences

For both parties, most pivotal decision revolved around the deal financial structure and configuration.

6.11.4. Abductive assessment of RBV, TCE, RO and ICT explanatory power

6.11.4.1. Buyer's assessment

RBV theory served as the foundational analytical framework, permeating the entire process from initial opportunity sourcing through final agreement execution. The buyer's strategic assessment recognized the seller's distinctive competencies in medicinal chemistry. This recognition of partner-specific capabilities represented a classic RBV analysis of heterogeneous resource distributions and their potential for value creation through strategic combination. Conversely, the buyer possessed superior capabilities in preclinical candidate selection and subsequent preclinical and clinical development phases, areas where the seller demonstrated limited experience and institutional capacity. This

complementarity of organizational capabilities emerged as the primary antecedent for such collaborative deal structure, enabling both parties to contribute their distinct resource endowments to maximize program success probability. The buyer's emphasis on strategic fit and product technology aspects as crucial screening criteria reflected RBV principles of resource alignment and strategic coherence, ensuring asset compatibility with existing organizational capabilities before committing to detailed partnership discussions. The partner capability assessment process demonstrated sophisticated RBV application, with the buyer evaluating whether the seller's resource base could successfully advance the program to predetermined option exercise points. This capability-centric evaluation framework ensured that partnership formation would generate sustainable competitive advantages through resource combination rather than mere resource access.

Real Options theory profoundly influenced early deal-structuring decisions, particularly the strategic inclusion of licensing options within the collaborative framework. This approach enabled the buyer to implement staged investment strategies that deferred substantial financial commitments until key technical and commercial uncertainties were resolved and asset risk profiles were substantially reduced. Given the elevated risk characteristics associated with neurology programs, the option mechanism functioned as a sophisticated risk mitigation instrument that limited exposure to potential developmental failures while preserving upside participation rights. The collaborative engagement model facilitated relatively modest initial investments that allowed direct resource contribution to program advancement activities. The buyer explicitly recognized that straight licensing arrangements would have required substantially higher upfront investments with correspondingly elevated risk exposure levels that exceeded acceptable institutional risk parameters. The option structure provided critical decision-making flexibility at predetermined exercise points, enabling systematic evaluation of program progress against predefined success criteria. Furthermore, the deal architecture incorporated advanced real options elements through variable clinical milestone structures calibrated to broader market potential assessments. This design incentivized performance beyond narrow patient population targets and created option value that scaled with commercial opportunity expansion, demonstrating sophisticated application of real options valuation principles to pharmaceutical partnership structures.

Transaction Cost Economics principles were prominently evident in the buyer's systematic focus on risk mitigation strategies, cost efficiency optimization, and precise contractual term definition

processes. The reduced upfront investment requirements inherent in the collaboration-first model represented clear transaction cost minimization while maintaining strategic positioning for future value capture opportunities. The buyer's explicit rejection of straight collaboration agreements without licensing options reflected sophisticated transaction cost analysis of undefined outcome scenarios, potential partner opportunism through excessive financial expectations, and third-party collaboration risks that could compromise exclusive access rights. Asset acquisition alternatives were systematically eliminated due to substantial upfront capital requirements in high-risk developmental contexts that management deemed unacceptable from a risk-adjusted return perspective. Deal affordability considerations and comprehensive business case evaluations emerged as critical decision-making factors, with the buyer maintaining disciplined approaches to transaction cost optimization within acceptable risk parameters. The most pivotal decision point occurred during financial negotiation phases, where the buyer insisted on reasonable consideration levels that balanced program quality with appropriate pricing structures. This negotiation stance highlighted the fundamental transaction cost economics principle that superior assets do not automatically constitute optimal deals if pricing exceeds value-creation potential.

Incomplete Contract Theory, particularly regarding control rights allocation in research and development contexts, played a crucial role in partnership structure design and governance mechanism specification. The buyer sought meaningful control elements that enabled program contribution and directional influence even when the seller retained primary developmental competencies during initial collaboration phases. The collaboration agreement functioned as a sophisticated risk mitigation layer that simultaneously provided control mechanisms to ensure asset development alignment with buyer strategic objectives and technical requirements. The buyer explicitly rejected pure option arrangements that would have eliminated program input opportunities, recognizing that such structures would diminish licensing deal probability and compromise asset development quality. To address inherent contractual incompleteness in research and development partnerships, the buyer emphasized precise option point definition and specific milestone target specification, including detailed chemical criteria and preclinical testing benchmarks. This approach created transparent progress measurement frameworks that enabled systematic outcome anticipation and established clear validation points for continued partnership engagement. Timeline uncertainty management was addressed through milestone structures that rewarded accelerated delivery performance, thereby aligning partner incentives with buyer timeline preferences and mitigating potential project delay risks. This incentive

alignment mechanism demonstrated sophisticated application of incomplete contract theory principles to complex pharmaceutical development partnerships where outcome uncertainty and performance measurement challenges require innovative governance solutions.

6.11.4.2. Seller's assessment

Resource-Based View theory occupied a paramount position in the seller's strategic framework from the initial partnership conceptualization through final agreement execution. The seller's distinctive technology platform, which enabled the discovery of highly potent, selective, and brain-penetrable compounds, represented their core proprietary resource and primary source of competitive advantage. This technological capability distinguished the seller in a competitive landscape where numerous pharmaceutical companies had attempted similar developments without achieving comparable success levels. The proprietary technology platform functioned as the primary value proposition and deal structure antecedent, serving as a significant competitive differentiator in deal negotiations. The seller's recognition of their technological chemistry strengths, combined with their acknowledgment of limited disease-specific expertise in Parkinson's disease, demonstrated sophisticated resource-based strategic thinking that prioritized capability complementarity over internal capability development. The seller actively pursued partnerships with organizations possessing complementary expertise in Parkinson's disease research and development, reflecting RBV principles of strategic resource combination for enhanced value creation. The buyer's acquisition of a specialized Parkinson's research team from Lundbeck provided concrete evidence of the complementary capabilities essential for successful program advancement, making them an strategically attractive partnership candidate from a resource-based perspective.

Transaction Cost Economics principles heavily influenced the seller's fundamental decision to pursue external partnership rather than internal program development. The seller's explicit recognition of their inability and unwillingness to advance the program independently to later developmental stages reflected sophisticated transaction cost analysis of the substantial investment requirements associated with exploratory Parkinson's disease programs. The deal structure, incorporating upfront payments and comprehensive research phase funding by the buyer, addressed critical financial constraints that would have prevented continued program development under internal resource allocation scenarios. The seller identified funding considerations as a primary antecedent for collaborative engagement

rather than simple option arrangements with substantial upfront fee requirements, demonstrating clear transaction cost optimization thinking. The seller's rejection of full licensing arrangements from program initiation was directly influenced by the buyer's financial constraints following their a prior expensive acquisition, which limited available upfront capital for immediate licensing commitments. This recognition of partner financial constraints and their impact on deal structure feasibility reflected sophisticated transaction cost analysis that considered both parties' resource limitations and strategic preferences. Financial considerations emerged as the second most critical factor influencing deal structure decisions, with the seller's most pivotal decision involving aggressive pushback against inadequate initial financial proposals. The strategic use of comparative industry transaction data to substantially increase proposed valuations demonstrated sophisticated negotiation approaches that leveraged market information to optimize transaction terms within acceptable risk parameters.

Real Options theory informed the seller's strategic preference for option-based program structures designed to manage future uncertainty while maintaining maximum strategic flexibility. This structural choice was motivated by the recognition that pharmaceutical companies frequently discontinue programs due to internal strategic realignments or management changes, creating substantial risks for technology partners who lack asset recapture mechanisms. The option-based architecture provided the seller with valuable flexibility to reclaim program rights at no additional cost if the buyer elected to discontinue development activities. This contrasted favorably with direct licensing arrangements that would have required the seller to repurchase licensing rights to regain asset control, creating potentially prohibitive financial barriers to asset recovery. The preservation of future options represented a critical strategic consideration that enabled the seller to maintain long-term value creation opportunities while accessing immediate partnership benefits. This approach demonstrated sophisticated understanding of real options valuation principles and their application to pharmaceutical partnership structures where developmental uncertainty and partner strategic volatility create substantial option value.

Incomplete Contract Theory principles were prominently evident in the seller's strategic objectives regarding continued asset development beyond initial upfront payment arrangements. The seller's emphasis on collaborative engagement reflected their desire to ensure sustained buyer investment and expertise application throughout the developmental process, addressing concerns about potential asset abandonment following initial payments. The preference for licensing structures over asset purchase

arrangements was motivated by the desire to maintain limited control mechanisms that would ensure asset return rights if the buyer elected to discontinue development activities. This approach addressed the seller's commitment to seeing the program advance to commercial markets while ensuring access to contingent consideration dependent on developmental progression and eventual commercialization success. The collaborative structure provided mechanisms for ongoing seller involvement that addressed emotional attachment considerations while creating formal frameworks for continued developmental oversight. The inclusion of specific research milestones within the deal architecture reflected sophisticated approaches to managing contractual incompleteness by establishing clear developmental stages and payment triggers that aligned partner incentives with program advancement objectives. The milestone-based payment structure addressed inherent uncertainties in pharmaceutical development timelines while creating transparent progress measurement frameworks that enabled systematic evaluation of developmental success and appropriate compensation for achieved milestones. This approach demonstrated advanced application of incomplete contract theory principles to complex pharmaceutical partnerships where outcome uncertainty and performance measurement challenges require innovative governance solutions.

6.11.4.3. Comparison of buyer and seller's assessment

Both parties demonstrated sophisticated RBV analysis, though with different focal points reflecting their organizational positions. The buyer emphasized comprehensive capability assessment, recognizing the seller's medicinal chemistry competencies while evaluating strategic fit with existing capabilities. This systematic approach ensured partnership formation would generate competitive advantages through strategic resource combination. The seller's RBV perspective centered on leveraging their proprietary technology as the primary value proposition. Their recognition of this technology's unique capability to enable discovery of highly potent, selective compounds represented classic RBV application in monetizing distinctive resources. While the buyer focused on capability complementarity assessment, the seller emphasized technological superiority in a competitive landscape where numerous companies had failed to achieve comparable success. Both parties converged in recognizing complementary capabilities importance, with the buyer seeking specialized chemistry expertise and the seller pursuing disease-specific Parkinson's knowledge, facilitating rapid agreement on collaborative structures.

Transaction Cost Economics influenced both parties' choices, though applications reflected different organizational constraints. The buyer's TCE analysis focused on risk mitigation and cost efficiency, emphasizing reduced upfront investments and precise contractual terms to minimize costs while maintaining strategic positioning. Their rejection of high-risk scenarios reflected disciplined transaction cost optimization. The seller's TCE application was driven by resource constraints and recognition of substantial investment requirements for independent advancement. Their inability to pursue internal development created strong partnership incentives providing comprehensive funding while maintaining involvement. This financial capacity difference created complementary motivations facilitating partnership formation. Both parties recognized financial negotiation as the most critical decision point, though strategies reflected different strength positions, with the buyer emphasizing affordability and the seller leveraging industry comparisons to increase valuations.

Real Options applications revealed convergent and divergent thinking. The buyer's approach emphasized staged investments deferring commitments until uncertainties resolved, reflecting sophisticated risk management preserving upside while limiting exposure. The seller focused on preserving future asset control, preferring option structures enabling program reclamation without penalty if partnership discontinued.

Incomplete Contract Theory applications revealed significant divergence. The buyer emphasized securing control mechanisms enabling program influence throughout development, while the seller focused on ensuring continued development beyond initial payments while maintaining limited control preserving asset return rights.

6.11.5. Deal outcome

Deal structure can be described according to 3 typologies: TCE based, ICT based and Contractual.

First of all, following the deal-structuring outcome typology grounded in TCE-based integration (section 3.4.2.1), this deal structure cannot be adequately described within the framework's existing categories, as it entails a combination of multiple contractual agreements that operate in concert rather than as discrete, standalone arrangements. This multi-agreement deal structure exceeds the descriptive capacity of this typology's design which assumes a singular classification.

Secondly, following the deal structuring outcome typology built on the logic of ICT, this deal structure can be described as negotiated control rights allocation and selective shared control rights. The structure features negotiated allocation across most dimensions with shared allocation in data foreground and intellectual property foreground, while maintaining no allocation in manufacturing and equity.

Lastly, from a contractual standpoint, the deal signed between the firms comprised exclusive worldwide licensing option associated to a collaboration research agreement. This deal includes a priority access component based on the option for license and a collaborative component based on the research agreement, both being remunerated according to different schemes. Buyer would finance the program and subsequently license (called option exercised) the asset developed by seller once pre-defined milestones have been achieved.

6.11.6. Case study summary

In summary, according to both parties the deal seem to follow a dyadic, phased and iterative journey. It's also worth noting that this case involves a combination of multiple contractual agreements. For this case, the utilization of the option agreement was pivotal in pre-empting the assets during the collaboration agreement. Both parties share more or less the same antecedents (primarily those pre-identified from the literature) with some party-specific variations in terms of relative importance. Both parties share common considerations, though there are differences in their relative importance. The distinctiveness of this case stems from the involvement of a Contract Research Organization (CRO) in a deal with a pharmaceutical company. CROs traditionally do not engage in product development and are not typically targeted by pharmaceutical industries seeking technologies. However, seller demonstrated cleverness by capitalizing on its prior experience in such dealings and effectively mitigating risk through the introduction of a first option phase. This strategic maneuver enabled seller to retain the ability to reclaim the asset in the event of waning interest from the buyer, thereby safeguarding against potential adverse outcomes and enhancing the overall resilience of the agreement.

6.12. Case Study 12

6.12.1. Deal outline

This Deal was held in 2019, between a mid size global pharmaceutical company with 10'000 employees (buyer) and a start-up (seller) of 30 employees privately financed by VCs (Venture Capital Investors). This deal was a company acquisition. With the acquisition, buyer gained access to seller's proprietary platform, based on peptide/protein-based vaccination technology. Financially, the deal structure comprised upfront payments and contingent payments tied to various milestones across clinical, development, regulatory, and commercial domains. Operationally, seller would continue to operate as a subsidiary within buyer, ensuring seamless integration while preserving its unique identity and academic connections. Notably, seller's lead vaccine, was on the brink of entering first-in-human trials.

6.12.2. Deal structuring antecedents

6.12.2.1. Deal structuring antecedents (buyer perspective)

First, on risk related antecedents, buyer highlighted that the combination of assets between previously acquired firm and buyer necessitated control over the seller's platform technologies. Additionally, the pre-existing arrangement raised concerns about the potential loss of control for buyer over a key cancer immunology asset if it advanced to the clinic without adequate oversight:

> *" the combination of their asset with our asset we don't ever want to let our asset out the door without having some kind of a way to call back it and have it or at least control what's going on with one of our platform technologies."*

Second, on the asset related antecedents, buyer highlighted how unique and attractive seller's technology was, as illustrated with the following quote:

> *"we have identified seller as vaccine platform a high attractiveness ... this is exciting science "*

Third, buyer underscored the strategic fit and competitive advantage resulting from acquiring this company and asset, as illustrated with the following quote:

> *" we have identified seller as the vaccine platform a high attractiveness and high strategic fit for the things we were trying to accomplish in the cancer immunology "*

Fourth, buyer highlighted trust in the key scientist and the fact that corporate VC arm had already invested in seller, as illustrated with the following quote:

> *"Now of course we knew about seller because we look at our venture fund portfolio companies. We're aware of their work for a long time and we could get personal references of you know you should talk to xxxx (seller's CEO), she's very good, she's very strong"*

Lastly, buyer highlighted past relationships, as illustrated with the following quote:

> *" So there were some business relationships and personal relationships."*

6.12.2.2. Deal structuring antecedents (seller perspective)

First, on economic related antecedents, seller emphasized that the paramount element was the total deal value, ensuring it met the expectations of the shareholders for a satisfactory exit, as illustrated with the following quote:

> *"I think the total amount, the upfront. The total consideration... purely, the level of shares, it was very clearly stated in the shareholder agreement the percentage that needs to be reached for it to go for an exit, you know, I mean, for a sale. "*

Second, on board and shareholder related antecedents, seller emphasized the significance of their input and decision-making in the deal process, as illustrated with the following quote:

> *"some of the shareholders where rather kind of a pretty keen of an earlier exit than the later exit, I mean, they had some personal consideration of some of the shareholders that they were happy to make it earlier at X rather than later 3X."*

Third, seller underscored their willingness to consider an acquisition deal with the buyer due to their trust that the buyer would maintain the seller's operations post-deal, as illustrated with the following quote:

> *"I think these fundamentally also a trust. I mean, trust that buyer would not buy the asset & just destroy it or put it ... shelved it "*

Fourth, seller highlighted a strategic fit and interest of buyer on the overall company platform rather than being limited to the lead asset, as illustrated with the following quote:

> *"I mean, because for me now it's very clear what they're doing and what we're doing together, that it's the platform they wanted even more than the lead asset."*

Fifth, on asset related antecedents, seller emphasized the buyer's strategic interest in the overall company platform rather than solely focusing on the lead asset, as illustrated with the following quote:

> *"You don't sell the lead asset unless you are desperate for money and it wasn't attracting to them neither because at the end of the day, what they wanted is the platform."*

Lastly, seller highlighted that they had commitment from buyer to maintain seller's operations post-deal that, as illustrated with the following quote:

> *"And number three is very reasonable conditions, you know. Including the fact that they guaranteed that they keep the lab in Geneva, they keep the people, they keep the team."*

6.12.2.1. Deal structuring antecedents - similarities and differences

Both parties demonstrated sophisticated recognition of the seller's technology platform value, though emphasizing different dimensions. The buyer focused on platform attractiveness and strategic fit within their cancer immunology portfolio, characterizing the technology as "exciting science" aligned with strategic objectives. This reflected systematic planning processes prioritizing technological innovation and competitive positioning. The seller's perspective centered on the buyer's recognition of platform superiority over individual assets, emphasizing that the buyer "wanted the platform even more than the lead asset." This demonstrated sophisticated appreciation of comprehensive technological capabilities rather than singular product focus. While both converged in recognizing platform value, the buyer emphasized strategic fit and competitive advantage, whereas the seller focused on comprehensive platform recognition and technological potential. This convergence facilitated rapid agreement on deal scope, with both parties understanding the acquisition

encompassed broader technological capabilities rather than isolated asset transfer, creating foundations for comprehensive transaction structuring addressing both parties' strategic objectives.

Risk-related antecedents revealed convergence in control and continuity concerns, though with different organizational priorities. The buyer's considerations centered on maintaining platform technology control, particularly given combination requirements with previously acquired assets. Their emphasis on retaining control mechanisms reflected sophisticated risk management prioritizing strategic asset protection and integration capabilities. The seller's risk perspective focused on operational continuity and asset preservation, emphasizing trust that the buyer would not "destroy or shelve" the asset following acquisition. This reflected commitment to technological advancement and ensuring continued development rather than abandonment. The seller's emphasis on "reasonable conditions" including laboratory maintenance and personnel retention demonstrated sophisticated post-acquisition integration risk management.

Both parties converged in recognizing trust and relationship quality importance in managing transaction risks, though their trust dimensions differed significantly. The buyer emphasized trust in key personnel and existing relationships, while the seller focused on post-acquisition operational commitments and strategic continuity.

Economic antecedents revealed the most significant divergence, reflecting different transaction positions and stakeholder obligations. The seller's focus centered on total deal value optimization and shareholder exit expectations, with explicit recognition that transactions must meet predetermined shareholder thresholds. Their acknowledgment of shareholder preferences for "earlier exit than later exit" demonstrated sophisticated understanding of investor motivations influencing transaction urgency and valuation. The buyer's economic antecedents focused on strategic value creation and competitive positioning rather than immediate financial optimization. This difference reflected the fundamental distinction between acquisition and divestiture motivations, with the seller prioritizing financial returns while the buyer emphasized strategic capability enhancement. This economic divergence created complementary transaction motivations facilitating successful negotiation, with the seller's value maximization focus aligning with the buyer's strategic investment objectives, enabling both parties to achieve distinct objectives through single transaction structure.

Both parties demonstrated convergent recognition of relationship quality as fundamental transaction antecedents, though with different strategic priorities. The buyer's focus centered on existing connections through corporate venture capital and personal references providing credibility foundations. The seller emphasized post-transaction trust and operational continuity commitments.

Regarding the evaluation of pre-identified antecedents from the literature (refer to appendix E), buyer and seller converge in prioritizing strategic fit and economics as the primary antecedent, consistent with prior finding. Seller, however, emphasize individual agenda antecedent to a greater extent, related to the perception of how the shareholders and board have behaved, favoring their private interest for an exit acquisition deal. In contrast, buyer places a heightened focus on risk antecedent. The alignment in the lower ranking of asymmetry and negotiation power for both parties suggest its limited influence in shaping the deal structure.

The comparative analysis reveals that while both parties recognized similar fundamental antecedents, their emphasis reflected complementary rather than identical strategic priorities. The buyer's focus on strategic fit and risk management aligned with the seller's emphasis on platform recognition and operational continuity, creating optimal conditions for successful transaction completion through acquisition structure preserving technological integrity while achieving strategic and financial objectives.

6.12.3. Processual unfolding of the deal

6.12.3.1. Deal journey

6.12.3.1.1. Deal journey (buyer perspective)

Interviewee, as the head of cancer immunology business development at buyer, has led the negotiation from end to end. The deal journey began with the acquisition of another firm by buyer. Prior to that acquisition, this firm had a research collaboration with seller, generating valuable data that became accessible only after the acquisition. Recognizing the synergies between this firm and seller, discussions for a research collaboration agreement ensued to ensure continuity in their scientific endeavors. As discussions progressed, the idea of a collaboration or license agreement with seller emerged, aiming to leverage each other's assets for downstream clinical applications. Senior management was presented with a proposal to place an option on seller, prompting deliberation on the feasibility of determining

a preliminary price for the option at successful trial phases. Given the complexity of this determination, the focus shifted towards exploring a direct acquisition approach. This decision was driven by the strategic imperative to maintain control over the valuable assets involved and streamline collaboration efforts. Interviewee proposed the deal internally and co-led the acquisition project, from strategy setting to closing. The interviewee closed the deal by devising a strategic approach to engage seller, initiating swift contact with an attractive offer that caught them off guard. They swiftly proceeded to sign both an exclusivity Confidentiality Disclosure Agreement (CDA) and a buying terms agreement in one consolidated move. Furthermore, they directly and uniquely approached the Chairwomen and CEO, pressing for a rapid decision within a two-week timeframe, thereby streamlining the deal closure process. This approach aimed to exclude seller's head of Business Development from the negotiation loop and get the deal closed rapidly. Such a fully developed offer would also limit seller's ability to shop around. Key stakeholders, including Buyer's innovation unit and board of directors, were involved in the decision-making process. The interviewee acknowledged the unique situation where the buyer's corporate investment arm was already a shareholder of seller, leading to a deeper level of trust and pre-existing relationships between the parties involved.

6.12.3.1.2. Deal journey (seller perspective)

The seller's journey in the deal was characterized by receiving an exclusive negotiation letter for 8 weeks, with the interviewee serving as the Chief Business Officer responsible for due diligence, contractualization, and defining milestones. External legal support facilitated a straightforward contractual process. Seller was financially stable for the next three years, minimizing desperation for this deal. However, shareholder interests, including some VC shareholders with personal motivations to exit, played a significant role, limiting negotiation room. With the buyer's investment arm already invested in the seller and holding a board position, there was a favorable disposition towards the CEO. The acquisition deal was initiated by buyer and presented as an attractive offer from the outset, leaving little room for negotiation. Overall, seller recognized the buyer's preparedness and the deal's alignment with their best interests.

6.12.3.1.3. Deal journey - similarities and differences

First of all, both buyer and seller invoked the dyadic and phased perspectives but with no iterations. In comparing the deal journey between the buyer and the seller, both parties recognized rapidly that

acquisition was the most attractive deal structure. However, notable differences emerge in their respective positions. Buyer, driven by a strategic imperative to enhance its platform technologies and bolster its pipeline, pursued a direct acquisition strategy with a fully prepared offer, underscoring a decisive and assertive approach. In contrast, while financially stable for the next three years, seller's decision-making was influenced by shareholder interests, such as the desire for an exit, limiting their negotiation flexibility.

6.12.3.2. Deal structuring considerations

6.12.3.2.1. Deal structuring considerations (buyer perspective)

First, on safeguard and risk mitigation, interviewee emphasized that they approached the deal with a single, fully prepared acquisition offer, leaving no room for negotiation and preventing the seller from engaging in any auction or negotiation tactics, as illustrated with the following quote:

> *" So this offer package, we wanted it to come completely by surprise and hit them with a new CDA, an exclusivity agreement that they wouldn't talk to anybody else, binding terms proposal, an acquisition plan and letter and a fully worked out share purchase agreement... So this was all very strategic on our part because we wanted to limit their ability to shop... We had about equal interest in the platform itself and the asset"*

Second, with respect to contracting & organizational efficiency, interviewee highlighted how an acquisition deal was the best structure considering their requirements, as illustrated with the following quote:

> *" Gaining full control of the platform and being able to deploy it very broadly with a key thing that we decide the benefit of just acquire."*

6.12.3.2.2. Deal structuring considerations (seller perspective)

First, on contracting & organizational efficiency, interviewee recognized that among all possible deal structures the acquisition was the most attractive because buyer wanted to access exclusively the entire platform, as illustrated with the following quote:

> *" I think buyer kind of realized that there would not be any other deal structure that would be considered at this stage. And that could be attractive to them and to us because for instance is a license deal on the lead asset would have not been attractive to us, that's for sure. You don't sell the lead asset unless you are desperate for money and it wasn't attracting to them neither because at the end of the day, what they wanted is the platform. "*

Second, interviewee emphasized that despite being an acquisition, the deal was structured to include milestone-based payments, which underwent negotiation, as illustrated with the following quote:

> *"The leverage of negotiation were really purely milestones, I mean, what were triggering events for the milestones as well as the value of the milestones. "*

Lastly, with respect to safeguard & risk mitigation, interviewee underscored that the deal would have been accepted to the condition that buyer would maintain operations post-deal, as illustrated with the following quote:

> "Buyer would not buy the asset & just destroy it or put it...shelved it "

6.12.3.2.3. Deal structuring considerations - similarities and differences

Both buyer and seller demonstrated remarkable convergence in recognizing acquisition as the superior deal structure, though their rationales emphasized different strategic dimensions. The buyer's preference centered on gaining *"full control of the platform and being able to deploy it very broadly,"* reflecting systematic strategic planning that prioritized comprehensive asset integration and maximum deployment flexibility. This perspective demonstrated sophisticated understanding of platform technologies' strategic value and the operational advantages inherent in complete ownership structures.

The seller's deal structure preference aligned with the buyer's assessment, recognizing that *"there would not be any other deal structure that would be considered at this stage"* given the buyer's comprehensive platform interest. The seller's sophisticated analysis concluded that alternative structures, particularly licensing arrangements focused on lead assets, would be "*not attractive to us" because "what they wanted is the platform."* This convergence in deal structure preference eliminated potential negotiation complexity around deal

architecture, enabling both parties to focus on implementation details rather than fundamental structure debates.

Risk mitigation considerations revealed the most significant tactical divergence between buyer and seller perspectives, reflecting their different positions in the transaction and corresponding vulnerability assessments. The buyer's risk management approach emphasized comprehensive preparation and negotiation control, implementing a strategic surprise approach with "a fully prepared acquisition offer, leaving no room for negotiation" to prevent seller engagement in "auction or negotiation tactics." This tactical sophistication demonstrated advanced strategic thinking that prioritized information asymmetry and negotiation advantage through comprehensive preparation and timing control. The seller's risk mitigation focus centered on operational continuity and asset preservation, emphasizing that deal acceptance was conditional on buyer commitments to maintain operations rather than "destroy it or shelve it" post-acquisition. This risk perspective reflected the seller's concern for technological legacy and continued development rather than purely financial optimization, demonstrating sophisticated understanding of acquisition risks beyond immediate transaction terms. The divergence in risk mitigation approaches created complementary rather than conflicting strategies, with the buyer's negotiation control emphasis addressing transaction execution risks while the seller's operational continuity focus addressed post-transaction integration risks. This tactical complementarity enabled both parties to address their distinct risk concerns through coordinated but different mitigation strategies.

Despite the buyer's strategic emphasis on limiting negotiation scope, both parties engaged in sophisticated value optimization discussions that reflected their different leverage positions and strategic priorities. The buyer's approach of presenting comprehensive, non-negotiable terms demonstrated tactical sophistication designed to minimize seller negotiation leverage while ensuring transaction completion efficiency. This strategy reflected advanced understanding of negotiation dynamics and the advantages of comprehensive preparation in complex acquisition scenarios. The seller's negotiation focus centered on milestone structuring and payment optimization, recognizing that "leverage of negotiation were really purely milestones" including both "triggering events for the milestones as well as the value of the milestones." This tactical approach demonstrated the seller's sophisticated understanding of their limited but important negotiation leverage within the buyer's comprehensive offer structure, focusing optimization efforts on areas where meaningful value

enhancement remained possible. The interaction between buyer control strategies and seller optimization tactics created efficient negotiation dynamics that addressed both parties' core concerns while minimizing transaction complexity and completion risks. This tactical interaction demonstrated how sophisticated parties can achieve mutually beneficial outcomes even within asymmetric negotiation structures.

Both parties demonstrated convergent recognition of acquisition structures' organizational efficiency advantages, though their emphasis reflected different operational priorities. The buyer's efficiency focus centered on deployment flexibility and strategic control, recognizing that complete ownership would enable "very broad" platform deployment without structural constraints or partner coordination requirements. This perspective reflected systematic strategic thinking that prioritized operational simplicity and strategic flexibility in platform commercialization. The seller's efficiency recognition centered on structural appropriateness given the buyer's comprehensive platform interest, acknowledging that acquisition represented the most logical structure for addressing the buyer's strategic objectives while providing appropriate seller value optimization. This understanding demonstrated the seller's sophisticated appreciation of deal structure economics and strategic fit considerations that transcended immediate financial optimization.

6.12.3.3. Decision gates

6.12.3.3.1. Decision gates (buyer perspective)

The buyer's decision-making process was characterized by a proactive and highly strategic internal phase, particularly in the initial months leading up to the formal approach to the seller. The process was led by the head of Cancer Immunology Business Development and Licensing, who proposed and co-led the acquisition project.

Initially, the buyer identified the seller's vaccine platform as strategically attractive for its cancer immunology goals. A critical context for this emerged from the buyer's earlier acquisition of another company, which had a prior research collaboration with the seller. This provided the buyer with unique access to data indicating a strong synergistic potential between the acquired company's assets and the seller's therapeutics in certain vaccination schemes. Concurrently, the buyer's venture fund had funded

the seller, and the seller sought clinical supply of the buyer's PD-1 drug for their lead asset's First-in-Man trial.

An early, significant decision gate involved the buyer's internal deliberation regarding the optimal deal structure. Initially, the buyer favored an option deal, where they would allow the seller to use their virus to generate preclinical data, with an option to acquire the company after Phase 1 or 2 data. This model was discussed internally for several months but never socialized with the seller. However, the buyer's senior management, particularly the head of the innovation unit who had previously run the venture fund, encouraged a shift towards outright acquisition. The rationale for this change was the perceived difficulty in determining a fair price for an option exercise and the risk that the seller's value could escalate significantly to a multi-billion-dollar acquisition after successful clinical proof of principle, a scale not typical for the buyer. The buyer also sought full control of the seller's platform and its broad deployment. This strategic shift was further solidified by the desire to control one of their key cancer immunology assets that was being used by the seller, and the understanding that they would be collaborating and providing their drug for the seller's clinical trial regardless.

The most pivotal decision for the buyer was the commitment to an acquisition of the seller, even before the seller entered clinical trials. This strategic decision was made very early in the process. In this particular case, the decision was strategically made before any discussion and any alignment with seller. This decision involved a preliminary strategic assessment of whether to absorb another research site with its personnel and commit a substantial portion of the buyer's budget for a preclinical company.

Following this pivotal internal decision, the buyer developed a detailed tactical approach. This included designing a "fully baked," attractive offer package, comprising a new Confidentiality Agreement, an exclusivity agreement, binding terms, an acquisition plan, and a balanced share purchase agreement. This comprehensive and swift approach was a deliberate strategy to surprise the seller and limit the ability of the seller's newly hired professional business development expert to shop the company around. The buyer approached the seller's Chairwoman and CEO directly with this offer, imposing a two-week deadline for a final answer, further illustrating their intent to restrict negotiation leverage and accelerate the deal.

Internal approvals represented another critical set of decision gates. Depending on the financial threshold, the buyer's acquisition process typically required approvals from multiple bodies, including

the Licensing Committee, the Human Pharma steering committee, and for a transaction of the seller's volume, the Board of managing directors. While these approvals were necessary, the buyer did not anticipate rejection, given the high-level internal familiarity and comfort with the seller (due to prior venture fund investment) and the overall strategic mandate to grow in oncology. Discussions at these levels were primarily confirmatory, focusing on the proposed structure and numbers rather than fundamental deal type. The buyer's objective at this stage was to secure the necessary organizational endorsement for the pre-defined acquisition strategy.

Finally, the buyer's team maintained engagement for approximately one to two months post-closing to facilitate the handover to the integration team, demonstrating a commitment to a smooth transition despite their mandate ending at closing.

6.12.3.3.2. Decision gates (seller perspective)

The seller's involvement in the deal design was primarily reactive; the acquisition structure was entirely designed by the buyer. The seller's key decision gates revolved around evaluating and responding to the buyer's comprehensive and attractive offer.

The initial and most pivotal decision for the seller was the acceptance to enter into an exclusive negotiation period by signing the exclusive evaluation negotiation letter. This commitment, which involved an eight-week exclusivity, effectively meant agreeing in principle to the proposed acquisition structure and the deal itself. This decision was influenced by the perception that the offer was *"very attractive" and represented a "company acquisition from day one"*.

Given the attractive nature of the offer and shareholder mandate, the seller's negotiation leverage was limited to specific details, primarily concerning milestone triggering events and their respective values. The legal counsel played a significant role in navigating these contractual provisions, as there was "hardly any negotiation" on the overarching deal structure itself. The seller's internal decision-making process was primarily led by the shareholders, with a nominated representative and external legal counsel taking the lead in negotiations. While the CEO was supportive of the deal, her direct influence on negotiation strategy was less pronounced compared to the shareholders and their legal advisor.

6.12.3.3.3. Key decisions- similarities and differences

For both parties, the most pivotal decision was the commitment to enter into an acquisition deal.

6.12.4. Abductive assessment of RBV, TCE, RO and ICT explanatory power

6.12.4.1. Buyer's assessment

TCE principles were evident very early in the process, shaping the fundamental decision to pursue an acquisition rather than alternative contractual forms. The buyer aimed to minimize the transaction costs and safeguard its assets, particularly its virus, which had shown promising combined data with the seller's assets. Interviewee explicitly stated, *"the combination of their asset with our virus we don't ever want to let our virus out the door without having some kind of a way to call back it and have it or at least control what's going on with one of our platform technologies"*. This highlights a strong concern for asset specificity and the risk of uncontrolled use or potential opportunism if the asset were merely licensed or collaborated upon, leading them to prefer vertical integration through acquisition. Furthermore, TCE influenced the tactical approach to the deal, as the buyer sought to limit the seller's ability to shop around by presenting a "fully baked" offer with an exclusivity agreement and binding terms upfront. This strategy was designed to reduce negotiation costs and the risks associated with competitive bidding.

RBV was a paramount consideration from the inception of the buyer's interest. The buyer identified the seller's vaccine platform as having *"high attractiveness and high strategic fit"* for its cancer immunology goals. The true value, however, lay not just in the lead asset but critically in the seller's unique *"knowhow" and "special 'sauce' in the selection of the antigenic targets"*. This proprietary knowledge, a difficult-to-replicate resource, was largely embodied in the seller's CEO, Mahdia, and her top two or three people. The buyer's willingness to *"deal with the headaches of having a site in xxx because that's where the people are"* underscores the deep RBV motivation to acquire and integrate these inimitable human resources and capabilities directly into their portfolio for broad deployment. This strategic fit and desire for full control over the platform's deployment were among the most critical factors influencing the deal structure.

Real Options thinking initially played a significant role in the buyer's strategic deliberations. Early in the spring, the buyer considered an *"option deal where we would let them use our virus and create the good preclinical data to support the clinical rationale... and in exchange for this we would put in place an option to acquire*

the company say, after phase one or phase 2 data had been produced". This reflects an option strategy to defer a large investment until more information (clinical data) reduced uncertainty. However, this RO strategy was ultimately abandoned. The pivotal decision came when the conversation turned to pricing: *"it would be so hard to determine what that price of the option exercise was that we would prefer actually a model where we just buy them out now"*. This shift was driven by the *"price risk that... if we wait until after phase two is this a multi-billion dollar acquisition?"*. Thus, the potential for a significantly higher, less predictable future cost effectively diminished the value of the option, leading the buyer to *"exercise"* the acquisition option early by pursuing a straight acquisition. This critical decision to acquire before clinical data was available was made very early in the process.

Incomplete Contract Theory permeated the buyer's decision to pursue a full acquisition. The difficulty in *"determine[ing] what that price of the option exercise was"* for a future stage of development is a direct manifestation of contractual incompleteness due to high uncertainty in R&D. It is challenging to specify all future contingencies or valuation metrics in an upfront contract for an asset whose value is yet to be fully realized. Consequently, the buyer opted for a 100% share purchase to gain *"full control of the platform and being able to deploy it very broadly"*. This allowed the buyer to obtain residual control rights over the seller's platform and its future applications, enabling them to adapt and direct the technology without being constrained by the rigidities of a collaboration or licensing agreement. The acquisition of the entire company, rather than just assets, was also driven by the inability to fully capture and contract for the *"knowhow"* resident in the seller's key personnel through an asset deal. Acquiring the company ensured the buyer obtained not just the tangible assets but also the essential, tacit knowledge, allowing for more adaptive governance in an uncertain R&D context.

6.12.4.2. Seller's assessment

From the seller's standpoint, the deal was largely presented as a pre-designed acquisition by the buyer, leaving little room for deal structure negotiation.

TCE influenced the seller's acceptance, particularly their aversion to alternative structures. The seller's representative, explicitly stated, *"an option deal was something that would not be acceptable, because then you lose them in leverage of negotiation, future leverage in a negotiation...For me, it was the worst of both worlds"*. This highlights a concern about potential future transaction costs and opportunism if an option were granted, as it would diminish their bargaining power in subsequent negotiations and create uncertainty

around achieving full value. The attractiveness of the buyer's offer was also tied to its simplicity and low expected contracting costs: *"very limited representation, warranties and strings...super easy from a contracting perspective"*. This suggests a preference for a deal that minimized future legal complexities and potential disputes.

RBV was also a factor in the seller's acceptance, although primarily in terms of protecting their key assets and people post-acquisition. While the deal was financially attractive, a crucial *"reasonable condition"* that influenced acceptance was the buyer's guarantee to "*keep the lab, they keep the people, they keep the team"*. This indicates the seller's recognition of their human capital and operational agility as vital resources. The CEO and scientific founder, in particular, desired that if a *"Big Pharma"* acquired them, it should be one less inclined to *"shelve"* their asset, demonstrating a concern for the continued development and leveraging of their scientific resources.

Real Options considerations played a role in the seller's decision to accept the immediate acquisition. The seller was not *"desperate to have money"* as they had financing for the following 2 to 3 years, which typically might allow them to pursue further development and potentially achieve a higher valuation later. However, the shareholders had *"personal consideration"* and were *"rather kind of a pretty keen of an earlier exit than the later exit"*. This preference for an immediate, certain financial return, even if potentially lower than a future valuation after Phase 2, illustrates a decision to exercise an implicit "*exit option"* early, mitigating the inherent uncertainty and risk associated with future development stages. This early exit strategy, prioritized by shareholders, reduced the overall risk exposure for them.

Incomplete Contract Theory is evident in the seller's assessment of the option deal as unfavorable. Their concern about an option leading to a *"loss of negotiation in the future without the assurance of getting the full value"* perfectly encapsulates the problem of contractual incompleteness in R&D. It is difficult to write a contract that fully specifies future value or guarantees favorable outcomes in the face of unforeseen scientific or market developments. An option, while providing flexibility to the buyer, would leave the seller with reduced control over future negotiations and an uncertain payout. Furthermore, the explicit guarantee from the buyer to retain the Geneva lab and staff can be seen as an attempt to address potential post-acquisition uncertainties and concerns that could not be fully detailed in a standard contract, thus clarifying residual control rights over operational aspects and

human capital. The *"mutual trust"* between the parties, partly stemming from prior relationships and the buyer's venture fund, also served to bridge some gaps left by contractual incompleteness.

6.12.4.3. Comparison of buyer and seller's assessment

The application and prevalence of these theories demonstrate both convergence and divergence in the motivations and tactical considerations of the buyer and seller, with varying temporal salience.

For the buyer, RBV was a primary driver from the outset, leading them to value and prioritize the acquisition of the seller's unique know-how and talented personnel ("special sauce," CEO, key people). RBV considerations were paramount throughout the strategic evaluation and decision to acquire the company. For the seller, RBV was secondary to financial considerations in accepting the deal, but still important. The buyer's commitment to retain the lab and team was a significant *"reasonable condition"*, highlighting the seller's own valuation of their human capital and operational integrity. This antecedent influenced the final approval of the deal.

For the buyer, TCE was foundational and prevailed very early, driving the core decision to acquire. Their primary concern was safeguarding their specific assets and preventing opportunism, leading to the preference for full ownership to minimize future transaction costs related to control and potential disputes. This was a proactive choice made during the initial strategic design phase (first few months). For the seller, TCE was reactive, influencing their acceptance of the acquisition structure. Their aversion to an option deal stemmed from concerns about losing future negotiation leverage and facing uncertain future value, which are high transaction costs associated with incomplete contracts. The appeal of the buyer's offer was partly its simplicity and *"very limited"* contractual strings, minimizing potential future contractual disputes. This aspect was relevant upon receiving the offer and during the negotiation of terms.

For the buyer, RO thinking was prominent in the early strategic assessment when considering an option deal. However, the RO framework ultimately led to the decision against the option and for immediate acquisition, driven by the unpredictable and potentially prohibitive future price risk associated with waiting for more data. This pivot occurred very early in the decision-making process, within the first third. For the seller, RO principles manifested as a preference for an "earlier exit" with certain returns over a potentially higher, but more uncertain, future valuation. Their lack of

desperation for funds allowed them to reject the *"worst of both worlds"* option deal, prioritizing a clear, immediate monetization of their assets. This decision was solidified upon receiving the attractive offer.

For the buyer, ICT strongly supported the move from an option to a full acquisition. The difficulty in predicting and pricing future value in a long-term, R&D option contract meant that acquiring the whole company granted them essential residual control rights over an evolving platform and its underlying tacit knowledge (know-how). This theoretical underpinning was crucial during the early strategic discussions on deal structure. For the seller, the theory highlights their aversion to the uncertainty and diminished future control inherent in an option deal. The explicit contractual guarantees about retaining staff and the lab, though not fully negating incompleteness, were efforts to manage post-acquisition uncertainties and safeguard key aspects of their operations.

In summary, for the buyer, TCE, RBV, and ICT strongly converged to support an early, full acquisition, driven by a desire for control over specific assets and unique resources in an uncertain R&D environment. RO thinking was initially considered but ultimately argued *for* the immediate acquisition to mitigate future price risk. For the seller, while financial aspects were paramount, TCE and ICT underpinned their rejection of an option deal due to concerns about future control and value realization. RO influenced shareholders to prefer an immediate, certain exit, and RBV contributed to their acceptance due to commitments regarding personnel and site retention. The most critical decision for the buyer was *"Do we acquire or not? And if so how?" made very early, while for the seller, it was "to sign this exclusive evaluation... for eight weeks"* as it committed them to the principle of a deal with the buyer.

6.12.5. Deal outcome

Deal structure can be described according to 3 typologies: TCE based, ICT based and Contractual.

First of all, following the deal-structuring outcome typology grounded in TCE-based integration (section 3.4.2.1), this deal structure would prima facie be classified as a M&A, within the acquisition category.

Secondly, following the deal structuring outcome typology built on the logic of ICT, this deal structure can be described as full transfer of control rights, indicating comprehensive consolidation of decision-making authority within the buyer.

Lastly, from a contractual standpoint, the deal signed between the firms is a company acquisition.

6.12.6. Case study summary

In sum, the deal's distinctiveness emerges through the buyer's sophisticated recognition of platform technology superiority over individual asset focus, with explicit acknowledgment that *"what they wanted is the platform"* rather than isolated product opportunities. This platform-centric perspective created distinctive antecedent conditions that prioritized comprehensive technological capability acquisition over traditional product-focused licensing arrangements. The seller's positioning as a venture capital-backed startup introduced distinctive stakeholder considerations that emphasized exit optimization and value maximization within specific timeframe constraints, creating antecedent conditions that differed significantly from traditional pharmaceutical company divestiture scenarios. The buyer's existing venture capital portfolio connection with the seller created distinctive relationship antecedents that facilitated trust development and due diligence processes through established network relationships. This venture capital ecosystem integration represented a distinctive antecedent that enabled accelerated transaction development and reduced information asymmetries.

The transaction's strategic considerations revealed distinctive approaches to risk management and value optimization that reflected sophisticated understanding of platform technology economics and commercialization requirements. The buyer's emphasis on comprehensive acquisition rather than licensing arrangements demonstrated distinctive strategic thinking that prioritized operational control and deployment flexibility over traditional partnership structures. The seller's consideration framework centered on distinctive value optimization approaches that balanced immediate financial returns with operational continuity requirements. Their emphasis on maintaining laboratory operations, personnel retention, and technological development continuity represented distinctive seller considerations that transcended purely financial optimization objectives, reflecting sophisticated understanding of platform technology value preservation requirements. The integration of milestone-based payment structures within an acquisition framework created distinctive consideration dynamics that combined immediate ownership transfer with performance-linked value realization mechanisms. This hybrid approach represented distinctive strategic thinking that addressed both parties' risk management requirements while preserving incentive alignment throughout the integration process.

To summarize, the buyer pursued a deliberate, non-iterative approach, opting for a straightforward deal structure, while the seller's decision-making process was heavily influenced by shareholder and board interests. The unique aspects of this case include the strategic pre-determination of the acquisition by the buyer, limited iterative perspective, and the establishment of trust facilitated by the buyer's pre-existing relationship through its corporate investment arm.

6.13. Case Study 13

6.13.1. Deal outline

This Deal was held between one US based publicly listed mid-size generic company with 10 000 employees (buyer) and European based privately owned, service company in drug deliveries (seller) of 1500 employees. Buyer focuses on developing, manufacturing, and distributing over-the-counter (OTC) and prescription generic drug products. Seller specializes in the development of drug delivery technologies, with R&D capabilities manufacturing facilities for its customers.

The deal involved a partnership with seller for the development of a long-acting injectable oncology generic drug product. Unlike branded products where licensing typically occurs after development, buyer already holds the license for thus generic product. Despite buyer's existing license, this deal is structured as a collaboration research agreement and supply agreement. Seller would take the lead on the R&D work, with some scientific input from buyer. In parallel, buyer would take the lead on the regulatory instruction and any litigation. Once the asset approved for commercialization, the buyer would market the asset which can be manufactured and supplied by seller.

6.13.2. Deal structuring antecedents

6.13.2.1. Deal structuring antecedents (buyer perspective)

First, buyer emphasized that the foundation of trust enabled them to assume greater financial risk in this deal, as illustrated with the following quote:

> *"we already had one deal with seller that was under way ... And so, yeah, we had already built up some level of trust with seller and their capabilities... So, you know, that gave us comfort to enter into a sizeable deal like we did here. "*

Second, buyer underscored the exchange of complementary resources, with the seller providing technical expertise and the buyer supplying financial resources, as illustrated with the following quote:

> *"Seller is definitely doing the large bulk of the development. We're providing money and expertise and resources in the other areas."*

Third, buyer emphasized prior ties stemming from a previous deal, which also facilitated the ability to engage in this financially risky endeavor, as illustrated with the following quote:

> *"And so I think that without the prior deal and the prior level of comfort that we had, that it would have been unlikely that I would have been able to convince my management to do the deal with seller. So I guess sooner or later it was very important, the relationship we had before that."*

Fourth, on asset related antecedents, buyer acknowledged the unique development and manufacturing capabilities held by the seller, as per following:

> *" seller has a sterile manufacturing side where they can make these products even after they have developed them. And again, buyer does not have those sorts of facilities. So we're willing to take out a bit of extra risk to get a unique product which fits in our portfolio, which we otherwise would not have the capabilities to develop or manufacture."*

Fifth, buyer emphasized the challenge of finding the right economic balance between their capacity and the seller's expectations, as illustrated with the following quote:

> *"I think the key aspects are that from seller side, that they typically as a developer and they typically want to get as much money as soon in the process as they can, and they can have the opposite side of the coin. Our preference, if we had a perfect world, would be that seller would bring us a fully developed product ready to file, and we would give them money at that time. But of course, there's a lot of money and time and funds would have to put in to get to that point. And so they demand some financial considerations before that. ... it's a bit of a push and pull because there's two competing interests here. So we have to come to a meeting of the minds to find one structure that will work for both parties."*

Sixth, buyer acknowledged and assumed the risk because it would grant them access to capabilities not owned in-house, as illustrated with the following quote:

> *"we're willing to take out a bit of extra risk to get a unique product which fits in our portfolio, which we otherwise would not have the capabilities to develop or manufacture."*

Lastly, buyer underscored that this deal structure was established based on experience and routines from the generic sector, thereby excluding de facto other deal structures:

> *"Yeah, no, I mean, no. I mean, we already had the basic outline just given the generic industry and how almost all of these types of collaborations are structured. So we have that right away. And we didn't consider anything else, you know, like a complete company purchase or anything like that, no"*

6.13.2.1. Deal structuring antecedents (seller perspective)

First, seller emphasized the high unicity of the asset, as illustrated with the following quote:

> *"So the company is in the business of developing products which have a higher technology/development barrier so that it gives us the competitive higher risk, but potentially more rewarding, but more importantly, a more sustainable business going forward if we're successful... This was a very complicated product that we don't expect many competitors in the market in the future."*

Second, on economic related antecedents, seller underscored that any new asset development necessitated self-funding through internal cash flow or external funding, particularly for early-stage, less matured assets, exemplified by the partnership with the buyer in this instance, as illustrated with the following quote:

> *"That means I need to put in my capital, my risk for the next few years to develop the product. And I don't have any cash. So my cash flows are invested into the latest product. Now with such a structure I get some cash from buyer into this program, which means I can use my cash flows for other parts. "*

Third, on risk related antecedents, seller emphasized that the incorporation of commercial risk into the development phase significantly influenced the deal structure, leading to a preference for seller to share responsibility and commitment with buyer, as illustrated with the following quote:

> *"So, frankly speaking, we actually would prefer that our partner takes a more proactive role, especially in this difficult project, especially for the U.S. market. "*

Fourth, with respect to resource access-exchange related antecedents, seller underscored the importance of access to financial, commercial, and regulatory resources as key factors in the deal:

> *"And depending on the specifics of the deal, what do we want, in addition to the money, the commercial capability of the partner, the fact that is there something else? So in this case, it was also that some of the partners have some experience with dealing with the FDA and also that they have an experience of, you know, some aspects of clinical development with such difficult products. So the answer was yes. "*

6.13.2.2. Deal structuring antecedents - similarities and differences

Both buyer and seller demonstrated convergent recognition of trust as a key antecedent, though their trust emphasis reflected different strategic dimensions. The buyer's trust perspective centered on proven capabilities and performance validation through prior deal experience, emphasizing that *"we had already built up some level of trust with seller and their capabilities"* which provided "comfort to enter into a sizeable deal." This trust foundation enabled the buyer to assume greater financial risk based on demonstrated competence rather than theoretical assessments. The seller's trust perspective, while not explicitly articulated in the provided content, implicitly recognized the buyer's reliability through their willingness to engage in complex development partnerships requiring sustained commitment and resource allocation. The seller's emphasis on partner *"proactive role"* and collaborative responsibility suggested sophisticated trust expectations that extended beyond financial contributions to encompass strategic engagement and shared accountability.

Both parties demonstrated recognition of resource complementarity as a fundamental collaboration antecedent, though their resource emphasis reflected different strategic priorities. The buyer's resource perspective focused on financial capability provision in exchange for technical expertise and manufacturing capabilities, acknowledging that *"seller is definitely doing the large bulk of the development" while "we're providing money and expertise and resources in the other areas."* This resource exchange recognition demonstrated the buyer's sophisticated understanding of capability gaps and strategic partnership value. The seller's resource perspective emphasized comprehensive capability access beyond financial

contributions, highlighting the importance of "commercial capability of the partner" and regulatory expertise including *"experience with dealing with the FDA" and "clinical development with such difficult products."* This broader resource conceptualization demonstrated the seller's sophisticated understanding of development complexity and the multiple capability requirements for successful commercialization.

On the other hand, risk-related antecedents revealed significant divergence in risk assessment and financial distribution preferences, reflecting the fundamental tension between development risk assumption and financial optimization. The buyer's risk perspective emphasized capability access justification for increased financial exposure, acknowledging willingness to *"take out a bit of extra risk to get a unique product which fits in our portfolio, which we otherwise would not have the capabilities to develop or manufacture."* This risk assessment demonstrated sophisticated strategic thinking that prioritized capability acquisition over risk minimization. The seller's risk perspective focused on commercial risk sharing and collaborative responsibility, emphasizing preference for partners to *"take a more proactive role, especially in this difficult project, especially for the U.S. market."* This risk distribution preference reflected the seller's sophisticated understanding of development complexity and the advantages of shared accountability in challenging regulatory environments. The divergence in risk perspectives created complementary rather than conflicting approaches, with the buyer's capability-focused risk acceptance aligning with the seller's collaborative risk-sharing preferences. This risk complementarity enabled both parties to achieve optimal risk distribution that addressed their distinct strategic concerns while preserving partnership viability.

Economic antecedents revealed the most significant divergence between buyer and seller perspectives, reflecting their different positions in the collaboration and corresponding financial optimization strategies. The buyer's economic perspective emphasized timing optimization and development stage risk management, preferring that *"seller would bring us a fully developed product ready to file"* while recognizing the practical necessity of earlier financial commitment. This economic tension demonstrated sophisticated understanding of development risk-return dynamics and the inherent conflicts between optimal timing and practical partnership requirements. The seller's economic perspective centered on cash flow optimization and capital allocation efficiency, emphasizing that partnership structures enabled internal resource reallocation where *"I can use my cash flows for other parts"* while accessing external funding for specific development programs. This economic approach demonstrated sophisticated capital management thinking that prioritized portfolio optimization and resource

allocation flexibility. The economic divergence created productive tension that facilitated sophisticated financial architecture development, with the buyer's timing preferences and the seller's cash flow optimization requirements driving innovative payment structures that addressed both parties' financial constraints while preserving partnership viability.

Both parties demonstrated convergent recognition of asset uniqueness as a fundamental collaboration driver, though their uniqueness emphasis reflected different strategic dimensions. The buyer's uniqueness assessment focused on manufacturing capability distinctiveness and portfolio fit, recognizing seller's *"sterile manufacturing side where they can make these products" as capabilities "buyer does not have."* This uniqueness recognition justified increased risk assumption and financial commitment based on strategic capability gaps. The seller's uniqueness perspective emphasized technological barriers and competitive sustainability, highlighting development of "products which have a higher technology/development barrier" creating "competitive higher risk, but potentially more rewarding" opportunities with "more sustainable business going forward." This uniqueness conceptualization demonstrated sophisticated strategic thinking that prioritized long-term competitive advantage over immediate financial optimization.

Lastly, regarding the evaluation of pre-identified antecedents from the literature (refer to appendix E), buyer and seller converge in prioritizing asset related antecedents, strategic fit, economic antecedents, resource exchange and risk antecedents as the primary antecedent, consistent with prior finding. However, and surprisingly, in contrast to prior finding social antecedents were given a minor role. Lastly, the alignment in the lower ranking of asymmetry and individual antecedents for both parties suggests their limited influence in shaping the deal structure.

6.13.3. Processual unfolding of the deal

6.13.3.1. Deal journey

6.13.3.1.1. Deal journey (buyer perspective)

The buyer's journey into the deal was notably shaped by a longstanding relationship with the seller's counterpart spanning several years. This established rapport served as a foundational element, fostering trust and familiarity between the parties involved. Interviewee, as responsible for Business Development at buyer, championed a partnership with his counterpart from seller. His responsibilities

included conducting background research, financial modeling, negotiation, and internal stakeholder alignment at buyer. The deal involved a partnership with seller for the development of a long-acting injectable oncology product, structured as a development and supply agreement. The deal structure was decided early in the process, chosen as the preferred structure to achieve mutual objectives and manage risk effectively. Buyer's regulatory affairs group would handle the filing and litigation, with milestones tied to specific performance metrics outlined in the contract. The decision to structure the deal this way was influenced by a desire to share risk and ensure both parties had skin in the game. Throughout the negotiation process, the financial structure evolved to balance the interests of both parties, with seller receiving upfront payments to fund development efforts. The key stakeholders involved in decision-making included members of buyer's R&D, clinical, regulatory affairs, and legal teams, with final approval from the CEOs of relevant business units. Interviewee reinforced that it was the most expensive deal they ever signed.

6.13.3.1.2. Deal journey (seller perspective)

The deal journey commenced with the seller's background in developing products of high technological value, including oral solids, injectables, and ophthalmologics, either through in-house development or partnerships. Notably, the asset in question was quite large, with a device component, already utilized with other products.

The interviewee, leading Portfolio Management and Business Development, played a pivotal role from scouting to proposal agreement, negotiation, and closing. Seller had a preconceived notion of the deal structure and approached various partners before engaging with buyer for this asset, marking their first deal around that technology with buyer. The deal comprised license fees, milestones, technology transfer, and profit sharing, overseen by a joint steering committee with clinical and technical leads from both sides making joint decisions. The deal structure excluded certain options to ensure a fully committed partner and was based on regional or commercial assignments, with a revenue or profit share model dilemma resolved in favor of profit sharing. One of the key requirements was also to keep control of Intellectual Property. Seller also recognized this deal was facilitated by a prior relationship. Key stakeholders involved in decision-making included the portfolio committee (including interviewee), the business development team, and the CEO presenting to the board, who determined the type of deal preferred before external engagement.

6.13.3.1.3. Deal journey - similarities and differences

First of all, both buyer and seller invoked the dyadic, phased, and iterative perspectives.

Both buyer and seller underscored the paramount importance of their pre-existing relationship, which laid the groundwork for trust and familiarity, pivotal in shaping the deal's trajectory. Decision-making processes were notably similar for both parties, with involvement from key stakeholders across various departments, culminating in final approval from relevant CEOs. Risk-sharing considerations were central to the deal structures, with both parties striving to align mutual objectives and delineate specific performance metrics through defined milestones.

However, distinctions emerged in their respective journeys. While the buyer's focus was on a specific asset partnership, seller's background showcased a broader array of high-tech assets, influencing their approach to the deal. Buyer's journey was characterized by a preconceived notion of the deal structure and prior practice, whereas seller prioritized intellectual property control and leveraged their existing relationship to navigate the deal successfully. Lastly the definition of the deal structure by itself was different between buyer and seller.

6.13.3.2. Deal structuring considerations

6.13.3.2.1. Deal structuring considerations (buyer perspective)

First, interviewee acknowledged their initial commitment to assuming a higher financial risk by providing funding for the program upfront, with the expectation of reaping greater rewards upon commercialization of the asset, as illustrated with the following quote:

> *"Well, a couple of things, number one, would we get a larger share of the profits ... So that's the carrot at the end of the day. So that was kind of the thing hanging over us. "*

Second, interviewee emphasized the agreed allocation of development and supply rights to the seller, while regulatory and commercial rights were assigned to the buyer, as illustrated with the following quote:

> *"It's a development and supply agreement, and so it is, like you said, a collaboration. Seller is doing the vast majority of the development, the R&D type development. Our scientific folks have a depth of knowledge on what FDA will require for a given dosage forms and have experience of filing other products. And so we just provide guidance to them on what's going to be acceptable to FDA and what's the best way to get a quick approval. "*

Third, on structured payment-milestones, interviewee underscored the payment structured around upfront and performance related milestones, as illustrated with the following quote:

> *"Along the way, we paid a milestone at signing, and then we pay other milestones for performance to seller based on achieving pre-set milestones which are in the contract. "*

6.13.3.2.2. Deal structuring considerations (seller perspective)

First, in the same way as for buyer, seller interviewee emphasized the agreed allocation of development and supply rights to the seller, while regulatory and commercial rights were assigned to the buyer, as illustrated with the following quote:

> *"And the idea is once the product is developed, the partner register the product, that it is of interest. And once the partners register then they start selling the product, but only if they can buy the product from seller."*

Second, on risk-return allocation, seller views it as contingent upon sharing in both the license fee and the profit generated from the commercial partner, reflecting a revenue or profit-sharing model, as described with the following quote:

> *"And the way we make our money via the supply of product is that on a straight transfer basis, there's no markup on cost of goods, but usually it is a share, on a share level, either a revenue share basis or in profit share... You want to get cash two parts including the license fee per se, plus the share of the profit from the commercial partner of certain costs"*

Third, according to seller, structured payment-milestones entails paying a fee based on milestones for further development, with approximately six to eight milestones identified, some related to the agreement itself and others tied to specific project-related achievements:

> *" within these terms there is a fee that needs to be paid back to in order to further develop it around basically milestones. And milestones, I can't remember how many there are, maybe six or seven or eight milestones. And some of the milestones were purely related to the fact that we have an agreement and some of those were related to specific things."*

Fourth, with respect to contracting & organizational efficiency, interviewee emphasized that while the technical capability exists to address asset development, particularly in cases with complex development paths, they prefer structuring deals with joint decision-making processes and shared responsibilities, as described within the following quote:

> *"it's a joint steering committee where seller taking the lead on almost all the technical activities, and buyer is taking the lead on the clinical part. But all decisions are made by the joint steering committee ... The more difficult the product, the more we feel we might benefit from the buyer's expertise. "*

Lastly, on safeguard & risk mitigation, interviewee highlighted how critical it is for seller to keep the control of the intellectual property (IP), as illustrated with the following quote:

> *"That's part of my first package, you know commercial terms, including aspects of the IP, in control by seller. The commercial terms would be contain IP"*

6.13.3.2.3. Deal structuring considerations - similarities and differences

The comparative analysis of deal structuring considerations between buyer and seller highlights strong convergence in operational role allocation and governance, coupled with divergence in financial strategies and intellectual property priorities. Both parties aligned on capability-based responsibility distribution, creating efficient collaboration frameworks that minimized overlap and optimized risk-sharing.

Operationally, the buyer focused on regulatory and commercial leadership while the seller concentrated on technical development and supply, ensuring complementary expertise and streamlined execution. This alignment reduced coordination complexity and maximized strategic value creation through specialization.

Financial structuring revealed shared reliance on milestone-based payments but distinct risk-return approaches. The buyer prioritized upfront risk assumption in exchange for greater profit participation, while the seller pursued dual revenue streams through milestone payments and long-term profit sharing. These strategies balanced immediate cash flow with sustained value capture.

Governance converged on joint decision-making through integrated committees, with the seller leading technical activities and the buyer overseeing regulatory and market access. However, intellectual property control remained a major divergence, with the seller prioritizing ownership to preserve long-term value.

Commercial structuring reinforced this complementarity: the seller maintained supply control while enabling partner commercialization, and the buyer leveraged regulatory expertise and market presence. Exclusive supply agreements and profit-sharing mechanisms ensured mutual incentives across the product lifecycle.

Overall, the deal structure achieved strategic alignment through complementary strengths rather than identical priorities. Divergences in IP control and financial optimization created productive tension that sustained innovation, while convergence in operational, governance, and commercial structures enabled robust value creation and long-term partnership viability.

6.13.3.3. Decision gates

6.13.3.3.1. Decision gates (buyer perspective)

The pivotal moment in the deal process was the buyer's commitment to enter the acquisition, which required an early decision to allocate substantial investment to the program. This determination was made possible by an established relationship with the seller, built on prior collaborations that fostered trust in their technical capabilities. Without this foundation, securing internal approval for what became the buyer's most expensive development program would have been unlikely.

An early structuring decision established the framework of the collaboration. Rather than pursuing fee-for-service arrangements or contracting the seller purely as a development organization, the parties opted for a collaboration agreement that reflected prevailing industry norms and leveraged the buyer's existing license to market the generic product. This choice fostered a risk-sharing environment and set the foundation for joint commitment.

The buyer then made a strategic decision to commit a substantial portion of its limited R&D budget to a single project. By concentrating resources rather than dispersing them across multiple initiatives, the buyer signaled its conviction in the opportunity and demonstrated full commitment to seeing the program through. This allocation was considered the most critical decision, marking the point of definitive commitment.

Subsequent negotiations focused on financial structuring and milestone design. Milestones were explicitly tied to performance achievements to manage cash flow and ensure accountability, thereby aligning the seller's progress with payment flows. Although structured as risk-sharing, the buyer assumed a higher level of exposure, driven by the recognition that the seller's specialized expertise in long-acting injectables and sterile manufacturing facilities could not be replicated internally. The strategic fit, namely acquiring a product in a dosage form where the buyer lacked competitive strength, reinforced the rationale for accepting this risk and structuring incentives accordingly.

Decision-making authority was concentrated within the buyer's corporate development team, particularly the lead negotiator and their direct manager, with the VP of corporate development overseeing the process. Functional experts from R&D, clinical, regulatory, and legal supported due diligence and contract implementation, while final approval rested with the CEOs of both the business unit and the parent company. Although these executives provided ultimate authorization, the core design of the deal structure remained shaped by the corporate development function.

6.13.3.3.2. Decision gates (seller perspective)

The trajectory of the deal was shaped by a sequence of decision gates that gradually defined the structure, parameters, and commitments of both parties. For the seller, the process began years earlier with an internal portfolio committee decision, led by the head of R&D, the CEO, and the business development lead, to pursue development of a high-technology, high-barrier product. This choice

aligned with the company's strategic orientation toward complex products promising both higher rewards and long-term sustainability. Once the product had advanced to a suitable stage, the seller initiated the search for a partner. The buyer emerged as the preferred candidate, not only for its strong commercial presence but also for the trust and positive working experience developed through prior collaborations.

A crucial and most pivotal decision was taken early by the seller's leadership to define the broad structure of the deal structure. Rather than approaching negotiations in an open-ended fashion, the seller established a predetermined framework that emphasized shared commitment while safeguarding essential interests. The central non-negotiable element was the preservation of full control over intellectual property. This principle excluded possibilities such as joint ventures or special purpose vehicles, despite the fact that the chosen collaboration closely resembled a joint venture in terms of shared resources and benefits. The insistence on IP control represented the first true decision gate, effectively narrowing the range of deal structures and guiding the course of subsequent negotiations.

The next decision gate revolved around the definition of commercial terms and financial configuration. Before formal negotiations with the buyer began, the seller internally set *"red lines"* to ensure the agreement would remain aligned with the board's expectations. These boundaries were designed to secure financial sustainability, protect strategic priorities, and pre-empt prolonged negotiation cycles by anticipating the counterpart's requirements. Establishing these parameters early meant that once the financial structure was accepted, the finalization of legal documents was regarded as a procedural step rather than a substantive obstacle.

Another key decision concerned the timing and nature of deal structure. The seller deliberately rejected the option of offering a license deal at a later, de-risked stage—a model often preferred by prospective partners. Instead, the seller required a partner willing to commit from an early stage, thereby sharing the burden of financial risk and enabling more predictable cash flow. This approach allowed the seller to allocate resources efficiently across its broader portfolio and reflected a preference for building enduring partnerships rather than transactional relationships. The complexity of the product and the seller's limited experience in the US market further reinforced the decision to adopt a co-development framework supported by a joint steering committee, through which the buyer could contribute regulatory and clinical expertise.

The operationalization of these parameters was led by the seller's business development head, who translated the board's strategic directives into specific proposals. These proposals were ultimately approved by the board once it was clear they satisfied the predefined financial and strategic thresholds. Thus, the deal's successful conclusion rested less on last-minute negotiation breakthroughs than on a sequence of prior internal decisions that had already established the structure, red lines, and acceptable compromises before formal engagement with the buyer began.

6.13.3.3.3. Key decisions - similarities and differences

Buyer's most pivotal decision revolved around proceeding with the deal. In contrast, seller's most pivotal decisions revolved around the deal financial structure and configuration.

6.13.4. Abductive assessment of RBV, TCE, RO and ICT explanatory power

6.13.4.1. Buyer's assessment

RBV was perhaps the most dominant theoretical driver for the buyer, prevailing from the earliest strategic assessments. The buyer explicitly identified weaknesses in certain dosage forms and sought to strengthen its portfolio by acquiring products in these areas through external partnerships. The seller's technical capabilities in developing and manufacturing long-acting injectable products and its unique sterile facilities were identified as the primary factor influencing the deal structure. This was a strategic decision to concentrate a large percentage of its R&D budget in this area relatively early on, dedicating significant resources to access the seller's rare, valuable, inimitable, and non-substitutable resources. The buyer was willing to accept a higher degree of risk precisely because of the seller's specialized technology and expertise, which it could not replicate internally. RBV therefore profoundly influenced the decision to engage in such a substantial and expensive development program.

TCE notably underpinned the buyer's foundational decision to externalize the development and manufacturing of this specific product. Since the buyer lacked internal capabilities for long-acting injectables and sterile manufacturing facilities, building these internally would have required significant asset-specific investments and incurred high internal coordination costs, which TCE aims to minimize. By partnering, the buyer sought to leverage the seller's existing, specialized assets and expertise without incurring the full costs of developing them from scratch. TCE therefore informed the choice of a partnership over a purely internal development or a simple fee-for-service contract. This was evident

in the design of the milestone-based payment structure, which tied payments to the seller's performance. This mechanism served to mitigate potential opportunism by ensuring the seller delivered on specific achievements before receiving further financial disbursements, thereby managing cash flow and aligning incentives. The pre-existing relationship and trust with the seller also significantly lowered perceived transaction costs by reducing the risk of behavioral uncertainty and opportunism.

While the buyer did not seek a classic option for license deal for this generic product, elements of RO theory were implicitly embedded in the deal structure. The staged investment through milestone payments provided the buyer with managerial flexibility to adapt to unfolding uncertainties inherent in an early-stage R&D project. This allowed the buyer to incrementally commit capital based on successful de-risking by the seller, rather than making a single, large upfront investment. If certain milestones were not met, the buyer retained the option to cease further payments, effectively abandoning the project with limited sunk costs up to that point. This flexible investment approach applied throughout the development lifecycle, allowing the buyer to manage its exposure to technological and commercial risks.

ICT was critically applicable throughout the entire deal process due to the inherent uncertainties of early-stage R&D. It was impossible to specify every contingency and required action in advance. The deal, described as a development and supply agreement and a collaboration, necessitated an adaptive approach. The buyer's role in providing guidance and expertise to the seller's R&D work, and crucially, the establishment of a joint steering committee where all decisions are made jointly, are direct manifestations of ICT. This joint decision-making body served as a mechanism to manage unforeseen circumstances and allocate residual control rights as the project evolved. The fact that the contract evolved significantly during negotiations, particularly around financial terms, further underscored the iterative process of attempting to specify terms in an incomplete environment. The pre-existing trust between the parties also acted as an informal governance mechanism, mitigating the negative consequences of contractual incompleteness and fostering a more collaborative resolution of unforeseen issues.

6.13.4.2. Seller's assessment

RBV was the cornerstone of the seller's strategy, prevailing from the earliest stages of product selection. The seller's core business model is centered on developing high technology and high-barrier products, and they possessed unique expertise in long-acting injectable and microsphere technologies, being the first to achieve commercial validation for this platform. The internal decision by the portfolio committee to develop this specific product was driven by its fit with this high-tech business model. The most pivotal decision for the seller was their unwavering refusal to compromise on full control of their intellectual property. This red line, established very early in the process and before contract negotiation, directly reflects RBV, as intellectual property represents the core valuable and inimitable resource underlying their competitive advantage. This principle guided the selection of a co-development model that mimicked the spirit of a joint venture but avoided any loss of IP ownership.

TCE strongly influenced the seller's approach to partner selection and deal structure, particularly in mitigating potential opportunism. The seller actively rejected the common industry practice of offering an option for license to potential partners. From a TCE perspective, an option deal would expose the seller to significant asset-specific investments without a guarantee of commitment from the buyer, increasing the risk of opportunism if the buyer chose not to exercise the option after the seller had largely de-risked the product. By insisting on a fully committed partner from an early stage, secured by milestone payments, the seller sought to reduce its transaction costs and ensure the recoupment of its specific R&D investments. This also helped the seller manage its cash flow and allocate resources to other projects.

While the seller rejected the buyer's desire for an explicit RO in the form of an option for license, their own internal development strategy prior to seeking a partner can be viewed through a RO lens. The seller proactively decided to develop the product to a validation prototype stage in their R&D lab before formally seeking a commercial partner. This pre-partnership development effectively functioned as an exercise of an embedded option to de-risk the asset, thereby increasing its value and allowing the seller to command better terms from a committed partner. This strategic choice of when to engage a partner, after significant internal de-risking, reveals an implicit understanding of real options.

ICT was highly relevant throughout the deal, particularly given the early-stage R&D context and the complexity of the product. The seller's preference for a co-development model with a joint steering committee was a direct response to contractual incompleteness. While the seller took the lead on technical activities, they actively desired the buyer's proactive involvement, especially in clinical and FDA-related aspects for the US market where the seller had less experience. This demonstrated a recognition of their own incomplete capabilities in certain domains, necessitating shared decision-making to navigate unforeseen regulatory or clinical challenges and adapt to emergent information. The seller's most critical decision—agreeing on broad commercial terms and red lines for IP control—was fundamentally about the initial allocation of residual control rights within an inherently incomplete contract. The negotiation of the broad parameters before formal contract drafting highlights the continuous effort to define responsibilities and control in an uncertain environment.

6.13.4.3. Comparison of buyer and seller's assessment

The strategic rationale for both parties was profoundly shaped by RBV, albeit with distinct motivations. For the buyer, RBV represented a strategic imperative to acquire external, inimitable capabilities—specifically the seller's proprietary technology and specialized manufacturing—to address critical weaknesses in its own portfolio. This led to the pivotal decision to allocate a significant portion of its R&D budget to this single project at a relatively early stage. Conversely, for the seller, RBV was ingrained in its fundamental business model of developing and controlling high-barrier intellectual property. Its most critical decision was the pre-determined, non-negotiable protection of its IP and the establishment of commercial terms that would allow it to fully exploit these unique assets, a principle that influenced the deal structure from its very inception.

Both parties applied TCE to mitigate different forms of risk. The buyer utilized TCE principles primarily to design a milestone-based payment structure, which served to manage its cash flow and mitigate the risk of opportunism from the seller during the lengthy development process. The seller employed TCE more defensively, explicitly rejecting deals structured as options for a license to avoid becoming vulnerable after making significant, asset-specific R&D investments, thereby insisting on a fully committed partner from the outset.

Elements of RO theory were present but manifested differently for each party. The buyer effectively utilized an RO approach through the phased nature of its milestone payments, which created

managerial flexibility for adaptive investment and provided a clear option to abandon the project if de-risking efforts failed. The seller, while rejecting the buyer's desire for an explicit option, implicitly adopted an RO strategy by first internally de-risking the asset to a validated prototype stage before engaging with a partner. This strategic move enhanced the asset's value and significantly strengthened the seller's negotiating position to secure a committed partnership.

ICT was central to both parties due to the inherent uncertainties of the R&D context. The establishment of a joint steering committee was a critical governance mechanism for managing unforeseen contingencies and sharing residual control rights. For the buyer, ICT justified the iterative nature of the deal structure negotiation and the necessity for ongoing collaboration. For the seller, ICT was crucial in determining the initial allocation of control rights, particularly concerning IP and the committee's scope, which was designed to leverage the buyer's expertise in areas where the seller's own capabilities were less developed, such as the US market and clinical development.

6.13.5. Deal outcome

Deal structure can be described according to 3 typologies: TCE based, ICT based and Contractual.

First of all, following the deal-structuring outcome typology grounded in TCE-based integration (section 3.4.2.1), this deal structure cannot be adequately described within the framework's existing categories, as it entails a combination of multiple contractual agreements that operate in concert rather than as discrete, standalone arrangements. This multi-agreement deal structure exceeds the descriptive capacity of this typology's design which assumes a singular classification.

Secondly, following the deal structuring outcome typology built on the logic of ICT, this deal e can be described as a structure which allocates control rights to optimize each party's distinctive capabilities while ensuring joint oversight. The seller retains full development and supply rights, conducting the majority of R&D and maintaining exclusive manufacturing control. Crucially, the seller also retains all intellectual property, a non-negotiable term essential to its long-term strategy. Conversely, the buyer assumes regulatory and commercial responsibilities, providing FDA guidance and leading market authorization and sales. A joint steering committee serves as the core governance mechanism, ensuring collaborative decision-making despite specialized roles. This framework manages development uncertainties and allocates residual control rights.

Lastly, from a contractual standpoint, the deal signed between the firms is a combination of a collaboration research agreement and a supply agreement. This deal is structured around upfront payment at signature and milestones tied to specific performance metrics.

6.13.6. Case study summary

In summary, this deal between a US-based mid-size generic pharmaceutical company and a European drug delivery specialist was structured as a co-development and supply agreement for a long-acting injectable generic oncology product. It's also worth noting that this case involves a combination of multiple contractual agreements.

In this case, the uniqueness stems from the development of a generic drug coupled with a new device. Unlike innovative pharmaceutical companies focusing on novel drugs, generic drug manufacturers aim to replicate or enhance existing medications. Another distinctive feature was that, unlike typical branded product licensing, the buyer already held the license but lacked the complex development and manufacturing capabilities, which were possessed by the seller. The partnership was therefore not about licensing a right but about accessing complementary and strategic resources.

The deal was enabled and shaped by a foundation of pre-existing trust, established through a prior deal between the entities. This antecedent was critical for mitigating perceived risk and facilitating commitment. This established rapport lowered transaction costs by reducing fears of behavioral uncertainty and opportunism.

The strategic rationale for the collaboration was profoundly shaped by RBV, albeit with distinct motivations for each party. For the buyer, the decision was a strategic imperative to acquire external, inimitable capabilities to address critical internal portfolio weaknesses. For the seller, RBV was ingrained in its fundamental business model of developing and controlling high-barrier intellectual property. Its most pivotal decision was the pre-determined, non-negotiable protection of its IP, a reflection that these assets represent the core valuable and inimitable resources underlying its competitive advantage. This principle guided the selection of a collaborative model that avoided any loss of ownership.

The deal structure was designed to manage risk, align incentives, and address the inherent uncertainties of early-stage development. Principles from TCE were applied by both parties to mitigate different

forms of risk. Furthermore, the deal exhibited characteristics of RO. The buyer effectively utilized an RO approach through the phased nature of its milestone payments, which provided managerial flexibility to adapt to unfolding technical uncertainties and the option to abandon the project with limited sunk costs if certain milestones were not met. The seller, while rejecting the buyer's desire for an explicit option, implicitly adopted an RO strategy by first internally de-risking the asset to a "validation prototype" stage before seeking a partner, thereby enhancing its value and negotiating power.

Finally, the structure was a direct response to the inherent contractual incompleteness of an R&D project, as explained by ICT. It was impossible to specify every future contingency in advance. The establishment of a joint steering committee (JSC) where "all decisions are made by the joint steering committee" was a critical governance mechanism designed to manage unforeseen circumstances and allocate residual control rights as the project evolved. Additionally, territorial expertise and prior ties have influenced rights allocation, with manufacturing and supply rights emerging as critical components of the deal.

6.14. Case Study 14

6.14.1. Deal outline

This Deal was held in 2019, between a mid size global leader in nutritional sciences with 5'000 employees (buyer) and a privately owned start-up managed by one main person (seller). Seller had discovered a new class of drugs derived from plants, targeting conditions such as heart failure and metabolic disorders such as chronic kidney disease.

The agreement entailed an exclusive Global Development and Option Agreement for the development of plant-derived inhibitors to be used in nutritional solutions. Under the agreement, seller and buyer collaborated on the development, manufacturing, preclinical, and clinical testing of these assets. Buyer provided funding for research and development activities, with seller eligible for milestone payments. Additionally, buyer had the option to obtain exclusive global commercial rights to seller's assets inhibitors for use in nutritional products.

6.14.2. Deal structuring antecedents

6.14.2.1. Deal structuring antecedents (seller perspective)

First, with respect to asset related antecedents, seller highlighted how unique is the asset in terms of attributes, being at the interface between pharmaceutical and nutrition sciences, as illustrated with the following quote:

> *"it's important to remember that this is a nutritional therapeutic product of which there are essentially none in the world right now. ... It's not a nutritional, it's not a medical food, it is a nutritional therapy where we have food derived ingredients. And we are trying to make pharmaceutical type claims"*

Second, with respect to economic related antecedents, seller emphasized a preference for funding firm and asset development through a deal with buyer rather than via VC funding. VC funding would have necessitated an acquisition as only acceptable exit, posing a higher bar for a deal with the buyer. By avoiding VC funding, a royalty-type deal, considered less risky for the buyer, could be implemented:

> *" if I had developed this with venture capital money, they (buyer) could have bought the company for 100 million, 300 million - That's associated to pay a lot of money for that back end. ... But if it does work, they have a royalty deal, they don't need to buy the company for hundreds of millions .... So I wanted to do a viable deal that would allow me to develop a product without having to raise third party money."*

Third, on industry and market related antecedents, seller highlighted quasi-monopolistic position of buyer in the sector, in contrast to the broader pharmaceutical industry, as illustrated with the following quote:

> *"it needs it needs an involvement of a company that's willing to push the boundaries in this case between nutrition and pharmaceuticals .... And only buyer has the muscle and the resources to move that boundary... But it's purely the fact that buyer is basically our sole was our nutritional therapy opportunity. There's really no other company that has the muscle. This is very different than pharma."*

Fourth, seller emphasized the perfect strategic fit between the parties, suggesting it could be considered a "fit for purpose" arrangement, as illustrated with the following quote:

> *"So it's very hard for a venture firm to develop something for buyer and thinks that they've done is exactly right in all the aspects. So of it. But this was the right deal for buyer vs usual product."*

Fifth, seller highlighted the high level uncertainty and risk in predicting the outcome and determine the asset value, thus excluding a deals structured around a defined price tag such as acquisition:

> *"It's very hard to anticipate the market for this even right now.... There's a tremendous amount of uncertainty, and if it works, great, if it doesn't work... It's just it's very difficult to anticipate the future as this time is teaching us again, and for someone like me to do the math and say, I really should have done an equity deal and I would have, could have sold X share equity and then A, B and C would have happened and we would have, we could have gone public and this could have been a billion dollar company or whatever. Whatever it is, is just an equation with 12 unknown variables."*

Lastly, seller underscored the exchange of financial and technical resources between the firms as a crucial factor shaping the deal structure, particularly evident in the incorporation of the development/collaboration component:

> *"It's strictly a development and licensing deal whereby buyer pays for development, if you like, sponsors the development program, & jointly agree upon and manage to use buyer resources (a little bit) but mostly our resources & then the external expenditures are paid for by buyer. "*

6.14.2.2. Deal structuring antecedents (buyer perspective)

First, on asset related antecedents, buyer stressed that due to the limited data and the project being in its early stages of development, the deal structure was notably influenced, as illustrated with the following quote:

> *" And actually, the fact that the project is a very early stage... therefore the option agreement was the best approach."*

Second, buyer emphasized that the limited data and early stage of development posed a significant inherent risk, prompting a preference for an option for licensing over more committed deal structures:

> *" That was clear from day one, and we did not consider any other options because mainly because of what I just said, that it's very early stage. Only some data was generated and we had to derisk."*

Third, with respect to economics related antecedents, buyer clarified that opting for this deal over a direct license was also influenced by the substantial upfront investments required to gain access to the asset, as illustrated with the following quote:

> *"And so the deal we've made is extremely small upfront that in compensation we do pay for the deployment and then we have licensing in the option timeline. So to answer your question, I think it's to lower the upfront that we didn't want to license from day one."*

Fourth, buyer emphasized the strategic fit of the asset to its portfolio, highlighting it as a pre-condition for the deal to even being considered, as illustrated with the following quote:

> *"I think the most critical thing was to, at the very beginning, even before the Deal Structuration, is do we want to move ahead? And does it make sense from a strategy perspective to try to develop such product and does it fit our portfolio? "*

Fifth, with respect to resources access-exchange antecedents, buyer highlighted that the unique structure of seller, run by only one person, influenced the deal in a way to ensure collaboration and support between the firms, as illustrated with the following quote:

> *"I would say first the company itself is a one man show company at the time, so could not handle all the development from a capability, workload or even a financial perspective. So we had to find a way to make progress on this project and support the development activities. And the second thing is that we do have inhouse capabilities to support such development. "*

Lastly, the decision made by buyer to favor a collaboration rather than internal development was significantly influenced by individual agendas and organizational politics. By opting for a collaboration, any potential failures would not be directly attributed to the R&D team, thus safeguarding their track record within the organization:

> *"As you know, big organizations also want to make sure that you have a good track record. So such approach is also a way for our R&D team to derisk not only from a financial perspective, but from a successful point of view, that if it doesn't go well, it will not be accounted in our track record to say. So that's an important perspective in a big organization. That's very political. It's not rational, but it's an important thing. Maybe I am only way to bring that to you. I know it's the same in many other companies "*

6.14.2.3. Deal structuring antecedents - similarities and differences

The examination of deal structuring antecedents reveals sophisticated convergence in risk recognition coupled with strategic divergence in asset valuation and funding preferences between buyer and seller perspectives. While both parties demonstrated aligned understanding of early-stage development

challenges, their approaches to asset uniqueness and financial architecture reflected distinct strategic priorities that ultimately created complementary deal structures through adaptive risk management and innovative option-based collaboration mechanisms.

Both buyer and seller demonstrated convergence in recognizing the inherent challenges of early-stage asset development, though their strategic emphasis reflected fundamentally different value propositions. The seller's perspective emphasized asset uniqueness and market positioning, highlighting that *"it's important to remember that this is a nutritional therapeutic product of which there are essentially none in the world right now... It's not a nutritional, it's not a medical food, it is a nutritional therapy where we have food derived ingredients. And we are trying to make pharmaceutical type claims."* This asset characterization demonstrated the seller's sophisticated understanding of market differentiation and regulatory complexity at the intersection of pharmaceutical and nutrition sciences. The buyer's asset perspective aligned with the seller's risk assessment while emphasizing development stage implications, acknowledging that *"the fact that the project is a very early stage... therefore the option agreement was the best approach."* This convergent risk recognition demonstrated both parties' sophisticated appreciation of development uncertainties while revealing divergent strategic priorities in asset positioning versus risk management.

Both parties demonstrated also convergence in recognizing early-stage development risks as fundamental deal structuring determinants, though their risk mitigation strategies reflected distinct financial philosophies. The buyer's risk perspective emphasized structural solutions through option mechanisms, stating that *"the limited data and early stage of development posed a significant inherent risk, prompting a preference for an option for licensing over more committed deal structures."* This risk management approach demonstrated the buyer's sophisticated understanding of staged commitment strategies that preserve strategic flexibility while managing downside exposure. The seller's risk perspective converged with the buyer's assessment while emphasizing funding source optimization, preferring *"funding firm and asset development through a deal with buyer rather than via VC funding. VC funding would have necessitated"* alternative strategic considerations. This funding preference demonstrated the seller's strategic understanding of partnership value beyond pure capital provision, recognizing the buyer's strategic capabilities and market access as superior to traditional venture capital alternatives.

The analysis reveals that convergent risk recognition combined with divergent strategic emphasis created optimal collaboration architecture. The seller's focus on asset uniqueness and market positioning perfectly complemented the buyer's emphasis on risk management and staged commitment, creating innovative option-based structures that addressed both parties' core concerns while preserving partnership viability. The buyer's preference for option agreements reflected sophisticated risk management that acknowledged the seller's asset uniqueness while managing development uncertainties. The seller's emphasis on partnership funding over venture capital demonstrated strategic alignment with the buyer's staged approach, creating mutually beneficial structures that leveraged complementary capabilities while managing inherent early-stage risks.

Finally, regarding the evaluation of pre-identified antecedents from the literature (refer to appendix E), buyer and seller converge in prioritizing asset and strategic fit as primary antecedents, consistent with prior findings. However, buyer places more emphasis on risk, asymmetry, and negotiation power as primary antecedents, reflecting the dynamics and priorities of large established firms. In contrast, seller places a heightened focus on economic and resource-related antecedents, corroborating interviewee's proclaimed pragmatic approach to deal-making. Additionally, seller assigns a much lower ranking to asymmetry and negotiation power, indicating a potentially different perception of these antecedents compared to the buyer.

6.14.3. Processual unfolding of the deal

6.14.3.1. Deal journey

6.14.3.1.1. Deal journey (buyer perspective)

As a member of the business development team at buyer, interviewee played a pivotal role in overseeing the entire deal process from scouting to closing. Buyer, recognizing the potential of the project despite its early stage and high risk, sponsored the development financially, leveraging its in-house capabilities to support the process. However, given the one-man show nature of the seller, who lacked the capacity to handle all aspects of development, both parties recognized the need to collaborate to advance the project. The decision to structure the deal as a global development with an option agreement was clear from the outset, with no alternative structures considered. This approach was driven by seller's limitations and the buyer's desire to mitigate risks associated with the early stage

of the project. The option agreement, which allows for in-licensing after the second clinical study, was deemed the most suitable strategy to derisk the deal effectively. Key stakeholders, including the Head of R&D and the Head of the Category, played critical roles in the decision-making process. The Head of R&D, recognizing the benefits of outsourcing development for such a risky program, advocated for external support to maintain a favorable track record. Similarly, the Head of the Category was willing to take calculated risks on early-stage assets. Decision-making extended up to the CEO level, reflecting the significance of the deal within the organization.

6.14.3.1.2. Deal journey (seller perspective)

The interviewee's journey in orchestrating the deal with the buyer spans 15 years of involvement with the asset, across various companies he led. Notably, interviewee created the company on its own in 2017.

Seller's deal journey was influenced by the scarcity of competencies and actors in the interface between pharma and nutrition. Central to the deal was a recognition of buyer's unparalleled position in this area. So interviewee deliberately pursued early engagement, emphasizing the importance of compliance with the buyer's approach. The pivotal role of involving the buyer early in development, due to their unique regulatory and commercial capabilities, was emphasized. In addition, despite the asset's high specificity and interviewee's experience with equity Venture Capital (VC) backed ventures, a preference against raising VC money influenced this strategic path.

The initial interaction with the first buyer's specialty team was not entirely successful, but discussions led to a deal. The negotiation process was relatively swift and straightforward, spanning a couple of days and few emails, characterized by a flexible approach to deal types. Interviewee confirmed other deal structures such as straight out-licensing were considered premature and equity involvement was deemed unattractive, funded option for a royalty-based out-licensing emerged as the best deal structure. The deal journey was marked by strategic alignment with buyer, a focus on product development, and a seller's highly pragmatic approach to deal structuring - influenced by the quasi-monopolistic position of buyer in the sector. Key stakeholders involved in the decision-making process were limited to the interviewee, with no board involvement and silent shareholders playing no active role.

6.14.3.1.3. Deal journey - similarities and differences

First of all, both buyer and seller invoked the dyadic, phased, and iterative perspectives.

In comparing the deal journey between the buyer and the seller, both recognize the high-risk nature of the project. They emphasize collaboration as essential for advancing the project, with buyer sponsoring development financially, while seller leads the development. The decision to structure the deal as a global development with an option agreement reflects their shared goal of mitigating risks associated with the early stage of the project.

However, whilst buyer emphasizes complex internal decision making and internal dynamics, seller emphasizes the scarcity of competencies and actors in the interface between pharma and nutrition, influencing the strategic path of early engagement and preference against raising VC money. While buyer's considerations were strictly defined, seller's journey underscores a highly pragmatic and flexible approach to deal structuring.

6.14.3.2. Deal structuring considerations

6.14.3.2.1. Deal structuring considerations (buyer perspective)

First, on risk-return allocation, interviewee described how the risk has been handled by favoring a deal with limited upfront and later payments in case of success, as illustrated with the following quote:

> *" And actually, the fact that the project is a very early stage, we had to derisk and find a way to derisk the deal and therefore the option agreement was the best approach....this led to structure we completed derisk with a very small upfront and only the pay back if we make it a success. "*

Second, with respect to safeguard & risk mitigation, interviewee highlighted that this deal structure has been designed to mitigate risks linked to the limited development stage of the asset, and to avoid liabilities linked to company or asset acquisition, as illustrated with the following quote:

> *" Only some data was generated and we had to derisk.. So such approach is also a way for our R&D team to derisk not only from a financial perspective, but from a successful point of view, that if it doesn't go well .... So it's pretty much where the license we have*

negotiated and represents the same flexibility as an asset purchase.... Without having the liability risk that could have been generated in the past. So it's even better for us. "

Third, interviewee emphasized a preference for a deal structured with milestone payments rather than a single lump sum payment, preventing from significant and irreversible impacts on the balance sheet, as described with the following quote:

" So from a cash flow perspective, if you look at the P&L, it's much better to have paid milestones rather than a big milestone payment when you purchase the assets so that you have to amortize anything back to your P&L investment. "

Fourth, interviewee described the allocation of rights between the seller, holding development rights, and buyer, possessing commercialization rights, as illustrated with the following quote:

"So we do sponsor the development, right from a financial perspective, but the development activities is done by seller "

Lastly, with respect to contracting & organizational efficiency, interviewee stressed that the selected deal structure was deemed the most efficient from the outset, leaving no room for the consideration of alternative deal structures, as illustrated with the following quote:

"I would say that was the only option. That was clear from day one, and we did not consider any other options because mainly because of what I just said, that it's very early stage. "

6.14.3.2.2. Deal structuring considerations (seller perspective)

First, with respect to risk-return allocation, interviewee emphasized that buyer preferred to defer the licensing trigger and significant payments until the success of the second clinical study, indicating that seller would receive funding solely for development initially, without immediate returns. Therefore, the earliest return for the seller would stem from achieving the first milestone, as explained with the following quote:

"That is after the clinical study, the first clinical study that has positive evidence. So they could do it sooner. There's no advantage for them to do it sooner. So they want to

> *wait until there is clinical evidence to show that it really works. Sensible policy. But in the meantime, they're paying for all the development expenses. "*

Second, on contracting & organizational efficiency, interviewee emphasized the rapid determination of the chosen deal structure as the most optimal, particularly considering the buyer's aversion to high upfront costs and equity involvement:

> *"I said I can do whatever deal you want to do because I own the company and I asked them for deal parameters, and I think really quickly, they said that we don't want to do anything with equity so that crossed those options off and then just a development, licensing option, deal, sort of a standard alternative. "*

Third, interviewee described the structured payment-milestones in the initial optional step primarily consisting of funded development, followed by a licensing step associated with milestone-related payments and royalties:

> *"it's license option agreement and development agreement. Simply put, buyer has an exclusive option to license in exchange, and they will fund research to develop, manufacture, but also do clinical studies... Then they will exercise their license and have a series of milestone payments that are being made along the way... And obviously with the goal to commercialize the product after the license, in which case they will pay a royalty. "*

Fourth, interviewee described the allocation of rights between the seller, holding development rights, and buyer, possessing commercialization rights, as illustrated with the following quote:

> *"Buyer pays for development, if you like, sponsors the development program, & jointly agree upon and manage to use buyer resources (a little bit) but mostly our resources and then the external expenditures are paid for by buyer... and obviously with the goal to commercialize the product after the license"*

Lastly, with respect to safeguard & risk mitigation, interviewee aimed to secure a deal enabling well-funded asset development without the necessity of raising capital from investors like venture capitalists, as illustrated with the following quote:

> *" The number one thing that I was trying to do is do a deal so that I don't have to go to a third party to raise money for that development. That would be a bad deal... So I wanted to do a viable deal that would allow me to develop a product without having to raise third party money. "*

6.14.3.2.3. Deal structuring considerations - similarities and differences

With respect to the considerations, buyer and seller have aligned in the type of considerations that they referenced, with distinctions observed in their frequency. The divergence in emphasis reflects the distinct priorities each party places on various aspects during the deal-making process. Notably, buyer and seller converge in prioritizing risk-return allocation as their primary focus.

6.14.3.3. Decision gates

6.14.3.3.1. Decision gates (buyer perspective)

The initial and fundamental decision gate for the buyer was the determination of the deal type, which very quickly solidified into a global development and option agreement. This choice emerged naturally from the buyer's side and was discussed and accepted by the seller from day one as the most probable approach.

A significant decision within the global development aspect was the agreement to financially sponsor the development while the actual development activities were carried out by the seller. This arrangement was driven by the project's high risk at an early stage, but also by internal organizational dynamics within the buyer's large structure. Specifically, it allowed the buyer's R&D team to derisk not only from a financial perspective but also from a track record standpoint. If the project were to fail, the blame would fall on the partner (the seller), not on the buyer's R&D team, thereby protecting their success rate performance indicator. This political consideration, though not rational, was an important factor influencing the decision to outsource development rather than insourcing it, as the head of R&D would not have approved buying the asset and asking his team to develop it in-house.

The buyer consciously chose this deal structure to lower the upfront financial investment, as a direct in-licensing from day one would have required a much higher upfront payment. Similarly, an acquisition from day one was not considered a good way to derisk due to the high upfront cost. Even

at the point of exercising the option, the buyer favored a license over an asset purchase or company acquisition because the negotiated license covered all indications and applications, including the option to enter the pharmaceutical field, offering similar flexibility to an asset purchase but without the associated liability risks generated in the past. The buyer perceived asset purchases as generally more complicated due to potential liabilities, difficulties in negotiating price for early-stage assets with unknown commercial impact, and less favorable cash flow compared to royalty-based milestone payments.

The most critical and pivotal decision for the buyer, even before the deal structuration, was the fundamental "deal or no deal" question, specifically whether the product made strategic sense and fit their portfolio. In this case, the decision was about whether this deal would constitute a strategic fit or not. This decision occurred at the very beginning of the process. Initially, the opportunity was assessed for their "acute care or intensive care patients" category but was later moved to the "metabolic health" category where a business opportunity was identified. Pushing for this strategic category shift and making a compelling case to management was considered the most vital decision. Once management approved the category fit, the rest of the deal, being relatively inexpensive, became straightforward.

6.14.3.3.2. Decision gates (seller perspective)

The seller's first decision gate was a strategic one: *"how to convince the buyer to engage in a deal at all?"*. For the seller, the specific deal structure was secondary to the paramount objective of securing the buyer's commitment, as they believed any deal structure would ultimately lead to a similar outcome provided a good product was developed.

A major structural decision gate followed during negotiations: the combination of a license option with a globally-funded development agreement. This deal structure was critically selected over a simple option fee or venture capital funding for two reasons: it provided the necessary capital for a small company to complete development, and it aligned with the seller's strong aversion to the distractions and potential for misaligned incentives that come with venture capital.

Underpinning this choice was another key decision: the swift rejection of an equity-based deal structure. This deal structure was discarded not by the seller, but was effectively closed as a possibility

when the buyer, whose preferences largely dictated the structure, immediately dismissed equity deals due to their complexity for a large corporation.

Finally, the parameters for accepting any deal were governed by two non-negotiable considerations: first, the deal had to be acceptable to the buyer, and second, it had to fully fund development without requiring third-party capital. All other considerations, including the specific financial terms, were deemed secondary to meeting these two essential conditions.

Interestingly, the interviewee expressed that he did not perceive any pivotal decision-making moments during the journey. However, given his pragmatic approach and recognition of the buyer as the sole option, the commitment to engage in the deal could be regarded as the most pivotal decision in this journey.

6.14.3.3.3. Key decision gates - similarities and differences

The most pivotal decision in this deal journey, for both parties, was the commitment to enter into such a deal. Whilst buyer was driven the strategic perspective, seller was motivated by the partner profile.

6.14.4. Abductive assessment of RBV, TCE, RO and ICT explanatory power

6.14.4.1. Buyer's assessment

First of all, RBV is evident in the buyer's strategic assessment of the asset's alignment with its existing portfolio and internal capabilities. The buyer possessed in-house abilities to support such development. The most critical decision involved evaluating the strategic fit of the product, specifically whether to pursue it within the acute care or metabolic health category. The ultimate choice to place the opportunity in the metabolic health category, where it could make business sense, demonstrates a focus on leveraging existing organizational strengths and market presence. Although the buyer provided financial sponsorship, the input of the R&D head was crucial. He would not have accepted an acquisition that forced his team to develop the asset internally. This indicates a strategic allocation of internal R&D resources, favoring the externalization of development for this risky, early-stage project to avoid negatively impacting the team's track record. This decision reflects the organization's

specific capabilities and its deliberate avoidance of certain types of internal development risk, which in turn pushed the deal structure toward external development support.

TCE heavily influenced the buyer's approach, primarily driven by a desire to derisk the deal and minimize both upfront costs and future liabilities. The buyer recognized that the seller, being a very small operation, lacked the capabilities, capacity, and financial resources for full development. Consequently, the buyer had to find a way to support development activities and advance the project. This situation highlighted the high transaction costs associated with an immediate full acquisition or in-licensing of an early-stage asset. An outright acquisition would have required a much larger upfront payment, which was not considered an effective derisking strategy. Furthermore, the buyer explicitly viewed an asset purchase as introducing liability and potential troubles compared to a licensing agreement, as it could entail risks originating from past activities. By opting for a development and option agreement, the buyer aimed to defer major financial commitments until critical clinical data became available. This approach mitigated potential commercial uncertainties and made it easier to find common ground with the company on price negotiation. The deal's financial structure, featuring a small upfront payment and subsequent payments tied to deployment and later licensing, significantly reduced the initial financial outlay. This strategy minimized exposure to unforeseen issues and costs linked to premature full integration, particularly given the asset's early stage and the seller's limited operational capacity. The buyer also preferred a pay-for-success model, which is financially advantageous from both cash flow and profit-and-loss perspectives when compared to a large upfront asset purchase that would require amortization.

The deal structure serves as a prime example of RO in action. The global development and option agreement provided the buyer with crucial flexibility to make future decisions based on evolving information. The project was at a very early stage, with only limited data generated, necessitating a derisking strategy. The option agreement was identified as the best approach and the only option considered from the outset due to this early stage and the need for derisking. The option allows the buyer to exercise the right to in-license the product and gain global exclusivity—covering all indications and applications except the pharmaceutical field, with an option to include pharma—after the second clinical study. This means the buyer commits a small upfront sum and funds development but defers the large, irreversible investment of a full license or acquisition until significant uncertainty,

namely clinical evidence of efficacy and safety, is resolved. This staged commitment is characteristic of RO, providing a hedge against potential failure without incurring the full cost prematurely.

From the perspective of ICT, the very early stage of the asset and the limited data, which included only preclinical studies, made it impossible for the parties to foresee and contractually specify all future contingencies and outcomes. This inherent contractual incompleteness necessitated a flexible agreement. The option agreement functions as a mechanism to address this, allowing the buyer to adapt its commitment as more information becomes available. The allocation of control rights also reflects this incompleteness. Although the buyer financially sponsors the development, the actual development activities are carried out by the seller. However, the buyer retains significant control rights through its ability to exercise the option for global exclusivity, which provides the same flexibility as an asset purchase but without the associated liability risk. This arrangement enables the buyer to maintain strategic oversight and decision-making power over the future commercialization of the asset while outsourcing the operational execution of early-stage, risky R&D. The R&D head's preference to avoid insourcing development to protect his team's track record is a clear instance of how control over development activities was strategically allocated to manage internal performance metrics in an uncertain R&D environment.

6.14.4.2. Seller's assessment

From the seller's perspective, the deal structure was not an active choice among many alternatives but rather the pursuit of the only viable path to develop and commercialize their unique product. This approach was shaped by several theoretical considerations.

TCE influenced the seller by minimizing the costs associated with alternative funding models. Conventional venture capital was non-viable, as VCs typically avoid nutritional products, making that route inefficient. The seller viewed fundraising as a time-consuming process that was not worth the hassle and dilution that came with equity deals. By having the buyer pay for all development, the seller avoided the high costs and complexities of external fundraising as well as the demanding oversight from investors who prioritize returns over product development. This arrangement effectively transferred the financial burden and transaction costs of early-stage development to the buyer.

RBV was paramount due to the highly specialized nature of the seller's product. The seller understood that their protein, had a nutritional application that only the buyer had the unique and indispensable capabilities to pursue. The buyer possessed the resources, market power, and global distribution necessary to push the boundaries between nutrition and pharmaceuticals and commercialize a product that did not yet exist in the market. The seller recognized that while they had the underlying technology, they lacked the massive commercialization capabilities required. Thus, the primary motivation was to join forces with the buyer to achieve the product's highest possible impact.

Elements of RO were present, though the structure primarily served the buyer's strategic flexibility. The seller acknowledged that no company would commit to an asset purchase until the product was further developed, showing an understanding that significant investment requires more data. The royalty-based licensing structure was attractive for its simplicity and because it allowed the buyer to manage market uncertainty. The seller's flexibility—being equally happy with any structure acceptable to the buyer—implicitly enabled the buyer to implement an RO approach, even if it was not the seller's main driver.

ICT was highly relevant given the difficulty of valuing the early-stage asset. The profound uncertainty made it nearly impossible to assign a price tag for a traditional merger or acquisition. The chosen structure, with its development agreement and option for a royalty-based license, provided a adaptable framework to manage this uncertainty. Mechanisms such as the joint steering committee and regular meetings with IP attorneys allowed for active involvement and adaptive governance. This collaborative approach facilitated ongoing decision-making as new information emerged and helped mitigate potential disputes stemming from unforeseen events.

6.14.4.3. Comparison of buyer and seller's assessment

RBV was a primary strategic driver for both parties from the outset, underscoring their highly complementary strengths. The buyer identified a strong strategic fit within its metabolic health portfolio and valued its ability to leverage internal capabilities to support—though not directly execute—the development. For the seller, RBV was arguably even more critical; they recognized the buyer's unique and indispensable resources, including its market power, global distribution network, and commercialization expertise, as the only viable route to bring their novel nutritional product to

market. The seller's assessment that there was only one suitable buyer highlights the rarity and value of these complementary assets.

RO functioned predominantly as a buyer-driven strategy, essential from the inception of the deal. For the buyer, a real options approach was the only feasible path due to the asset's early stage and the imperative to derisk. It enabled the deferral of a major capital commitment until critical clinical uncertainties were resolved, thereby minimizing upfront financial exposure. The seller accepted this structure not as a primary motivator, but because it satisfactorily addressed their fundamental need to secure development funding.

TCE was a significant and continuous factor for both parties, shaping the rejection of alternative structures from the earliest discussions. The buyer employed TCE to justify avoiding high upfront payments, the liability risks of an asset purchase, and the operational complexities of a full acquisition. Conversely, the seller utilized TCE to evade the inefficiencies, dilution, and intrusive oversight associated with venture capital financing. Both entities thus converged on a structure that minimized transactional inefficiencies and aligned incentives through shared development efforts and success-contingent royalties.

ICT was fundamentally pervasive for both sides, a necessity driven by the profound uncertainties of early-stage research and development. The insufficiency of data made any definitive valuation or fixed-price acquisition agreement impossible. The resulting development and option agreement served as an adaptive contractual framework, allowing key terms to be finalized as new information emerged. Governance mechanisms, such as joint steering committees, were instituted to manage this incompleteness, facilitating collaborative adaptation and decision-making throughout the development lifecycle instead of relying on inflexible, pre-defined terms.

In summary, the buyer's strategy was most strongly influenced by RO for risk mitigation and TCE for avoiding upfront costs and liabilities, all supported by an RBV assessment of strategic fit. Incomplete Contract Theory provided the essential flexible framework to govern the partnership's inherent uncertainties. The seller was principally motivated by RBV, seeking the unique partner with indispensable commercial assets, and by TCE, seeking to avoid the high costs of alternative funding.

The structure dictated by the buyer's RO needs was acceptable to the seller because it was enabled by an ICT framework that supported a collaborative and adaptive development pathway, for which a complete contract could not have been written at the outset. The relevance of these theories was established at the deal's strategic initiation and their implications evolved throughout the subsequent structuring and negotiation phases.

6.14.5. Deal outcome

Deal structure can be described according to 3 typologies: TCE based, ICT based and Contractual.

First of all, following the deal-structuring outcome typology grounded in TCE-based integration (section 3.4.2.1), this deal structure cannot be adequately described within the framework's existing categories, as it entails a combination of multiple contractual agreements that operate in concert rather than as discrete, standalone arrangements. This multi-agreement deal structure exceeds the descriptive capacity of this typology's design which assumes a singular classification.

Secondly, following the deal structuring outcome typology built on the logic of ICT, this deal structure can be described as a structure featuring full allocation only in access priorities, shared allocation in intellectual property foreground, capabilities, and development, with negotiated allocation in commercialization and manufacturing, while maintaining no allocation across most background assets. This indicates a deal structure focused on operational collaboration while maintaining strategic control asymmetry.

Lastly, from a contractual standpoint, the deal signed between the firms comprised a collaboration agreement associated to an option for a global exclusive license once the asset has reached the second clinical study stage.

6.14.6. Case study summary

The deal's distinctiveness emerges from the fact that this involves a combination of multiple contractual agreements. Here the option has played a role to reduce the upfront costs, showing another angle of utility for this type of agreement in contrast to other cases. strategic convergence in recognizing early-stage development complexities while creating complementary value architectures that optimize both parties' core competencies throughout uncertain development trajectories.

In this case, the uniqueness arises from the industry context, particularly in the realm of nutritional therapy, where buyer stands out as the predominant player. Additionally, the deal is distinguished by the singular structure of the seller, characterized by a one-person operation and absence of VC funding. Another noteworthy aspect is the individual agenda and self-interest observed on the buyer's side, illuminating how decisions within large organizations can be politically motivated. Lastly, seller's perspective introduces an original approach to deal-making, prioritizing the goal of advancing asset development over seeking early returns, which diverges from conventional approaches.

The consideration framework demonstrates sophisticated capability-based control allocation that optimizes deal structure and governance through strategic complementarity rather than traditional hierarchical structures. Both parties share common considerations with differences in relative importance that reflect their distinct organizational contexts. The seller's singular structure, characterized by absence of VC funding and prioritization of asset development advancement over early returns, diverges from conventional approaches and creates distinctive partnership dynamics. The buyer's individual agenda and self-interest illuminate how decisions within large organizations can be politically motivated, adding complexity to the collaboration architecture.

6.15. Case Study 15

6.15.1. Deal outline

This Deal was held in 2019, between a publicly listed mid-size global pharmaceutical company with 4 000 employees (buyer) and a publicly listed, service-based contract research organization (seller) of 3000 employees. Seller is a preclinical research company which had historical business relationships with buyer, a clinical development commercialization company (fee for service model). In addition to its services in drug discovery and pre-clinical capabilities, seller had a proprietary bioinformatics platform and exclusive access to patients data. Buyer was interested to leverage these capabilities and assets from seller to create a pipeline of new therapeutics.

Under the terms of a 50:50 joint venture, the parties agreed to collaborate on the discovery of new therapeutics. The buyer provided initial upfront funding in cash to finance pre-clinical development, thereby gaining access to the seller's external R&D capabilities. In return, the seller contributed in-kind expertise and resources. All assets developed within the venture would be out-licensed to the buyer for subsequent regulatory approval and commercialization.

Clinical and commercial costs for any successful therapeutic were to be shared equally between both companies. The structure incorporated opt-out rights at each development stage, governed by a predetermined profit-sharing arrangement. This allowed the seller to decide at each phase whether to continue co-financing development or to exit. If the seller chose to exit, the compensation received would correspond to the development stage at which withdrawal occurred—ranging from Phase 1 to commercialization—with a 50:50 profit share applicable only if both parties remained through commercialization. Following an exit, the seller could pay a service fee to the buyer for ongoing clinical development. This flexible financing and governance design enabled shared investment and risk management while aligning incentives through progressive commitment.

6.15.2. Deal structuring antecedents

6.15.2.1. Deal structuring antecedents (buyer perspective)

First, on strategic fit, buyer highlighted shared vision and alignment between the management teams for a joint value creation, as illustrated with the following quote:

> *"So it's I think it's to the joint vision also, that from a business model perspective, it fit very nicely because this joint venture company is sitting at the intersection of the value generation process of both parties and sort of helps, you know, transition from the preclinic to the clinic and the commercialization"*

Second, trust has emerged as a pivotal antecedent in this deal, repeatedly emphasized for its significance in fostering confidence in the capabilities and collaborative spirit of both parties involved. Additionally, trust played a crucial role in the decision-making process, as parties had to rely on trust to conclude that certain values could not be determined upfront and would require discussion at a later stage:

> *"I would say that there was trust on different levels of the organization both in the capabilities and also, you know, in, let's say, the commitment level.... there's a lot of that that's been built on this idea of collaboration and trust... because there are so many things to think about when you have early stage assets and think about, you know, value splitting, you know, we weren't really able to find a good model and in the end we had to go with a model that is, again, based on trust."*

Third, on experience-routine antecedents, buyer emphasized the prevalence and acceptance of joint ventures (JV) as a customary deal structure, noting that JV are routinely proposed by management teams due to their established practice within the organization, as illustrated with the following quote:

> *" I mean, I think when it comes to joint ventures, you know, buyer has less fear than many other market participants because of the one that we have and very often when we talk about, you know, a lot of the solutions that we have to problems is, you know, forming another JV. "*

Fourth, buyer defined main risk (and reward) being at the clinical development and commercialization, as illustrated with the following quote:

> *"The real inflection point for you guys is if you participate in the risk for clinical development, the rewards of commercialization, even if you have to share that with a partner, you share both right, you share risk and you share reward"*

Fifth, with respect to asset related antecedents, buyer emphasized the unique and exclusive access that seller possesses to patient databases, as illustrated with the following quote:

> *" Seller sort of have an exclusive access to that, you know, university derived data. And instead of, you know, us trying to access that directly, we thought, well, you know, it's a great database. It's a great initiative. "*

Sixth, on economics related antecedents, buyer underscored the comparatively lower overall investment required for establishing this joint venture, contrasting it with alternative strategies such as acquisition or in-house research unit development for buyer, or the construction of clinical and commercial capabilities for seller:

> *"So there's very little capital investment. I mean, we all know how much capital Big Pharma is spending to keep their R&D engines going. Buyer decided not to do that, but basically to partner with the best externally. And the same could be said for seller, you know instead of building huge sales forces, etc... "*

Seventh, buyer highlighted prior business relationships as an important driver to this deal, as illustrated with the following quote:

> *"the fact that we know seller from the past and we have worked with them and that led to this idea, you know, can we do something together"*

Lastly, buyer emphasized the high complementarity of resources and capabilities across the value chain, with seller providing access to patient data and preclinical/R&D capabilities, while buyer contributing clinical and commercial capabilities, thus fostering synergistic value creation:

> *" So bringing those two partners together to work on a joint project where each one brings certain strengths, weaknesses that the other one covers that was the main driving factor... So that was the original idea to basically have this ying yang situation where both companies come together to become a whole because neither of us are big enough to do the whole value generation. "*

6.15.2.2. Deal structuring antecedents (seller perspective)

First, seller highlighted a strategic fit and intent to work together and then establishing the common ground for such strategic fit, as illustrated with the following quote:

> *"There was an appetite to do something more strategic. So I think these things really led to them thinking of a way of working together. And the deal structure was really derived from that spirit that we didn't want, buyer didn't want to do another fee for service deal if you like we didn't want a fee for service deal because we're bringing assets to the table"*

Second, on economic-related antecedents, seller underscored that the deal structure was chosen because it also made sense from a corporate finance perspective, as illustrated with the following quote:

> *"Do we want to build a new company or do we want to just have a JV without building a company? We can just have a buyer-seller joint venture and put projects in and that would be fine. But we decided instead we decided to build a company. And I think here there are some financial reasons which, you know, were partially driven by the corporate financing"*

Third, seller emphasized the importance of prior ties and positive relationships and mutual affinity allowing to implement such a deal which was not necessarily the most obvious partnership, as illustrated with the following quote:

> *"I think what are the key elements to make this deal happen was pre-existing relationships, because you could argue you could argue that buyer would not necessarily be the obvious choice for this sort of collaboration... we have a very strong relationship and a very good history of working together successfully"*

Fourth, seller highlighted the access to buyer financials' resources and complementary clinical and commercial capabilities, as illustrated with the following quote:

> *" on the buyer side to balance it out there is cash ... and there is there the clinical development knowledge of buyer as well as, of course, buyer's ability to market any product, which is which is way beyond our expertise. Because the compatibility of expertise is just great. "*

Fifth, seller highlighted the long term commitment for this deal, as illustrated with the following quote:

> *"what we were really interested in is having a slightly longer term view of our returns, not for everything, but for things like that. We really interested in looking at building co-owned pipelines. "*

Lastly, on individual agenda and self-interest, interview implied a few times that this deal structure has been chosen because it would shed lights on some of the company leaders, as illustrated with the following quote:

> *"People sometimes want to build companies because they want to be seen as leaders ... and putting everything into one company, promoting their company, etc.. is a good way to be visible to show leadership"*

6.15.2.3. Deal structuring antecedents - similarities and differences

The convergence in terms of antecedents manifests most prominently in shared strategic vision and mutual trust development. The buyer emphasized joint value creation through aligned management teams, highlighting how *"this joint venture company is sitting at the intersection of the value generation process of both parties and sort of helps transition from the preclinic to the clinic and the commercialization."* This perspective aligns with the seller's recognition of collaborative value creation potential, demonstrating mutual appreciation for integrated partnership approaches that transcend traditional licensing structures.

Trust emerges as a pivotal convergent antecedent for both parties, repeatedly emphasized for its significance in fostering confidence in capabilities and collaborative spirit. Both buyer and seller recognized trust as fundamental to partnership success, though their emphasis on trust manifestation reflects distinct organizational contexts and strategic priorities. This shared understanding of trust importance created optimal collaboration prerequisites that enabled innovative partnership development.

Strategic divergence emerges in risk assessment priorities and value creation emphasis. The buyer's perspective prioritizes systematic risk management through structured development processes, emphasizing regulatory expertise and commercial market access capabilities. The seller's perspective focuses on asset uniqueness and technical development capabilities, highlighting distinctive positioning within nutritional therapeutic markets and specialized knowledge of plant-derived inhibitor development.

The divergence extends to deal structuring preferences, where the buyer emphasizes staged commitment mechanisms that align with development milestones, while the seller prioritizes collaborative development approaches that preserve technical control and intellectual property ownership. These complementary yet distinct approaches created innovative collaboration architecture that optimized both parties' strategic objectives while managing inherent development uncertainties through adaptive partnership mechanisms that leverage mutual trust and shared strategic vision

Regarding the evaluation of pre-identified antecedents from the literature (refer to appendix E), both buyer and seller converge on prioritizing strategic alignment, resource exchange, asset valuation, and economic antecedents, consistent with above findings. Interestingly, similarly to above findings, seller disregards risk related antecedents, likely due to its inherently risk-averse business model, engaging in deals only when risks are highly mitigated. Conversely, seller places a heightened emphasis on social antecedents compared to the buyer. Lastly, both firms align in assigning lower significance, or even disregarding, asymmetry and negotiation power as significant antecedents.

6.15.3. Processual unfolding of the deal

6.15.3.1. Deal journey

6.15.3.1.1. Deal journey (buyer perspective)

The deal journey between seller and buyer, led by the interviewee, the head of global business development at buyer, initiated from conceptualization and progressed through execution. The collaboration was spurred by seller's exclusive access to patient data, prompting a fusion of strengths for mutual value generation. Seller's focus on therapeutic targets led to the JV assuming responsibility for asset discovery and early clinical development, subsequently out-licensing to buyer. Buyer's upfront

investment in the JV facilitated access to seller's research capabilities. Despite initial skepticism from seller, which was not experienced with JV and needed extensive education by buyer, the JV structure was adopted, emphasizing strategic alignment. Over 12 months of negotiation, risk-sharing and collaboration emerged as pivotal, with the JV formalizing these principles. Despite initial challenges, embracing uncertainty and fostering trust marked key decision-making moments. Executive committee members played crucial roles in advocating for this deal, based on their past experience and convincing seller about the good storytelling resulting from this JV creation.

6.15.3.1.2. Deal journey (seller perspective)

Interviewee, head of business development, joined discussions a year into the two-year deliberation period, the interviewee witnessed a firm commitment towards establishing a joint venture. Upon the interviewee's entry into the scene, they found themselves at a critical juncture. A slight shift in the deal structure had occurred, leading to six to nine months of negotiations to solidify terms. Despite initial frustrations stemming from a lack of clarity due to the absence of a term sheet early in the process, the interviewee and buyer's counterpart worked diligently to produce a comprehensive term sheet addressing financials, ownership, termination, and exclusivity.

It all began with heavy discussions and negotiations surrounding two key elements: how to manage research funding and the treatment of existing versus newly created assets. The process involved extensive back-and-forth and justification, particularly regarding cash management in the contract and the potential outcomes if existing assets were to fail within the joint venture. As negotiations progressed, interviewee navigated complexities such as IP issues, project termination scenarios, and research plan structuration, working closely with internal scientific leaders to ensure alignment with overarching goals. The historical context of pre-existing relationships between the buyer and the seller played a significant role in shaping the deal structure, driven by a shared appetite for strategic initiatives. The decision-making process involved key stakeholders from both organizations, including the CEO of the seller and the CFO of the buyer, who had previously aligned on the strategic fit of the deal. Further buy-in from the CSO of the seller and the Head of R&D of the buyer solidified the scientific rationale behind the collaboration.

6.15.3.1.3. Deal journey - similarities and differences

First of all, both buyer and seller invoked the dyadic, phased, and iterative perspectives. Buyer and seller shared a cohesive strategic vision regarding the optimal deal structure, acknowledging the pivotal role of prior relationships in fostering trust and enabling decision-making through joint committees. Both parties recognized the inherent complementarity in their capabilities and resources, driving the collaborative effort. Additionally, they acknowledged the complexity and iterative nature of the negotiation process, navigating uncertainties and addressing numerous questions along the way.

However, differences emerged between the two entities. Buyer demonstrated greater familiarity with JV deal structure, contrasting with the seller's initial skepticism, which required more time for persuasion. Seller's reluctance towards upfront cash investments diverged from buyer's aim to secure seller's commitment to share this investment at least from the later clinical stage. Discrepancies in perspectives regarding significant investments stemmed from differing business models, with seller accustomed to service provision and less inclined towards therapeutic development investment commitments.

6.15.3.2. Deal structuring considerations

6.15.3.2.1. Deal structuring considerations (buyer perspective)

First, interviewee described the allocation of discovery-preclinical rights to the seller and clinical and commercialization rights to the buyer, emphasizing a balanced distribution of rights and contributions between both parties:

> *"So if you think about seller and buyer doing something together for a very early stage preclinical development candidate, it means that first the preclinical expert is going to work on it, which is seller and then as it transitioned into humans, phase one, it's going to buyer, because we are more of the clinical development and later commercialization experts... it's a very symmetrical deal where one party does something very distinct and handing it over to the other party and then sort of participating in the value generation "*

Second, interviewee highlighted a risk-sharing model wherein early risks taken by the buyer are financial, while for seller, risks involve first contributions in kind (allocation of human resources) and later cash investment occurring only at the clinical stage & at discretion:

> *" I mean, you know, for them, it's not really you know, they're not taking the, you know, the cash risk right now.... And then seller says, you know, we're actually not interested to keep co-financing so they don't have an obligation .... From our side, we came to the preference of having the risk shared model "*

Third, on structured payment-milestones, interviewee elucidated the profit split arrangement, indicating that seller's profit share would vary based on their level of co-financing in the clinical development before opting out and out-licensing to the buyer, as described with the following quote:

> *"And when a product actually makes it into preclinical development candidate stage and going into IND enabling to prepare for phase one. That's when seller can decide to either bail out or if they bail out, you know, there's a certain profit split that will be lower if the product ever makes it to the market. If they keep in, they sort of increase their participation so they can say, OK, we'll finance phase one, co-finance phase two"*

Lastly, with respect to contracting & organizational efficiency, interviewee emphasized the establishment of joint governance, whereby a development committee collaboratively makes decisions regarding asset development, and a separate committee for commercialization determines the value split between buyer and seller:

> *"There's a joint development committee in place where people from seller and buyer sit ... we're going to have joint commercialization committee, that we're going to agree on what is what is a good way of dealing with the split here instead of trying to engineer everything now."*

6.15.3.2.2. Deal structuring considerations (seller perspective)

First, on the allocation of control rights, interviewee emphasized that despite the JV being a 50:50 partnership, certain rights have been assigned exclusively to each party according to their expertise

and for specific deliverables. This was associated to the challenge of planning for various contingencies in the event of failures:

> *"But the overall deal is you can see it as a joint venture, if you like, where we bring assets to the table. We bring our platform and expertise and buyer bring the cash as well as their development expertise, so that's the 50:50 if you like... So there's different levels of decision, right, so here in terms of scientific decision making and strategic decision making in discovery, that'd be primarily led by seller because that's our expertise when it goes to clinical development, commercialization, this strategy and then the decision will be led by buyer because that's their expertise ... So there was a lot of discussions like that about what happens to the assets once you declare that it's failed in that context, what happens."*

Second, with respect to contracting & organizational efficiency, interviewee highlighted that establishing a JV as a new company made governance, finance, and intellectual property (IP) management easier:

> *"I think buyer was keen to get a clean vehicle to put all these things in, easier to finance, easier to govern. Easier treatment of IP, so that made sense for them at the time it made sense for us, still does .... having a formal separated structure with a separate governance, kind of formal 50-50, I think is more helpful "*

Third, on safeguard & risk mitigation, interviewee highlighted that this deal structure needed to be sustainable for the long run in terms of governance and pipeline, as reinforced with the following quote:

> *"in the deal that we were building, what you have is some early assets to try and drive early success, fine. If those don't work, there is a platform of new targets on which we work together that are being developed and brought up to, into an entity ... in order to ensure, I'm going to say trust, but I'm not sure I want to say that, to ensure that the governance is right, to ensure that people never have to worry about who does what and should that be done this, or should that be done that way, or are we putting more in it that we should, or are they putting less than they should etcetera, having a formal*

> *separated structure with a separate governance, kind of formal 50-50, I think is more helpful "*

Fourth, with respect to structured payment-milestones, interviewee emphasized that they secured an upfront payment to finance exclusive access to their platform and early-stage development, with further expectations for the future, as illustrated with the following quote:

> *"So let's say an upfront payment to access the knowledge that we've accumulated the know-how and platform and the people .... through accessing that know-how, through the exclusivity, then in return, we would get upside in the pre-clinic and in the clinic get royalties "*

Lastly, with respect to risk-return allocation, interviewee highlighted that through their usual model of co-owning assets, they generate opportunities for future returns, as illustrated with the following quote:

> *" But there's one common theme to all those deals is that all those deals we create co-owned pipelines, all those, all those deals, we create product options on which we have a stake"*

6.15.3.2.3. Deal structuring considerations - similarities and differences

Both parties exhibit alignment in acknowledging their distinct yet complementary capabilities, creating optimal deal structure through balanced rights allocation and mutual dependency structures. The convergence manifests most prominently in shared recognition of capability complementarity and strategic symmetry. The buyer emphasized balanced allocation of rights and contributions, describing how *"the preclinical expert is going to work on it, which is seller and then as it transitioned into humans, phase one, it's going to buyer, because we are more of the clinical development and later commercialization experts."* This consideration aligns with mutual understanding of developmental stage transitions, where both parties recognize their distinct expertise domains and the necessity of sequential collaboration throughout the development continuum.

Both parties demonstrate also convergent appreciation for risk-sharing considerations and collaborative value creation. The buyer's emphasis on symmetrical deal structures where *"one party does*

something very distinct and handing it over to the other party and then sort of participating in the upside" reflects shared understanding of partnership dynamics that optimize both parties' strategic contributions while managing inherent development uncertainties through complementary expertise allocation.

Strategic divergence emerges in risk assessment emphasis and control preferences. The buyer's perspective prioritizes systematic risk management through structured development transitions and regulatory expertise, emphasizing clinical development capabilities and commercialization experience. The seller's perspective focuses on preclinical expertise and early-stage development control, highlighting specialized knowledge in discovery and preclinical development phases that create distinctive value propositions.

The divergence extends to deal structuring priorities, where the buyer emphasizes staged transition mechanisms that align with development milestones and regulatory requirements, while the seller prioritizes early-stage development control and intellectual property preservation. These complementary yet distinct considerations create a collaborative deal structure that leverages mutual recognition of capability complementarity while managing development risks through balanced rights allocation and sequential expertise application throughout the R&D process.

6.15.3.3. Decision gates

6.15.3.3.1. Decision gates (buyer perspective)

The buyer's decision-making process demonstrated systematic progression through three critical decision gates, each characterized by strategic commitment mechanisms that shaped the deal's ultimate structure and governance architecture.

The initial decision gate emerged from the buyer's recognition of strategic positioning opportunities within the chronic kidney disease research landscape. The buyer identified the seller's exclusive industrial access to the consortium data in the United Kingdom as a distinctive competitive advantage that could establish market leadership in nephrology research. This recognition was amplified by fundamental capability complementarity, where the buyer's limited internal research and development capabilities contrasted sharply with the seller's preclinical research expertise and substantial researcher base. Conversely, the seller's clinical development limitations beyond Phase 1 aligned with the buyer's

established commercialization capabilities, creating optimal strategic convergence that drove initial partnership interest.

The second decision gate represented a structural commitment, where senior executives including Chief Strategy Officer and Chief Executive Officer demonstrated unwavering preference for joint venture architecture over alternative arrangements. This decisive commitment to joint venture structuring, maintained throughout the twelve-month negotiation process, reflected multiple strategic considerations. The joint venture model enabled comprehensive strategic complementarity through integrated preclinical expertise and clinical development capabilities, creating complete pharmaceutical value generation spectrum that neither organization could achieve independently. The structure facilitated long-term incentivization mechanisms that aligned both parties' interests in clinical development risks and commercialization rewards, transcending limitations inherent in fee-for-service arrangements. The buyer's extensive positive experience with joint ventures, particularly with Fresenius, provided organizational confidence and internal acceptance that facilitated strategic implementation. Additionally, the joint venture structure enabled enhanced public relations positioning through JV's establishment, signifying deeper strategic commitment to nephrology leadership rather than conventional research and development initiatives.

The third and most pivotal decision gate addressed the most complex negotiation challenge regarding future value distribution mechanisms for products requiring ten to fifteen year development timelines. The buyer's organizational culture, characterized by certainty preferences and risk avoidance tendencies, initially created negotiation deadlock regarding profit distribution and royalty rate predetermination. The critical breakthrough emerged through trust-based agreement to defer precise net present value splitting for commercialization phases, establishing joint commercialization committee governance for future value determination rather than attempting comprehensive upfront specification. This decision gate resolution acknowledged inherent uncertainties in early-stage preclinical initiatives while enabling partnership progression through adaptive governance mechanisms that preserved strategic flexibility for both organizations.

6.15.3.3.2. Decision gates (seller perspective)

The seller's decision-making process reflected systematic progression through strategic decision gates anchored in long-term value generation through co-owned pipeline development, with structural

flexibility serving broader corporate objectives rather than predetermined deal architecture preferences.

The foundational decision gate emerged from leveraging established relationships and shared strategic vision developed through over a decade of prior business collaborations. Pre-existing trust mechanisms, reinforced by senior executive connections including the buyer's CFO who previously served as the seller's CFO, created optimal collaboration prerequisites that enabled strategic partnership evolution beyond traditional fee-for-service arrangements. Both organizations demonstrated convergent vision for developing novel approaches to kidney disease research, establishing strategic alignment that facilitated partnership progression through subsequent decision gates.

The second decision gate centered on strategic imperative alignment with co-owned pipeline development objectives. The seller's core guiding principle focused on creating product options that retained ongoing stake through royalty mechanisms, reflecting longer-term value generation strategies through internal platform investment followed by strategic partnering. This strategic imperative influenced all deal-structuring decisions, creating framework conditions that prioritized co-owned opportunities over immediate revenue generation through conventional licensing arrangements.

The third decision gate involved acceptance of joint venture deal structure despite general preference for upfront payment structures in exchange for exclusivity and future royalties. The seller demonstrated structural agnosticism regarding specific contractual arrangements provided they generated co-owned pipelines and maintained economic viability. When interviewee became heavily involved approximately one year into discussions, the buyer's established preference for joint venture structure and JV creation was accepted based on multiple strategic advantages. This model formally recognized distinct expertise domains with the seller's early discovery capabilities complementing the buyer's clinical development and commercialization expertise. The structure provided future-proofing mechanisms for novel program development through joint platform approaches and continuous target validation rather than simple asset licensing. Additionally, separate company creation enabled clean intellectual property structure and simplified governance through formalized fifty-fifty partnership arrangements that fostered collective focus on new company success.

The most critical decision gate addressed initial cash investment determination to balance the seller's in-kind contributions including pre-existing assets, platform capabilities, and expertise against the buyer's financial commitment for establishing initial equity split in JV. This decision proved pivotal because it directly determined perceived fairness and contribution balance at joint venture inception. Subsequent negotiations regarding research funding management and intellectual property treatment were considered implementation details rather than potential deal-breakers once fundamental financial and ownership terms were established through formal term sheet development that provided clear framework for detailed negotiations.

6.15.3.3.3. Key decisions

Buyer's most pivotal decision revolved around the deal structure and risk-return consideration as well as contracting and organizational efficiency consideration. In contrast, seller's most pivotal decision in this deal journey revolved around the deal financial structure and configuration.

6.15.4. Abductive assessment of RBV, TCE, RO and ICT explanatory power

6.15.4.1. Buyer's assessment

RBV fundamentals drove the JV's strategic imperative through critical external resource access requirements. The buyer's absence of internal research and development capabilities necessitated access to top-tier global research units for nephrology medication development. The seller possessed exclusive access to the consortium's valuable patient data and substantial preclinical expertise encompassing thousands of researchers, representing resources the buyer significantly lacked. Conversely, the buyer contributed clinical development and commercialization capabilities, particularly strong nephrology patient access and dialysis network connections, which the seller lacked. This complementary core competency structure created compelling strategic fit where combined forces addressed deficiencies across the pharmaceutical value generation spectrum, enabling both parties to achieve comprehensive capabilities.

TCE principles influenced the buyer's joint venture preference through uncertainty, asset specificity, and opportunism considerations. Early-stage pharmaceutical research and development inherent uncertainty, characterized by unknown future product profiles and market conditions, rendered comprehensive upfront contingency specification impossible. The seller's exclusive data access

represented significant asset specificity, making direct arm's-length contracts such as fee-for-service models less desirable for the buyer. Such arrangements would expose the buyer to opportunism risks, as the seller would lack long-term incentives for aligning efforts with the buyer's commercial objectives beyond fee receipt. The buyer's early decision against fee-for-service models and unwavering preference for risk-sharing joint ventures reflected integrated governance structure implementation aimed at incentive alignment and formalized commitment, ensuring the seller's long-term participation in value generation from preclinical discovery through commercialization.

ICT application manifested through the buyer's pragmatic approach to managing future uncertainties. Recognizing the impossibility of fully pre-defining value splits or royalty rates for products potentially launching ten to fifteen years later, the buyer explicitly deferred complex negotiations, relying instead on trust principles. This decision acknowledged inherent contractual incompleteness in long-term research and development collaborations. The fifty-fifty JV ownership and Joint Development Committee establishment served as control rights allocation mechanisms and decision-making authority for unforeseen circumstances, transitioning from rigid contractual frameworks to ongoing collaboration and good faith negotiation structures.

RO Theory elements underpinned the deal structure through staged investment management capabilities. The buyer's initial joint venture capitalization provided necessary funding for early preclinical work, functioning as an option for continued investment in promising targets while retaining flexibility for project discontinuation if milestones failed or if the seller declined co-financing later stages. This staged commitment approach proved particularly valuable in high-uncertainty research and development environments, enabling the buyer to learn from initial results before committing additional significant capital resources.

6.15.4.2. Seller's assessment

RBV strategy fundamentally drove the seller's pursuit of co-owned pipeline development through strategic partnership expansion beyond traditional fee-for-service models. The seller, possessing extensive preclinical research expertise and substantial researcher capacity encompassing thousands professionals, sought participation in later-stage drug development and commercialization phases. The seller contributed proprietary platforms, existing validated targets, and exclusive consortium data access, representing valuable differentiated resources. The buyer provided essential research and

development funding and clinical development expertise alongside commercialization capabilities. This resource complementarity enabled the seller to leverage early-stage strengths while gaining exposure to clinical and commercial aspects previously lacking. The overarching shared vision to create differentiated, novel approaches as equal partners served as fundamental driver, overcoming initial joint venture structural hesitations.

TCE principles guided the seller's joint venture acceptance through opportunism risk mitigation and uncertainty management in long-term collaboration structures. While the seller typically preferred upfront payment models for expertise access, recognition emerged that simple licensing or fee-for-service arrangements for existing assets would prove less future-proof for the buyer, requiring repeated negotiations for new targets. The joint venture structure enabled continuous innovation flow and new target access from the seller's database. This deal structure addressed the seller's concerns about later-stage value exclusion through formalized co-owned pipeline stakes, ensuring royalty receipt from successful products. Long-term incentive alignment reduced opportunistic behavior potential by either party, as both maintained vested interests in JV's success. New company creation provided cleaner intellectual property management structure, reducing transaction costs associated with complex ownership disputes over newly generated intellectual property.

RO Theory application emerged through the seller's strategic emphasis on co-owned pipeline development, representing clear option value creation. By establishing product options with retained stakes through royalty mechanisms, the seller gained upside potential from future commercialization without bearing full financial burden and clinical development risks. This option value proved critical to the seller's business model expansion into higher valuation stratospheres through commercialization reward participation, even when shared. The ability to discontinue participation at Phase 1 or 2 while accepting lower profit splits further emphasized built-in optionality, allowing the seller to adjust commitment based on unfolding information and clinical success indicators.

ICT application manifested through the seller's joint venture embrace despite initial administrative burden concerns. The seller acknowledged inherent difficulty in fully anticipating future scenarios and specifying comprehensive details in early-stage research and development agreements, particularly regarding future product failures or intellectual property reallocation. The fifty-fifty ownership structure and formalized governance through joint venture board and committee structures allocated

control rights and decision-making responsibilities in mutually acceptable frameworks. While scientific and strategic discovery decisions remained seller-led, with clinical and commercialization under buyer leadership, overarching governance ratified key decisions jointly, ensuring both parties committed to new company success. This formal structure provided unforeseen event management through collective decision-making, acknowledging initial contract incompleteness.

6.15.4.3. Comparison of buyer and seller's assessment

RBV fundamentals and underlying social factors emerged as foundational elements at the discussion outset, establishing initial collaboration rationale through complementary resource recognition and capability strategic fit. Pre-existing relationships and executive trust between companies significantly accelerated complex interdependent structure adoption, reducing initial transaction costs and perceived contractual incompleteness risks. The buyer's trust proved especially vital given the necessity to defer critical financial negotiations until later stages. The buyer's corporate culture favoring joint ventures, shaped by past experiences, established joint ventures as preferred risk-sharing solutions early in the process. The seller, while maintaining structural agnosticism, embraced joint venture architecture because it aligned perfectly with core co-owned pipeline development strategy.

TCE and ICT gained prominence during the lengthy negotiation period as practical challenges addressing inherent research and development uncertainty, asset specificity including data and preclinical platforms, and potential opportunism drove detailed joint venture structuring. The seller's critical decision involved agreeing to cash investment requirements for achieving fifty-fifty split, representing key TCE element ensuring balanced contributions and risk-sharing mechanisms. The buyer's pivotal moment emerged through acknowledging the impossibility of comprehensive future value split planning and agreeing to rely on trust and future negotiations for commercialization terms ten to fifteen years later. This decision directly reflected contractual incompleteness acceptance and strategic control rights allocation through joint governance for managing unforeseen long-term contingencies.

RO application manifested throughout deal design through staged commitments and exit points providing flexibility facing research and development uncertainty. Both parties structured arrangements allowing irreversible investment deferral until additional information became available, from the buyer's initial capitalization to the seller's ability for later-stage co-financing or

discontinuation. The seller's co-owned pipeline pursuit represented intrinsic options strategy seeking upside potential from early research and development investments.

The deal structure demonstrates how strategic fit underpinned by pre-existing relationships and trust provided initial impetus and facilitated joint venture selection. Subsequently, TCE concerns regarding opportunism, asset specificity, and profound research and development uncertainty shaped detailed negotiations, leading to deliberate flexible jointly controlled entity creation. Embedded RO provided necessary adaptability for long-term engagement in highly uncertain environments. While the buyer's corporate culture established joint ventures as natural choices, the seller's pragmatic approach accepted joint venture structure as the most effective mechanism for achieving co-owned pipeline strategy and formalizing reciprocal commitment and governance required for complex, long-term, inherently incomplete collaboration.

6.15.5. Deal outcome

Deal structure can be described according to 3 typologies: TCE based, ICT based and Contractual.

First of all, following the deal-structuring outcome typology grounded in TCE-based integration (section 3.4.2.1), this deal structure falls into the category of Equity Alliance, as Joint Venture.

Secondly, following the deal structuring outcome typology built on the logic of ICT, this deal structure can be described as evenly shared allocation in data foreground, materials foreground, intellectual property foreground, capabilities, development, commercialization, manufacturing, and equity, while preserving no allocation in access priorities and background assets. This pattern reflects a balanced collaborative model with equal partnership in operational activities while maintaining individual control over pre-existing strategic assets.

Lastly, from a contractual standpoint, the agreement was a joint venture with 50% ownership for each party.

6.15.6. Case study summary

The deal followed a phased and iterative journey, with negotiations extending over a year and involving multiple cycles of refinement. The distinctive feature of this case lies in the adoption of an atypical joint venture structure between a pharmaceutical buyer and a Contract Research Organization (CRO) seller. Departing from their prior service-oriented interactions, the deal transitioned into an asset-driven, multi-asset arrangement with staged commitments and eventual out-licensing to the buyer. This hybrid architecture required extensive contingency planning and careful risk allocation.

The deal's complexity stemmed from the distribution of financial exposure and the seller's strong aversion to risk. Ultimately, the buyer assumed most of the financial burden, an outcome that appears counterintuitive given the seller's weaker negotiation position but may reflect underlying asymmetries in bargaining power and access to critical data. Central to implementation were risk-sharing and incentive alignment mechanisms, codified in the term sheet and reinforced by trust developed over a decade-long relationship. Business Development played a critical role not only in proposing structures but in designing adaptive mechanisms that enabled execution under conditions of uncertainty.

Strategically, the antecedents reveal convergent recognition of interdependence: the buyer lacked internal research capacity but offered clinical and commercialization expertise, while the seller controlled unique consortium data but lacked capacity beyond Phase 1 development. These complementarities supported a governance structure based on domain-specific leadership, with the seller retaining control of preclinical activities and the buyer assuming authority over later clinical stages. A joint steering committee ensured collaborative oversight, balancing authority while respecting expertise boundaries.

Decision gates in this deal illustrate progression mechanisms based on adaptive governance rather than comprehensive upfront specification. The buyer accepted deferral of value distribution negotiations for assets potentially launching more than a decade later, while the seller embraced the joint venture model despite structural preferences for service-based engagement. These choices prioritized continuity and flexibility over rigid contractual detail, acknowledging the limits of early-stage planning while embedding governance frameworks for future adaptation.

The resulting typology represents a hybrid collaboration model that blends features of alliances, licensing, and equity partnerships. A balanced ownership structure, capability-based control allocation, and staged investment commitments enabled risk-sharing, incentive alignment, and operational flexibility. Viewed through theoretical lenses, the case integrates Resource-Based View (complementary capability alignment), Transaction Cost Economics (governance against opportunism and asset specificity), Incomplete Contract Theory (trust-based deferral of unresolved contingencies), and Real Options Theory (staged commitments responsive to clinical progress). Together, these mechanisms explain both the rationale for formation and the durability of the governance architecture.

Following a thorough examination of each case individually, considering the perspectives of both buyers and sellers and comparing their viewpoints, the subsequent chapter will undertake a cross-case analysis.

7. Findings – cross-case analysis

In transitioning from the within-case analysis, this chapter endeavors to conduct an overarching cross-case study analysis. Initially, the analysis will address the cross-case analytical foundations, highlighting the breadth of diversity across cases as well as highlighting the coding framework. Following this analysis, the findings will be analyzed following the same structure as from the within case analysis. Firstly, attention will be directed towards examining the antecedents that shape deal structuring processes. Secondly, the focus will shift towards elucidating the journey, considerations and decision gates across deals. Thirdly, an exploration of deal outcomes across various dimensions will be undertaken. Lastly, a cross-case analysis will be conducted, guided by an abductive theoretical perspective.

7.1. Cross-case analytical foundations

Before engaging with the substantive cross-case findings, it is important to establish the analytical basis of the cross-case analysis. This section first outlines the diversity of the selected cases across buyer, seller, asset, and deal attributes, highlighting the heterogeneity that enriches comparison. It then details the coding and aggregation methodology employed to transform raw data into theoretically meaningful categories. Together, these steps provide the foundation for identifying patterns and mechanisms in the processual unfolding of deal structuring.

7.1.1. Cross-case diversity

Analyzing the diversity across different dimensions between the case studies reveals significant variations (detailed table in appendix E).

Firstly, considering the buyer attributes, a diverse range of countries serves as headquarters for these entities, including Switzerland, Italy, and the US, indicating geographical dispersion and potentially differing regulatory and cultural environments. Employee sizes within buyer organizations vary widely, ranging from as low as 300 to as high as 150'000, showcasing diversity in organizational scale and resources capacity. Moreover, while the pharma sector predominates, there is also representation from other sectors such as services and nutrition science, indicating diversity in sector within the overall

pharmaceutical industry. Financial status among buyers ranges from publicly listed to privately owned, reflecting differences in financial structure and resources.

Moving to the seller attributes, a similar diversity is observed. Sellers are headquartered across various countries such as the UK, India, and Switzerland, contributing to geographical diversity and potentially different cultural contexts. Employee sizes within seller organizations also vary significantly, from as low as 3 to as high as 1500, indicating diversity in organizational size and capacity. Furthermore, sellers operate primarily within the pharma sector but also encompass services, showcasing diversity in business models. Financial status among sellers ranges from venture capital (VC) financed to publicly listed to privately owned, reflecting differences in financial stability and constraints.

When examining asset attributes, a spectrum of diversity is evident. Assets encompass various categories, ranging from small molecules to biologics to devices, indicating diversity in product types and technologies. Development stages of these assets vary from preclinical to phase 3 clinical trials, showcasing diversity in maturity levels. Additionally, therapeutic areas covered by these assets span across various domains such as oncology, immunology, and neurology, reflecting diversity in focus areas and potential market applications.

Finally, in terms of deal attributes, a multifaceted landscape emerges. Deals encompass a variety of contractual agreements, including acquisitions, licenses, collaborations, and joint ventures, indicating diversity in deal structures and objectives. The flow of the deals varies from small to large, reflecting differences in deal complexity and magnitude.

Overall, whilst these cases have been selected to focus on the context of overall R&D pharmaceutical industry they represent a great diversity in terms organizational attributes, structures, business models, asset attributes, and deal structures.

7.1.2.Codes aggregation and use of counting

The within-case coding phase utilized abductive approach through a structured codebook application. First-order codes captured antecedents, process, descriptions, decisions using informant-centric language close to field terminology.

Cross-case frequency tracking documented both interview occurrences and total manifestations to assess salience and pervasiveness across the dataset. This approach prevented idiosyncratic findings while ensuring emergent categories reflected broader singularities.

Second-order subcategories emerged through constant comparison and theoretical sensitivity, grouping first-order codes into theoretically meaningful mechanisms.

Aggregate dimensions clustered second-order subcategories into theoretically coherent categories corresponding to deal structuring antecedents, process and outcome design, and outcome typologies. This iterative process balanced theoretical guidance from Resource-Based View, Transaction Cost Economics, Real Options, and Incomplete Contract Theory perspectives while maintaining empirical grounding. Emerging codes and categories were also considered to avoid biases in the interpretation.

Pattern consolidation utilized occurrence counts and cross-case coverage to distinguish core from peripheral themes. Codes appearing in over fifty percent of cases and interviews were classified as pervasive mechanisms, while rare codes with less than twenty percent coverage were retained when offering theoretical novelty, particularly emergent design codes.

Temporal and processual ordering sequenced aggregated dimensions chronologically to reflect developmental unfolding from antecedents through structuring mechanisms to outcomes. This approach bridged static coding with process theory by demonstrating categorical evolution across temporal stages.

The counting methodology aligned with Eisenhardt's (1989) theory-building emphasis through replication logic and grounded theory principles. Code counting focused on theoretical relevance and interconnectedness rather than superficial quantification. The robust coding scheme evolved iteratively through abductive reasoning as new insights emerged from data analysis. The analytical framework prioritized identifying and categorizing focal phenomena instances alongside evidence of underlying mechanisms driving deal structuring antecedents, processes, and outcomes. Code counting served theory-building purposes by revealing patterns and relationships, identifying prevalent themes across cases, and highlighting convergence areas between deals. This quantitative component complemented qualitative descriptions, providing contextual nuance to numerical patterns while maintaining theoretical insight prioritization over mere quantification.

Therefore, each of the 30 annotated interviews was coded using a codebook (Table 5-3) designed to be congruent with the interview guide and the research objectives. The coding was exclusively based on my own interpretation, although with clear theoretical definitions from the literature. The codes referring to antecedents were then categorized into three tiers according to their relative importance. The following metrics have been used to produce the three tiers:

- Number of interviews: this metric counts the interviews wherein the code was mentioned at least once. The maximum of this metric is 30 interviews.
- Number of occurrences: this metric reflects the aggregate count of instances in which the code was referenced. This is a good indicator of each code's prevalence across interviews and case studies.
- Percentage of interviews: this metric calculates the proportion of interviews (out of 30) wherein the code was referenced. This is a good indicator of the code frequency across interviews.
- Average number of occurrences per interview: this metric counts the average frequency with which the code was cited in each interview. This is a good indication of the importance given by each interviewee to the coded antecedent.

Lastly, each code has been associated with the most relevant theoretical framework. The analytical process employed an iterative approach that overlapped systematically with data collection, generating 140 codes through a structured methodological aggregation framework grounded in established best practices (appendix H). As the study advanced, data analysis evolved from generating initial thematic categories to refining them through iterative moves. This refinement included dropping, merging, splitting, relating, contrasting, and sequencing categories (Grodal et al., 2021, p. 599). A critical step in this process was the deliberate elimination of initial categories to sharpen the focus on those that are most significant and meaningful for explaining the core phenomena, a point underscored by Murphy (2004) (as cited in Grodal et al., 2021, p. 599).

7.2. Deal-structuring antecedents

The purpose of this section is to provide key cross case findings into the antecedents as initial conditions and motivations that shape the trajectory of a deal. By examining antecedents, one can aim to understand why a process takes a particular starting point and how those initial conditions influence subsequent stages of the deal.

7.2.1.Empirically identified antecedents

7.2.1.1. Primary antecedents

The primary antecedents, *identified through iterative coding and categorization*, comprise strategic fit, resources access-exchange, economic, asset and risk related antecedents. These antecedents have been consistently referred across cases and deal side, in high frequence per interview (Table 7-1).

Strategic fit, which is linked to RBV, emerged as the most prominent antecedent. It was referred in all 30 interviews, with an average occurrence of 5.5 times per interview. As explained in the literature review, this antecedent is defined as the extent to which the parties consider their respective firms or assets to fit together from a strategic perspective. Such a high ranking appears to indicate that strategic fit plays a pivotal role in deal structuring within the R&D pharmaceutical context. This is in line with RBV theory, which posits that firms need to align their resources and capabilities with their strategic goals to achieve a sustained competitive advantage. Strategic fit appears not only to be an antecedent, but also a sine qua none condition to the deal, as highlighted by the following quote from an interviewee:

> *"if there's not a good strategic fit, you're not going to have a deal."*

Resources Access-Exchange was referred in all 30 interviews, with an average occurrence of 4.7 times per interview. As explained in the literature review, this antecedent is defined as the mutual exchange of resources between parties. Considering this, it appears from the high ranking that gaining access to resources and the ability to exchange them is therefore a crucial antecedent in deal structuring. This antecedent is mostly associated with RBV, which posits that firms can achieve a competitive advantage through such access and exchange. One interviewee described the importance given to this antecedent:

> *"So that was also very important; we wanted to find a partner with complementary skills".*

Another highlighted the importance of complementarity:

> *"Complementarity I think is the word I would use to make sure that you know one plus two is synergistic so that you don't have overlapping capabilities. I mean you can*

> *have them but that's not the reason to do a collaboration. We want to do a collaboration when the partner has ability that you don't have so that you get together".*

Economics related antecedent was referred in all 30 interviews, with an average occurrence of 4.3 times per interview. As explained in the literature review, this antecedent includes all economic related aspects such as cost, profit, return, investment, and gain. This antecedent is mainly associated with TCE, which also posits that the choice between internal production and external sourcing is influenced by transaction costs such as search, negotiation and monitoring costs. One interviewee reinforced its importance by saying:

> *"the most important element was, of course, the amount of money involved because, as usually happens in these kind of deals, in this kind of a development of small biotech, the amount of money needed in the initial phases is a very important point".*

Asset related antecedent was referred in all 30 interviews, with an average occurrence of 3.9 times per interview. As discussed in the literature review, this antecedent is associated with TCE and defined as the degree to which the resources or capabilities are specialized to a particular transaction. TCE theory posits that the degree of asset specificity influences the governance mode of the transaction, with higher levels of asset specificity favoring vertical integration or long-term contracts. This is illustrated well in the following quote from an interviewee:

> *"Attractiveness of the asset would drive whether you go also for kind of a bidding process. You really put your asset on the table, and you drive the structure you want. And if you feel that either because of the asset being less attractive for different reasons, then obviously it would influence the structure you would add that to what you get".*

Risk related antecedent was referred in all 30 interviews, with an average occurrence of 3.8 times per interview. As already identified from the literature, this antecedent is associated with TCE and RO. Both theories posit that firms need to consider risk related to uncertainty and volatility of the environment when making investment decisions. A good illustration is the following quote:

> *"while also through the scientific assessment, recognizing that there were some specific technical risks associated with the compound that we needed to also account for in the Deal Structure".*

Antecedents	Definition	Linked Theory	IVs	Occ.	% of IVs	Occ/IV
Economics related antecedent	Economics of the deal (price, payment structure, investment)	TCE	30	129	100%	3.8
Resources access-exchange	Access and/or exchange of resources between the firms	RBV	30	140	100%	2.6
Strategic fit	Strategic alignment between the firms	RBV	30	69	100%	2.2
Asset related antecedent	Degree of unicity/scarcity	RBV	29	61	97%	2.1
Risk related antecedent	Likelihood of unfavorable events or outcomes	TCE/RO	28	79	93%	2.8

Table 7-1 Primary antecedents
IVs = Interviews (counts the interviews wherein the code was mentioned at least once, the maximum of this metric is 30 interviews), Occ = Occurrences (aggregate count of instances when the code was referenced), % IVs = Percentage of Interviews (proportion of interviews, out of 30, wherein the code was referenced), Occ/IV = Average occurrences per Interview (average frequency with which the code was cited in each interview) - TCE= Transaction Cost Economics, RO = Real Options, RBV = Resource Based View.

Interestingly, these primary antecedents link to the major (most prominent) theoretical perspectives identified in the literature review.

Across all examined cases, a convergence emerges around these primary antecedents reflecting the pervasive influence of resource-based logic in such deals, where firms consistently prioritize asset uniqueness, complementarity, and strategic alignment as foundational criteria for deal engagement and deal structuring. The universality of strategic fit as an ex-ante gatekeeper demonstrates how organizations systematically seek assets or platforms that either reinforce existing core competencies or create pathways for strategic expansion. This shared emphasis on strategic fit transcends organizational boundaries and deal types, suggesting that value creation in such deals fundamentally depends on the confluence of organizational resources and external opportunities. The consistency of this pattern across cases indicates that strategic fit serves as both a screening mechanism and a value creation framework, establishing common ground for initial deal engagement while providing a foundation for subsequent deal structuring.

7.2.1.2. Secondary antecedents

These secondary antecedents, also identified through iterative coding and categorization, (Table 7-2) are the ones mentioned at least twice in at least 50% of the interviews. Thus, one could consider these antecedents to be very recurrent but not systematic.

Antecedents	Definition	Theory	IVs	Occ.	% of IVs	Occ/IV
Social antecedents	Social factors such as prior ties	ST	22	45	73%	2.0
Trust	Confidence and reliance on others	RC/ST	19	44	63%	2.3
Negotiation power	Relative power dynamics	NT/LT	18	40	60%	2.2
Commitment	Engagement towards the firm and the deal	RC	18	34	60%	1.9

Table 7-2 Secondary antecedents
IVs = Interviews (counts the interviews wherein the code was mentioned at least once, the maximum of this metric is 30 interviews), Occ = Occurrences (aggregate count of instances where the code was referenced), % IVs = percentage of Interviews (proportion of interviews, out of 30, wherein the code was referenced), Occ/IV = Average occurrences per interview (average frequency with which the code was cited in each interview) - LT = Legal Theory, NT= Negotiation Theory, ST = Social Theory, RC = Relational Contract, TCE= Transaction Cost Economics, RO = Real Options, RBV = Resource Based View

These secondary antecedents include, by order of importance (% of interviews) social antecedents (linked to Social Theory), trust (linked mainly to Social Theory and Relational Contract Theory), negociation power (linked to both Negociation and Legal Theory) and commitment (linked mainly to Relational Contract Theory). Interestingly, these antecedents link to the minor theoretical perspectives identified in the literature review.

With regard to social antecedents, they feature prominently in a significant majority of interviews (73%), being referenced at least twice per interview. This underscores the substantial influence of prior ties and social relationships in the deal structuring process within this context. Social antecedents, while not as systematically addressed as primary antecedents, nonetheless emerge as crucial factors influencing deal structuring within this context.

With respect to trust, it is referred in the majority of interviews and more than twice per interview. Whilst trust is conventionally associated to social relationships (Chen, 2017), several interviewees described it as trust in the science and data, not necessarily trust from a human relationship perspective. One can comment, based on industry practice, that this level of trust appears to be attained through deep due diligence by each party, therefore explaining why an evaluation stage before engaging in a deal is critical.

With respect to commitment, it is referred in the majority of interviews. In the context of these, commitment encompassed various dimensions, including financial investments, resource allocations, and adherence to agreed-upon timelines and milestones.

Within the context of these deals, these antecedents emerged as interconnected across a substantial portion of the interviews and cases. Social antecedents and trust were mentioned together in 53% of the interviews (16 out of 30), while trust and commitment were mentioned together in 40% of the interviews (12 out of 30). This suggests that social antecedents may facilitate the development of trust, which subsequently fosters commitment, thus exerting influence on deal structures within this context.

Lastly, negotiation power is referred in the majority of interviews. References from various interviews indicate negotiation dynamics such as competitive bidding, leverage in options, and assessment of company strength influencing the deal process. Negotiation power often stems from asymmetry, financial strength, or strategic importance, ultimately impacting decision-making and deal structures.

7.2.1.3. Anecdotal antecedents

The last category of antecedents are the ones mentioned once only, representing less than 50% of interviews. Interestingly, the majority do not appear to be directly associated with any of the theoretical perspectives identified in the literature review. Therefore, one could consider these antecedents to be infrequent, if not anecdotal, therefore less critical for the understanding of the phenomenon of interest. Among these antecedents, individual agenda, experience and routine, board and shareholder interests, timing & speed, industry and market context.

A particularly significant finding concerns the de-emphasis of asymmetry antecedent. Findings across all cases suggest that information and capability asymmetries may become anecdotal when milestone primary antecedents are pronounced.

7.2.2.Literature based antecedents

As described in the methodology section, interviewees were also asked to rank, in order of importance, a pre-defined list of antecedents suggested by the extant literature. This list included strategic fit, asset-related antecedents, economic related antecedents, risk related antecedents, resource access-exchange, negotiation power, social antecedents (prior relationships), asymmetry and individual antecedents.

As a reminder, risk is a key antecedent to the deal structuring, as we are in the context of R&D with high uncertainty on the future development of the assets, so this bears a significant impact on the perceived value of a deal for both parties. Financial aspects (economics of the deal) consist of financial considerations such as cost and revenue projections (Deli, 2016). Asset-related antecedents are specific and unique characteristics of the product or technology being considered for the deal. Social factors, such as prior ties, cultural differences and stakeholder expectations, could impact the shaping of deal-structuring decisions. Individual antecedents can be defined as the "personal agendas" of the interviewees, which could include antecedents such as personal motivations and prior experiences (Baysinger et al., 2015). Asymmetry is defined as imbalances (real or perceived) in power and resources between the firms. Negotiation power is defined as the bargaining power that parties have and perceive each other to have. Strategic fit and exchange of capabilities and resources have been defined in the previous paragraph.

7.2.2.1. Interviewee based ranking of antecedents

The rank of each antecedent has been collected and averaged across all interviews and case studies (Table 7-3). The processed ranking is the inverse value of the average ranking, reflecting the importance of each antecedent in a numerical way.

Interestingly, across case studies, strategic fit has consistently been ranked by the interviewees as the most important antecedent, significantly higher than other antecedents. Economic antecedents and asset-related antecedents were also highly ranked. On the other hand, negotiation power was the least important antecedent, with an average rank of 4.83. Social antecedents (prior relationships) and asymmetry were also not highly ranked, with average ranks of 4.56 and 5.125, respectively. Overall, these results suggest that the strategic fit between the parties, as well as economic and asset-related

considerations, were the most important antecedents in deal structuring. Negotiation power and social antecedents such as prior relationships were less influential (figure 7-1).

Antecedents	Definition	Average Rank	Ranking efficiency
Strategic fit	Strategic alignment between the firms	1.82	0.55
Asset-related antecedents	Technological attributes and asset specificity	2.4	0.42
Economic antecedents	Economics of the deal (price, payment structure, investment)	2.53	0.40
Risk related antecedents	Likelihood of unfavourable events or outcomes	3.33	0.30
Resource exchange	Access and/or exchange of resources between the firms	3.75	0.27
Negotiation power	Relative power dynamics	4.83	0.22
Social antecedents	Social factors such as prior ties	4.56	0.21
Asymmetry	Resources & information size difference between the firms	5.125	0.20
Individual antecedents	Individual motivations and interests	6.11	0.16

Table 7-3 Ranking of antecedents across all cases identified from the literature review
Average rank is the rank assigned by all interviewees. Ranking efficiency is calculated as the reciprocal of the average rank, with higher values reflecting more efficient rankings.

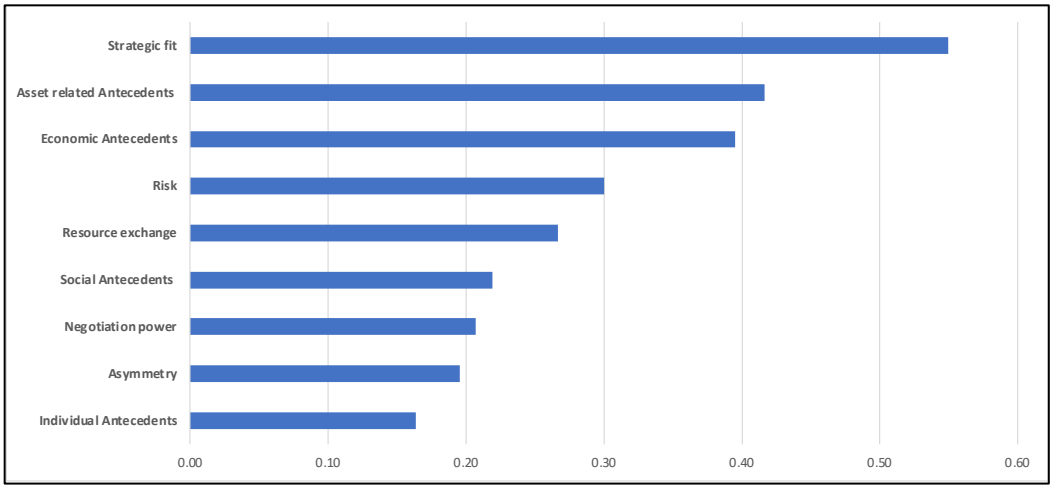

Figure 7-1 Relative importance of antecedents identified from the literature review
Based on Ranking efficiency, calculated as the reciprocal of the average rank, with higher values reflecting more efficient rankings. Definitions are provided in Table 7-3,

Of note, from the coding, is that strategic fit, asset-related antecedents, economic antecedents, risk and resource exchange came into the primary antecedents. Social antecedents and negotiation power came into the secondary antecedents. However, asymmetry and individual antecedents did appear on the anecdotal antecedents from the coding.

7.2.2.2. Sellers' vs and buyers' perspectives on antecedents

From the overall comparative ranking (Table 7-4), it appears that both buyers and sellers consider strategic fit to be the most important antecedent in a deal, followed by asset-related antecedents and economic antecedents, respectively. Resource exchange and risk are considered to be of similar importance, while negotiation power and social antecedents (prior relationships) are considered to be less important. Asymmetry and individual antecedents are ranked at the bottom of the list. Definitions are provided in Table 7-3.

Average Rank	Buyer	Seller
1	Strategic fit	Strategic fit
2	Asset-related antecedents	Economic antecedents
3	Economic antecedents	Asset-related antecedents
4	Risk	Resource exchange
5	Resource exchange	Risk
6	Negotiation power	Social antecedents
7	Social antecedents	Asymmetry
8	Asymmetry	Negotiation power
9	Individual antecedents	Individual antecedents

Table 7-4 Average ranking of antecedents across cases based on buying position.

Of note is that sellers seem to be giving relatively greater importance to the economic antecedents and resource exchange than the buyers (figure 7-2). In a sense, this is understandable as most sellers are start-up companies with limited resources and are pressed to make lucrative transactions.

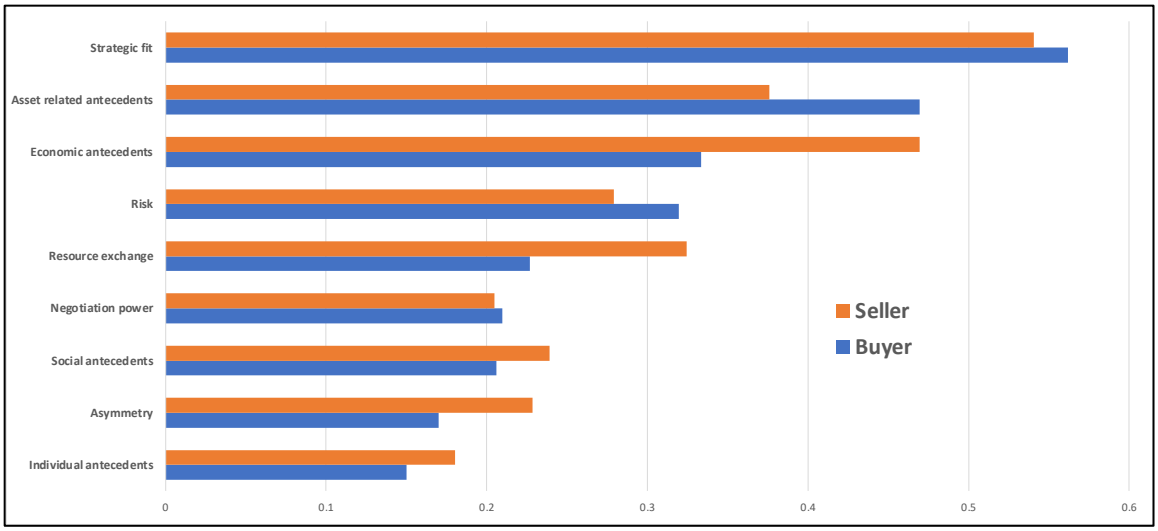

Figure 7-2 Buyer vs Seller comparative relative importance of antecedents identified from the literature review

Based on Ranking efficiency, calculated as the reciprocal of the average rank, with higher values reflecting more efficient rankings. Definitions are provided in Table 6-3

7.2.3. Antecedents in a process based perspective

The examination across cases seem to indicate that antecedent priorities tend to change throughout the deal structuring process. The temporal dimension of antecedent development reveals a markedly different picture from static decision-making models. Rather than emerging as predetermined organizational characteristics, antecedents undergo continuous construction and reconstruction through iterative processes of information gathering, stakeholder consultation, and negotiation.

Case Study 1 exemplifies this dynamic, where initial recognition of asset scarcity and clinical unmet need, rooted in external market analysis, was progressively reinforced through internal scientific validation and stakeholder deliberations, ultimately strengthening the strategic fit rationale. On the other hand, case study 2 provides compelling evidence of how strategic fit antecedent undergoes fundamental redefinition through the progressive discovery of broader asset potential. This case illustrates how the organization's understanding of strategic fit transformed from a narrow compatibility assessment to a comprehensive evaluation of platform potential and long-term value creation opportunities. Case Study 3 also demonstrates how platform breadth and multi-asset potential emerged gradually through due diligence and negotiation processes, illustrating how processual learning shapes antecedent prioritization over time. This evolutionary character challenges traditional

models that treat antecedents as fixed inputs to decision-making, revealing instead their malleable nature and responsiveness to new information and changing circumstances.

These evidences suggest that deal structuring implies sophisticated organizational capabilities to recognize, assess, and adapt to shifting antecedent priorities throughout a dynamic learning process that responds to emerging information and evolving circumstances. The process-based perspective reveals that antecedents remain subject to continuous re-evaluation and re-prioritization as negotiations progress and new information emerges. Initial emphasis on asset valuation may evolve toward considerations of control rights, governance structures, or risk mitigation strategies as external conditions shift or stakeholder priorities change. Such temporal contingency challenges static models and advocates for a more process-based perspective that recognizes the informational and contextual factors shaping antecedent evolution and perception.

While the previous section outlines the key antecedents identified from this research, next section will delve into fundamental nature of the deal-structuring process, cross-analyzing the journey, considerations and decision gates.

7.3. Processual unfolding of the deal

The purpose of this section is to provide key cross case findings into the deal process, starting from the deal journey, deal structuring considerations and then decision gates. The analysis of the fifteen cases reveals that deal structuring follows predictable pattern, with sequential decision gates creating path dependencies. Such a transaction, in this specific R&D pharma context, is neither static not linear but rather iterative process, characterized by sequential phases, interconnected decision gates, and feedback loops that progressively shape the deal outcome. Although each case presents its own contingencies, the deal structuring process consistently revolves around the same considerations. These considerations are negotiated and renegotiated at different stages, reflecting the shifting positions, priorities, and constraints of both buyers and sellers.

7.3.1. Deal journey

Deal journey consistently begins with the initiation of contact and the identification of opportunities. For buyers, this stage is often driven by strategic needs such as filling pipeline gaps, accessing novel technologies, or pursuing geographic or therapeutic expansion. Sellers, by contrast, are usually

motivated by the need for funding, the pursuit of strategic divestments, or the search for partners able to provide complementary capabilities. This early engagement is followed by an assessment of strategic fit and capability alignment. At this pre-diligence stage, both parties evaluate the uniqueness and value of the asset, its alignment with portfolio or investment strategies, and the resource complementarities that might enable its further development. Pre-existing relationships often prove influential at this stage, as prior trust can encourage engagement in riskier or more complex transactions.

When initial strategic alignment is established, the parties move to the alignment around deal format. This phase is about aligning on the overall deal scope and terms between the firms in terms of whether the deal goes into a acquisition (equity based), licensing (asset based) or optional type of transaction. Divergent positions frequently generate cycles of rejection and revision, as proposals are reworked to balance equity and asset.

As the deal structuring progresses, parties negotiate specific distribution of risks, allocation of control rights, the design of payment mechanisms. The maturity of the asset and the availability of data are critical contingencies, as early-stage opportunities often favor option-based or staged agreements, whereas late-stage assets lend themselves to more definitive acquisitions.

The final stage is the formal closing and execution of the agreement, including the establishment of governance structures to manage collaboration, oversee joint decision-making, and address unforeseen contingencies.

In addition to that, the significant majority of interviewees (70 %) would describe the deal-structuring journey from a dyadic, phased and iterative perspective (Table 7-5).

More precisely, the dyadic perspective implies that deal structuring is the outcome of two parties' decisions and not the outcome of a one-sided decision. This emphasizes the dynamics, interactions and negotiations between the two parties. This perspective appears unanimously in 100% of the interviews, associated with a relatively high frequency of occurrence (3.9). This implies that in all cases parties recognized the need to take a dyadic, bilateral perspective to address the deal structuring process. understanding and managing the mutual interests, concerns and expectations of the parties is crucial. This is illustrated in the following quote:

> *"you start looking for solutions. You talk to the partner, and you talk to the internal and you go into kind of like a solution. I think there is a bit of a dynamic in such negotiations. You basically start off from being a little bit like opponents and like trying to get the best terms, you want to get more, they want to pay less. But at a certain point in time, you then feel like the commitment of the other side, and you feel like they really want this. And you also have more and more knowledge about the project, and then you get to a tipping point where it basically turns into, like both sides want to make this deal happen".*

In addition, the staged perspective consists of breaking down the deal journey into different successive stages. It was referred to in 77% of the total interviews. It was associated with a very high frequency of occurrence (2.5), further emphasizing the importance given to this approach by the interviewees. This implies that most deal journeys have followed a phased approach. This approach consisted of breaking down the deal journey into different successive stages. This is illustrated well in the following quote:

> *" So, I would say I'm not sure there is one moment, but it is an ongoing process where you are always balancing and trying to have the best deal for yourself, for your company, of course, which is the lowest risk possible and the maximum options possible".*

Lastly, the iterative perspective means that deal structuring is a nonlinear process, with multiple rounds of back and forth between the parties, refinements and adjustments. This perspective is referred in 70% of the interviews, also associated to a relatively high frequency of occurrence (2.5). This is illustrated in the following quote:

> *"the contract itself contains the structure, and the contract we ended up with was not the contract we started with. So, there was a good bit of back and forth during negotiations over how to structure what the milestones should be, what the dollar amount should be, etc. So, I mean, yes, we considered several structures as we worked our way through that living document".*

Taken together, these findings illustrate that deal structuring follows a consistent modus. The dyadic, phased and iterative nature of this process implies that no deal structure could be predetermined; rather, outcome emerge through a complex interplay of antecedents and negotiation of considerations.

Code	Definitions	IVs	Occ.	% of IVs	Occ/IV
Dyadic perspective	Deal structuring as the outcome of two parties' decision	30	107	100%	3.6
Phased perspective	Deal journey breakdown into different successive stages	23	58	77%	2.5
Iterative perspective	Deal journey as a nonlinear process, with multiple rounds of refinements & adjustments	21	52	70%	2.5

Table 7-5 Key codes referring to the dynamic and temporality of the deal
Key codes referring to the dynamic and temporality of the deal. IVs = Interviews (counts the interviews wherein the code was mentioned at least once, the maximum of this metric is 30 interviews), Occ = Occurrences (aggregate count of instances win which the code was referenced), % IVs = percentage of Interviews (proportion of interviews, out of 30, wherein the code was referenced), Occ/IV = Average occurrences per interview (average frequency with which the code was cited in each interview)

While the previous section outlines the fundamental nature of the deal-structuring process, this characterization alone is insufficient. To gain deeper insight, we must delve into the substantive content of the negotiations themselves—the critical considerations that parties debate at each phase.

7.3.2.Deal structuring considerations

Research and investigation within the extant literature has mainly focused on the motivations and antecedents to the deal, but there has been much less investigation around the process. On the other hand, one of the key findings that has emerged from this research is that, during the deal-structuring process, there are several critical points of negotiation and discussion. I have called them 'considerations'. Understanding their importance within and across cases can provide valuable insights into deal structuring.

The table 7-6 presents the results of a coding analysis of 30 interviews conducted to assess deal structuring processes in the pharmaceutical R&D context. Similarly to the antecedent code analysis, the table includes the final considerations identified, the number of interviews in which each code appeared, the number of occurrences of each code, the percentage of interviews in which the code appeared, the occurrences per interview, and the theory associated with each code. The analysis of the table below indicates the importance of each code in deal-structuring processes and the relevance of the theories associated with each code.

Across, all interviews, *after several rounds of code aggregation and categorization*, the same considerations have consistently been referred. They encompass:

- Structured payment – milestones (linked to RO)
- Allocation of control rights (linked to ICT)
- Risk-return allocation (linked to RO)
- Safeguard & risk mitigation (linked to TCE)
- Contracting & organizational efficiency. (linked to TCE)

The consideration around "Structured payment - milestones" is defined as a financial arrangement characterized by a series of payments linked to specific milestones or achievements within a defined period, usually the development time needed to get the technology commercialized. In every case studied, the deal structure was more complex than a simple, one-time payment. This consideration can be associated with RO, which posits that deals shall be structured so as to allow flexibility and defer risks. It was systematically referred to across all 30 interviews, with an average of 4.2 occurrences per interview. The importance given by the parties to structure deals with structured payments is illustrated well by the following quote:

> *"So, we have an upfront that we paid when we signed the contract. And then we had specific milestones related to different events. The first one was regulatory one, and then we had one on pricing and reimbursement, and then we had a sales milestone and royalties".*

The consideration around "Allocation of control rights" is defined here as the distribution of decision-making authority and power between parties on a series of rights (intellectual property, commercialization, etc.). This consideration can be associated with ICT, which posits that deals should be structured in such a way as to properly allocate rights between the parties, especially in an uncertain R&D context. This consideration appeared in 29 out of 30 interviews, with an average of 5.8 occurrences per interview. With the highest total number of 167 occurrences across all cases, this consideration is very consistent and highly critical in the deal negociation. The bargaining between parties is around which rights will remain and which ones will be transferred, as illustrated by the following quote:

"Giving control right and development responsibility is always a delicate point".

The consideration around "Risk-return allocation" is defined as the balance between risks and returns within a particular deal setting. It appeared across all 30 interviews, with an average of 5.4 occurrences per interview. Since the deals are conducted in the context of R&D, there is a risk inherent to them. Therefore, firms bargain as to how risk and returns will be allocated between them. This is clearly described in the related RO framework and exemplified by the following quote:

"we structured the payments in a way to ensure that there was, you know, additional value only delivered at a point in time where certain key risks were removed".

The consideration around "Safeguard & risk mitigation" is defined as firms negotiating considerations to protect themselves and mitigate any type of pre-identified risk. This consideration can be associated with TCE, which posits that deals should be structured in a way to reduce risks. It was mentioned in all 30 interviews, with an average of 3.7 occurrences per interview. This is a common consideration in these deals and probably in any deal. This consideration is illustrated well in the following quote:

"But we wanted to avoid that they do other things. So therefore, we limited them also to the field definition of the scope of the license".

Lastly, the consideration around "Contracting & organizational efficiency" includes all considerations related to making the deal as efficient as possible. This consideration can be associated with TCE, which posits that deals should be structured in a way that optimizes transaction costs. It appeared in 28 out of 30 interviews, with an average of 3.9 occurrences per interview. The importance given to minimizing the transaction and organizational costs is illustrated well by the following quote:

"Try to find the deal structure that is path for least resistance".

Having assessed the key considerations, the following section will delve into the cross-case analysis of decision-making process to identify key decision gates.

Deal structuring considerations	Definition	Theory	IVs	Occ.	% of IVs	Occ/IV
Structured payment - milestones	Payments linked to milestones	RO	30	127	100%	4.2
Allocation of control rights	Distribution of decision-making authority and power between parties on a series of rights	ICT	29	167	97%	5.8
Risk-return allocation	Balance between risks and returns within a deal	RO	30	163	100%	5.4
Safeguard & risk mitigation	Considerations to protect firms & mitigate any type of pre-identified risk	TCE	30	111	100%	3.7
Contracting & organizational Efficiency	Making the deal as efficient as possible	TCE	28	109	93%	3.9

Table 7-6 Deal-structuring considerations identified
IVs = Interviews (counts the interviews wherein the code was mentioned at least once, the maximum of this metric is 30 interviews), Occ = Occurrences (aggregate count of instances in which the code was referenced), % IVs = percentage of interviews (proportion of interviews, out of 30, wherein the code was referenced), Occ/IV = Average occurrences per interview (average frequency with which the code was cited in each interview) - TCE= Transaction Cost Economics, RO = Real Options, ICT = Incomplete Contract Theory

7.3.3.Decision gates

The pharmaceutical R&D deal-structuring process has been empirically characterized as a dyadic, iterative, and phased journey. Analysis across all cases reveals a consistent pattern of sequential decision gates, wherein the salience of distinct theoretical perspectives shifts systematically as organizations advance through progressively complex phases of decision-making. This structured progression is examined as follows.

7.3.3.1. First decision gate – Deal Viability Decision

The initial gate seems to occur unilaterally as firms assess the fundamental strategic rationale for engaging in a deal before formal negotiations begin. RBV serves as the most explanatory theory at this stage, guiding internal resource audits and strategic fit evaluations. Evidence across all cases shows a consistent pattern of unilateral resource assessment preceding any bilateral engagement (Table 7-7). For instance, in Case 1, a large healthcare firm identified a clear resource gap in the treatment landscape for atopic dermatitis. Similarly, Cases 2 through 15 demonstrate evaluations centered on strategic alignment, platform complementarity, and capability needs analysis. This pervasive focus on whether an asset is valuable, rare, inimitable, and non-substitutable confirms that RBV is the foundational

driver, explaining why parties initially consider a deal based on their strategic portfolios and internal capabilities.

This first decision gate has been named the *Deal Viability Decision (DVD)*, as it seems to determine whether the deal will be engaged in or not. As one interviewee said:

"most critical point was choosing what we had alternatives in terms of larger companies"

This deal viability decision appears to be highly engaging and strategic for all parties involved, primarily explicable by the RBV theory. Based on the influence of strategic fit and complementarity of resources antecedents, RBV emphasizes the strategic importance of making such a decision, which, by definition, engages the viability of the deal. Firms conduct internal resource audits and strategic fit evaluations before engaging in deal discussions. In other words, RBV seem to have a high explanatory power before the deal is engaged.

In addition, as shown in the few examples in Table 7-7 below, although there are different contexts and descriptions, the deal viability decisions described by interviewees can be categorized to two scopes: either asset-related or partner-related. More concretely, the deal viability decision, when the scope is the asset, could be formulated as the following question: *"Does my firm want to enter into a deal around this asset?"*. The other scope, around the partner, can be formulated as the question: *"Does my firm want to enter into a deal with this partner?"*. The comparative analysis of scopes between buyer and seller indicates that, in most cases, both buyers and sellers share a focus on asset-related decisions (Table 7-7). However, there are instances (Cases 1, 2, 12 and 14) in which the buyer's scope leans toward asset-related decisions, while the seller's scope is more inclined towards partner-related decisions. Case 9 stands out as a scenario in which both buyer and seller decisions are centered around asset-related considerations. This can be understood as the buyer, usually looking for innovating assets in the pharmaceutical R&D context, is particularly focused on which asset to access. On the other hand, the seller in this context, having invested time and resources in developing an innovative asset, pays more attention to the type of buyer, which explains why the decision is more partner driven.

As a summary, the first decision gate of deal structuring in the pharmaceutical R&D context is related to deal viability. This decision is linked to RBV.

Case	Relative Positioning	Pivotal Decision	Decision gate	Scope / Consideration	Linked Theory
1	Buyer	Deal viability decision	1st Decision gate	Asset related	RBV
1	Seller	Deal viability decision	1st Decision gate	Partner related	RBV
2	Buyer	Deal viability decision	1st Decision gate	Asset related	RBV
2	Seller	Deal viability decision	1st Decision gate	Partner related	RBV
3	Seller	Deal consideration decision	3rd Decision gate	Allocation of control rights	ICT
3	Buyer	Deal consideration decision	3rd Decision gate	Risk return allocation	RO
4	Seller	Deal consideration decision	3rd Decision gate	Allocation of control rights	ICT
4	Buyer	Deal viability decision	1st Decision gate	Partner related	RBV
5	Buyer	Deal consideration decision	3rd Decision gate	Allocation of control rights	ICT
5	Seller	Deal consideration decision	3rd Decision gate	Risk return allocation	RO
6	Buyer	Deal consideration decision	3rd Decision gate	Risk return allocation	RO
6	Seller	Deal consideration decision	3rd Decision gate	Risk return allocation	RO
7	Seller	Deal consideration decision	3rd Decision gate	Allocation of control rights	ICT
7	Buyer	Deal viability decision	1st Decision gate	Asset related	RBV
8	Seller	Deal consideration decision	3rd Decision gate	Allocation of control rights	ICT
8	Buyer	Deal consideration decision	3rd Decision gate	Risk return allocation	RO
9	Buyer	Deal viability decision	1st Decision gate	Risk return allocation	RBV
9	Seller	Deal viability decision	1st Decision gate	Asset related	RBV
10	Buyer	Deal viability decision	1st Decision gate	Asset related	RBV
10	Seller	Deal viability decision	1st Decision gate	Asset related	RBV
11	Buyer	Deal consideration decision	3rd Decision gate	Risk return allocation	RO
11	Seller	Deal consideration decision	3rd Decision gate	Risk return allocation	RO
12	Buyer	Deal viability decision	1st Decision gate	Asset related	RBV
12	Seller	Deal viability decision	1st Decision gate	Partner related	RBV
13	Buyer	Deal viability decision	1st Decision gate	Asset related	RBV
13	Seller	Deal consideration decision	3rd Decision gate	Risk return allocation	RO
14	Buyer	Deal viability decision	1st Decision gate	Risk return allocation	RBV
14	Seller	Deal viability decision	1st Decision gate	Partner related	RBV
15	Buyer	Deal consideration decision	3rd Decision gate	Risk return allocation	RO
15	Seller	Deal consideration decision	3rd Decision gate	Risk return allocation	RO

Table 7-7 Listing and categorization of pivotal decisions

7.3.3.2. Second decision gate – Early Alignment Decision

Findings suggest that, following establishment of strategic interest, the process advances to bilateral negotiations where firms collectively determine the appropriate deal format. At this gate, the main decision consists of a strategic alignment between the parties, before engaging into a more granular deal-structuring process (prior to 3rd decision gate deal consideration decisions, described in the next section). This 2d decision gate has been named the Early Alignment Decision (EAD).

One interviewee described this decision gate as per following:

> *"there was a general understanding of the expectation, of what a deal like this, what sort of returns would satisfy these investors."*

Such early alignment between the firms seem to be a critical gate in the deal-structuring process, as it helps to align the expectations of the parties involved and sets the stage for a more detailed negotiation. Another interviewee described this stage the importance of:

> *"finding the deal structure that is path of least resistance"*

This quote highlights the extent to which such alignment is important not only for determining the overall deal shape, but also to identify the key areas of agreement and disagreement between the parties, which can then inform further granular negotiation around considerations.

This gate demonstrates theoretical co-dominance between TCE and RO. From TCE perspective, several buyers deliberately avoided complex deal structures to minimize governance costs (Case 6), while others selected acquisition structures to economize on repeated contracting (Case 3). Simultaneously, RO principles manifested through milestone-based payments, option agreements, and phased investment structures designed to defer capital commitments until key uncertainties were resolved. Overall, firms concomitantly address deal structure optimization, R&D related risks, and strategic flexibility preservation, reflecting the complex interplay between transaction efficiency and uncertainty management. For instance, when early alignment between the firms leads to a decision of an acquisition type of deal, then TCE, which favors integration in the context of R&D, is the most explanatory theory. On the other hand, when early alignment between the firms leads to a decision of an option type of deal, then RO, which favors flexibility in the context of R&D, is the most

explanatory theory. Cases 2, 5, and 14 provide particularly clear examples of this dual theoretical application, where deal structures were consciously designed to achieve both transaction cost efficiency and strategic flexibility.

7.3.3.3. Third decision gate – deal consideration decision

The third decision gate, named Deal Configuration Decisions (DCD) represents the culminating stage of pharmaceutical deal structuring, occurring after fundamental viability has been established through Deal Viability Decisions and broad structural frameworks have been determined through Early Alignment Decision. Findings have revealed as well that DCD constitute one of the most pivotal decision, as cited by interviewees (Table 7-7).

This decision gate is characterized by intensive bilateral negotiations focused specifically on the detailed allocation of risk and control rights within the previously established partnership framework. Unlike the preceding phases, which address strategic fit and governance architecture respectively, the DCD phase confronts the fundamental challenge of translating broad partnership intentions into specific contractual mechanisms that can effectively manage uncertainty and coordinate complex inter-organizational activities.

The theoretical significance of this phase lies in its integration of ICT and RO reasoning, as firms must design detailed structures that can adapt to unforeseeable contingencies while preserving strategic flexibility. Case evidence demonstrated how RO thinking influenced risk-return optimization across all cases, with particular emphasis on milestone calibration and payment timing (Cases 1, 3, and 8). Simultaneously, ICT considerations drove negotiations around residual control rights and adaptation mechanisms. Case 5 featured unwavering insistence on clear IP regulation, while Case 12 showed how acquisition provided solutions to contractual incompleteness concerns. The joint steering committees prevalent across multiple cases (particularly Cases 7 and 13) represent direct manifestations of ICT principles applied to manage inherent R&D uncertainties.

The DCD phase transforms broad alignment from EAD into concrete operational realities through the careful specification of decision rights, risk-sharing mechanisms, and control allocation procedures. This decision gate requires sophisticated bilateral bargaining because the detailed allocation of rights

and responsibilities fundamentally determines how partnership value will be created and distributed over time.

The DCD phase is distinguished by its focus on zero-sum and positive-sum bargaining dynamics that occur simultaneously across multiple dimensions of partnership structure.

Risk-return allocation constitutes the most prominent consideration of the 3rd decision gate, representing 66% vs 33% for the allocation of control rights. This consideration is linked to the RO perspective. When the company has to make a 3rd decision gate around this consideration, it has basically to decide on whether the discussed allocation of risk and return is acceptable or not. Risk-return allocation is inherently complex because pharmaceutical R&D involves multiple categories of risk that must be distributed between firms in ways that reflect their relative capabilities, risk tolerances, and strategic priorities. In the context of buyer case 3, for example, the determination of upfront payment entailed a delicate balance between securing the deal and mitigating financial risk. Another example is with seller case 8 buyer and case 15 buyer, in which they had to make the pivotal decision to opt for an option deal without finalizing financial terms.

Control allocation consideration bargaining is equally complex because it involves the distribution of decision-making authority across various partnership activities and contingencies. The company has to make a critical decision about retaining (or not) one or several of these several rights as part of the negociation. This consideration being linked to the ICT perspective, contractual incompleteness and concept of residual rights (section 3.5.1.4) explain why such decisions in the R&D context are critical. The dyadic nature of these negotiations means that control allocation outcomes reflect not just individual partner preferences but also the relative bargaining power and negotiation capabilities that each party brings to the detailed structuring process. Of note, it seems that sellers are more concerned with retaining control rights comparatively to buyers (Table 7-8), whereas buyers may be more concerned with ensuring that they negotiate a good risk return consideration. In addition, looking at the perspective between buyer and seller, within the same case, some cases (6,8 and 11) share the same consideration whilst other cases focus their 3rd decision gate around different considerations.

Case number	Seller's key consideration & linked theory	Buyer's key consideration and linked theory
3	Allocation of control rights (ICT)	Risk return allocation (RO)
5	Risk return allocation (RO)	Allocation of control rights (ICT)
6	Risk return allocation (RO)	Risk return allocation (RO)
8	Allocation of control rights (ICT)	Risk return allocation (RO)
11	Risk return allocation (RO)	Risk return allocation (RO)
15	Risk return allocation (RO)	Risk return allocation (RO)

Table 7-8 Some comparative pivotal deal consideration decisions between buyer and seller

Overall, while risk-return allocation predominates as 3rd decision gate pivotal consideration (for both buyers and sellers), it manifests in various ways. Furthermore, although the allocation of control rights emerges as a less prominent consideration, it too exhibits various dimensions. Interestingly, other considerations identified previously, such as contracting efficiency or risk/return allocation, were not designated as critical decisions.

Having analyzed the overall deal-structuring process across cases, the following section will delve into the different ways to describe and categorize deal-structuring outcome.

7.4. Deal outcomes

This section describes the cross-case findings around deal outcomes, according to different typology.

7.4.1. Deal outcome description based on integration based typology (Pisano, TCE based)

As reviewed from the literature (section 3.4.2.1) the dominant typology of deals is built on the logic of Transaction Cost Economics (TCE) (Pisano, 1989; Das & Teng, 1996). According to this typology, deal-structuring outcomes are classified as hierarchical, market or hybrid governance, depending on the degree of integration/ownership (market-hierarchies continuum), centralization and delegation of decision-making authority.

Each deal, based on the contractual agreements, has undergone a meticulous examination to align it with the appropriate deal-structuring outcome within this typology. Surprisingly, only a limited subset of deals, specifically deals 1, 2, 3, 12 and 15, could be accurately classified into existing categories within this typology. In contrast, the substantial majority, constituting 75% of the deals, defied assignment to any existing category within the established typology (Table 7-9). Multi-agreement deal

structures exceeds the descriptive capacity of a taxonomy predicated on singular classification, revealing a fundamental limitation in applying traditional TCE-based typologies to pharma R&D deal structures. This non-conformity stems from the absence of certain categories, such as the option, or the typology's inability to encompass deals involving multiple agreements.

Deal case	Contractual agreement 1	Contractual agreement 2	Integration based typology Descriptive power
Deal 1	Acquisition		M&A / Acquisition
Deal 2	License		Non Equity Alliance / License
Deal 3	Acquisition		M&A / Acquisition
Deal 4	License	Collaboration research	Invalid model - no ability to combine multiple agreements
Deal 5	Collaboration research- Service type	License	Invalid model - no ability to combine multiple agreements
Deal 6	License	Equity Investment	Invalid model - no ability to combine multiple agreements
Deal 7	Option for license	License	Invalid model - no option agreement in the model
Deal 8	Option for license	Collaboration research	Invalid model - no option agreement in the model
Deal 9	Clinical license		Invalid model - no clinical license agreement in the model
Deal 10	License	Co-development	Invalid model - no ability to combine multiple agreements
Deal 11	Option for license	Collaboration research	Invalid model - no ability to combine multiple agreements
Deal 12	Acquisition		M&A / Acquisition
Deal 13	License	Co-development	Invalid model - no ability to combine multiple agreements
Deal 14	Option for license	Collaboration research	Invalid model - no ability to combine multiple agreements
Deal 15	Joint venture		Equity Alliance / Joint Venture

Table 7-9 Contractual arrangements for each deal case vs integration based typology

7.4.2.Deal outcome description based on allocation of control rights

ICT was revealed in the literature review to be a prominent explanatory theory for the deal-structuring process. Following Hart's (1988) conceptual model, the allocation of control rights is an important aspect of the deal-structuring process in the pharmaceutical industry R&D context (Chen & Wang, 2017). Following an abductive approach during the annotation and coding process, it is noteworthy that, whilst interviewees did not explicitly delineate deals in terms of control rights, allusions to such rights were remarkably consistent across all interview sessions. As a result, the breadth of rights

identified (11 rights) is very comprehensive (Table 7-10). They seem to cover all the components of a deal structure and many of them are interrelated.

The most commonly referred right was development, mentioned in 50% of interviews, with an average occurrence of 2.1 per interview. This indicates that development is among the most critical rights being addressed. When it comes to R&D-related assets and technology, determining which company will have the control right on further development appears to be a critical consideration. One of the interviewees, on the seller side, even said that:

"the most critical decision was to give up the control of the asset to the company".

The next most commonly referred rights were IP background, and human capabilities, which were mentioned in half of the interviews. These rights appear to be critical to the deal-structuring process and outcome.

Less frequently negotiated rights included equity, access priority, data, regulatory, manufacturing and supply. These rights were mentioned in 3-23% of interviews and had an average occurrence of 1-1.8 per interview. While these rights are not as commonly negotiated as the others, they still represent important considerations in deal structuring, such as equity stakes in the deal, data sharing requirements, and regulatory compliance.

One observation is that many of the rights listed pertain to intellectual property (IP) in some way, either as background IP (before the deal) or foreground IP (post deal). This correlates with the acknowledged importance of IP in the pharmaceutical industry. Another noteworthy observation is that the list includes both tangible and intangible rights. For example, there are rights related to manufacturing and supply, which are more tangible and operational in nature, and rights related to access priority or IP, which are more strategic and intangible.

Of note, the empirical analysis revealed that Territory, Field, and Exclusivity emerged as qualitatively connected but distinct from the list of operational control rights. Consequently, they were excluded from the table of negotiable rights because they function not as control rights per se, but as the foundational structuring parameters of the deal structure itself. These parameters define the strategic scope of the deal, rather than granting authority over specific actions. While a control right governs a discrete activity—such as a veto over development or priority access to data—Territory, Field, and

Exclusivity answer the fundamental questions of where, in what domain, and to the exclusion of whom the partnership will operate. All other control rights are only meaningfully exercised within the boundaries established by these three parameters.

Rights	Definition
Access priority	Right of first access, first right of refusal, priority access
Data background	Right to access data generated so far
Data foreground	Right to access the future data
IP background	Right to access and/or control the intellectual property created prior to the deal
IP foreground	Right to access and/or control the intellectual property created post deal
Development	Right to access and/or control the development of the asset
Human capabilities	Right to access and/or control the human capabilities (employees, experts)
Technical capabilities	Right to access and/or control the technical capabilities (infrastructures, platforms)
Manufacturing and supply	Right to access and/or control the manufacturing and supply of the asset
Commercialization	Right to commercialize the asset
Equity	Right to access and/or control the other company's equity

Table 7-10 List of rights identified

In conclusion of this section, the use of control rights to describe key dimensions of the deal structures seems to be consistent across cases. On the other hand, the use of these rights to describe deals is not always explicit and not systematic.

Following these findings, the following section will delve into the deals description based on contractual agreements.

7.4.3.Deal outcome description based on contractual arrangements

From the cross-case analysis, the description of deals by their contractual nature has been systematic. Table 7-11 presents the listing of all contractual agreements resulting from the 15 deal cases. These contractual agreements consist of acquisitions, licenses, collaborations, research agreements, co-development, joint ventures, equity investments and clinical licenses (see Table 7-11 for definitions of these agreements).

First of all, the most frequently used contractual agreement was licensing, which accounted for almost half of the deals. Licensing is recognized by industry practice as the most used type of contractual arrangement in the pharmaceutical R&D context. This is probably because it is considered the simplest and easiest deal, as reflected in these quotes from different interviewees:

> *" it is simple deal to a certain extent and you maximize basically the cash you can get out of it at this stage".*

> *"there is no such magic about the deal structure of licensing. I can map out a lot of licensing in five minutes".*

Acquisitions were the next most common contractual agreement after licenses, representing a quarter of the case deals. When the buyer has an interest in multiple assets from the same company, or when it wants to access the capabilities, then acquisition becomes the preferred deal arrangement. This is exemplified in the following quote:

> *"They want worldwide exclusivity, and they wanted a significant portion of our portfolio. And so those two things combined made it a very easy decision to say this was only going to be an acquisition".*

Surprisingly, a significant proportion of deals (20%) included options. This finding differs from the literature, which poorly addresses the frequent use of options in this context. As explained earlier, options are contractual agreements that grant a party the right, but not the obligation, to access an asset at a specified price and within a specified timeframe. In this context, options can provide flexibility to parties by allowing them to delay making a final decision until a later point in time when

more information is available or certain conditions have been met, especially for early stage assets, as indicated by this quote:

> *"The fact that the project is a very early stage, we had to derisk and find a way to derisk the deal and therefore the option agreement was the best approach".*

Finally, more than 50% of the deals involved at least two contractual agreements. This multi-agreement deal structuring appears to be an established practice and more common than the literature suggests. In these deals, multiple contractual agreements were used to comprehensively cover both parties' deal expectations, which would not have been possible with only one agreement. For example, Deal 4 involved a license agreement and a collaboration research agreement because the parties needed, not only to transfer the asset as part of a license, but also to continue the research together. Another example is Deal 13, which involved a license and a co-development agreement because the parties needed to collaborate on the joint further development of the licensed asset.

Deal case	Contractual Agreement 1	Contractual Agreement 2
Deal 1	Acquisition	
Deal 2	License	
Deal 3	Acquisition	
Deal 4	License	Collaboration Research
Deal 5	Collaboration research - service type	License
Deal 6	License	Equity investment
Deal 7	Option for license	License
Deal 8	Option for license	Collaboration research
Deal 9	Clinical license	
Deal 10	License	Co-development
Deal 11	Option for license	Collaboration research
Deal 12	Acquisition	
Deal 13	License	Co-development
Deal 14	Option for license	Collaboration research
Deal 15	Joint venture	

Table 7-11 Contractual arrangements for each deal case

Acquisition is the full equity purchase of one firm by another. License is a legal agreement granting permission to use, produce or sell intellectual property under specified conditions. Option for license is a contractual right that provides the holder with the right to obtain a license within a specified

timeframe for pre-determined conditions. Joint venture is a business arrangement in which two or more parties collaborate and pool resources to create a new joint firm. A collaborative research agreement is a formal arrangement between parties to jointly conduct research and development activities. Equity investment is the partial purchase of equity in a company. Co-development is a collaborative risk sharing effort between two entities to jointly develop and bring a piece of technology to market.

The diversity and complexity of deals, along with the complementarity of contractual agreements used, highlight the importance of tailoring deal structures in this context. In addition, such a description does not entirely reflect the differences and subtleties between deals. For instance, However, this level of description does not allow us to differentiate, for instance, Deal 10 from Deal 13. That is why alternative, complementary and intermediary deal outcomes, designed respectively during the early alignment stage and during the deal negotiation (using control rights) could be used. This would lay the ground for a less static and more temporal use of multiple theoretical perspectives.

Lastly, contractual agreements ultimately represent the final instrument through which a deal process is formalized. Based on the cross-case analysis, only 40 % (6 out of 15) of deals involved key decision-makers who explicitly stated that the exact final contractual design—including specific financial formulas, risk allocation, and legal mechanisms—was known from the very early discussions. Conversely, in most of transactions (60 %, or 9 out of 15 cases), the precise contractual architecture was not predetermined. The cases falling into this category are: 1, 3, 4, 7, 8, 10, 11, 13, and 15.While the overall format of the deal (e.g., Acquisition, License, Collaboration) was often established early based on strategic fit and early alignment, the complex deal structuring process defining its final outcome emerged through dyadic, iterative and phased process. Contractual agreements codify the outcomes of extended negotiations, translating earlier stages of alignment, option-setting, and control-right bargaining into enforceable legal commitments. As such, they function less as the starting point of deal structuring than as its culmination, crystallizing decisions that have already been shaped by considerations, bargaining and alignment between firms. This distinction underscores the extent to which a purely contractual description provides only a static snapshot of the endpoint, whereas a more processual perspective—incorporating would offer a better understanding of how deals are actually structured.

Whereas the preceding section analyzed alternative perspectives on deal outcomes, the subsequent section assesses the explanatory power of dominant theoretical frameworks, employing an abductive approach to account for patterns across cases

7.5. Abductive assessment of RBV, TCE, RO and ICT explanatory power

7.5.1. Deal structuring antecedents

This research has shown that each of the theories, TCE, RBV and RO, provides a unique yet complementary perspective on the antecedents influencing deal structuring. However, it is crucial to note that none of these theories can fully address all identified antecedents comprehensively. Notably, risk – a pivotal element in deal structuring – is intrinsically linked to both RO and TCE, albeit with distinct interpretations and impacts. It is noteworthy that ICT does not exhibit clear links to any antecedents in the deal-structuring process, indicating its limited relevance in this area. In conclusion, the integration of antecedents from TCE, RBV and RO in a multi-theoretical framework stands out as the most pertinent and comprehensive explanatory approach.

7.5.2. Deal structuring considerations

All the considerations which were identified in the interviews were associated with either RO, TCE or ICT wherever possible. Table 7-12 presents the consolidated frequency of occurrence of each theory-related consideration in the interviews, as well as the percentage of interviews in which each theory-related consideration was mentioned, and the average number of occurrences per interview.

Theory-related considerations	IVs	Occ.	% of IVs	Occ/IV
RO-related considerations	30	290	100%	9.7
TCE-related considerations	30	220	100%	7.3
ICT-related considerations	30	167	100%	5.6

Table 7-12 Deal-structuring considerations grouped by linked theories

TCE= Transaction Cost Economics, RO = Real Options, ICT = Incomplete Contract Theory, IVs = Interviews (counts the interviews wherein the code was mentioned at least once, the maximum of this metric is 30 interviews), Occ = Occurrences (aggregate count of instances in which the code was referenced), % IVs = percentage of interviews (proportion of interviews, out of 30, wherein the code was referenced), Occ/IV = Average occurrences per interview (average frequency with which the code was cited in each interview)

Interestingly, the most frequently mentioned considerations are related to RO, with an approximate average of 10 occurrences per interview, followed by TCE with an average of seven occurrences per interview, and ICT with an average of six occurrences per interview.

The high frequency of occurrence of RO-related considerations indicates that it is a widely applied theory in the context of deal structuring. The importance of RO in this context can be attributed to its ability to capture the value of flexibility and the strategic value of R&D projects. The evidence from the 15 case studies demonstrates how partners systematically negotiate considerations that bring optionality in the deal structure, allowing firms to adapt based on emerging information about market conditions, regulatory outcomes, and technological developments, creating value through preserved flexibility rather than immediate commitment.

The relevance of TCE can be linked to the need to manage transactional risks and uncertainty in the context of R&D deals. The high frequency of occurrence of ICT suggests that the allocation of control rights is an essential consideration in the success of deal structuring.

7.5.1. Deal journey & decision gates

The dyadic, temporal, phased, interconnected and iterative nature of deal-process structuring, as indicated by this study, prompts a departure from the traditional static portrayal found in the current literature. This reveals a temporal dimension that dictates when and how TCE, RBV, RO and ICT might be applicable.

Deal Viability Decision (DVD) Gate Analysis

At the initial DVD stage, the Resource-Based View (RBV) demonstrates unequivocal dominance, serving as the primary explanatory theory across all fifteen cases. This complete penetration reflects RBV's fundamental role in assessing strategic fit and resource complementarity before parties commit to formal negotiations. TCE provides supportive explanatory power in just over half of the cases (53.3%), indicating that efficiency considerations already factor into early viability assessments, though they remain secondary to strategic alignment concerns. The anecdotal appearance of Real Options (RO) thinking in only 13.3% of cases suggests that flexibility considerations are largely premature at this stage, while the complete absence of Incomplete Contract Theory (ICT) influence confirms that contractual considerations have not yet entered the decision calculus.

Decision Gate	Theory	Number of cases with Primary explanatory power	Number of cases with Supportive explanatory power	Total Cases with both primary & supportive explanatory power	Overall explanatory power
DVD	RBV	15	0	15	Primary
DVD	TCE	0	8	8	Supportive
DVD	RO	0	2	2	Anecdotal
DVD	ICT	0	0	0	None
EAD	RBV	0	6	6	Supportive
EAD	TCE	13	2	15	Primary
EAD	RO	13	2	15	Primary
EAD	ICT	0	4	4	Anecdotal
DCD	RBV	0	1	1	Anecdotal
DCD	TCE	0	7	7	Supportive
DCD	RO	15	0	15	Primary
DCD	ICT	0	12	12	Primary

Table 7-13 Theoretical power analysis of theories for each decision gate

Early Alignment Decision (EAD) Gate Analysis

The EAD gate reveals a significant theoretical transition marked by the emergence of dual primary frameworks. Both TCE and RO achieve primary explanatory status across all fifteen cases, though interestingly, in only thirteen cases does each theory stand alone as primary, while in two cases they function in supportive roles to the other. This pattern indicates their complementary but distinct roles in structuring the governance approach—TCE addressing efficiency concerns and RO managing uncertainty through flexible structures. RBV transitions to a purely supportive role in 40% of cases, maintaining relevance but no longer driving decisions. ICT begins to emerge with anecdotal presence in 26.7% of cases, signaling the initial recognition of contractual complexities that will become paramount in the next phase.

Deal Configuration Decision (DCD) Gate Analysis

The final DCD gate demonstrates a sophisticated theoretical evolution where Real Options theory maintains universal primary explanatory power (100% of cases), while Incomplete Contract Theory achieves primary status in the substantial majority of cases (80%). This co-dominance reflects the dual challenges of preserving flexibility while designing contracts that can accommodate unforeseeable contingencies. The supportive role of TCE in 46.7% of cases indicates that efficiency considerations

remain relevant but secondary to flexibility and adaptability concerns. The near-complete disappearance of RBV to anecdotal status (6.7% of cases) confirms that strategic considerations have been largely resolved by this stage, giving way to implementation details.

Theoretical progression and complementarity

The distribution of theoretical explanatory power across the three decision gates reveals a clear and logically progressive pattern that reflects the evolving nature of strategic considerations throughout the deal structuring process. This analysis (Table 7-13) demonstrates how different theoretical frameworks gain and lose prominence as negotiations advance from initial viability assessment to final configuration details. The deal viability decision gate is primarily explained by RBV, the early alignment decision gate is mainly elucidated by TCE and RO, and the deal consideration decision gate is predominantly explained by TCE, RO and ICT. This highlights the critical role of RBV prior to the deal, while TCE supports the second and last decision gates, RO supports the second and last, and ICT is useful only for the last decision gate.

This sequential analysis reveals a logical theoretical progression where RBV's initial dominance gives way to TCE/RO co-dominance, which then evolves into RO/ICT co-dominance. The pattern demonstrates how theories build upon rather than replace each other, with earlier frameworks establishing foundations that later frameworks elaborate upon. The data particularly highlights ICT's crucial importance during the final configuration phase, where it addresses the essential challenge of contractual incompleteness in complex R&D partnerships. The integration of RO and ICT at the DCD gate represents a sophisticated theoretical synthesis that combines option value preservation with contractual flexibility, enabling parties to manage both uncertainty and contractual incompleteness through adaptive governance mechanisms. The evidence strongly supports a path-dependent process where early theoretical applications create constraints and opportunities for later theoretical applications, resulting in a coherent theoretical journey that mirrors the practical negotiation process from strategic assessment through operational implementation.

In summary, the consistent, phased and sequential deal-structuring process via decision gates linked to multiple theoretical perspectives challenges the prevailing literature's oversimplification of deal structuring, advocating for a more comprehensive and dynamic understanding.

7.5.2.Deal outcomes

The cross-case analysis reveals important limitations of conventional typologies of deal outcomes and suggests the value of complementing them with additional theoretical perspectives.

First of all, RBV fails to provide meaningful insights into deal structuring outcomes. This theoretical inadequacy aligns with empirical observations that deal structuring outcomes emerge from intensive dyadic negotiations rather than straightforward resource complementarity assessments, suggesting that RBV's static, firm-centric perspective is insufficient. The theory's inability to explain structural variation among resource-similar deals further undermines its utility as a foundation for typology development, reinforcing the need for theoretical frameworks that explicitly account for dyadic bargaining and adaptive structuring processes.

On the other hand, the starting point for most analyses of R&D deal structuring in the pharmaceutical sector is the integration-based typology derived from TCE. According to this framework, outcomes are classified along the market–hierarchy continuum, ranging from licensing to acquisition, with hybrids such as alliances and joint ventures occupying the intermediate space. When applied to the contractual agreements in the sample of 15 deals, only a minority of cases could be unambiguously categorized. In contrast, the large majority—amounting to three quarters of the sample—resisted classification. This difficulty stemmed from two structural characteristics of pharmaceutical R&D deals: the prevalence of multi-agreement structures, and the frequent use of options, neither of which can be adequately represented within the original TCE-based framework. This typology fails to capture the temporal dimension of deal structures and the embedded optionality that characterizes several pharmaceutical R&D deals.

Interestingly, RO proves capable of elucidating various contractual agreements, and while it does not propose a specific typology, it can extend TCE-based framework to potentially incorporate optional structural outcomes. RO offers substantial potential to complement and enhance TCE-based typology by providing a dynamic framework for understanding deal structure flexibility and adaptive structuring mechanisms. RO perspective can extend these typologies by recognizing that deal structures are not static outcomes but rather account for deals as dynamic structures able to evolve through option exercise.

Finally, ICT provides additional descriptive and analytical power by foregrounding the allocation of control rights. Following Hart's (1988) conceptual model, the coding of interview data revealed a remarkably consistent, if implicit, emphasis on control rights across all cases. A set of 11 control rights, reflecting a broad and interconnected spectrum within deal structures have been identified. Although interviewees rarely framed their explanations in explicitly contractual or theoretical terms, their accounts made repeated reference to these rights. The abductive analysis of these patterns suggests that control rights offer a more fine-grained vocabulary for describing and categorizing deal structures, one that can accommodate both the multiplicity of agreements and the temporal sequencing of negotiations. An ICT-derived typology could introduce a novel perspective, offering a complementary lens for understanding and differentiating deals, especially multi-agreement deals. In this sense, ICT based typology would not replace existing typologies but could function as an intermediary framework occurring after initial deal format selection based on the extended ICT and RO-derived typology but prior to final contractual agreement finalization. This positioning would reflect the extensive intermediary negotiation stage where control rights allocation becomes the primary focus of dyadic bargaining, capturing the detailed deal structure that emerge during Deal Configuration Decisions before firms settle on specific contractual language and legal structures.

The contractual description of deals remains an indispensable dimension, as it systematically identifies the legal instruments employed—licenses, acquisitions, joint ventures, collaborations, equity investments, and so forth. Yet, contractual categorization alone cannot differentiate between superficially similar cases, such as licensing paired with co-development in one deal versus licensing combined with collaborative research in another. Nor can it capture the dynamic adjustments negotiated during the deal process, particularly the use of options to manage uncertainty in early-stage assets. By bringing together the lenses of TCE and ICT in an abductive fashion, it becomes possible to conceptualize deal outcomes not as static endpoints but as evolving configurations. Contractual arrangements specify the formal instruments, integration typologies provide a high-level categorization of governance forms, and control rights articulate the intermediary and adaptive dimensions that shape the trajectory toward final deal closure.

Overall, the cross-case assessment demonstrates that no single theoretical lens suffices to describe the complexity and the outcome of pharmaceutical R&D deals. While TCE-based typologies capture broad governance forms, and contractual descriptions offer legal specificity, ICT-derived control

rights reveal the underlying distribution of authority that drives negotiations and enables adaptation. Taken together, these perspectives provide a more temporally sensitive account of deal outcomes, in line with process based perspective that would better reflects both the complexity of multi-agreement structures and the significance of intermediary stages in the path to deal conclusion.

In conclusion, this cross-case abductive assess has comparatively examined the individual contributions of prominent theories concerning deal-structuring antecedents, processes and outcomes. This analysis sets the stage for the subsequent proposal of a comprehensive, multi-theoretical, temporal, staged and dyadic perspective.

Following a thorough within and cross-case study analysis, the subsequent chapter will undertake a discussion around these findings.

8. Discussion

This chapter consolidates all the elements of the research, discusses how the theories might explain the findings, and outlines the implications of the findings for practice. It begins with a brief reminder of the importance of the phenomenon and summarises the gap in the literature, leading to a restatement of the three research questions. Then the research questions are addressed utilizing the findings reported in the previous chapter. The contribution to knowledge made by this research, its practical implications, limitations, and implications for future research are addressed in the final section.

8.1. The importance of deals in the asymmetric context of R&D in the pharmaceutical industry

The pharmaceutical sector relies on the continuous development of new drugs, requiring substantial investments in R&D (Liu et al., 2019). However, the industry has experienced a considerable decline in R&D productivity, presenting a substantial risk to its long-term viability (Mahrlich et al., 2021). In response to this challenge, major pharmaceutical companies have progressively sought external collaborations, especially with smaller partners, to enhance their R&D pipelines (Kim et al., 2021). These collaborations now comprise over 75% of the total deals in the pharmaceutical industry (IQVIA, 2022). However, the evolving complexity of deal structures challenges the comprehensiveness of established theoretical perspectives. Currently, deals are predominantly managed intuitively, relying on firms' practical experience, with no conceptual framework.

The literature review (section 3.7) revealed insightful learnings and gaps. This review identified methodological and theoretical gaps that constrained understanding of pharmaceutical R&D deal structuring. The predominant reliance on deductive quantitative methodologies oversimplified complex negotiations by focusing on predetermined variables while neglecting essential contextual dynamics, necessitating qualitative approaches that could reveal underlying processes. The dominance of variance-based perspectives further limited comprehension by emphasizing static relationships rather than capturing the dynamic, iterative nature of multi-stage deal structuring. The prevalence of one-sided analytical perspectives, typically focused on dominant buyers, created incomplete understanding that demanded dyadic examination incorporating both parties' insights. Additionally, the fragmentation of deal structuring analysis across distinct theoretical frameworks prevented holistic

comprehension, while the absence of multi-theoretical integration—particularly combining Transaction Cost Economics, Real Options, Resource-Based View, and Incomplete Contract Theory—limited understanding of deal structuring process and outcome. In addition, the literature lacked focus on critical decision points and multi-stage processes, while practical experience revealed no established frameworks or typologies universally accepted by industry practitioners.

Addressing these gaps could contribute to advancing both academic knowledge and practical application in pharmaceutical R&D context. Without comprehensive process understanding, dyadic perspectives, and integrated theoretical frameworks, scholars and practitioners may remain limited by models that do not fully capture deal structuring complexity.

The following chapter reminds research objectives and subsequent research questions designed to address these knowledge gaps.

8.2. Research objectives and questions

This research addresses the complexity of pharmaceutical R&D deal structuring through a comprehensive examination that challenges existing paradigmatic assumptions and methodological limitations within current literature. The study adopts an agnostic investigative approach designed to capture intricate dynamics that simplistic perspectives have historically failed to address.

The research pursues four interconnected objectives that advance both theoretical understanding and practical application. First, it establishes foundational knowledge by systematically mapping temporal interconnections between key components of deal structuring processes, identifying antecedents, decision gates, phases, considerations, and outcomes within asymmetric pharmaceutical contexts. Second, it investigates underlying mechanisms and causal factors generating variability in deal-structuring outcomes across different cases, seeking to uncover reasons for divergent outcomes while challenging established assumptions about decision-making dynamics overlooked in existing scholarship. The third objective addresses methodological gaps through refinement and creation of typologies that capture complexity and variability in deal-structuring outcomes, providing scholars with granular analytical frameworks for categorizing deal structures. Finally, the research synthesizes these contributions through a multi-theoretical framework integrating Transaction Cost Economics, Resource-Based View, Real Options, and Incomplete Contract Theory, addressing limitations of

mono-theoretical approaches while creating opportunities for research that adapts to complex deal structuring realities.

These objectives collectively generate substantive contributions to strategic and business scholarship while providing practical insights for pharmaceutical R&D practitioners, fostering informed decision-making processes and establishing foundations for future scholarly inquiries within this critical domain.

These objectives have been addressed in this thesis through the following research questions:

- RQ1 - How can the deal structuring process be mapped, and how do its decision gates and outcomes interconnect over time?
- RQ2 - When and how can the theories of Transaction Cost Economics (TCE), Resource-Based View (RBV), Real Options (RO), and Incomplete Contract Theory (ICT) guide the deal structuring process in the asymmetric pharmaceutical R&D context?
- RQ3 - Why do deal structuring processes lead to different outcomes across cases, and what typologies can be developed to categorize and explain these differences?

The overarching goal of this section is to elaborate on the answers to these research questions and propose new insights.

8.3. RQ1 - How can the deal structuring process be mapped, and how do its decision gates and outcomes interconnect over time?

This first descriptive question aims to provide foundational insights into the chronological anatomy of deal structuring by identifying distinct stages, decision points, and linked outcomes. Following a process based perspective (Langley, 2013), it aims to systematically map key decision gates and their temporal interconnections within deal-structuring processes through enriched qualitative research.

8.3.1. A process-based methodology: tracing chronology and path dependence

This study employed a process-based methodology, focusing on chronological sequencing to investigate deal structuring as a temporal phenomenon. Techniques such as temporal bracketing and event-history analysis captured the path-dependent nature of decisions, revealing how early

commitments created obligations and constraints for subsequent phases. The rich, narrative-based method captured subtle decisions and dyadic dynamics that quantitative approaches might have omitted. The analytical framework provided a systematic basis for cross-case comparison, enabling the linkage of empirical sequences to theoretical constructs and tracing how specific phases aligned with distinct antecedents and considerations. Ultimately, this approach illuminated the iterative refinements and the progressive narrowing of options as deals advanced, while also showing how theoretical perspectives (RBV, TCE, RO, ICT) gained prominence at different stages.

8.3.2. Reframing antecedents: from static to dynamic, temporally integrated drivers

The empirical findings show that the most prominent antecedents pre-identified through literature review correspond to the primary antecedents consistently identified in this research across cases. They entail strategic fit, resources access-exchange, economic, asset and risk related antecedents. Each of this antecedent can be linked to a different theoretical perspective.

The literature review conducted prior to this investigation highlighted the prominence of specific antecedent categories yet revealed a fundamental limitation in existing scholarship: the tendency to examine antecedents in isolation or through dichotomous analytical lenses (section 3.2.2). This fragmented approach has created research silos where strategic-related antecedents, asset-related antecedents, economic antecedents, and resource-related antecedents are associated with distinct theoretical perspectives, hindering holistic understanding of their collaborative impact on alliance structuring processes.

However, the critical insight emerging from our process-based analysis is that these antecedents operate through temporal integration rather than isolated influence. The sequential decision gate framework reveals how antecedents are reinterpreted and reprioritized as alliance formation processes unfold, driving iterative decision-making and adaptation to emergent conditions.

Established variable-based approaches have treated antecedents as static determinants of governance outcomes, yet the research findings reveal that antecedents function as dynamic contextual conditions that evolve throughout deal processes rather than mechanistically determining structural outcomes. This process-based analytical view contrasts with analytical approaches that position antecedents as independent variables with direct causal relationships to deal structuring. Instead, findings

demonstrate that antecedents serve as dynamic contextual drivers that undergo continuous iterative assessment during dyadic negotiations. This process-based perspective recognizes that initial assessments of strategic fit, resource complementarity, economic, risk and asset related antecedents could evolve during the deal process based on new information, changing circumstances, and iterative learning between firms.

RBV related antecedents demonstrate temporal concentration during Deal Viability Decisions, where strategic fit and asset uniqueness and resources complementarity collectively influence the decision to enter a deal. TCE antecedents exhibit concentrated influence during Early Alignment Decisions, where economics and risk (from TCE perspective) become key antecedents after RBV related strategic viability has been established, focusing on deal structure that would minimize transaction costs and maximize efficiency. Lastly, risk (from RO perspective) demonstrate distributed influence across the deal process, where uncertainty levels, flexibility requirements and option value provide integrated antecedents of deal structures. This distributed pattern suggests that RO related antecedent permeate deal structuring processes rather than concentrating at specific decision points.

The process-based reframing of antecedents presented here engages directly with established scholarly contributions while offering temporal refinements to their theoretical insights. Lo Nigro, Perrone, and Chiapparone's (2012) integration of Transaction Cost Economics, Resource-Based View, and Relational theory provides important theoretical foundations, yet this research temporal framework suggests these theories operate in sequential specialization rather than simultaneous application. Where their quantitative analysis of 48 case studies identifies governance mechanisms as conditionally effective, process-based approach reveals that theoretical conditions may be temporally concentrated at specific decision gates rather than continuously distributed throughout alliance formation. Billitteri, Lo Nigro, and Perrone's (2013) examination of governance mode choices in Italian biopharmaceutical relationships addresses relational and performance risk considerations that align with our antecedent categorization. However, this research temporal framework extends their insights by revealing how risk considerations may be systematically processed through sequential decision gates rather than simultaneously evaluated. Choi and Contractor's (2017) alliance portfolio perspective challenges traditional governance dichotomies in ways that complement our multi-theoretical approach. This study's process-based framework could provide temporal extension to their portfolio insights by revealing how individual deal structuring follows systematic patterns that may aggregate to create

portfolio effects. The sequential constraint accumulation identified in this research may explain how individual deal decisions create interdependencies that influence subsequent portfolio development.

The dyadic, iterative refinement of antecedents influence provide process-oriented extensions to the largely static approaches employed across this literature. While existing scholarship offers valuable insights into antecedent identification and categorization, current process-based framework suggests that antecedent influence may be better understood through systematic decision-making processes rather than direct environmental responses. This process-based perspective on antecedents provides necessary but insufficient components for deal structuring analysis. Antecedents establish starting points for understanding deal structuring processes, yet their analytical relevance lies in their evolution and interaction with other factors throughout temporal progression. The focus must shift from static antecedent identification to dynamic antecedent reinterpretation as deal processes unfold. This focus must also shift from *"what antecedents are"* to "*how they are prioritized and reshaped over time"*.

In summary, this section has discussed a reframing of antecedents in deal structuring. Moving beyond the literature's fragmented, static view, the empirical findings demonstrate that antecedents are not isolated determinants but undergo temporal integration—being reinterpreted and reprioritized through sequential decision gates. This process-based view reveals a pattern of theoretical specialization, where RBV, TCE, and RO perspectives gain prominence at specific phases rather than applying simultaneously. Having established how antecedents dynamically shape the process, the discussion now turns to the mapping of the deal structuring process.

8.3.3.Deal structuring as a dyadic, phased and iterative journey

The prevailing literature has predominantly conceptualized deal structuring as a unilateral, optimization-driven process wherein individual firms make strategic choices based on their assessment of environmental conditions and partner characteristics (Trigeorgis et al. , 2017; Cuypers & Ertug, 2020). This theoretical orientation, while offering analytical elegance, fundamentally misrepresents the inherently dyadic nature of partnership formation and fails to capture the bilateral, iterative bargaining processes that empirically determine final deal structures in pharmaceutical R&D contexts.

Traditional theoretical frameworks implicitly assume that deal structures emerge from independent firm-level decisions that are subsequently matched through market mechanisms. TCE treats deal

structuring as fundamentally a unilateral optimization problem, wherein firms independently determine their preferred structural arrangements and seek compatible partners (Foss et al., 2021; Cuypers and Ertug, 2020). However, the empirical evidence reveals a different perspective. Deal structures emerge through intensive dyadic negotiations where both firms' priorities and obligations must be simultaneously accommodated through bilateral bargaining processes. This dyadic perspective, consistently, extensively and explicitly referenced across all deals and from both buyer and seller's side, underscores the fundamental dyadic nature of deals and their impact on the final deal outcome. Such dyadic process creates unique deal structures from one case to another, structures that cannot be predicted from either party's individual preference, challenging the theoretical adequacy of unilateral decision frameworks.

In addition to that, the literature's treatment of deal structuring as a static, one-off decision fails to address the temporal complexity inherent in R&D pharmaceutical deals, involving development assets with extended timelines and uncertain outcomes. Lo Nigro, Perrone, and Chiapparone (2012) acknowledge the importance of governance mechanisms in such knowledge-intensive context, yet their framework does not capture the temporal evolution of governance structures through sequential decision phases that characterize pharmaceutical alliances. Findings reveal that deal structuring consistently operates through temporal and phased approaches. This temporal dimension involves breaking down the deal structuring journey into successive phases that align with key decision gates, emphasizing the inadequacy of static structural decision models. This phased perspective recognizes that deal structuring process evolve through sequential bilateral alignments and engagements between firms rather than unilaterally predetermined outcomes.

Furthermore, the iterative perspective, explicitly referenced in the greatest majority of deal cases (70% of interviews with an average of two to three occurrences per interview), signifies a non-linear process characterized by multiple refinements and dyadic adjustments. The empirical evidence suggests that deal structuring involves continuous bilateral refinement of structural elements as partners learn about each other's capabilities, constraints, and strategic priorities through the negotiation process itself.This iterative perspective challenges linear one-off decision models prevalent in the literature and reflects the inherent complexity of pharmaceutical R&D deal structuring. The iterative nature suggests that deal structures emerge through repeated bilateral negotiations and adjustments rather than single events. Pisano's (1990) seminal work on alliances acknowledges the complexity of R&D partnerships

yet does not fully capture the iterative processes that characterize how pharmaceutical firms actually structure their collaborations.

The empirical identification of dyadic, iterative, and phased characteristics in pharmaceutical deal structuring suggests that existing theoretical frameworks may benefit from process-oriented integration rather than replacement. This is evidenced by the bilateral negotiation processes observed across cases, which demonstrate how transaction cost, resource-based, and real options evaluations operate interdependently through dyadic interaction rather than as independent optimization exercises. These process-oriented findings have significant implications for understanding deal structuring outcomes. First, the bilateral dyadic nature of the process implies that deal structuring outcomes cannot be predicted from individual firm characteristics alone but require an understanding of dyadic negotiation dynamics. Second, the temporal dimension indicates that deal structuring process evolve through distinct phases rather than via a single decision. Finally, the iterative characteristics demonstrate that deal structuring is a process of continuous mutual learning and adjustment, moving beyond the concept of a predetermined structural choice.

In sum, the empirical identification of dyadic, iterative, and phased characteristics reframes established theoretical frameworks as complementary rather than competing. Having established this process-oriented model, the discussion now turns to the what is being negociated during deal structuring process (considerations).

8.3.4.Multi theoretical mapping of deal structuring considerations

The extant literature has mainly focused on the motives and antecedents to deals. However, much less investigation has been undertaken to understand the process, and even less to understand what is being discussed and negotiated during that process, as already indicated in the literature review (section 3.3.3). One of the key findings from this study (section 7.3.2) is that during the deal-structuring process, the critical points of negotiation and discussion (considerations) between the parties are very consistent.

This research has identified the following considerations consistently used by the parties during deal structuring and negotiation:

- Structured payment with milestones (linked to RO)
- Allocation of control rights (linked to ICT)
- Risk-return allocation (linked to RO)
- Safeguard and risk mitigation (linked to TCE)
- Contracting and organizational efficiency (linked to TCE)

Findings demonstrate that structured payment milestones, allocation of control rights, risk-return allocation, safeguard and risk mitigation, and contracting and organizational efficiency operate as integrated consideration clusters rather than discrete negotiation points, offering process-oriented refinements to established theoretical perspectives. The empirical identification of five primary deal structuring considerations through systematic analysis of thirty deals reveals significant extensions to existing literature.

First, the prominence of structured payment milestones as a universal consideration across deals extends the literature's treatment of financial provisions by revealing systematic temporal structuring rather than ad hoc payment arrangements. While Yoon and colleagues (2018) identify upfront payments, milestone payments, and royalties as central financial terms, this research demonstrate that milestone structuring operates as a fundamental consideration that integrates Real Options logic with dyadic risk management.

Second, the allocation of control rights emerges as the most intensively discussed consideration, revealing systematic attention to decision-making authority distribution that extends beyond the literature's treatment of oversight mechanisms. Where Kim and colleagues (2014) position direct oversight as reflecting trust and autonomy concerns, findings suggest that control rights allocation operates as a comprehensive deal structuring consideration that integrates Incomplete Contract Theory insights with dyadic bargaining. The consistent and extensive reference to this consideration positions control rights as a much more central consideration than existing literature suggests.

Third, risk-return allocation demonstrates universal consideration across all interviews, providing empirical validation for Real Options theoretical perspectives while extending understanding of how risk considerations are systematically processed during deal structuring process. The literature's treatment of risk almost exclusively as an antecedent condition receives process-oriented extension through these findings that risk-return allocation operates as an active consideration requiring dyadic negotiation rather than environmental assessment. This systematic attention suggests that risk considerations may be more dynamic and negotiable than static risk antecedent assessment approaches indicate. Risk is not only an antecedent, it is also a major point of negotiation.

Fourth, safeguard and risk mitigation considerations appear universally across all interviews, offering empirical support for Transaction Cost Economics perspectives while revealing systematic integration with other consideration categories. While the literature, such as Lioukas and Reuer (2020), treats safeguards as outcomes of negotiations aimed at specific hazards, our findings reveal a more integral role. Safeguard and risk mitigation considerations are not merely endpoints but are systematically part of deal-structuring negotiations.

Fifth, Contracting and organizational efficiency considerations also provide strong empirical support for Transaction Cost Economics while revealing systematic integration with governance and coordination considerations. The literature's focus on contractual complexity (Kim, 2014) as addressing exchange hazards receives empirical extension through these findings that efficiency considerations operate as active negotiation points rather than predetermined structural responses. The high frequency of efficiency discussions suggests that optimization concerns may be more actively negotiated than static efficiency approaches indicate.

Overall, the theoretical distribution of considerations across Real Options Theory, Incomplete Contract Theory, and Transaction Cost Economics provides empirical validation for multi-theoretical approaches while revealing systematic integration patterns that existing literature does not address explicitly. Where the literature tends to associate specific considerations with distinct theoretical perspectives, findings demonstrate that consideration categories integrate multiple theoretical insights through bilateral negotiation processes.

In addition, the universal or near-universal presence of all consideration categories across deals provides empirical foundation for understanding consideration integration beyond the literature's

treatment of discrete negotiation points. These considerations operate through iterative dyadic deal structuring process, offering process-oriented insights that complement existing theoretical perspectives. Where the literature emphasizes environmental and partner-specific factors as determinants of negotiation content, our findings suggest that consideration categories may be more systematically embedded in deal structuring processes than contextual approaches indicate.

In summary, this section has established the five universal considerations that form the core content of deal-structuring negotiations, extending the literature by showing they operate as integrated clusters rather than discrete points. The interplay of considerations reflects a holistic approach that challenges the approach of the existing fragmented research landscape. The research underscores the importance of a comprehensive and integrated perspective when examining deal structuring considerations. Having discussed what is negotiated, the discussion now turns on the mapping, gating of decisions during the deal structuring process and when these considerations play a role.

8.3.5. Decision gates and path dependence

The deal structuring process in pharmaceutical R&D partnerships represents a complex, iterative mechanism through which organizations design contractual and governance arrangements. Rather than unfolding as a single, static decision, this process evolves through successive stages of negotiation, where parties gradually align on payment structures, control rights, risk-sharing mechanisms, and organizational arrangements. The analysis across cases indicates that this progression is not only iterative and dyadic, but also systematically organized around distinct decision gates that function as both strategic filters and approval checkpoints that determine whether the deal proceeds to subsequent stages. These gates function not as isolated events but as an interconnected system that channels negotiations toward a final structure through a dynamic interplay of theoretical perspectives and bilateral antecedents and considerations.

<u>Framework of 3 sequential decision gates</u>

The empirical findings reveal a consistent, sequential progression of 3 key interconnected decision gates: the Deal Viability Decision (DVD), the Early Alignment Decision (EAD), and the Deal Configuration Decision (DCD). Each decision is dominated by distinct theoretical lens, serving a

distinct purpose, yet together they form an interconnected sequence that structures the negotiation process. In the end all these 3 decisions lead to final choice of contractual agreements and deal closing.

The deal journey starts with the DVD, as foundational decision, in which firms determine whether a deal is strategically desirable at all. Across all cases, this decision gate was consistently characterized by interviewees as highly strategic and engaging. Its core function is to resolve the essential question: *"Does my company wish to pursue this deal?"*. Framed primarily through a Resource-Based View (RBV), this gate focuses on the strategic assessment of asset complementarity and partner fit. Decisions at this stage—whether asset-driven (e.g., *"Does my company want to pursue this technology?"*) or partner-driven (e.g., *"Do we want to work with this organization?"*)—create an initial strategic path dependency. Of note, findings indicate that for both buyers and sellers, the asset-driven scope tends to be the predominant scope across cases.

Following this decision to engage in a deal, parties typically encounter the EAD, a dyadic decision gate focused on aligning around the broad deal format. Unlike the DVD, which is unilateral in nature, the EAD operates through bilateral dyadic convergence, reflecting the need for joint decision around deal format. While prior research has described a "pre-deal" or ex ante alignment phase (Hwang, 2020, 2022), its relative importance has often been underexplored. The present findings suggest that this phase and decision deserves greater recognition, as it provides the mechanism through which partners negotiate convergence on deal type and broad structural principles before entering detailed bargaining. Moreover, the typology of governance modes proposed by Kale and Singh (2009), rooted primarily in TCE, appears particularly relevant for conceptualizing the EAD. Their framework, which emphasizes efficiency considerations, safeguarding mechanisms, and the minimization of coordination costs, resonates strongly with the dynamics observed at this stage of deal structuring. However, the findings suggest that EAD cannot be fully understood through a transaction cost lens alone, as flexibility and sequential option value—core to Real Options Theory—also play a decisive role. TCE and RO perspectives prove particularly relevant here, as parties weigh efficiency, flexibility, and safeguarding mechanisms under conditions of risk and uncertainty. Considering that, the integrated framework that combines Kale and Singh's efficiency-oriented typology (fig. 3.1) with RO perspectives on uncertainty management could therefore provide a more comprehensive lens for analyzing how parties converge on broad deal formats before entering detailed negotiations. This proposed extended typology will be further developed in the following section (RQ3 section 8.5).

The DCD emerges as the 3rd pivotal gate, centering on the detailed allocation of control rights and the distribution of risk and returns. Here, the integration of RO and ICT becomes particularly salient, as firms must navigate contractual incompleteness while preserving sufficient flexibility for future contingencies. RO provides the framework for designing flexible payment structures and risk-sharing mechanisms, while ICT addresses the allocation of rights to make decisions under unforeseen contingencies. Decisions at this stage represent the culmination of accumulated path dependencies, as earlier EAD around deal format leave firms with a progressively narrowing set of feasible deal structures. The evidence across cases suggests that outcomes at this gate often reflect compromises imposed by structural momentum rather than fully optimal arrangements. The findings reveal that this is not a monolithic negotiation over a single "control" concept but a complex and differentiated process involving a portfolio of up to 15 distinct identified control rights. The negotiation of these rights follows a predictable pattern of differentiation. A subset of rights, often those directly inferable from the deal format agreed upon during the EAD (e.g., commercialization rights in a licensing agreement), are implicitly pre-agreed and require no or little discussion. They become the assumed foundation upon which more contentious negotiations are built. In contrast, a critical set of control rights is pro-actively and explicitly addressed, becoming the primary subject of intense bilateral bargaining. These are typically rights that directly impact future risk sharing and value capture. The allocation of these rights operationalizes the theoretical insights of ICT, supported by RO logic which brings future flexibility and options. Therefore, the central question of the DCD is not if control is allocated, but how it is specifically distributed across this portfolio of rights to balance control with commitment, and flexibility with security, ultimately answering the question: "How, in precise terms, will this deal be structured to govern future relationship?"

Ultimately, the sequential progression through the three decision gates culminates in the final determination of contractual arrangements and the formal closing of the deal. These agreements represent not merely the legal and administrative conclusion of the process but the institutional embodiment of the overall deal structure negotiated along the way. In this sense, contractual closure crystallizes the cumulative outcomes of prior decisions, transforming provisional negotiations into binding commitments that define the trajectory of the deal.

Interconnectivity, path dependence, and theoretical integration

Taken together, these three gates reveal that deal structuring is both sequential and interconnected. Beyond their sequence, the gates form a dynamic system characterized by forward-flowing constraints and iterative feedback loops. This creates significant path dependencies, where early decisions systematically narrow the range of viable options later in the process.

Strategic assessments made during the DVD influence deal format choices at the EAD, which in turn restricts the feasible set of detailed allocation of control rights at the DCD. At the same time, feedback loops occasionally allow later negotiation impasses to reopen earlier decisions, underscoring the adaptive, iterative nature of the process. The process, therefore, requires managing the dynamic interconnections between gates, not merely optimizing decisions at each individual stage. Theoretical lenses are not competing but temporally sequenced: RBV frames strategic viability, TCE and RO dominate alignment, while RO and ICT govern final configuration. This theoretical sequence underscores the systematic nature of pharmaceutical R&D deal structuring process, suggesting that earlier inconsistencies in the literature may arise from treating these perspectives as simultaneously applicable rather than temporally specialized.

Case 3 - typical example of interconnectivity and feedback loop

Case 3 provides compelling illustration of how DCD negotiations can fundamentally alter the strategic trajectory of deal structure, necessitating systematic regression to earlier EAD when bilateral discussions reveal structural incompatibilities with initially proposed deal format. During detailed DCD negotiations concerning territory rights allocation and human capabilities integration, both parties discovered that the complexity of territorial control mechanisms and the strategic importance of human capital retention could not be adequately addressed within the originally conceived licensing framework. These DCD-phase revelations prompted reconsideration of the fundamental deal format, with both parties recognizing that the strategic value creation potential identified during initial DVD assessments could only be realized through full acquisition rather than licensing arrangements. This regression also demonstrates the iterative nature of such deals, where detailed DCD related bargaining can reveal strategic insights that fundamentally alter deal structure decisions, requiring systematic renegotiation of earlier EAD.

A process-oriented extension to static frameworks

First, this process-oriented view contrasts with much of the prior literature, which has tended to conceptualize deal structuring as a one-off or static choice. For instance, Pisano's (2008) and Dyer, Kale, and Singh's (2009) seminal frameworks largely omits the temporal dynamics revealed here. The findings extend their framework by showing how strategic choices are progressively operationalized through sequential decision gates. In other words, DVD and EAD gates can be seen as a process-oriented unpacking of this choice, revealing the multi-stage, bilateral negotiations that translate a high-level strategic intent into a specific deal structure.

The present study directly addresses several explicit calls for research within the literature on strategic alliances and deal structuring. As Hwang (2022) authoritatively highlights, a significant gap exists in understanding the "dynamic and evolving nature of R&D collaborations." While scholars have extensively analyzed factors influencing partner selection and governance choices (e.g., Choi and Contractor, 2016, 2019), there remains a paucity of research explaining the "step-by-step processes involved" in structuring a deal. This has led to a dominant, yet limited, focus on deal structuring as a singular event, overshadowing the multiple, sequential decisions that shape collaborative outcomes.

Findings engage directly with this critique. The identified sequence of decision gates—provides a concrete, empirical response to the need for a more temporal perspective called for by Choi (2020). Rather than a one-off decision, the deal structuring process emerges as a phased journey where interdependence among stages is critical. This empirically validates the conceptual argument made by negotiation scholars like Jang et al. (2018) that negotiations should be viewed as multiphase processes with opportunities for recursion, a feature captured by the feedback loops observed between our gates.

Furthermore, this framework offers a significant extension to the foundational work of Reuer et al. (2016)**,** who made early strides in framing deal structuring as a decision-making process with nested levels. While their model was constrained by binary classifications, three-gate framework reveals a more elaborated perspective. It demonstrates how each gate involves a distinct set of theoretical considerations (RBV, TCE/RO, RO/ICT) and negotiation dynamics, moving beyond simplistic dichotomies to explain the complex, iterative path from strategic intent to contractual agreements.

Most importantly, this study provides an empirical foundation for the appealing *"multi-stage contracting"* perspective advocated by legal scholars like Hwang and Jennejohn (2019). Their work rightly emphasizes that many agreements cannot be completed in a single phase and require flexibility. These findings empirically demonstrate *how* this plays out in practice. The EAD specifically functions as the mechanism for establishing the *"flexibility and modularity"* they recommend for early stages, setting the broad parameters before the granular, often rigid, terms are negotiated in the DCD and later in contractual agreement stage.

Present findings also refine more specialized contributions. Lo Nigro, Perrone, and Chiapparone's (2012) integration of TCE, RBV, and relational perspectives, for example, implies a simultaneous application of theories. By contrast, the empirical evidence here suggests that these theories operate sequentially across decision gates. Similarly, Billitteri, Lo Nigro, and Perrone (2013) identify relational and performance risks as governance determinants, yet the EAD suggests these factors exert influence most strongly at specific temporal junctures. Taneri and De Meyer's (2017) insights into contract theory likewise gain further nuance when situated within the DCD, which reveals how contractual incompleteness is systematically managed at a dedicated decision point rather than ad hoc.

Overall, the cumulative implication of this three-gate framework is that deal structuring should be understood not as a singular decision, but as a temporally ordered system of bilateral negotiations characterized by sequential interdependence and feedback. The consistency of these findings across cases indicates that they capture structural elements of deal structuring in pharma R&D context rather than idiosyncratic outcomes. This research does not seek to contradict these valuable scholarly contributions but to answer their collective call. By mapping the DVD-EAD-DCD sequence, it provides the missing cohesive framework that integrates successive decision points, offering a processual lens through which the dynamic evolution of R&D collaborations—as called for by Hwang (2022)—can be systematically understood and studied.

8.3.6. Synthesizing the deal structuring process: a sequential-interconnected model

In answer to the first research question—*"How can the deal structuring process be mapped, and how do its decision gates and outcomes interconnect over time?"*—this research reveals a coherent articulated process model. The findings demonstrate that pharmaceutical R&D deal structuring is a dyadic, iterative, and phased journey, systematically governed by a sequence of three decision gates that transform dynamic

antecedents into specific deal structuring outcomes through the negotiation of universal considerations.

The process is initiated by dynamic antecedents—strategic, resource-based, economic, and risk-related factors—which are not static inputs but are reinterpreted and reprioritized as they flow through the process. These antecedents gain temporal specialization: RBV antecedents dominate the DVD, TCE antecedents shape the EAD, and RO antecedents permeate the entire process, particularly the DCD.

The negotiation content throughout this sequence is defined by five universal considerations: structured payments, control rights, risk-return allocation, safeguards, and efficiency. These considerations operate as integrated clusters rather than discrete points, with their relative emphasis shifting at each gate. It is through the bilateral bargaining over these considerations that antecedents are actively processed and translated into deal structural choices.

The interconnection between gates is critical. The model demonstrates significant path dependencies, where outcomes at each gate create the constraints and opportunities for the next. The EAD, for instance, produces a crucial intermediary typology—a broadly agreed-upon deal format like an acquisition or license—that heavily constrains the feasible options for detailed contractual configuration in the DCD. This creates structural momentum, whereby early strategic assessments (DVD) and structural choices (EAD) profoundly influence the final contractual outcome.

Therefore, the process can be mapped as a dynamic system where the interconnection of decision gates over time is the mechanism that shapes outcomes. The sequence DVD → EAD → DCD channels the evolution of dynamic antecedents, mediated by the negotiation of core considerations, to produce a final contractual agreement that embodies the cumulative effect of these sequenced, interconnected decisions. This model moves beyond static frameworks by explaining not just what factors influence deals, but how they are processed over time to create unique contractual architectures.

Having established a process-based map of the deal structuring journey, including its key decision gates and their interconnectivity, the analysis now turns to the second research question. This next section investigates the theoretical perspectives that inform this process, examining when and how specific theories guide decision-making.

8.4. RQ2 - When and how can the theories of Transaction Cost Economics (TCE), Resource-Based View (RBV), Real Options (RO), and Incomplete Contract Theory (ICT) guide the deal structuring process in the asymmetric pharmaceutical R&D context?

This research question advances a process-based perspective that integrates TCE, RBV, RO, and ICT as complementary, rather than competing, frameworks. The central aim is to elucidate when and how each theory offers the most valuable insights during the distinct phases of deal structuring. By moving beyond predictive objective, this inquiry pursues a normative objective

8.4.1. RBV: confirming strategic primacy with temporal boundaries

RBV emerges as the primary theoretical guide during the initial stages of deal structuring, particularly at the Deal Viability Decision (DVD) gate. The study reveals that RBV-related antecedents demonstrate significant explanatory power, with strategic, assets and resource related antecedents consistently invoked across all cases and sides. Notably, the findings indicate that strategic fit antecedent not only influences the deal structure, but constitutes a prerequisite for the deal engagement, suggesting that RBV elucidates the decision to initiate the deal and its strategic shaping. In addition, the emphasis on exchange and complementarity indirectly supports the dyadic perspective, a facet not prominently addressed in established RBV explanations. The theory's perspective on rare, valuable, inimitable, and non-substitutable resources becomes particularly relevant in this pharmaceutical R&D context, where unique asset attributes influence the DVD as basis of competitive advantage.

RBV appears to assume a pivotal role for the first decision gate DVD, offering a significant level of explanatory power before the deal is engaged in. However, this research indicates RBV's systematic decline in explanatory power across subsequent decision gates. This temporal pattern suggests that while RBV provides the essential strategic logic for partnership initiation, its explanatory utility becomes progressively exhausted as decisions transition from strategic deal structuring evaluation to operational deal structuring.

RBV does not seem to play any role in the following decision gates and in none of the considerations subject to bargaining. Furthermore, while RBV excels in emphasizing antecedents, it tends to neglect the temporal aspect inherent in deal structuring, as noted in the literature review.

In addition to that, RBV fails to elucidate any structuring outcome or to support existing typologies in the findings. This aligns with the observation made from the literature review that RBV does not contribute insights into any typology (section 2.4.1.2.4). Regarding the specific phase of contribution, although RBV does not explicitly endorse a temporal perspective, the findings indicate that RBV contributes almost exclusively to the pre-deal and early stages, particularly at the first decision gate (deal viability decision), offering a strategic perspective on deal-structuring antecedents. However, it does not contribute to subsequent decision gates and structural outcomes. Hence, depending solely on RBV provides a reasonable level of explanatory power, yet it falls short of delivering a comprehensive depiction of deal structuring across all decision gates in this context.

RBV has maintained a prominent position in pharmaceutical alliance research, with scholars such as Rothaermel and Deeds (2004) emphasizing resource complementarity as a fundamental driver of biotechnology deals. Similarly, Jambulingam and Saxton (2021) highlighted the importance of resource-based strategic fit in determining alliance effectiveness. This research provides robust empirical evidences of RBV's foundational importance while simultaneously revealing previously unrecognized temporal boundaries to its explanatory power. The universal primary explanatory power achieved by RBV during the Deal Viability Decision phase confirms its theoretical primacy in initial strategic evaluation processes.

8.4.2.TCE: revealing temporal peak specialization

The findings of this study corroborate the importance of TCE for such deals but challenge the assumption of its uniform application throughout the deal-structuring process. Contrary to scholarship that applies TCE principles uniformly across alliance phases (e.g., Kim, 2014; Taneri & De Meyer, 2017), this research reveals that TCE's explanatory power is temporally concentrated, peaking during specific decision gates.

TCE assumes its most pivotal role at the EAD gate, where it provides the primary framework for selecting the broad deal format. At this stage, TCE logic guides firms to minimize transaction costs

and manage risks by aligning on a deal structure that balances hierarchical control with market-based coordination.

The theory's influence extends into the DCD gate, though in a more supportive capacity. Here, TCE provides the foundational logic for two key negotiated considerations: safeguard & risk mitigation as well as contracting and organizational efficiency. The universal and recurrent negotiation around these considerations underscores their critical importance and demonstrates how TCE principles are operationalized to protect against opportunism and optimize transactional efficiency during detailed negotiations.

However, TCE's explanatory power is notably absent during the initial DVD, which is driven by RBV. Furthermore, while useful for understanding the intermediary outcome of the EAD, a strict TCE-derived typology proved insufficient for classifying the final, complex contractual outcomes in 75% of cases. These deals often involved multiple agreements or option-like structures that defied existing categories, highlighting a limitation of static TCE typologies in capturing the multi-stage nature of deal structures.

In sum, this research temporally refines TCE application. It demonstrates that TCE is not a universally constant force but a specialized one, offering peak explanatory power when the core problem shifts from DVD to the design of efficient and safeguarded deal structures (EAD), with a residual influence on the detailed contractual terms negotiated thereafter (DCD).

8.4.3.RO: pervasive yet specialized adaptive structuring role

RO guides the deal structuring process by providing frameworks for managing uncertainty and preserving flexibility in dynamic environments (Leiblein, 2003). This theoretical guidance becomes particularly important in pharmaceutical R&D, where the path from discovery to commercialization involves multiple sources of uncertainty that can dramatically affect asset values.

Findings have shown that RO theory provides crucial and pervasive guidance throughout the deal-structuring process, with its influence concentrated at the EAD and DVD gates. The study reveals that RO-related antecedents, particularly those related to uncertainty and flexibility, demonstrate significant explanatory power in shaping deal structures, offering a distinct approach to risk that diverges from TCE. While TCE focuses on mitigating relational risk against opportunism, RO

provides the framework for managing technological risk and uncertainty by creating flexible, adaptable deal structures (Das & Teng, 2001).

During the EAD gate, RO logic provides the foundation for staged, optional deal formats. These structures serve a dual purpose: they enable parties to learn from ongoing developments while strategically deferring more significant commitments until key uncertainties are resolved. This represents a dyadic process of "option creation," where the value of future flexibility is formally integrated into the deal structure.

The theory's explanatory power becomes most evident at the DCD gate, where its outcome are operationalized through two consistent considerations across all cases from each side of the deal. First, the risk-return allocation consideration reveals a systematic effort to negotiate structures that align risks with potential returns. Second, structured payment-milestones function as embedded financial options, allowing parties to defer commitments and adjust investments based on the resolution of developmental uncertainties. These structures reflect RO principles by creating mechanisms to expand, contract, or abandon commitments, thereby preserving value in a dynamic R&D environment.

This research extends the RO literature by demonstrating that option value is not merely a unilateral strategic calculation (McGrath & Boisot, 2005; Smit & Trigeorgis, 2006) but emerges through systematic dyadic negotiation. The sequential decision architecture shows that option creation, protection, and exercise require continuous bilateral coordination—from setting fundamental parameters during the EAD to specifying detailed implementation mechanisms during the DCD. This challenges traditional RO assumptions by revealing that flexibility is not just preserved but is co-constructed and constrained by prior dyadic commitments, creating a path-dependent process of dyadic constraint accumulation.

In sum, while RO theory offers an essential, temporally-aware perspective that powerfully explains the flexible and adaptive nature of pharmaceutical deals, its contribution is specialized. It provides a significant level of explanatory power for the EAD and DCD gates but falls short of delivering a comprehensive depiction across all decision gates, particularly the initial strategic assessment of the DVD, which is driven by RBV logic. Its true value lies in complementing other theories, notably by enabling the incorporation of optional structural outcomes into more static TCE-based typologies and into ICT-derived typology (following section 8.5).

8.4.4.ICT: specialized late role in the deal structuring outcome

ICT emerges as a dominant theoretical guide during the final stage of deal structuring, the Deal Configuration Decision (DCD) gate. Its explanatory power is concentrated here, where detailed deal structuring arrangements are finalized to manage the inherent uncertainties and contractual incompleteness of pharmaceutical R&D context. While the study did not identify specific ICT-related antecedents, its influence is paramount in guiding the process and explaining outcomes through the critical consideration of allocation of control rights.

Across cases, ICT guides the deal-structuring process by providing the essential framework for addressing contractual incompleteness—the unavoidable reality that not all future contingencies can be specified in complex, long-term R&D partnerships. During the DCD gate, ICT logic directly informs the negotiation of up to 11 distinct control rights (e.g., development, IP, commercialization). This negotiation is not a unilateral optimization but a dyadic and iterative process where parties collaboratively determine who holds decision-making authority for these control rights post deal. ICT logic plays a key role at this stage in creating a platform for adaptive, consensus-driven deal structuring negociation.

This research fills a significant gap in the literature by empirically validating ICT's critical role, achieving primary explanatory status at the DCD phase. It extends the foundational work of Hart and Moore (1988) by demonstrating that control rights allocation is not a static, one-off decision but a process of dyadic constraint accumulation. The sequential decision-gate architecture shows that agreements on control rights are built progressively, with commitments made during earlier gates (like the EAD) establishing the parameters within which detailed DCD negotiations occur. This challenges the traditional ICT assumption of optimal, unilateral control rights allocation, revealing instead a path-dependent, co-constructed outcome.

Lastly, ICT offers a powerful lens for understanding the complex deal structures that characterize R&D pharmaceutical deals. It explains the prevalence of joint committees, shared decision-making, and detailed dispute resolution mechanisms. Furthermore, the findings suggest that an ICT-derived typology, focusing on the portfolio of allocated control rights, could provide a differenciated granular way to describe deal structures in contrast to TCE based typology and prior to the final choice of contractual agreements.

In conclusion, ICT provides an important, yet highly specialized, contribution. It is the only theory of the four examined that explicitly endorses both temporal and dyadic perspectives, making it uniquely suited to explain the collaborative and adaptive nature of final contract configuration. However, its influence is confined almost exclusively to the DCD gate; it does not contribute to understanding the initial strategic or alignment decisions. Therefore, while ICT is crucial for a complete picture, it must be integrated with RBV, TCE, and RO to fully explain the entire deal-structuring process and outcome.

8.4.5. Synthesized theoretical framework: sequential specialization in the deal-structuring process

The preceding analysis demonstrates that the deal-structuring process is a dynamic and collaborative system where theoretical frameworks, dynamic antecedents, and negotiated considerations are inextricably linked. The four predominant theories function as complementary and temporally specialized lenses that channel the influence of specific antecedents into the negotiation of core considerations. Crucially, this process is not a linear, unilateral progression but a dyadic and iterative journey, where bilateral negotiation and feedback loops between gates are fundamental to shaping the pathway to final contractual outcomes.

8.4.5.1. Consolidated theoretical interpretation

The empirical findings reveal a consistent pattern where each decision gate is characterized by a dominant theoretical logic, which in turn focuses the dyadic negotiation on a specific set of considerations, driven by evolving antecedents.

RBV dominates the Deal Viability Decision (DVD), a phase activated by strategic, asset, and resource-related antecedents. At this gate, these antecedents are processed through a primarily unilateral RBV lens to answer the foundational question of why to engage. The primary output is a strategic commitment to proceed, creating an initial path dependency.

TCE and RO are co-dominant at the Early Alignment Decision (EAD) gate. Here, the process becomes explicitly dyadic. The strategic commitment from the DVD interacts with economic, risk, and uncertainty antecedents from both parties. The TCE and RO logics channel these into a bilateral

negotiation focused on safeguarding, efficiency, flexibility, and optionality considerations to determine a mutually acceptable governance format.

ICT and RO guide the Deal Configuration Decision (DCD). The chosen deal format from the EAD establishes a narrowed set of viable structural options. Here, the imperative to manage contractual incompleteness brings ICT-specific considerations—the allocation of control rights—to the fore. This negotiation over a portfolio of distinct rights is an intensely dyadic and iterative activity. Concurrently, RO-informed considerations are operationalized to finalize financial and risk-sharing terms.

The process is characterized by iterative feedback loops. Impasses encountered during detailed DCD negotiations (e.g., over control rights) can trigger a re-evaluation of the deal format at the EAD gate, or even a reconsideration of strategic viability at the DVD gate. This iterativeness, driven by dyadic learning and adaptation, challenges linear models and underscores the dynamic nature of deal structuring.

8.4.5.2. Integrated model of sequential theoretical specialization

The Integrated Dyadic and Iterative Model of Sequential-Theoretical Specialization (fig. 8.1) is proposed to encapsulate these dynamics. This model delineates the sequential interaction of antecedents, theoretical lenses, and considerations across the three decision gates, while explicitly incorporating bilateral dynamics and feedback loops.

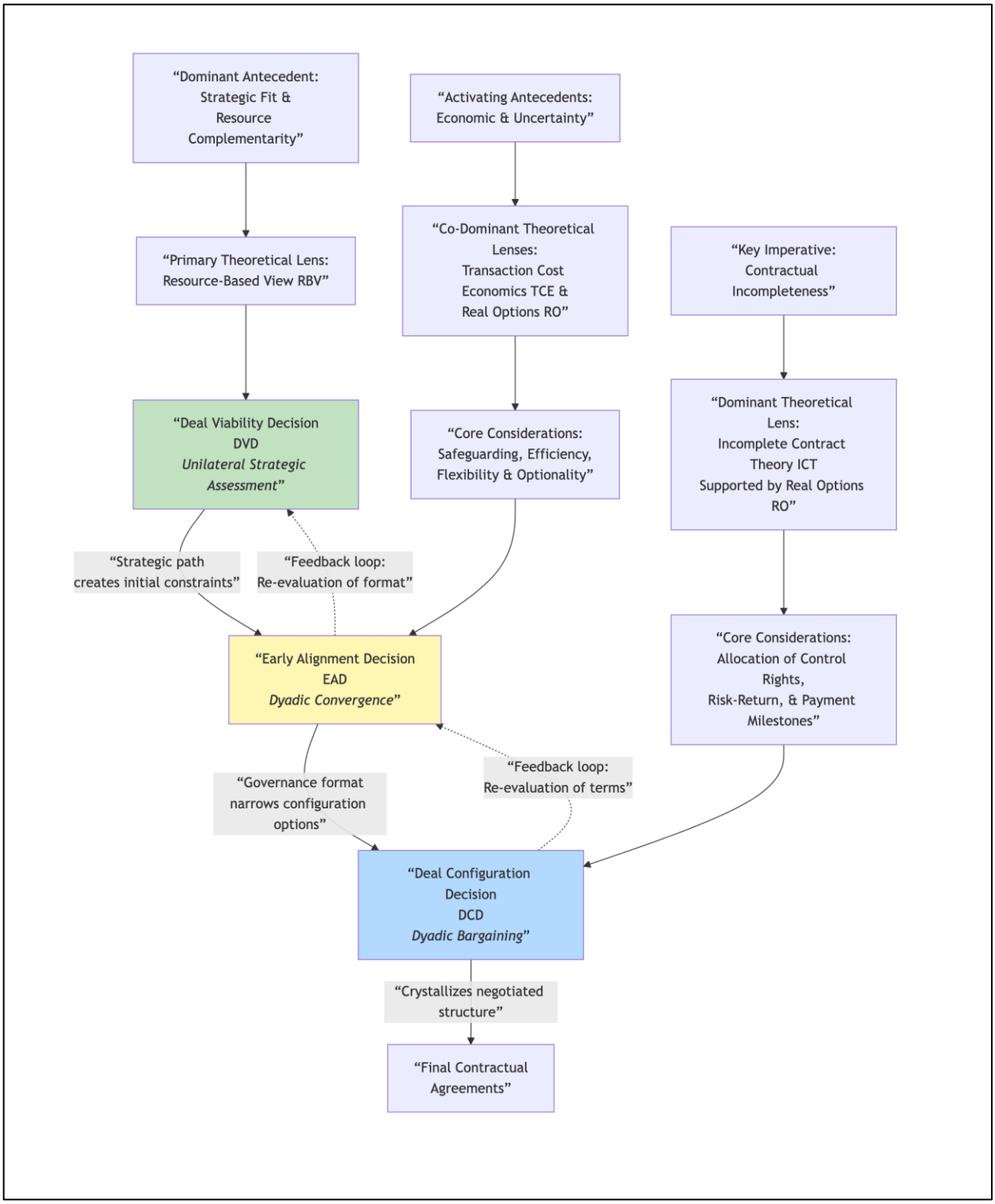

Figure 8-1 Integrated dyadic and iterative model of sequential-theoretical specialization

This integrated model elucidates the key dynamics of the deal-structuring process:

1. Sequential progression with dyadic engagement: the model maintains the core sequential logic (DVD → EAD → DCD) but explicitly defines the nature of engagement at each gate. It progresses from a primarily unilateral strategic assessment (DVD) to phases of dyadic convergence (EAD) and intense dyadic bargaining (DCD), reflecting the increasing need for bilateral agreement as the process advances.
2. Theoretical channeling of dyadic bargaining: the dominant theoretical lens at each gate structures the content of the dyadic bargaining. The framework shows how theories channel dyadic discussions toward specific consideration clusters, from internal strategic assessment (RBV) to joint problem-solving around deal format and flexibility (TCE/RO) and finally to bargaining over control rights and risk/value distribution (ICT/RO).
3. Iterative feedback loops: the model incorporates critical feedback loops (dashed arrows), representing the iterative nature of the process. These loops illustrate that impasses at later gates (particularly the DCD) can force parties to revisit and renegotiate decisions made at earlier gates. This captures the dynamic of dyadic learning and adaptation, where the process is not simply linear but recursive.
4. Comprehensive causal explanation: The model provides a cohesive causal narrative that explains the journey from antecedent to outcome as a socially constructed process. It is not merely a sequence of decisions but a collaborative and adaptive negotiation convergence effort between two sides, where the path is shaped by both forward-moving constraints and backward-flowing revisions. This fully captures the complex, real-world nature of deal structuring process, integrating the *what, how, when, and who* of deal structuring.

In addressing how the deal-structuring process can be mapped, this research has established a multi-theoretical, dyadic, and phased framework. This framework, integrating RBV, TCE, RO, and ICT across sequential decision gates, provides a holistic understanding of the processual anatomy of deal structuring in pharmaceutical R&D context. Crucially, this model elucidates the mechanisms of deal structuring process but does not deterministically predict final outcomes. Instead, it adopts a *"quality by design"* logic, asserting that the structure of the final deal is fundamentally shaped by the iterative, dyadic journey itself.

This process-oriented perspective now establishes the necessary foundation to address the subsequent research question. Having illuminated the generative process — how different theoretical logics and dyadic negotiations are sequentially activated—the discussion can now shift to examine the resulting outcome. The following section will leverage this framework to explore the sources of variation in deal structures and propose refined typology to categorize the distinct outcomes that emerge from this complex, path-dependent journey.

8.5. RQ3 - Why do deal structuring processes lead to different outcomes across cases, and what typologies can be developed to categorize and explain these differences?

8.5.1.Explaining outcome variation: from static selection to sequential co-creation

The cross-case analysis reveals that divergent deal structures in pharmaceutical R&D do not stem from random variation but emerge s from a dynamic, multi-stage process of dyadic deal co-structuring. These findings necessitate a re-evaluation of the prevailing static unilateral selection paradigm, which conceptualizes deal structuring outcomes as optimal alignments—selected unilaterally by firms—in direct response to antecedent conditions such as asset specificity and uncertainty (Williamson, 1991; Taneri & De Meyer, 2017). The analysis reveals that while economic, asset-related, and risk antecedents shape the process, none serve as reliable predictors of the final structural outcome. Instead, this research demonstrates that outcomes are forged through a process of dynamic deal structuring, where the sequential accumulation of dyadic engagements and the interplay of theoretical logics across decision gates are the primary engines of variation.

8.5.1.1. The Mechanism of sequential constraint accumulation

The documented three-gate process (DVD → EAD → DCD) provides the core architecture for understanding outcome divergence. Rather than a single alignment choice, each gate represents a critical juncture where dyadic negotiations create path dependencies that progressively narrow the structural possibilities for the subsequent stage.

At the DVD**,** RBV antecedents of strategic fit and resource complementarity establish a foundational strategic path. A decision to engage based on a specific asset scope, for instance, immediately constrains the universe of possible governance formats.

At the EAD, the interplay of TCE and RO logic guides the selection of a broad deal format. The dyadic negotiation here represents a major branching point, creating a structural momentum.

Finally, at the DCD, the detailed allocation of control rights (guided by ICT) and the structuring of payments (guided by RO) must operate within the constraints established by prior gates. This sequential funneling effect means that even partnerships with similar initial antecedents can arrive at vastly different final structures based on the specific, often unique, compromises and commitments made at each bilateral gate.

8.5.1.2. Variation from multi-theoretical, dyadic deal co-structuring

Outcome variation is further explained by the multi-theoretical and dyadic nature of the deal-structuring process, which functions as a mechanism for dyadic co-structuring. This perspective reframes the process from a unilateral selection to a dynamic negotiation where the unique priorities each firm assigns to different antecedents and considerations create inherent tensions. The resolution of these tensions through iterative bargaining is what forges a unique, co-constructed outcome.

The sequential decision gates provide the architecture for this tension, where different types of antecedents and considerations naturally come into place. While firms prioritize practical business issues—not theoretical frameworks—their priorities are best explained through distinct theoretical lenses. A firm prioritizing risk mitigation and safeguards (a consideration linked to TCE) will clash with a firm prioritizing future flexibility and option value (a consideration linked to RO). The friction between these competing substantive priority considerations becomes the central subject of negotiation.

This process is therefore not a unilateral selection from a menu of deal structures but a bilateral co-creation of unique deal structure outcome. The iterative, dyadic bargaining process is driven by the need to resolve these fundamental tensions. The resulting deal structuring outcome reflects a co-constructed equilibrium that is shaped as much by the path of the negotiation itself as by the

antecedents and considerations. This explains the prevalence of complex, multi-agreement structures that contradict traditional categorizations (Lo Nigro et al., 2012; Kim, 2014). The outcome is not a pre-designed response to a hazard, but an emergent artifact of a collaborative and contentious co-structuring process, where the interplay of priorities linked to different theories creates a unique result for each dyad.

8.5.1.3. A fundamental challenge to the static unilateral selection paradigm

Collectively, these insights necessitate a shift in theoretical focus. The static unilateral selection paradigm, which seeks to explain why deals are different based on a catalog of antecedents, is insufficient. This research proposes a process-oriented perspective that explains how deals become different through a dynamic, dyadic journey.

The key theoretical implication is that the process itself is a primary source of variation. The cumulative effect of early dyadic engagements at the DVD and EAD gates may exert a more profound influence on the final outcome than the initial antecedents. This challenges the extant knowledge by showing that outcomes can be path-dependent and historically contingent, rather than solely the result of forward-looking, optimal alignment. For a comprehensive understanding of strategic deals, explaining the processual dynamics of "how" they form is ultimately more insightful than cataloging the static reasons "why" they differ.

8.5.2.Towards a new typology: explaining outcome through sequential intermediary forms

A comprehensive explanation for why deals are structurally different requires moving beyond a static analysis of final contracts to an understanding of the dynamic, multi-stage process that produces them. This need is underscored by significant gaps in the extant literature and compelling empirical evidence.

The field has long relied on TCE based typologies, which, despite their prevalence, are marked by critical limitations. These include a reliance on oversimplified binary classifications (e.g., alliance vs. acquisition) that fail to capture the complex, multi-agreement reality of modern partnerships (Reuer & Arino, 2007; Roehrich et al., 2020). Furthermore, this narrow transactional perspective fails to accommodate flexible, option-rich structures informed by RO and overlooks the granular allocation of control rights central to ICT.

Empirical validation of typological Inadequacy

The limitations of these static models are empirically confirmed by this study's findings. An analysis of final contractual agreements against a traditional TCE-based typology revealed that it could only accurately classify 25% of the cases (5 out of 15 deals). The substantial majority (75%) defied classification, primarily because the typology could not accommodate multi-agreement structures (e.g., License + Collaboration Research) or option-based agreements, revealing a fundamental descriptive failure.

Conversely, an exploration of an ICT-derived perspective, focusing on the allocation of 11 distinct control rights (e.g., development, IP foreground, exclusivity), proved far more sophisticated. This lens successfully captured critical dimensions of deal complexity that were invisible to the TCE typology, confirming that control rights are a fundamental, though often implicit, aspect of deal structuring. However, while rich in detail, this perspective alone lacks the sequential logic to explain *how* these complex deal structures come to be.

Proposing a Sequential Framework of Intermediary Typologies

The empirical evidence confirms that a final contractual lens provides only a snapshot of the culmination point, obscuring the critical intermediary decisions. Therefore, to truly explain deal variation, this research proposes a shift towards sequential intermediary typologies with differing granularity.

Based on the findings, two intermediary and sequential typologies, associated with the key decision gates, are proposed:

1. The Primary Deal-Structuring Outcome, associated with the second decision gate (Early Alignment Decision), could be captured by a typology named **Shift of Property and Control (SPC)**. This intermediary typology is rooted in the TCE model but is critically expanded to incorporate Real Options logic and various outcomes specific to the pharmaceutical industry R&D context, effectively categorizing the broad deal formats that emerge from the EAD gate.
2. The Secondary Deal-Structuring Outcome, associated with the last decision gate (Deal Configuration Decision), could be captured by a typology named **CRAFT (Control Rights Allocation Framework and Typology)**. This typology is based on the allocation of the

control rights identified in the study, providing a granular map of the governance architecture that is finalized at the DCD gate.

By mapping these critical branching points, this multi-theoretical and process-oriented approach offers a dynamic and explanatory framework. It directly addresses the literature gaps by moving beyond simplistic binaries and integrating the complementary strengths of multiple theories to explain not just *what* deals are, but *how* and *why* they become different through the sequential resolution of core theoretical tensions.

8.5.2.1. Primary deal-structuring outcome and typology - Shift of Property and Control

As implied by its name, SPC facilitates the description of property transfer and control exchange between firms. Building upon the existing integration-based model, this typology extends the TCE Pisano-based model discussed in the literature review and evaluated in the findings 7.4.1. Notably, SPC introduces two crucial components: an optional aspect, guided by RO, and the incorporation of a distinction between those deals centered around assets and those centered around equity. SPC can be classified according to four categories as follows (Fig. 8-2):

- Full SPC: This deal format involves a full shift of property & control from one firm to another.
- Partial SPC: This deal format involves a partial shift of property and control from one firm to another. Control is delegated on specific rights, subject to further negotiation.
- Collaborative SPC: This deal format involves shared property and control between the two companies in a collaborative context
- Optional SPC: This deal format involves an option to any of the above types of SPC.

Each category within this typology includes a subcategory that distinguishes between asset-driven and equity-driven deals. This added layer serves as a valuable bridge to an existing typology of contractual agreements. For example, a full SPC, when implemented at the equity level, would entail a complete transfer of equity, while at the asset level, it would involve an asset purchase. This level of differentiation was not achievable with the TCE-based integration typology (Fig. 3-1).

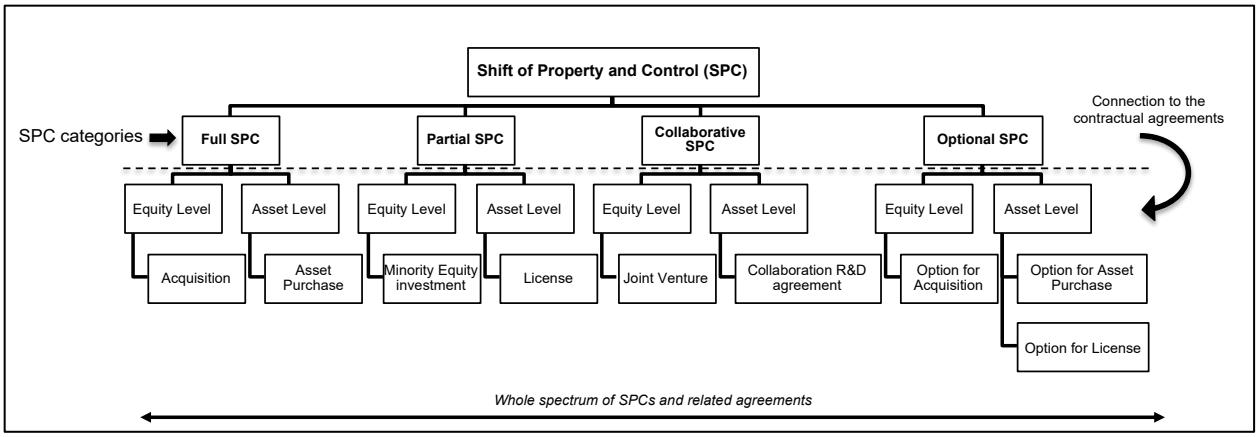

Figure 8-2 Shift of Property and Control (SPC) - Typology

Application to the case studies

Every deal examined in this study can categorized under this SPC typology. Unlike the TCE-derived integration-based typology explored in the findings (Table 7-9, section 7.4.1), SPC offers a comprehensive description of all deals by distinguishing assets and firms, incorporating optional components, and accommodating multiple contractual agreements (Table 8-1).

Case number	Contractual agreement(s)	SPC category
Deal 1	Acquisition	Full SPC - equity level
Deal 2	License	Partial SPC - asset level
Deal 3	Acquisition	Full SPC - equity level
Deal 4	License/Collaboration Research	Partial & Collaborative SPC - asset level
Deal 5	Collaboration Research - Service type/License	Partial & Collaborative SPC - asset level
Deal 6	License/Equity Investment	Partial SPC - equity & asset level
Deal 7	Option for License/License	Optional & Partial SPC- asset level
Deal 8	Option for License/Collaboration Research	Optional & Collaborative SPC- asset level
Deal 9	Clinical License	Partial SPC- asset level
Deal 10	License/Co-development	Partial & Collaborative SPC- asset level
Deal 11	Option for License/Collaboration Research	Optional & Collaborative SPC- asset level
Deal 12	Acquisition	Full SPC- equity level
Deal 13	License/Co-development	Partial & Collaborative SPC- asset level
Deal 14	Option for License/Collaboration Research	Optional & Collaborative SPC- asset level
Deal 15	Joint Venture	Collaborative SPC- equity level

Table 8-1 Shift of Property and Control - Application to case studies

Overall, the distribution of SPCs between deals reflects the need to "pave the way" before entering into a more granular deal structure. By using the SPC typology, practitioners can consistently align their expectations and intentions at an early stage. **So this SPC typology fits very well the need out of EAD of both parties to align around a deal format.**

8.5.2.2. Secondary deal-structuring outcome - Control Rights Allocation Framework and Typology

Findings have revealed that up to 11 rights were subject to discussion and/or decisions between the parties (section 7.4.2). These rights, ranging from IP rights to equity or asset-development rights, seem to cover all the components for a deal structure, and many of them are interrelated. However, managers – in the case studies and my observations in practice – tend to focus on a few control rights, rather than thoroughly exploring the complete set, leading to potential biases in deal structures or rushing too rapidly into detailed contractual negotiations. The examination of control rights allocation seem to lack a systematic and comprehensive approach across all rights, which may result in parties overlooking crucial control rights. Regarding cash flow rights, (Kaplan & Strömberg, 2004), it did not emerge organically across all thirty interviews. This absence can be attributed to two primary factors. First, the theoretical framing of cash flow rights is largely designed for financial transactions between investors and early-stage startups, a context fundamentally different from the strategic, capability-driven partnerships between established biopharmaceutical entities that are the focus of this research. Second, the direct financial terms of such deals are often treated as highly confidential and sensitive, making them less accessible to the type of process-focused inquiry conducted here. While the economic outcomes are undoubtedly critical, they were manifested in the negotiations not as discrete "rights" but through the structuring of payment milestones and risk-return allocations, which are captured under the core consideration of "Structured Payment with Milestones." Consequently, while a dedicated exploration of cash flow rights could be a valuable avenue for future research, particularly in bridging financial and strategic governance theories, the current typology accurately reflects the salient governance constructs that emerged from the data within this specific industrial context.

Considering these previous points, a new typology, called " Control Rights Allocation Framework and Typology " (CRAFT), is proposed. As implied by its name, CRAFT is guided by ICT, which posits that, in the context of R&D uncertainty, parties decide "who will decide what" for each control right.

Based on that, every deal entails a unique and different level of rights allocation from the seller to the buyer (for each and every right). Four levels of allocation are proposed:

- No allocation - signifying that the seller retains rights without transfer to the buyer.
- Negotiable allocation - indicating that the allocation of rights will be subject to negotiation and agreement.
- Shared allocation - denoting that the rights will be jointly shared between the buyer and seller without explicit negotiation.
- Full allocation - specifying that all rights are entirely transferred to the buyer without reservation.

All the control rights subject to negotiation have been extracted from Table 7-2 (section 7-4-2).

	CONTROL RIGHTS										
Contractual agreement	ACCESS	Data		Intellectual Property		Capabilities		Development	Commercialization	Manufacturing	Equity
	Priority	Background	Foreground	Background	Foreground	Human	Technical				
Option (for License or Acquisition)	Full Allocation	No Allocation	No Allocation	No Allocation	No Allocation	No Allocation	No Allocation	No Allocation	No Allocation	No Allocation	No Allocation
License	No Allocation	Negotiable Allocation	Negotiable Allocation	Negotiable Allocation	Negotiable Allocation	Negotiable Allocation	Negotiable Allocation	Negotiable Allocation	Negotiable Allocation	Negotiable Allocation	No Allocation
R&D Agreement or Co-Development	No Allocation	No Allocation	Shared Allocation	No Allocation	Shared Allocation	Negotiable Allocation	Negotiable Allocation	Shared Allocation	Shared Allocation	Negotiable Allocation	No Allocation
Equity Investment	No Allocation	No Allocation	No Allocation	No Allocation	No Allocation	No Allocation	No Allocation	No Allocation	No Allocation	No Allocation	Negotiable Allocation
Asset Purchase/Acquisition	No Allocation	Full Allocation	Full Allocation	Full Allocation	Full Allocation	No Allocation	No Allocation	Full Allocation	Full Allocation	No Allocation	No Allocation
Company Purchase/Acquisition	No Allocation	Full Allocation	Full Allocation	Full Allocation	Full Allocation	Full Allocation	Full Allocation	Full Allocation	Full Allocation	Full Allocation	Full Allocation
Joint Venture	No Allocation	No Allocation	Shared Allocation	No Allocation	Shared Allocation	Shared Allocation	Shared Allocation	Shared Allocation	Shared Allocation	Shared Allocation	Shared Allocation

Table 8-2 Control Rights Allocation Framework and Typology (CRAFT)[3]

Following CRAFT, all existing contractual agreements can be depicted as follows (Table 8-2):

- The option agreement stands out with the only allocation being on access priority rights. No other rights are allocated to the buyer. This implies, as observed in cases 8 or 14, that these agreements

[3] A larger format of this table is in appendix F

are not sufficient and are either complemented or followed by another agreement as part of an overall deal.

- License agreements offer the largest portion of rights subject to negotiable allocation. This reflects the diversity of license agreements in terms of deal structuring, as observed in the cases 2 and 10. It also implies a dyadic approach in which parties engage in bargaining to determine the extent of rights transfer.
- R&D agreement or co-development feature negotiable allocation for various rights categories. However, development and commercialization rights are automatically shared, highlighting a de facto perspective of collaboration and shared benefits from the results.
- Asset and company purchase/acquisition consist of the same full allocation of rights for priority, background, foreground, materials, patent, capabilities, development and commercialization. However, asset purchase/acquisition agreements lack allocation for manufacturing and equity, distinguishing them from company purchase/acquisition agreements.
- Joint ventures reflect shared allocation for several rights categories, emphasizing the cooperative nature of such agreements. Notably, rights related to capabilities, development and commercialization are shared, highlighting the need to follow a collaborative approach in these deals.

CRAFT constitutes a very adequate typology to be used for the structuring phase leading to the Deal Configuration decision.

The widely used term, "deal structure", could, in practice, be viewed as the closest industry-established definition to CRAFT. This matrix serves to comprehensively capture the multifaceted dimensions encompassed by the term "deal structure" in practice. However, this term seems, based on findings & practice observation, to be poorly defined, with most managers not able to conceptualize and delineate deals outcomes with such a level of granularity. The CRAFT matrix, characterized by a complex combination of rights allocations, could stands out as the pinnacle, encapsulating the fundamental scope of negotiation.

Application of CRAFT to the case studies

Using CRAFT, each deal could be defined based on the agreed level of allocation for each and every control right. A heatmap has been produced (Fig. 8-4), which visualizes the extent to which each deal

is the unique outcome of control rights allocation. It shows how different case studies encompass varying levels of rights allocation. These differences reflect the idiosyncrasy of each deal resulting from a nuanced dyadic balance between antecedents and considerations.

Whilst a comparison of SPC and contractual agreement would not allow us to differentiate deal cases 10 and 13, the CRAFT model allows to significantly differentiate them. In addition, this model easily incorporate a combination of multiple contractual agreements. In such a case, parties negotiate the allocation of rights and then determine the best combination of contractual agreements to fulfill the agreed allocation. For instance, in deal case 4, the buyer wanted to in-license one asset and wanted to access the R&D capabilities of the seller. Thus, a license was concomitantly signed with a collaboration agreement.

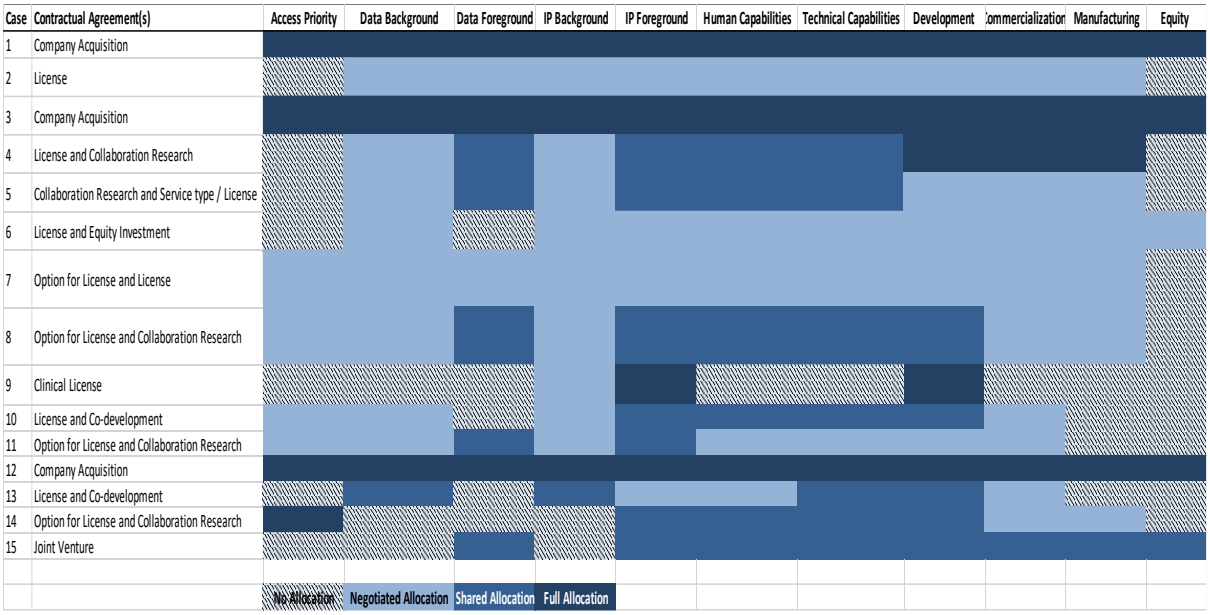

Figure 8-3 Heatmap of the deals based on level of control rights allocation[4]
Four levels of control right allocation (no allocation, negotiated allocation, shared allocation and full allocation) between seller and buyer.

[4] A larger format of this table is in appendix G

8.5.2.3. Integrated model of sequential-theoretical specialization with SPC & CRAFT typology

This section theorizes and empirically grounds the sequential interplay between SPC at the Early Alignment Decision (EAD) gate and the CRAFT at the Deal Configuration Decision (DCD) gate, and explains how this progression culminates in the selection and drafting of contractual agreements. The argument is that final deal structures do not arise from a single act of deal structuring but instead emerge through a process-based and dyadic accumulation of bilateral commitments. SPC establishes the deal format, while CRAFT operationalizes that structure into explicit control rights allocations before any legal form is chosen. The ultimate contract is therefore best understood as the codification of a pre-existing, jointly engineered deal structure rather than as the generative source of that system.

SPC functions as the decisive architectural phase of bilateral governance construction. During EAD, the parties align on the fundamental structure of property transfer and control exchange that will govern the relationship, drawing on an integration-based logic extended from the TCE Pisano tradition while explicitly distinguishing between asset-driven and equity-driven paths and, where appropriate, incorporating an options-based logic for deferred commitment. In this sense, SPC formalizes a category-level choice—full, partial, collaborative, or optional—together with its implementation substrate in assets or equity. This generates a substantive intermediary outcome with immediate constraining power: it prefigures the degree of integration, the locus of residual control, the expected coordination intensity, and the boundary conditions for operational decision-making. The point is not merely that the parties express preferences, but that they produce a concrete bilateral deal format that both narrows and clarifies what kinds of control rights can be meaningfully specified downstream.

CRAFT translates this deal format outcome into an explicit, pre-contractual governance design. At DCD, the parties do not yet select a legal form; rather, they elaborate a domain-specific allocation of control rights that is detailed enough to be executable. This typology framework explicitly elaborates on fifteen distinct control rights, specifying whether each right is retained, shared, or shifted between the partner firms. The result is a matrix of control rights (with deal specific allocation) that is consistent with the SPC category and subcategory previously selected at EAD. The act of specifying CRAFT

thus reveals the concrete viability of the SPC architecture in light of implementation realities. It is, in this sense, the principal site where abstract governance intentions meet operational feasibility.

The progression from SPC to CRAFT reveals a mechanism of sequential constraint accumulation that is both temporal and dyadic. Temporally, early choices condition later possibilities: the SPC category and its asset–equity instantiation delimit the feasible range of control rights allocations, and those allocations, once negotiated, delimit the set of compatible contractual forms. Dyadically, each step is co-produced through negotiation and mutual adjustment: neither firm can unilaterally impose governance architecture at EAD nor detailed control rights at DCD, and the final legal form reflects the cumulative result of bilateral design. This sequential, dyadic mechanism explains why contract selection is better treated as an outcome than as an assumption. It also clarifies why apparently similar transactions may converge on different contractual archetypes; their SPC and CRAFT trajectories differ in ways that only become visible when intermediary structures are made explicit.

Importantly, the interplay is iterative rather than strictly linear. While SPC constrains CRAFT, detailed CRAFT negotiations can surface incompatibilities that necessitate revisiting the SPC architecture. This is particularly salient where territory allocations, human capability deployment, data governance, or access to equity introduce dependencies that the initial SPC category cannot resolve without distortion. The framework therefore anticipates disciplined regression to earlier gates as a normal feature of bilateral design under uncertainty. In such cases, Real Options logic embedded in the optional SPC category provides a structured path for deferment or staged escalation, allowing the dyad to preserve option value while continuing to accumulate information about coordination costs and performance contingencies.

The culmination of this progression is the selection and drafting of the contractual agreement, which should be understood as a legal codification of the CRAFT framework within the constraints set by SPC. Rather than beginning from a contract archetype and inferring governance from template provisions, the parties select the legal form that best implements the already-specified control rights. This inversion has two implications. First, it explains observed path dependence in deal structuring: once an SPC architecture and corresponding CRAFT allocations are negotiated, the set of legally coherent contracts narrows, often to a small number of archetypes whose provisions can faithfully codify the agreed governance. Second, it reframes contract negotiation as translation rather than

discovery: the work of designing the partnership—deciding who controls what, when, and how—has been substantially completed before the legal drafting begins, thereby reducing contractual incompleteness to the extent that it reflects unspecified governance rather than irreducible uncertainty.

In sum, the interplay between SPC at EAD and CRAFT at DCD provides a theoretically coherent and empirically grounded account of how final deal structures actually emerge. SPC defines the governance architecture and property/control exchange parameters, CRAFT operationalizes those parameters into explicit control rights before any legal form is selected, and the contract codifies this governance design. The result is a process-based, phased, and dyadic model in which contractual agreements are the terminal expression of sequential bilateral design, rather than the starting point from which governance is inferred.

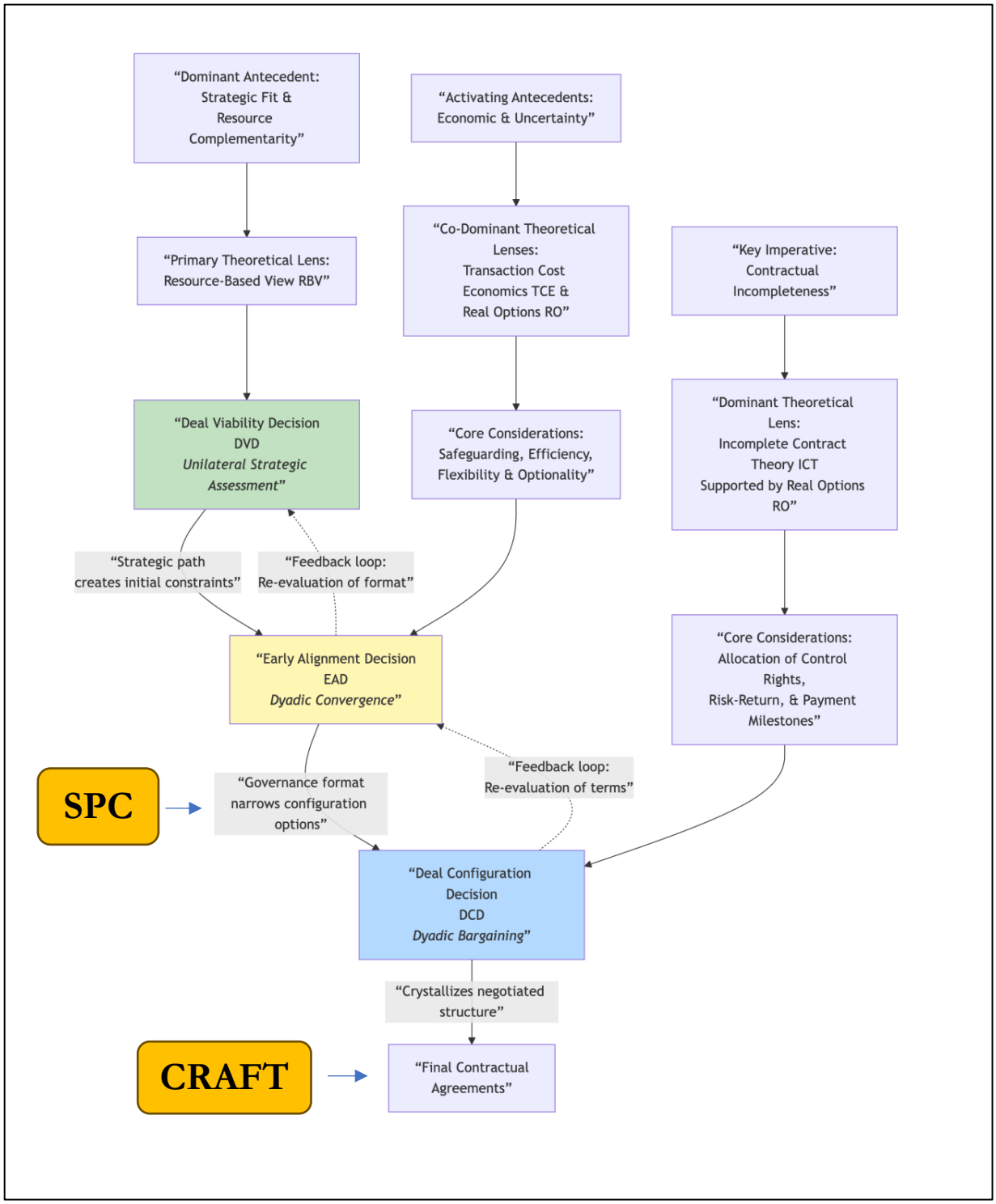

Figure 8-4 Integrated dyadic & iterative model of sequential-theoretical specialization with SPC & CRAFT typology

8.5.2.4. Analytical power of the proposed framework

The framework extended with typology (Fig. 8.4) exhibits descriptive power through its systematic mapping of the deal structuring process. It captures well the sequential progression from initial strategic assessment to final contractual configuration through the three-gate structure of Deal Viability (DVD), Early Alignment (EAD), and Deal Configuration (DCD) decisions. This descriptive capability extends to documenting the temporal evolution of theoretical relevance, showing how different considerations emerge and recede throughout negotiations. Furthermore, the framework provides rich description of deal considerations, including the identification of fifteen distinct control rights and the complex multi-agreement structures that characterize modern pharmaceutical deals. This descriptive strength lies in organizing complex empirical observations into a coherent structure that accurately reflects practitioners' experiences and decision processes.

Building on this foundation, the framework demonstrates substantial explanatory power by elucidating why deal structuring follows particular patterns and why outcomes vary across cases. It explains outcome variation through the mechanism of sequential constraint accumulation, where early decisions create path dependencies that shape subsequent options. The framework resolves apparent theoretical contradictions in the literature by demonstrating how different theoretical perspectives achieve relevance at different stages through temporal specialization rather than competition. It further explains the dyadic nature of deal structuring as an emergent outcome of dyadic negotiation and alignment processes rather than unilateral decision. Particularly insightful is the explanation of how organizations manage dual challenges through theoretical co-dominance patterns, such as the integration of RO and ICT during deal configuration.

However, the framework does not have any predictive capacity in its current form. The path-dependent nature of the process, combined with unique contextual factors affecting each negotiation, hinders the framework's ability to generate precise predictions. The inherent uniqueness of each dyadic pair presents a fundamental roadblock to prediction. Every buyer-seller combination brings together distinct importance and priorities to antecedents and considerations, creating what might be termed "combinatorial uniqueness." A predictive model that could predict outcomes for one specific dyad would lack generalizability to other pairings, as the dyadic interaction itself constitutes the defining variable. Furthermore, the path-dependent and iterative nature of deal structuring process does not

allow any linear and straight prediction. The framework's findings reveal that, in some cases, early decisions such as EAD create path dependencies, while impasses at later gate such as EAD can force re-evaluation of prior EAD decision. This recursive characteristic would limit any predictive model, as final outcomes become contingent on negotiation dynamics that unfold through time.

On the other hand, the framework shows promising prescriptive capacity. In the complex realm of pharmaceutical R&D deal structuring, the proposed framework's prescriptive utility would prove more valuable than predictive capability would be. Indeed, such a prescriptive framework is valuable in the R&D pharmaceutical context, by providing guidance on managing iterations and path dependencies, providing navigational principles applicable to any dyad. The sequential decision gate structure provides a conceptual roadmap that can help practitioners anticipate key decision gates and prepare for evolving antecedents and considerations. It also provides conceptual tools for designing more effective deal structuring processes through its emphasis on dyadic problem-solving and iterative adaptation. By directing attention to key considerations and trade-offs at each decision gate, it provides the conceptual tools for deliberately designing better outcomes and encourages creative problem-solving that yields novel structural solutions no predictive model could anticipate. In addition to that, proposed SPC and CRAFT typologies represent initial steps toward more concrete prescriptive tools that would benefit from further development for direct practical application. It can equip managers to handle uniqueness through structured guidance about critical decision gates, anticipated tensions, rather than attempting the likely non beneficial task of predicting unique outcomes.

This research, informed by my professional background and ongoing dialogue with industry peers, points to a consensus: the paramount objective for firms is not the prediction of a deal's terms, but the active and deliberate negotiation of a structure that is optimally aligned for both parties. The most valuable outcomes are thus seen as being forged, not foretold. The advantage of such a prescriptive framework is its focus on how to make things happen rather than what will happen.

In summary, the proposed framework, beyond being descriptive and explanatory from a new process based perspective, emphasizes prescriptive utility over predictive power. In the pharmaceutical R&D context such a framework prescribing a consistent and insightful process to be used as decision making tool is a significant form of scholarly and practical contribution.

The analysis thus far has systematically mapped the deal structuring process and its interconnecting decision gates over time (RQ1), clarified when and how distinct theoretical lenses guide the process in an asymmetric pharmaceutical R&D context (RQ2), and, by explaining the drivers of outcome variation, enabled the development of explanatory typologies (RQ3). Building on this synthesized foundation, the subsequent section consolidates these advancements to delineate their principal contributions to academic knowledge.

8.6. Contributions to academic knowledge

This research makes contributions to strategic management literature by reconceptualizing how one can describe and understand deal structuring processes in R&D pharmaceutical context. Through systematic analysis of deals in this context, this study addresses critical gaps in existing literature while introducing novel frameworks that advance scholarly understanding.

8.6.1. A process based multi-theoretical integration framework

This research challenges the prevailing static unilateral selection paradigm (Williamson, 1991; Taneri & De Meyer, 2017) by demonstrating that deal structuring represents a dynamic, dyadic deal co-structuring process. This research represents a paradigm shift from asking why deals are different to explaining how they become different through a sequenced journey of dyadic deal co-structuring. By providing a multi-theoretical, process-based, and dyadic framework, it offers a more holistic, accurate, and actionable understanding of strategic partnership formation that advances both theoretical discourse and practical application in complex R&D environments.

The research demonstrates that theoretical integration must be sequential rather than simultaneous, addressing the fragmentation noted by scholars like Billitteri, Lo Nigro, and Perrone (2013). While previous research advocated multi-theoretical approaches, the core theoretical innovation lies in the sequential-theoretical specialization model, which reveals how four dominant theories—RBV, TCE, RO, and ICT—operate not as competing explanations but as complementary lenses with temporal specialization:

- Deal Viability Decision (DVD): Dominated by RBV logic, answering "Why deal?" through strategic fit and resource complementarity assessments

- Early Alignment Decision (EAD): Co-dominated by TCE and RO logics, negotiating the fundamental trade-off between transactional efficiency and strategic flexibility
- Deal Configuration Decision (DCD): Characterized by ICT dominance with RO support, resolving control rights allocation and contractual incompleteness management

This framework introduces the crucial concepts of path-dependent constraint accumulation and iterative feedback loops, where early bilateral commitments systematically narrow subsequent options while allowing for re-evaluation when negotiations reach impasses. This temporal specificity resolves previous theoretical contradictions by showing that apparent conflicts between theoretical predictions often reflect their application at inappropriate process stages.

8.6.2. Process and outcome driven theoretical extensions

8.6.2.1. Temporal and strategic specificity of RBV

The research identifies a systematic decline in RBV's explanatory power across decision gates, with primary dominance during the Deal Viability Decision (DVD) phase that diminishes substantially in subsequent phases. This temporal specificity represents a crucial extension to RBV theory, suggesting that while resource-based logic is essential for deal initiation, it becomes less relevant for addressing the operational and contractual challenges that emerge during later negotiation phases. This finding challenges the implicit assumption in much RBV literature that resource considerations maintain consistent relevance throughout organizational processes.

8.6.2.2. Phased salience and theoretical co-dominance in TCE

The identification of TCE's peak explanatory power during the Early Alignment Decision (EAD) phase represents a significant theoretical advancement that extends Williamson's (1985) original formulation. While Williamson emphasized the importance of governance structure choice in minimizing transaction costs, this research provides empirical validation that such governance considerations become most salient during specific decision phases rather than throughout entire deal structuring process. This temporal specificity suggests that transaction cost optimization becomes most critical when firms transition from strategic evaluation to operational deal structuring discussion.

The co-dominance of TCE and Real Options Theory during the Execution Approach Decision phase, where both theories achieve 100% primary explanatory power, represents a novel theoretical integration. This finding extends the work of scholars such as Folta and Miller (2002) by demonstrating that option value considerations and transaction cost optimization are complementary rather than competing perspectives. Effective execution planning requires simultaneously balancing efficiency optimization with flexibility preservation—an insight that significantly enriches traditional TCE analysis. In addition, extending Das and Teng work on risk perception (2001), findings indicate that TCE plays a crucial role by informing each firm's perception of relational risk, in contrast to RO which seem to informing each firm's perception of performance risk.

8.6.2.3. From financial valuation to adaptive deal structuring: extending RO

The empirical findings substantially advance RO by moving beyond its traditional focus on financial valuation to reveal how option logic is embedded in organizational structures and processes.

The research provides the first empirical evidence of RO's progressive dominance across decision gates, with explanatory power increasing from DVD to DCD. This progression pattern reveals that option value considerations become increasingly critical as uncertainty resolution approaches and contractual specificity increases. Unlike previous studies that applied option logic uniformly (e.g., Yoon, James, & Lambrecht, 2018), this research demonstrates that option considerations exhibit systematic temporal activation, becoming most relevant during later decision phases when uncertainty management becomes paramount.

The findings refine RO by identifying milestone architectures that are phased, drifting, and explicitly mapped to technical risk nodes and internal budget optics. Rather than simple binary success/failure triggers, milestone stacks are calibrated to de-risking events, portfolio competition, and cash timing considerations. This extends RO beyond financial staging to show how option value is engineered through both temporal structuring and organizational design, providing a more sophisticated understanding of how real options function in practice.

The research reveals that option value is not only a financial phenomenon but an organizational property engineered through capability-access modules that create additional strategic opportunities while redistributing risk and timing considerations. This extension moves RO beyond its traditional

finance-oriented applications to encompass the structural and relational dimensions of strategic flexibility.

8.6.2.4. Operationalizing ICT: structured allocation of control rights

The research makes significant contributions to ICT by moving from abstract theoretical propositions to concrete mechanisms for managing contractual incompleteness in complex R&D partnerships.

The comprehensive literature review revealed a critical absence of ICT applications in pharmaceutical R&D deals, despite the obvious relevance of contractual incompleteness challenges in R&D partnerships. This research fills this void by demonstrating ICT's substantial explanatory power, achieving primary explanatory status in 80% of cases during the Deal Configuration Decision phase. This finding indicates that contractual incompleteness considerations are fundamental to final partnership structuring, extending Hart and Moore's (1988) foundational work into an important new domain.

The findings advance ICT by specifying the negotiated scope of seller voice, observation, and consultation rights versus buyer autonomy. Beyond generic "control allocation" narratives, the research identifies 1 distinct control rights that are actively negotiated in pharmaceutical partnerships, providing unprecedented granularity in understanding how contractual incompleteness is managed in practice. This precision enables more nuanced analysis of how different control right allocations affect partnership dynamics and outcomes.

In addition, the co-dominance of RO and ICT during the Deal Configuration Decision phase represents a novel theoretical combination that addresses two fundamental challenges of pharmaceutical R&D partnerships. This integration provides a sophisticated framework for understanding how organizations simultaneously optimize option value while addressing contractual incompleteness—a theoretical advancement that has not been previously recognized in the alliance literature.

8.6.3.Exposing current typological inadequacy and offering new typologies

Even though still being used in recent research (Yang et al., 2023), TCE-based typologies fail to accommodate current R&D pharmaceutical deal structures based on multi-agreements and/or based

on options. On the other hand, ICT has been so far used essentially from a conceptualization with no operationalization.

This research proposes a framework of two sequential, intermediary typologies:

- Shift of Property and Control (SPC) Typology: A TCE/RO-based framework for categorizing outcomes at the Early Alignment Decision gate
- CRAFT (Control Rights Allocation Framework and Typology): An ICT-derived framework for mapping control rights allocation at the Deal Configuration Decision gate

The development of these sequential, intermediary typologies represents a significant advancement in capturing the dynamic nature of deal structuring processes. Unlike static classifications that focus solely on final outcomes, the proposed typologies recognize that deals evolve through distinct phases with different theoretical considerations dominating at each stage. This temporal specificity allows researchers to move beyond what Collier et al. (2012: 8) describe as static analyses toward understanding how "scholars use typologies to introduce conceptual and theoretical innovations, sometimes drawing together multiple lines of investigation or traditions of analysis." The sequential activation of RBV → TCE/RO → ICT/RO across decision gates necessitates typologies that can capture this evolutionary complexity.

From a contribution to knowledge standpoint, the development of new typologies represents a significant contribution to knowledge by addressing critical limitations in existing classification systems. As Møller and Skaaning (2017) note, "The use of typologies has always figured prominently in social science," yet current frameworks in alliance literature demonstrate substantial inadequacies. New typologies facilitate theoretical progress by providing "organized systems of types" that "make crucial contributions to diverse analytic tasks: forming and refining concepts, drawing out underlying dimensions, creating categories for classification and measurement, and sorting cases" (Collier et al., 2012: 1).

Well-developed typologies improve construct operationalization and measurement validity, enabling more rigorous empirical testing of theoretical propositions. As Hodgson (2019: 208) explains, "Taxonomic definitions identify the minimum number of properties that are sufficient to demarcate one group of entities from all other entities." The granular control rights identification (11 distinct

rights) in the proposed typologies provide the measurement precision necessary for advancing empirical research in strategic management. This addresses the methodological limitation noted by Martínez-Noya and Narula (2018), who called for moving "from analyzing broad categories of governance forms to focus more on the interaction mechanisms."

The development of comprehensive typologies facilitates systematic comparison across cases and contexts, enabling knowledge accumulation in the field. As typologies "allow for a more systematic comparison of different IOR types and their outcomes" (Das & Teng, 2001), they provide the foundation for building mid-range theories that can account for both universal patterns and context-specific variations. The proposed sequential typology framework, by capturing both the structural outcomes at each decision gate and the processual relationships between them, enables researchers to identify systematic patterns in how different antecedent configurations lead to distinct developmental pathways in alliance formation.

Lastly, new typologies contribute to knowledge by creating actionable frameworks that bridge theoretical insights and practical application. The proposed typologies offer practitioners systematic approaches to navigating complex negotiation processes, moving beyond standard templates toward structured innovation in deal design. This practical utility aligns with the renaissance of typologies in social science, where they serve "both descriptively and as a research strategy for constructing and assessing causal explanations" (Møller and Skaaning, 2017: 2). By providing clear frameworks for understanding sequential decision-making in alliances, the new typologies enable both researchers and practitioners to better analyze, compare, and design effective partnership structures.

Overall, the development of new typologies constitutes a substantial contribution to knowledge by addressing conceptual limitations in existing frameworks, enabling theoretical integration, capturing processual complexity, enhancing empirical precision, bridging theory and practice, and facilitating comparative analysis. As the field continues to recognize the multifaceted nature of strategic alliances, sophisticated typological frameworks become increasingly essential for advancing both scholarly understanding and managerial practice in complex organizational contexts.

8.7. Contribution to methodology: an approach to understanding complex deal structuring process

The methodological approach explored in this study might provide a useful way to consider how different theoretical perspectives can work together to understand these complex organizational processes like R&D pharmaceutical deals.

The multi-theoretical approach emerges from recognizing that R&D deal naturally involve different kinds of challenges that no single theory appears to fully capture. When practitioners evaluate capabilities, plan investments, design governance, and allocate control rights, they encounter problems that have been studied through different theoretical traditions. This approach simply tries to acknowledge this diversity rather than force a single theoretical perspective.

The cases examined suggest that different theoretical perspectives might work together in practice. For example, when practitioners discuss moving quickly while maintaining light governance, they appear to be drawing on both efficiency considerations and control concerns simultaneously. These patterns emerged from how practitioners themselves described their decisions, requiring to take into account TCE, RO and ICT considerations altogether. The approach acknowledges that single-theory studies, while valuable, sometimes struggle to explain the full complexity of real-world deals. Resource-based views might not fully capture investment timing concerns, while efficiency perspectives might not completely explain control arrangements. Bringing these perspectives together might offer a more complete picture, though the research recognizes this comes with its own challenges.

Another key methodological insight, resulting from the use of process-based view, is that theoretical perspectives might be more helpful when applied sequentially rather than simultaneously. The research observed that resource-based considerations tended to arise early in discussions, efficiency concerns emerged during structural planning, and control issues became prominent later. This tentative pattern might help researchers consider when different theoretical tools could be most useful.

The methodology developed in this study attempts to learn from both the strengths and limitations of previous research. By examining how theoretical antecedents evolve across decision stages, the research hopes to capture some of the dynamic nature of deal structuring that might be missed in static analyses. The field-based approach also tries to listen carefully to how practitioners describe

their own decision processes. The approach taken tries to consider how multiple factors work together in deal decisions and how their importance might shift over time. By focusing on actual deals and using qualitative methods, the research hopes to have uncovered insights that might complement what larger statistical studies can reveal. The findings suggest that theoretical relevance might depend on context and timing. This observation might encourage future researchers to consider matching theoretical tools to specific decision contexts rather than assuming universal applicability.

Last but not least, the research acknowledges that multi-theoretical approaches face legitimate challenges, including potential redundancy and complexity. While not claiming to have solved these challenges, the study attempts to address them through careful application and transparent methodology. These methodological thoughts are offered not as definitive solutions, but as one possible way to consider studying complex organizational processes. They might prove useful to other researchers working to understand how theoretical perspectives can work together to illuminate challenging phenomena.

Having addressed the distinctive contributions to practice resulting from this study, the next section will discuss the distinct contributions to practice.

8.8. Contribution to practice

This research provides pharmaceutical R&D practitioners with a structured approach to deal structuring, moving beyond intuitive practices toward a disciplined, dyadic process. The framework contributes to practice by making deal structuring explicit, sequenced, and testable before legal drafting begins.

The process is structured around three core decisions that progressively translate strategic alignment into operational reality. It begins with the Deal Viability Decision (DVD), which establishes the partnership's strategic logic. This is followed by the Early Alignment Decision (EAD), where the high-level deal format is defined and jointly selected using the Shift of Property and Control (SPC) typology. The SPC framework provides an actionable vocabulary, specifying whether the shift in property and control is full, partial, collaborative, or optional, and whether it is implemented via an asset-driven or equity-driven substrate. This transforms abstract integration discussions into a concrete, analyzable design and bridges directly to subsequent legal implementation choices.

The third gate, the Deal Configuration Decision (DCD), operationalizes the SPC deal format into a detailed blueprint through the Control Rights Allocation Framework and Typology (CRAFT). CRAFT translates the high-level design into specific decision rights, creating a reference for legal drafting. This sequence—from SPC at EAD to CRAFT at DCD— best captures the real world practice by ensuring governance is engineered before contract selection. Consequently, contract negotiation becomes a translation task, faster and more precise, as the legal form is chosen to best codify the pre-agreed governance design.

This structured approach enables managed iteration and disciplined flexibility. When CRAFT reveals that a chosen SPC deal format cannot be coherently implemented, returning to EAD is a structured feature, not a negotiation failure. Optional SPC categories, guided by Real Options logic, provide a formal mechanism for staging commitments and pricing uncertainty. The framework yields concrete implementation artifacts—SPC sheets and CRAFT matrices—that anchor governance reviews, ensure cross-functional alignment, and provide auditable traces for decision committees.

The framework offers practitioners a coherent path from strategic alignment to an enforceable agreement, reducing costly renegotiation and creating more robust, value-creating partnerships.

9. Conclusion - my journey, limitations and further research

9.1. Summary

In summary, this thesis confronted a central opacity in the alliance governance literature: the process by which deal structure is deliberately designed before it is formally codified. Prior research has largely inferred deal outcomes from final contracts or TCE based restrictive binary typology, treating deals a static unilateral structure selection, thereby omitting the critical intermediary work that connects strategic intent to legal reality, particularly within asymmetric pharmaceutical R&D context.

To address this gap, the thesis was guided by a deep, processual analysis structured around three research questions. The first, a descriptive question (RQ1), asked how the deal structuring process could be mapped and how its decision gates and outcomes interconnect over time. The second, a theoretical and normative question (RQ2), investigated when and how the theories of Transaction Cost Economics (TCE), Resource-Based View (RBV), Real Options (RO), and Incomplete Contract Theory (ICT) guide the process. The third, an explanatory question (RQ3), sought to understand why processes lead to different outcomes and what typologies could explain these differences.

In synthesis, the core findings provide a coherent answer. In response to RQ1, the thesis demonstrates that the deal structuring process is a phased, iterative, dyadic sequence of three critical decision gates—Deal Viability (DVD), Early Alignment (EAD), and Deal Configuration (DCD)—that progressively constrain choices. The DVD gate establishes strategic fit, the EAD gate produces a deal format via the Shift of Property and Control (SPC) typology, and the DCD gate operationalizes this deal structure through the Control Rights Allocation Framework and Typology (CRAFT), all before one or several contracts agreements are selected. This sequence allows for disciplined iteration, where feedback from later gates, such as structural incoherence revealed at DCD, can trigger a constructive return to EAD.

Addressing RQ2, the findings reveal that theoretical lenses achieve relevance conditionally and sequentially. The RBV predominates at the DVD stage for assessing strategic fit, while TCE and ICT rise to prominence at EAD and DCD for managing hazards and allocating control rights. RO theory proves critical for designing flexible, option-based structures at EAD and for structuring milestones at DCD. This results in a process-based theoretical integration where theories complement each other, mobilized according to the specific informational and strategic challenges of each gate.

Finally, for RQ3, the thesis explains outcome variation through the specific SPC category selected, the coherence between the SPC architecture and its CRAFT operationalization, and the nature of the iterative process itself. It advances a typological system that differentiates SPC deal format, specifies CRAFT domains, and identifies process patterns that causally link early architectural commitments to final contractual forms.

The original contribution to knowledge is threefold. Theoretically, the principal contribution is the inversion of the contract-governance relationship, positioning contracts as the codification of a pre-negotiated governance design. The thesis also provides a temporally staged model that integrates TCE, RBV, RO, and ICT, and advances a differentiated SPC typology that bridges strategic intent and legal implementability. Methodologically, it contributes by rendering intermediary governance structures empirically visible through process tracing and by developing tractable analytical artifacts. Empirically, it documents the causal constraints between governance architecture and control-rights design, provides a comprehensive categorization of control rights, and uncovers the patterned role of iteration and optionality.

9.2. Limitations

One limitation of this research is its exclusive focus on the pharmaceutical industry. While this specificity provides in-depth insights into asymmetric R&D deals within this sector, it limits the generalizability of findings to other industries. Future research should consider extending the study to different sectors to enhance the external validity of the conclusions. Furthermore, the case study approach is inherently context-specific, and the findings may be influenced by the unique characteristics of the pharmaceutical industry. While this specificity contributes depth to our understanding of the sector, caution is necessary in extrapolating the results to broader contexts. Researchers exploring other industries or contexts should be aware of potential variations in deal structures.

9.3. Further research

While the case study method offers qualitative insights, complementing it with quantitative analysis could enhance the rigor of future research. Developing and examining a quantitative measurement of the deal differences by measuring and comparing, on a large scale, the relative importance given to

antecedents and considerations by each firm, would contribute to reinforcing the prescriptive power of the conceptual framework. Indeed, the relative importance given to each antecedent and consideration varies between parties and across deals. Moreover, the dyadic perspective introduces another level of idiosyncrasy to each deal. Therefore, the diversity in deal outcomes does not stem from altering antecedents or considerations, but rather from shifts in their respective importance. Consequently, the resulting deal structure is shaped by the dyadic tension arising from differing priorities between the buyer and seller. Lastly, expanding the industry scope to include sectors beyond pharmaceuticals would facilitate a comparative analysis of deal-structuring practices. The SPC–CRAFT–Contract sequence could be tested for portability in other high-uncertainty sectors like deep-tech or creative industries. Investigating whether the patterns identified in this study are industry-specific or generalizable across diverse contexts would contribute to a more robust theoretical foundation.

9.4. A personal journey between academic and practitioner perspectives

The intellectual pursuit of this thesis is deeply informed by my professional trajectory within business development and strategic partnerships in pharmaceutical R&D context. This extensive practitioner background provided a foundational, real-world understanding of the phenomenon, facilitatin data collection and enabling a degree of access and rapport with participants that might otherwise have been difficult to establish.

However, the scholarly aims of this work necessitated a deliberate transition from this embedded, experiential knowledge to a disciplined, theoretical inquiry. The research process itself required me to systematically transcend the idiosyncrasies of my own professional experience and engage constructively with a broader tapestry of academic literature. This journey has not only built upon my practical foundation but has fundamentally refined it, translating situated knowledge into a generalized, analytically rigorous framework. The intricacies of this topic prompted a comprehensive review of over 15 theoretical perspectives, challenging me to understand each one, identify its strengths and limitations, and mitigate biases from my daily practice. The shift from bold personal observations to evidence-based claims became imperative. Through the practitioner lens, I acknowledged deals as dyadic and iterative, conceptualizing decision gates supported by various theories. The evolving

conceptual framework, drawn from the literature review, research and reflection, was enriched by my practical field experience.

While some minor theories posed challenges, major ones exhibited striking explanatory power. Instead of fostering contradictions, I embraced a holistic approach, enabling theories to complement one another at appropriate stages. The strategic perspective supported by RBV, the robust explanatory power of TCE on efficiency, the overlooked significance of RO in optional deal structures, and the unique angle of ICT complemented one another well. Developing a process based multi-theoretical model by incorporating the best from each main theory was a fulfilling endeavour, but I have to say that, of all these theories, ICT, awarded the Nobel Prize in 2016, proved the most fascinating, introducing new typology and knowledge spaces and resonating with my practitioner experience in qualifying aspects of the process and deal outcomes.

This intellectual journey, the most challenging and rewarding of my career, necessitated defining my philosophical and epistemological position. It transformed my approach to daily business activities, emphasizing the importance of asking the right questions. Lastly, I recall the initial lesson from my PhD supervisor, Prof. Brian Smith, who advised me, "try not to prove, try to understand". This enduring principle extends beyond academic research, influencing my daily practice.

9.5. Conclusion

In conclusion, this thesis reframes deal structuring in the pharmaceutical R&D context not as an event culminating in a contractual agreement, but as a phased, iterative, dyadic process of deal structuring. Deals are first pre-defined as broad format (SPC), then operationalized (CRAFT), and only finally codified into a legal set of contractual agreements. By making these intermediary structures explicit and sequencing their development, the thesis provides a coherent pathway from strategic intent to executable reality. This framework integrates theory by timing its application and equips practitioners to systematically reduce misalignment, renegotiation, and execution risk in complex, asymmetric partnerships.

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APPENDICES

A. Ethics approvals

University of Hertfordshire UH

SOCIAL SCIENCES, ARTS AND HUMANITIES ECDA

ETHICS APPROVAL NOTIFICATION

TO Zaki Sellam

CC Professor Brian Smith

FROM Dr Timothy H Parke, Social Sciences, Arts and Humanities ECDA Chairman

DATE 21/03/17

Protocol number: **cBUS/PGR/UH/02923**

Title of study: Understanding the choice of contract within the context of asymmetric dyadic R&D relationship in the life sciences industry

Your application for ethics approval has been accepted and approved with the following conditions by the ECDA for your School and includes work undertaken for this study by the named additional workers below:

Approval Conditions:

Prior to recruitment and data collection, the supervisor must see and approve the following:

- The questionnaire;
- The interview schedule ;
- And relevant permission letters

This approval is valid:

From: 21/03/17

To: 30/03/18

Additional workers: no additional workers named

Please note:

Your application has been conditionally approved. You must ensure that you comply with the conditions noted above as you undertake your research. You are required to complete and submit an EC7 Protocol Monitoring Form once this study is complete. Available via the Ethics Approval StudyNet Site via the 'Making an Application' page http://www.studynet2.herts.ac.uk/ptl/common/ethics.nsf/Homepage?ReadForm

Failure to comply with the conditions will be considered a breach of protocol and may result in disciplinary action which could include academic penalties. Additional documentation requested as a condition of this approval protocol may be submitted via your supervisor to the Ethics Clerks as it becomes available. All documentation relating to this study, including the information/documents noted in the conditions

University of Hertfordshire UH

SOCIAL SCIENCES, ARTS & HUMANITIES ECDA

ETHICS APPROVAL NOTIFICATION

TO Sellam Zaki

CC Professor Brian Smith

FROM Dr Tim Parke, Social Sciences, Arts and Humanities ECDA Chairman

DATE 18/06/2018

Protocol number: **acBUS/PGR/UH/02923(1)**

Title of study: Understanding the choice of contract within the context of asymmetric dyadic R&D relationship in the life sciences industry

Your application to modify and extend the existing protocol as detailed below has been accepted and approved with the following conditions by the ECDA for your School and includes work undertaken for this study by the named additional workers below:

Modification: Extension.

Approval Conditions:

Prior to recruitment and data collection, the supervisor must see and approve the following:

- The questionnaire;
- The interview schedule ;
- And relevant permission letters

This approval is valid:

From: 18/06/2018

To: 01/04/2019

Additional workers: no additional workers named

Please note:

Your application has been conditionally approved. You must ensure that you comply with the conditions noted above as you undertake your research. You are required to complete and submit an EC7 Protocol Monitoring Form once this study is complete, available via the Ethics Approval StudyNet Site via the 'Application Forms' page http://www.studynet1.herts.ac.uk/ptl/common/ethics.nsf/Teaching+Documents?Openview&count=9999&restricttocategory=Application+Forms

If your research involves invasive procedures you are required to complete and submit an EC7 Protocol Monitoring Form, and your completed consent paperwork to this ECDA once your study is complete.

Any necessary permissions for the use of premises/location and accessing participants for your study must be obtained in writing prior to any data collection

University of Hertfordshire UH

SOCIAL SCIENCES, ARTS AND HUMANITIES ECDA

ETHICS APPROVAL NOTIFICATION

TO Sellam Zaki

CC: Professor Brian Smith

FROM: Dr Timothy H Parke, Social Sciences, Arts and Humanities ECDA Chairman

DATE 19/07/19

Protocol number: acBUS/PGR/UH/03923(2)

Title of study: Understanding the choice of contract within the context of asymmetric dyadic R&D relationship in the life sciences industry

Your application to modify and extend the existing protocol as detailed below has been accepted and approved by the ECDA for your School and includes work undertaken for this study by the named additional workers below:

Modification:

Extend the end date

This approval is valid:

From: 19/07/19

To: 01/04/20

Additional workers: No additional workers named

Please note:

If your research involves invasive procedures you are required to complete and submit an EC7 Protocol Monitoring Form, and your completed consent paperwork to this ECDA once your study is complete. You are also required to complete and submit an EC7 Protocol Monitoring Form if you are a member of staff. This form is available via the Ethics Approval StudyNet Site via the 'Application Forms' page http://www.studynet1.herts.ac.uk/ptl/common/ethics.nsf/Teaching+Documents?Openview&count=9999&restricttocategory=Application+Forms

Any conditions relating to the original protocol approval remain and must be complied with.

Any necessary permissions for the use of premises/location and accessing participants for your study must be obtained in writing prior to any data collection commencing. Failure to obtain adequate permissions may be considered a breach of this protocol.

University of Hertfordshire UH

SOCIAL SCIENCES, ARTS AND HUMANITIES ECDA

ETHICS APPROVAL NOTIFICATION

TO **Sellam Zaki**

CC **Professor Brian Smith**

FROM **Dr Brendan Larvor, Social Sciences, Arts and Humanities ECDA Vice Chairman**

DATE **28/05/20**

Protocol number: acBUS/PGR/UH/02923(3)

Title of study: Understanding the choice of contract within the context of asymmetric dyadic R&D relationship in the life sciences industry

Your application to modify and extend the existing protocol as detailed below has been accepted and approved by the ECDA for your School and includes work undertaken for this study by the named additional workers below:

no additional workers named

Modification:

End date extended

General conditions of approval:

Ethics approval has been granted subject to the standard conditions below:

Original protocol: Any conditions relating to the original protocol approval remain and must be complied with.

Permissions: Any necessary permissions for the use of premises/location and accessing participants for your study must be obtained in writing prior to any data collection commencing. Failure to obtain adequate permissions may be considered a breach of this protocol.

External communications: Ensure you quote the UH protocol number and the name of the approving Committee on all paperwork, including recruitment advertisements/online requests, for this study.

Invasive procedures: If your research involves invasive procedures you are required to complete and submit an EC7 Protocol Monitoring Form, and copies of your completed consent paperwork to this ECDA once your study is complete.

Submission: Students must include this Approval Notification with their submission.

B. Participants information document and consent form

UNIVERSITY OF HERTFORDSHIRE

ETHICS COMMITTEE FOR STUDIES INVOLVING THE USE OF HUMAN PARTICIPANTS ('ETHICS COMMITTEE')

FORM EC6: PARTICIPANT INFORMATION SHEET

1 **Title of study**

Understanding the choice of contract within the context of R&D dyadic asymmetric relationship in life sciences industry.

2 **Introduction**

You are being invited to take part in a study. Before you decide whether to do so, it is important that you understand the research that is being done and what your involvement will include. Please take the time to read the following information carefully and discuss it with others if you wish. Do not hesitate to ask us anything that is not clear or for any further information you would like to help you make your decision. Please do take your time to decide whether or not you wish to take part. The University's regulations governing the conduct of studies involving human participants can be accessed via this link:

http://sitem.herts.ac.uk/secreg/upr/RE01.htm

Thank you for reading this.

3 **What is the purpose of this study?**

This research seeks to understand what influences the choice of contract between a large company and a smaller one in a context of R&D related transaction. It will require to collect information from professionals involved and experienced in such transactions. The information will be about their contract definition and the antecedents to the contract choice.

4 **Do I have to take part?**

It is completely up to you whether or not you decide to take part in this study. If you do decide to take part, you will be given this information sheet to keep and be asked to sign a consent form. Agreeing to join the study does not mean that you have to complete it. You are free to withdraw at any stage without giving a reason. A decision to withdraw at any time, or a decision not to take part at all, will not affect any treatment/care that you may receive (should this be relevant).

5 **Are there any age or other restrictions that may prevent me from participating?**

None

6 **How long will my part in the study take?**

If you decide to take part in this study, you will be involved in an self online pre-interview which will take 10 to 15 min as well as individual interview which will take approximately one and half hour.

7 **What will happen to me if I take part?**

You will participate first to an online pre-interview survey and in an interview organized around a few open questions related to your involvement and experience in the context of R&D related transaction as well as a laddering exercise.

8 **What are the possible disadvantages, risks or side effects of taking part?**

None

9 **What are the possible benefits of taking part?**

There are potential benefits for you if you choose to take part. If you express your interest, you will receive the results of this study that involves multiple other professionals, and that could give you a broader view on the topic of this research. Importantly, through your participation you will contribute to the development of new academic knowledge on the subject that will be useful to better understand and improve companies' strategies when it comes to making the right choice of transaction.

10 **How will my taking part in this study be kept confidential?**

Information collected during this study will be kept confidential and used only by me for my PhD research. The interview will take place in a separate room where only you and I will be present, or over a one-to-one videoconference. None of the content of the conversation will be shared with anyone at the company or outside. Although I may include quotes from what you said in my thesis, it will not be possible to attribute it to you.

11 **Audio-visual material**

If you agree our conversation will be digitally recorded.

12 **What will happen to the data collected within this study?**

The completed consent forms, and the personal data they contain, will be scanned and stored digitally on password protected media. The hard copies will be securely destroyed by me immediately after being scanned.
All the digital data, including digital recordings and consent forms, will be kept on password protected media and on the university secure servers until completion of my PhD, then erased securely and permanently.

13 **Will the data be required for use in further studies?**

No

14 **Who has reviewed this study?**

This study has been reviewed by:

The University of Hertfordshire Social Sciences, Arts and Humanities Ethics Committee with Delegated Authority

The UH protocol number is <*enter*>

15 **Factors that might put others at risk**

Please note that if, during the study, any medical conditions or non-medical circumstances such as unlawful activity become apparent that might or had put others at risk, the University may refer the matter to the appropriate authorities.

16 **Who can I contact if I have any questions?**

If you would like further information or would like to discuss any details personally, please get in touch with me, in writing, by phone or by email:

z.sellam@herts.ac.uk
+41762154796

Although we hope it is not the case, if you have any complaints or concerns about any aspect of the way you have been approached or treated during the course of this study, please write to the University's Secretary and Registrar.

Thank you very much for reading this information and giving consideration to taking part in this study.

Zaki Sellam
PhD student

C. Interview guide

In-depth interview guide

Introduction

Thank you for participating to this Interview. As part of my PhD, I am conducting a research which concerns how large and small life science companies contract together in the context of R&D (non commercial).

With your agreement, I will ask you some open questions about your experience.

Please answer in your own words and based on your own experience. If you feel unable or unwilling to answer any of my questions, please say so and we'll move on.

With your agreement, I will record and transcribe the interview for later analysis. This transcription will be submitted to your review if you are willing to do so. In any case, as soon as the overall study will be over, I will be happy to share with you the anonymised results.

Please be assured that you will not be identifiable from the interview and whilst I may report things you say, they will not be attributable to you. This interview is confidential and anonymous.

Do you have any question before we start?

Deal terms and Decision making process

First of all, it would be great to get a short reminder about your involvement in the deal.

1. **Can you please describe your involvement in the deal?**
2. **Can you please describe how you designed and structured the deal?**

What have been the key elements taken into consideration for the deal structuration?

Now, I would like to understand the various options that have been considered prior to the deal

3. **Retrospectively, why did you choose this specific deal structuration and not another?**

Did you evaluate other type of deals? If so, which ones?

How did you consider them in terms positive and negative implications?

How does this deal would differ from other non-selected deals?

Now I would to understand the decision making process

4. **Can you please tell me who have been the key stakeholders/functions involved in the decision making process?**

To which extent were they involved ? How did it influence the deal structuration?

At which moment -in the decision making process- your company decided about the type of deal?

Retrospectively, what was the most critical or pivotal decision to be made? And when in the process?

Antecedent conditions and variations

5. **To your opinion, and retrospectively, what have been the top 3 to 5 factors that influenced main parameters influencing such a deal?**
   Can you comment on them?
6. **I am going to cite a number of factors identified in the literature, can you please rank them by order of importance for the deal structuration?**
   - Risk –
   - Financial aspects (economics of the deal) -
   - Product or Technology related aspects -
   - Social factors (prior relationships on business level or personal level) –
   - Individual factors (personal agenda) –how your personal situation influenced the deal ? -
   - The imbalance (asymmetry) -
   - Negotiation power -
   - Strategic fit -
   - Exchange of capabilities and resources -

Closing questions

7. **Is there anything else about the context, the factors and their connection to the deal that we have not covered yet and that you would like to mention now?**

8. **Is there any complementary document, data, information that you would be kindly willing to advise?**

D. Case studies description (firms, assets an deals attributes)

Case	Buyer attributes				
	Relative positioning	Country Headquarter	Employees	Sector	Financial status
1	Buyer	Switzerland	125'000	Biopharma	Publicly listed
2	Buyer	Italy	4'100	Biopharma	Publicly listed
3	Buyer	Switzerland/Denmark	25'000	Biopharma	Privately owned
4	Buyer	Switzerland	100'000	Biopharma	Publicly listed
5	Buyer	Switzerland/Japan	300	Biopharma	Privately owned
6	Buyer	Switzerland	125'000	Biopharma	Publicly listed
7	Buyer	Switzerland	300	Biopharma	Publicly listed
8	Buyer	US	150'000	Biopharma	Publicly listed
9	Buyer	US	150'000	Biopharma	Publicly listed
10	Buyer	France	10'000	Biopharma	Privately owned
11	Buyer	France	10'000	Biopharma	Privately owned
12	Buyer	Germany	10'000	Biopharma	Privately owned
13	Buyer	US	10'000	Generics	Privately owned
14	Buyer	Switzerland	5'000	Nutrition Science	Publicly listed
15	Buyer	Switzerland	3'000	Biopharma	Publicly listed

Case	Seller attributes				
	Relative positioning	Country HQ	Employees	Sector	Financial status
1	Seller	UK	8	Biopharma	VC financed
2	Seller	Italy	3	Biopharma	BA financed
3	Seller	US	50	Biopharma	VC financed
4	Seller	India	10	Biopharma	Privately owned
5	Seller	Switzerland	10	Biopharma	Privately owned
6	Seller	Switzerland	15	Biopharma	VC financed
7	Seller	Switzerland	100	Biopharma	Publicly listed
8	Seller	US	15	Biopharma	Privately owned
9	Seller	UK	10	Biopharma	VC financed
10	Seller	France	50	Services	Privately owned
11	Seller	France	100	Biopharma	Privately owned
12	Seller	Switzerland	30	Biopharma	VC financed
13	Seller	Greece	1'500	Services	Privately owned
14	Seller	US	20	Biopharma	Privately owned
15	Seller	Buyer	3'000	Services	Publicly listed

Case	Asset attributes		
	Asset category	Development Stage	Therapeutic Area
1	Small molecule	Phase 2	Immunology
2	Small molecule	PreClinical	Ophtalmology
3	Small molecule	Phase 2	Gastro Intestinal
4	Small molecule	PreClinical	Oncology
5	Biologics	PreClinical	Immunology
6	Small molecule	Phase 2	Ophtalmology
7	Small molecule	Phase 2	Immunology
8	Device	PreClinical	Oncology
9	Small molecule	Phase 3	Oncology
10	Device	PreClinical	Urogenital
11	Small molecule	PreClinical	Neurology
12	Biologics	Phase 1	Oncology
13	Delivery	PreClinical	Oncology
14	Small molecule	PreClinical	Metabolism
15	Small molecule	PreClinical	Nephrology

Case	Deal attributes		
	Contractual Agreement 1	Contractual Agreement 2	Flow
1	Acquisition		From Small firm to Large firm
2	License		From Small firm to Large firm
3	Acquisition		From Small firm to Large firm
4	License	Collaboration Research	From Small firm to Large firm
5	Collaboration Research-	License	From Small firm to Large firm
6	License	Equity Investment	From Large firm to Small firm
7	Option	License	From Small firm to Large firm
8	Option	Collaboration Research	From Small firm to Large firm
9	Clinical License		From Large firm to Small firm
10	License	Co-development	From Small firm to Large firm
11	Option	Collaboration Research	From Small firm to Large firm
12	Acquisition		From Small firm to Large firm
13		Co-development	From Small firm to Large firm
14	Option	Collaboration Research	From Small firm to Large firm
15		Joint Venture	From Small firm to Large firm

E. Ranking of antecedents by interviewees

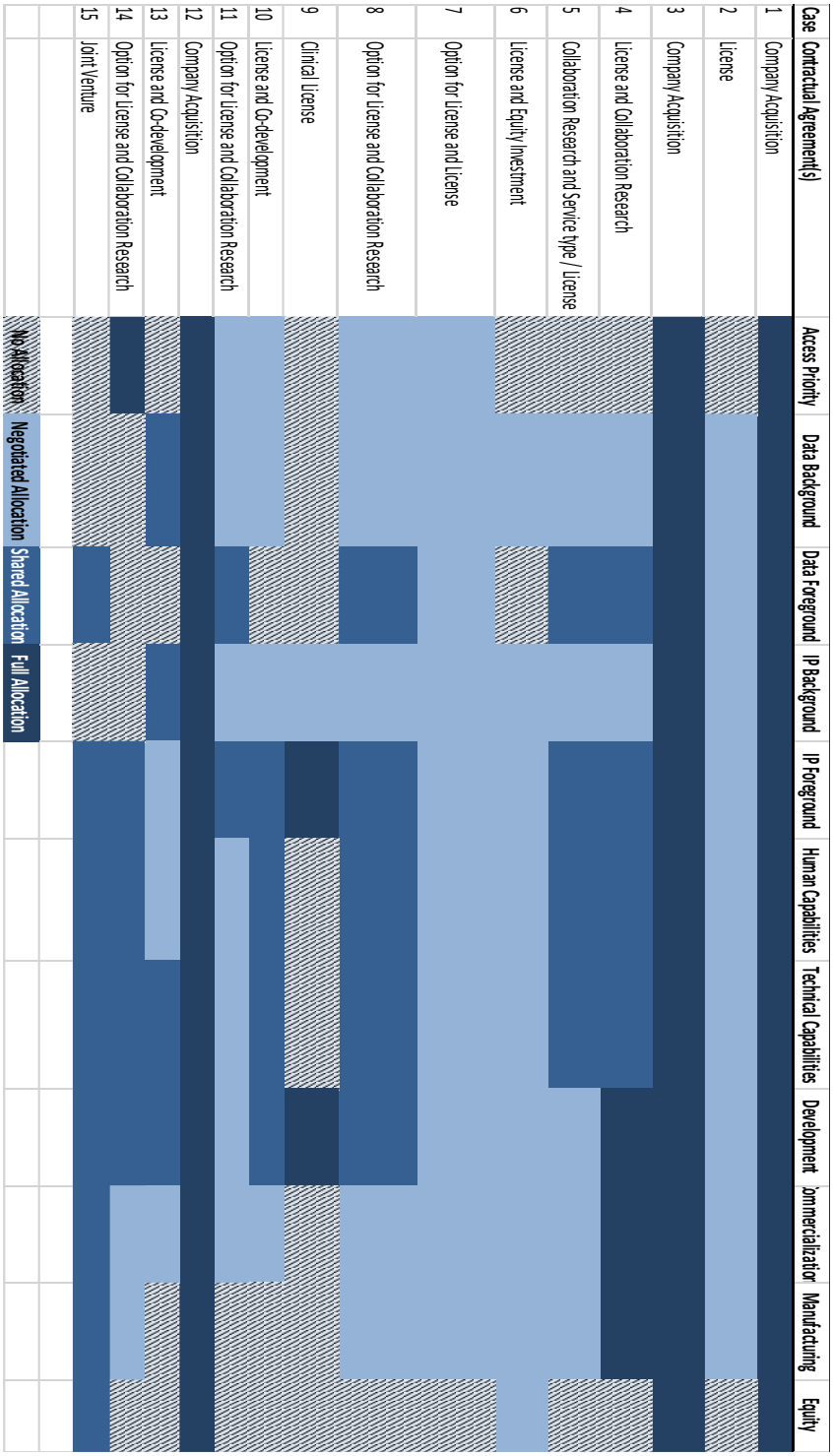
Case number	Relative Positioning	Risk	Economic	Asset	Social	Individual	Asymmetry	Negotiation power	Strategic fit	Resource exchange
1	Buyer	1	2	1	4	5	6	3	1	6
1	Seller	6	1	5	3	6	6	6	2	4
2	Buyer	3	2	1	2	7	6	5	4	1
2	Seller	6	2	3	5	7	1	1	4	3
3	Buyer	5	2	1	7	3	7	4	1	6
3	Seller	4	2	1	3	5	5	5	1	5
4	Buyer	3	1	4	6	9	8	2	5	7
4	Seller	5	1	4	ND	ND	ND	ND	2	3
5	Buyer	2	4	3	5	ND	ND	ND	1	3
5	Seller	4	4	1	3	ND	2	9	ND	ND
6	Buyer	4	2	2	5	ND	ND	6	1	5
6	Seller	1	1	2	ND	ND	ND	ND	1	2
7	Buyer	3	2	4	5	8	7	6	1	ND
7	Seller	ND	2	3	ND	4	ND	ND	1	ND
8	Buyer	4	ND	2	ND	ND	ND	ND	1	ND
8	Seller	2	3	4	7	9	8	6	1	5
9	Buyer	3	2	1	5	ND	ND	ND	4	ND
9	Seller	1	1	1	2	ND	4	4	2	3
10	Buyer	2	ND	1	3	ND	4	ND	ND	2
10	Seller	5	4	5	3	3	ND	3	1	2
11	Buyer	4	5	2	3	ND	ND	6	1	4
11	Seller	3	2	1	5	8	4	6	4	4
12	Buyer	3	4	2	5	9	6	8	1	7
12	Seller	5	1	4	6	2	ND	ND	3	ND
13	Buyer	4	3	1	5	5	ND	ND	2	4
13	Seller	1	1	3	6	6	5	4	2	2
14	Buyer	2	5	4	7	7	3	3	1	6
14	Seller	ND	3	1	ND	ND	ND	ND	1	2
15	Buyer	4	5	3	6	7	ND	ND	1	2
15	Seller	ND	4	2	3	ND	ND	ND	1	2

ND = means that rank was not determined, mostly because interviewee did not find it relevant

F. Control Rights Allocation Framework and Typology (CRAFT) - Large format

	CONTROL RIGHTS											
Contractual agreement	ACCESS	Data		Intellectual Property		Capabilities		Development	Commercialization	Manufacturing	Equity
	Priority	Background	Foreground	Background	Foreground	Human	Technical				
Option (for License or Acquisition)	Full Allocation	No Allocation	No Allocation	No Allocation	No Allocation	No Allocation	No Allocation	No Allocation	No Allocation	No Allocation	No Allocation
License	No Allocation	Negotiable Allocation	Negotiable Allocation	Negotiable Allocation	Negotiable Allocation	Negotiable Allocation	Negotiable Allocation	Negotiable Allocation	Negotiable Allocation	Negotiable Allocation	No Allocation
R&D Agreement or Co-Development	No Allocation	No Allocation	Shared Allocation	No Allocation	Shared Allocation	Negotiable Allocation	Negotiable Allocation	Shared Allocation	Shared Allocation	Negotiable Allocation	No Allocation
Equity Investment	No Allocation	No Allocation	No Allocation	No Allocation	No Allocation	No Allocation	No Allocation	No Allocation	No Allocation	No Allocation	Negotiable Allocation
Asset Purchase/Acquisition	No Allocation	Full Allocation	Full Allocation	Full Allocation	Full Allocation	No Allocation	No Allocation	Full Allocation	Full Allocation	No Allocation	No Allocation
Company Purchase/Acquisition	No Allocation	Full Allocation	Full Allocation	Full Allocation	Full Allocation	Full Allocation	Full Allocation	Full Allocation	Full Allocation	Full Allocation	Full Allocation
Joint Venture	No Allocation	No Allocation	Shared Allocation	No Allocation	Shared Allocation	Shared Allocation	Shared Allocation	Shared Allocation	Shared Allocation	Shared Allocation	Shared Allocation

G. Heatmap of the deals based on level of control rights allocation - Large format



H. Codes aggregation and counting

1st order code	1st order subcode	2nd order subcategory	Aggregate dimension	Number of Interviews	Total occurrences
Asset Therapeutic Area		Asset Attributes	00-Conditions pre-deal	15	23
Asset Development Stage		Asset Attributes	00-Conditions pre-deal	18	45
Firm's context and situation		Firm Attributes	00-Conditions pre-deal	8	12
Asymmetry		Firm Attributes	00-Conditions pre-deal	24	37
Prior ties		Firm Attributes	00-Conditions pre-deal	18	39
Bargain Object		01-Dyadic perspective	01-Deal structuring Antecedent	22	47
Negociation Power		01-Dyadic perspective	01-Deal structuring Antecedent	18	40
Strategic fit		02-RBV related antecedent	01-Deal structuring Antecedent	31	69
Resources Access-Exchange	Resources & Capabilities	02-RBV related antecedent	01-Deal structuring Antecedent	29	95
Resources Access-Exchange	Financial resources	02-RBV related antecedent	01-Deal structuring Antecedent	21	35
Asset Competitiveness		02-RBV related antecedent	01-Deal structuring Antecedent	18	34
Complementarity-Synergy		02-RBV related antecedent	01-Deal structuring Antecedent	18	48
Portfolio & Pipeline		02-RBV related antecedent	01-Deal structuring Antecedent	16	38
Resource Protection		02-RBV related antecedent	01-Deal structuring Antecedent	12	18
Inhouse Resource Development & Learning		02-RBV related antecedent	01-Deal structuring Antecedent	7	9
Resources Access-Exchange		02-RBV related antecedent	01-Deal structuring Antecedent	4	10
Economics Antecedent		03-TCE related antecedent	01-Deal structuring Antecedent	34	129
Asset specificity		03-TCE related antecedent	01-Deal structuring Antecedent	29	61
Hierarchy & Control		03-TCE related antecedent	01-Deal structuring Antecedent	16	32
Legal, Accounting and Tax		03-TCE related antecedent	01-Deal structuring Antecedent	8	28
Flexibility		04-RO related antecedent	01-Deal structuring Antecedent	10	22
03-Risk Factor		05-Theory agnostic antecedent	01-Deal structuring Antecedent	28	79
02-Value Factor		05-Theory agnostic antecedent	01-Deal structuring Antecedent	22	51

01-Uncertainty		05-Theory agnostic antecedent	01-Deal structuring Antecedent	16	33
01-Trust		06- Other Antecedent	01-Deal structuring Antecedent	19	44
02-Committment		06- Other Antecedent	01-Deal structuring Antecedent	18	34
07-Timing & Speed		06- Other Antecedent	01-Deal structuring Antecedent	14	35
06-Cultural fit		06- Other Antecedent	01-Deal structuring Antecedent	12	18
03-Personal Self-interest		06- Other Antecedent	01-Deal structuring Antecedent	11	24
09- Experience - Practices & Routines	Rules & Routines	06- Other Antecedent	01-Deal structuring Antecedent	10	19
Public companies - Stock Markets		06- Other Antecedent	01-Deal structuring Antecedent	7	13
10-Deal uniqueness		06- Other Antecedent	01-Deal structuring Antecedent	7	17
09- Experience - Practices & Routines	Common practices	06- Other Antecedent	01-Deal structuring Antecedent	7	12
Strategic Shift (Focus-Divestment)		06- Other Antecedent	01-Deal structuring Antecedent	6	9
Expectations		06- Other Antecedent	01-Deal structuring Antecedent	5	10
09- Experience - Practices & Routines	Experience - Track record	06- Other Antecedent	01-Deal structuring Antecedent	5	16
08 - 3rd parties		06- Other Antecedent	01-Deal structuring Antecedent	5	11
Transparency		06- Other Antecedent	01-Deal structuring Antecedent	4	8
Shareholders - Investors - Board		06- Other Antecedent	01-Deal structuring Antecedent	4	9
04-Irrational & Emotional		06- Other Antecedent	01-Deal structuring Antecedent	4	8
Technology Distance-Newness		06- Other Antecedent	01-Deal structuring Antecedent	3	10
Industry & Market context		06- Other Antecedent	01-Deal structuring Antecedent	3	9
09- Experience - Practices & Routines		06- Other Antecedent	01-Deal structuring Antecedent	3	6
Liability		06- Other Antecedent	01-Deal structuring Antecedent	1	1
05-Social Factors		06- Other Antecedent	01-Deal structuring Antecedent	22	45
Internal Negociation		01- Process based perspective	02- Deal structuring Process & Outcome Design	4	10
Iterative and recursive process		01- Process based perspective	02- Deal structuring Process & Outcome Design	21	52
Negociation experience		01- Process based perspective	02- Deal structuring Process & Outcome Design	14	24

Phasing	03-Implementation phase	01- Process based perspective	02- Deal structuring Process & Outcome Design	8	12
Phasing	02-Bargaining Phase	01- Process based perspective	02- Deal structuring Process & Outcome Design	13	14
Phasing	01-Planning-Evaluation	01- Process based perspective	02- Deal structuring Process & Outcome Design	17	32
Phasing		01- Process based perspective	02- Deal structuring Process & Outcome Design	23	58
Two-sided perspective		01-Dyadic perspective	02- Deal structuring Process & Outcome Design	18	41
Two-sided perspective	Alignment-Convergence efforts	01-Dyadic perspective	02- Deal structuring Process & Outcome Design	20	56
Allocation of control rights		02-ICT related consideration	02- Deal structuring Process & Outcome Design	28	104
Incomplete contract		02-ICT related consideration	02- Deal structuring Process & Outcome Design	8	22
Residual rights		02-ICT related consideration	02- Deal structuring Process & Outcome Design	19	44
Structured Payment - Milestones		03-RO related consideration	02- Deal structuring Process & Outcome Design	31	107
Stage_Combined agreements		03-RO related consideration	02- Deal structuring Process & Outcome Design	7	15
Risk-Return Allocation		03-RO related consideration	02- Deal structuring Process & Outcome Design	27	98
Grant Back option		03-RO related consideration	02- Deal structuring Process & Outcome Design	4	5
Flexibility - Reversibility		03-RO related consideration	02- Deal structuring Process & Outcome Design	14	24
Backloading		03-RO related consideration	02- Deal structuring Process & Outcome Design	18	41
Contracting & Organizational Efficiency	Choice by discrimination	03-TCE related consideration	02- Deal structuring Process & Outcome Design	10	14
Contracting & Organizational Efficiency		03-TCE related consideration	02- Deal structuring Process & Outcome Design	24	55
Control or Integration		03-TCE related consideration	02- Deal structuring Process & Outcome Design	10	19

Governance		03-TCE related consideration	02- Deal structuring Process & Outcome Design	10	20
Safeguard & Risk mitigation		03-TCE related consideration	02- Deal structuring Process & Outcome Design	31	93
Key decision	Time point key decision	05-Decisions	02- Deal structuring Process & Outcome Design	5	6
Complex-Phased Decision		05-Decisions	02- Deal structuring Process & Outcome Design	17	36
Deal structure Decision	Early Decision	05-Decisions	02- Deal structuring Process & Outcome Design	20	41
Key decision		05-Decisions	02- Deal structuring Process & Outcome Design	26	47
Deal structure Decision		05-Decisions	02- Deal structuring Process & Outcome Design	25	52
Stakeholders		05-Decisions	02- Deal structuring Process & Outcome Design	28	82
Patients Access		06- Emergent Design Codes	02- Deal structuring Process & Outcome Design	1	1
Creative actions		06- Emergent Design Codes	02- Deal structuring Process & Outcome Design	2	4
Performance driven Design		06- Emergent Design Codes	02- Deal structuring Process & Outcome Design	8	10
01-Access Priority		ICT based Control Right	03-Outcome Description	3	6
02-Data		ICT based Control Right	03-Outcome Description	3	3
03-IP Background		ICT based Control Right	03-Outcome Description	14	24
04-IP Foreground		ICT based Control Right	03-Outcome Description	9	19
05-Human Capabilities		ICT based Control Right	03-Outcome Description	11	13
06-Technical Capabilities		ICT based Control Right	03-Outcome Description	11	12
07-Development		ICT based Control Right	03-Outcome Description	15	31
08-Commercialization	Downstream Commercial Revenues	ICT based Control Right	03-Outcome Description	5	9
08-Commercialization		ICT based Control Right	03-Outcome Description	9	15
09-Equity		ICT based Control Right	03-Outcome Description	7	9

10-Exclusivitiy		ICT based Control Right	03-Outcome Description	12	16
11-Territory		ICT based Control Right	03-Outcome Description	9	24
12-Field or Area		ICT based Control Right	03-Outcome Description	9	14
13-Transfer or Sublicensing		ICT based Control Right	03-Outcome Description	1	1
14-Regulatory		ICT based Control Right	03-Outcome Description	2	3
15-Manufacturing and Supply		ICT based Control Right	03-Outcome Description	2	3
Asset purchase	02-Advantages	Outcome typology	03-Outcome Description	1	1
Co-development	03-Limitations	Outcome typology	03-Outcome Description	1	1
Collaboration Agreement	01-Description	Outcome typology	03-Outcome Description	1	1
Equity Investment	04-Comparison to other contracts	Outcome typology	03-Outcome Description	1	1
Pre-Option Deal		Outcome typology	03-Outcome Description	1	1
Technology Access or Support	01-Description	Outcome typology	03-Outcome Description	1	1
Equity Investment	03-Limitations	Outcome typology	03-Outcome Description	2	2
Collaboration Agreement	02-Advantages	Outcome typology	03-Outcome Description	2	3
Joint Venture	02-Advantages	Outcome typology	03-Outcome Description	1	3
Joint Venture	04-Comparison to other contracts	Outcome typology	03-Outcome Description	2	3
Collaboration Agreement	03-Limitations	Outcome typology	03-Outcome Description	3	4
Joint Venture		Outcome typology	03-Outcome Description	3	4
Joint Venture	01-Description	Outcome typology	03-Outcome Description	3	4
License	02-Advantages	Outcome typology	03-Outcome Description	4	4
Option for company acquisition	03-Limitations	Outcome typology	03-Outcome Description	3	4
Special structures		Outcome typology	03-Outcome Description	2	4
Asset purchase	04-Comparison to other contracts	Outcome typology	03-Outcome Description	4	5
Collaboration Agreement	01-Description	Outcome typology	03-Outcome Description	4	5
Company Acquisition	04-Comparison to other contracts	Outcome typology	03-Outcome Description	4	5
Equity Investment	02-Advantages	Outcome typology	03-Outcome Description	3	5
Material Transfer Agreement		Outcome typology	03-Outcome Description	3	5

Option for License	02-Advantages	Outcome typology	03-Outcome Description	4	5
Option for License	03-Limitations	Outcome typology	03-Outcome Description	4	5
Option for License	04-Comparison to other contracts	Outcome typology	03-Outcome Description	4	5
License	01-Description	Outcome typology	03-Outcome Description	5	6
Option for company acquisition		Outcome typology	03-Outcome Description	3	6
Co-development	04-Comparison to other contracts	Outcome typology	03-Outcome Description	2	7
Collaboration Agreement	04-Comparison to other contracts	Outcome typology	03-Outcome Description	4	7
Company Acquisition	03-Limitations	Outcome typology	03-Outcome Description	7	7
Equity Investment	01-Description	Outcome typology	03-Outcome Description	4	7
Company Acquisition	01-Description	Outcome typology	03-Outcome Description	6	8
Joint Venture	03-Limitations	Outcome typology	03-Outcome Description	6	9
License	03-Limitations	Outcome typology	03-Outcome Description	6	9
License	04-Comparison to other contracts	Outcome typology	03-Outcome Description	6	9
Technology Access or Support		Outcome typology	03-Outcome Description	3	9
Asset purchase	03-Limitations	Outcome typology	03-Outcome Description	5	10
Asset purchase	01-Description	Outcome typology	03-Outcome Description	5	11
Option for License	01-Description	Outcome typology	03-Outcome Description	7	12
Collaboration Agreement		Outcome typology	03-Outcome Description	5	13
Collaboration Agreement	01-Description	Outcome typology	03-Outcome Description	6	14
Company Acquisition		Outcome typology	03-Outcome Description	8	14
Equity Investment		Outcome typology	03-Outcome Description	3	14
Co-development	01-Description	Outcome typology	03-Outcome Description	6	15
License		Outcome typology	03-Outcome Description	11	25
Option for License		Outcome typology	03-Outcome Description	6	25
Asset purchase		Outcome typology	03-Outcome Description	11	37
Term Sheet		Outcome typology	03-Outcome Description	10	43