

# **SME leaders' drivers to embrace environmental uncertainty and develop their sustainable business model strategy**

**Authors: Christopher Brown and Diane Morrad**

## **ABSTRACT**

SME's that have an owner-manager that is both creative and innovative, having a well-defined business plan and model, is most likely to be experiencing higher growth and productivity than those businesses who don't. This body of research supports that the SMEs' growth is dependent on developing a more sustainable business model that reflects the leaders' attitudes and value towards opportunities and risks. The significant threats of environmental issues on future economic growth, and the wider social community in terms of human health and impact on living conditions, also impacts on future SMEs' economic and employment growth.

This study explores the environmental uncertainty responses of these SMEs, with a particular focus on their sustainable business model innovation strategies and the leaders' environmental concerns. This paper analyses the two main research questions on the links between environmental uncertainty and SME leaders' attitudes, values and behaviours. The study collected data, both quantitative and qualitative, from 60 SMEs in the East of England. The findings indicate that SME leaders' alignment of attitudes, values and behaviour towards external environmental uncertainty is dependent on their level of knowledge, understanding and commitment to SBM change, and as importantly the sector's need for changes. Those that are proactive are more successful, being first-mover in the sector, and inevitably seeking more ways to co-produce to add both business and customer value.

Achieving significant sustainable business model innovation is possible when either driven by the industry towards compliance, and/or when the SME leader is committed to it, for either personal reasons (altruism) or in recognition of the business and customer value, both short and long-term. SME leaders gain confidence in implementing sustainable innovations when they have a holistic framework, the business model, to envision its impact.

**Keywords:** Sustainable Business model innovation, SME leaders, Environmental Management, Productivity

## 1.0 Introduction

The majority of SMEs either fail, or remain stable (Storey 2011), and those few that do achieve growth do so through a favourable business environment and an element of the SME leaders' attributes and behaviours (Blackburn, Hart et al. 2013). The objective of this paper is to contribute to the increasing body of research focusing on SME leaders' environmental concerns and the link to business environmental uncertainty, and the impact these have on their Sustainable Business Model (SBM) and productivity (Frank Boons, Montalvo et al. 2013, Minttu Laukkanen and Patala 2014, Jana Hojnik and Ruzzier 2016).

Though SME leaders increasingly understand the importance of Sustainable Business Model Innovation (BMI) and its link to Business Productivity (BP), they still lack the skills, knowledge and expertise of using appropriate business frameworks and tools to both renew and rejuvenate it (Morris, Schindehutte et al. 2005, Jianming Zhang, Liang et al. 2020). Sustainable Business Model (SBM) frameworks have latterly been developed into more practical models that can be more readily applied to real-life business applications by these SME leaders (Osterwalder, Pigneur et al. 2010, Minttu Laukkanen and Patala 2014, N.M.P Bocken, Short et al. 2014). In the broadest of terms Sustainable Business Model Innovation allies strategic sustainability management with business model research (Reijonen, Pardanyi et al. 2014). This linking of the business model which creates, develops and delivers value to the enterprise, also holds the link in how enterprises can be driven by others strategic drivers (Osterwalder, Pigneur et al. 2010, Reijonen, Pardanyi et al. 2014), aligned with their particular sustainable goals and objectives. Over the last ten years these initial BM frameworks have been further enhanced by including mapping and performance indicators around technology and innovation, and the linkage to environmental drivers (Taran, Nielsen et al. 2016).

The gap in academic and practitioner knowledge and research around the external environmental challenges to SME's performance is both surprising and alarming (Worthington and Patton 2005). SMEs constitute more than 99 percent of all UK enterprises and account for over 50 percent of all economic activities. And employment in the UK. There is some willingness in the research community to study SMEs' approach to environmental management, and the subsequent impact this has on delivering business value (Dangelico and Pontrandolfo 2015), but it is the inability to turn these findings into some practical advice for both business practitioners and supporting agencies, that is most concerning.

The aim of this exploratory study was to explore the SME leaders' attitudes, values and behaviour associated with environmental drivers, particularly those relating to help businesses become more sustainable, and the potential influence and impact these have on their enterprises' BM and productivity. Research shows that SME leaders who have intentions to grow their enterprises, are both most likely to grow and also outperform other enterprises without these intentions (Reijonen, Pardanyi et al. 2014). The SME leaders in this study all expressed positive intentions to grow their enterprises and were acutely aware of the environmental drivers challenging their respective sector's. This study focuses on SMEs, those that employed 249 or less employees in the United Kingdom (UK), particularly in the East of England.

Given the gaps in the existing research around the link between SME leaders' perspectives, sustainable business model, productivity and external environmental concerns, two research questions initially emerged from our documentary research:

1. *Are SME leaders' attitudes of the challenges and issues of sustaining and growing their enterprise, driven by external environmental drivers and their potential impact on the enterprises' sustainable business model?*
2. *What is the correlation between these SME leaders' attitudes and their subsequent behaviour, particularly their sustainable business model and productivity changes?*

This paper explores the changing SME leaders' perceptions as a determining influencer on their Sustainable Business Model Innovation (SBMI), and therefore their propensity to positively embrace

these external environmental drivers, and its subsequent impact on their enterprise's productivity. To this aim, the next sections discuss the links between sustainable business model, leaders' attitudes and behaviours and current/future environmental uncertainty. The third section outlines the methodology and sample frame, section 4 presents and discusses the findings, and the final sections report on the conclusions and implications.

## **2.0 Extant Knowledge of External Environmental Drivers, SME Leaders Attitudes and Practices, and Sustainable Business Model Innovation**

Any discussion around Sustainable Business Model Innovation (SBMI) and SME strategy encompasses the basic aspects of value creation, development and delivery (Osterwalder, Pigneur et al. 2010). The advantages of using the business model framework to link SMEs' development and growth with the broader challenges and issues associated with climate change and sectors responses to changing business systems, processes and product/service offerings, is obvious (Minttu Laukkanen and Patala 2014, Wenbo Jiang, Chai et al. 2018). Key to all of this innovation, and its need, is the critical importance of the entrepreneur, the SME leader(s) who have the motivation and willingness to change and challenge the status quo, in their enterprise(s) and the sector (Minttu Laukkanen and Patala 2014).

### **2.1 SME's Sustainable Business Model**

The literature on sustainable business models is both new and quite dispersed across many different subject areas within management science (Zott, Amit et al. 2010). Hence why the definitions of a business model are equally as diverse, however the author's choice relates to the specific focus of this study on attitudes, values and behaviours (Morris, Schindehutte et al. 2005):

*“a business model is a concise representation of how an interrelated set of decision variables in the area of venture strategy, architecture and economics are addressed to create sustainable competitive advantage in defined markets” p. 727.*

In the creation of any business model framework that can be both generalizable and at same time reflect the proprietary nature of enterprises and their environmental context, then the selection of the constructs, and the language used to convey meaning is very important (Morris, Schindehutte et al. 2005, Frank Boons, Montalvo et al. 2013).

In the general research on sustainable business models most of the research has focused on the area of outputs and outcomes of these enterprises engaging in sustainable activities (Minttu Laukkanen and Patala 2014). But an increasing body of research is studying the important links between the concepts of business models, economic performance and sustainable innovation (Frank Boons, Montalvo et al. 2013). Key to this is the acceptance of the importance of involving stakeholders, with the our business entrepreneurs who ultimately lead the development of these sustainable business models.

Business model scholars consider that business model innovation is a reaction to external changes, the ongoing SME leaders evolutionary learning process, and ultimately the experimentation-driven processes naturally associated with any small enterprise (Taran, Nielsen et al. 2016). The Business Model Canvas is used by many academics, practitioners and entrepreneurs to map these external challenges, learning and experimentation (Taran, Nielsen et al. 2016).

If this study is to explore the SME leaders' mind-sets concerning their attitudes, values and behaviour, one of the axes of our survey instrument, the full explanation of its development is described in the methodology section below, should relate to the business strategies and processes affected by external environmental uncertainty. The authors selected six key components from the business model canvas framework to construct their second axis in the survey instrument:

<b>Key activities (KA)</b>	directly contribute to the overall financial performance and underlying enterprise culture, and its ability to change (Hershberger, Lichtenstein et al. 1994);
<b>Key Resources (KR)</b>	specifically suppliers, form an important source of competitive advantage for the enterprise, and become a key element of their value chains (Chen 2005);
<b>Value Propositions (VP)</b>	are the means by which an enterprise creates a growth strategy, leveraging new revenues and profits (Cooper 1983). Changes in the marketplace needs are quickly reflected in new products or service development programmes, and in the overall recruitment of new skills and competencies to the enterprise (Chialin 2001);
<b>Key Strategies/Partnerships (KSP)</b>	are a statement of the alignment of the internal business systems with the environmental challenges, so as to create, develop and deliver business and customer value (Zott and Amit 2007). Enterprises who understand the importance of long-term strategy are more effective at managing the balance of short-term expediency with longer-term business model innovation;
<b>Customer Market/Revenue (CMR)</b>	is a fundamental necessity for sustainable growth, these measures must be both meaningful and helpful for current and future decision-making (lynes and Dredge 2006). External environmental factor performance is difficult to measure, especially the non-financial benefits, however they still must be measured and reviewed (Melnyk, Sroufe et al. 2003);

Taran's research study on building grounded theory for the Business Model Innovation framework has strengthened the important links between the key components of the business model, see above, and enterprises' value creation, development and delivery (Taran, Nielsen et al. 2016). As research studies looking at the challenges to greater sustainability explore the challenges of business model innovation (N.M.P Bocken, Short et al. 2014), so interest is focusing on the business entrepreneurs driving these changes, and mechanisms influencing them.

This links with the study's first research question:

1. *What is the correlation between these SME leaders' attitudes and their subsequent behaviour, particularly sustainable business model innovation – and its impact on the key components in the business model canvas?*

## 2.2 External Environmental Concerns

The concept of environmental drivers, those aspects of the external environment relating to sustainability, has been a consistent theme for the last fifty years of management science, and the most common outcome suggests that successful enterprises are those that have fast reactions and equally recognise important business opportunities (Covin and Slevin 1989, Williams and Schaefer 2013). Environmental concerns at the national, regional, industry and enterprise levels have become an increasing challenge for all SMEs. One example is that of the increasing visible impact of global warming and its devastating effects on the world's climatic systems, and the direct and indirect impact this subsequently is having on individual countries remedial legislative and economic policies to address this (Bahringer and Laschel 2005). SMEs are experiencing effective pro-environmental pressure from both their internal and external stakeholders: governments, competitors, suppliers, competitors, local business-communities, and customers. This pressure takes many forms: legislation from other trading partners and the embedding of these into UK laws around specific environmental targets (Zakkour, Gaterell et al. 2002), or government-directed policies to meet these new targets (emissions, recycling, etc.); competitor drivers to develop new eco-friendly products and services (Pujari 2006); customer-

driven needs (Donnelly, Beckett-Furnell et al. 2006); and industry-driven initiatives in an attempt to pre-empt possible future legislation (changes to processes, systems and resource sourcing) (van den Brink and van der Woerd 2004, Stefan Ambec, Cohen et al. 2013). These will certainly become more important in the UK's Post-Brexit economic reality and enterprises ability to become competitive in the new trading partnerships.

The consequences for SMEs of these external environmental drivers around the longer-term sustainability of their existing Business Models (BM), affects their ability to identify opportunities and threats in the future. General research on enterprises' sustainability against these increasing levels of external pressures suggests there are mixed messages coming from SME leaders concerning their willingness to commit or comply (Kolar 1999, Labuschagne, Brent et al. 2005). Some SME leaders consider these hostile environments warrant more aggressive strategies based around introducing new products and markets, research has found that this strategy often leads to higher growth rates and productivity (Shirokova, Bogatyreva et al. 2016). It is this aggressive behaviour that inclines some SME leaders to take increased business-related risks, and thus favour both market/product innovation and business model innovation (Covin and Slevin 1989, Dangelico and Pontrandolfo 2015). Research studying the financial and non-financial ramifications of these types of SME commitment suggests that the benefits can come from multiple business model components, see table 2 below. Table 2. explores the consequences of external and internal environmental drivers, in terms of the positive and negative value to the business and customer, and the overall impact to the business model and overall productivity. The example of new technologies and materials being pushed through the supply chain, has been driven largely by regulatory pressures, yet the result has been to give some enterprises 'first mover' advantages in their respective sectors. Previous research into impact of environmental regulations in motivating enterprises to both adopt eco-innovation and compliance has indicated the challenges of also stimulating their intensity of use (Pelin Demirel and Kesidou 2011). These same research studies identify the enterprise-based factors, discussing cost savings, operational efficiencies, also enterprise capabilities, and most importantly corporate social responsibility (Pelin Demirel and Kesidou 2011).

*Table 2: External Environmental Drivers – potential impact on enterprise's business model key components*

<b>Key components of the Business Model</b>	<b>Positive/Negative Enterprise Value</b>	<b>Impact on the SMEs' Business Model</b>	<b>Supporting research</b>
<b>Key Activities (KA)</b> New Green Technologies, New Green Materials, Sustainable Development Responding to new environmental regulations	<i>Improving productivities and greater efficiency Competitive advantages, technological and IP leadership</i>	<i>Sustain competitive advantages Regulatory drivers Customer pressure</i>	<i>(Zhang et al., 2020) (Albort-Morant, 2016) (Ambec et al., 2013) (Doran et al., 2016)</i>
<b>Key Resources (KR)</b> External Driven Sustainable Organisational, Market and Product Strategies	<i>Improved environmental performance and enterprise sustainability Inter-firm partnerships over green innovations</i>	<i>Reduced environmental foot print</i>	<i>(Ardito et al., 2018)</i>
<b>Value Propositions (VP)</b> External Driven Sustainable Operations, Processes and Business Systems Eco-innovation values	<i>Relationship between eco- innovation values and performance</i>	<i>Cleaner and leaner production Improved financial performance</i>	<i>(Javier Aguilera-Caracuel et al., 2013) (Ambec et al., 2013) (Cai et al., 2014) (Doran et al., 2016)</i>
<b>Key Strategies/Partnerships (KSP)</b> Changes in Costs	<i>Decreased emissions and increased recycling</i>	<i>Boosting the eco- innovation values to the business and customer</i>	<i>(Cai et al., 2014) (Doran et al., 2016)</i>
<b>Customer Markets/Revenues (CMR)</b> Customer Green Demands, Profitability associated	<i>Improved management systems Links between environmental</i>	<i>Better understanding and use of new market opportunities for greener products and services</i>	<i>(Costa-Campi et al., 2017)(Ali Alshehhi, Nobanee et al. 2018))</i>

with these sustainable developments Customer demand – gains and pains	<i>sustainability and business performance</i>		
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The five business model components listed above recognise the multiplicity of contributions from environmental driver types affecting SMEs, and stakeholders (government, industry bodies, competitors, suppliers and customers) driving these (Raar 2015).

## 2.2 Small to Medium-sized Enterprise Leaders and their Enterprise

SME leaders who have founded, and lead their enterprises through external and internal challenges are akin to experienced business entrepreneurs, and are defined as those that have (Leibold, Voelpel et al. 2004):

*‘a common mental set of beliefs, views or conventional wisdom about how they compete in their industry, strategic group, value chains and chosen market’ [Leibold, Voelpel et al. 2004: 61]*

These SME leaders exhibit attitudes, behaviours and values associated with both the internal and external challenges, ultimately directing their activities around the various business model components. Their mind-sets reflect the sense-making of their enterprises and how they can achieve both sustainability, and growth for the future (Leibold, Voelpel et al. 2004). Managerial studies, linking environmental performance and business impact, have identified a generally positive environmental attitude but a difficulty in translating these into concrete actions and positive links to enterprise value (Perez-Sanchez, Barton et al. 2003, Revell, Stokes et al. 2010, Tiberio Daddi, Iraldo et al. 2019). Less certain is the link between the owner-manager characteristics and business growth (Blackburn, Hart et al. 2013), and the specific importance of factors like sustainability. What are the leaders’ decision-making practices in their choices of green innovation activities, certainly research studies on the links between product/service innovation and sustainable strategies have identified the importance of managerial decision-making (Wolfgang Gerstlberger, Knudeen et al. 2014, Lorenzo Ardito, Petruzzelli et al. 2018).

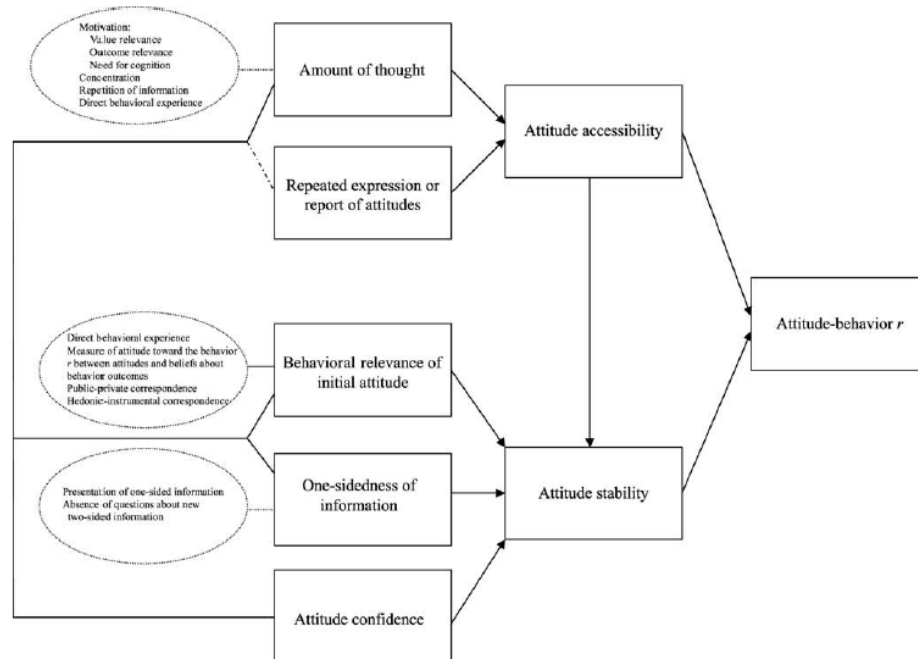
### 2.2.1 SME leaders’ Mind-set and Predicted behaviour

SME leaders use their mind-set (attitudes, values, behaviours) to both relate to the world, and perceive how their enterprise competes in their respective industries. Social psychologists suggest that their behaviour affects the way that others’ (employees) think, feel and act; and therefore by inference how others’ behaviour equally affects their thoughts, feelings and actions within the enterprise. This interconnectedness of ours, and others, actions and outcomes establishes a set of norms and conventions by which individuals feel and act towards each other and any enterprise strategy. Attitudes and behaviours are important, when applied specifically to SME leaders, they indicate their choices, and therefore actions, these ultimately establish a constructive process by which they act and then sense-make the outcomes (Bettman and Luce 1998).

These attitudes are predicated by the individual’s thinking around attitudinal objects, those things that motivate them to change, or are upper most in their thoughts. This experience stimulates further thinking about their feelings towards these attitudes. This cognitive process will influence their current and future behaviour (Albarracín, Gillette et al. 2005, Glasman and Albarracín 2006). This construction and amplification of attitudes helps the process of stabilization (Ajzen 2001). It is therefore logical to assume that when SME leaders receive significantly divergent information on various external environmental drivers that are likely to impact, financially or non-financially, on their enterprises’ sustainable business model, then this will stimulate a change in their attitudes and subsequent behaviour. Other studies have also noted the poor understanding and interpretation of knowledge and skills required to react to external environmental drivers (Hillary 2000, Revell, Stokes et al. 2010, Jianming Zhang, Liang et al. 2020).

SME leaders without the required knowledge and skills may not perceive important changes relating to business and customer value towards these environmental drivers, and so be disadvantaged in the future.

Glasman and Albarracín's research on the link between attitude and behaviour, identified five broad factors that influence both attitude accessibility and stability (Glasman and Albarracín 2006), see figure 1 below:



*Figure 1: Glassman and Albarracín's Attitude – Predicted Behaviour Framework*

**Attitude accessibility** – is derived from two factors:  
 the *amount of thought* – having easy access to attitudes associated with the object or issue;

the *repeated expression* - the more often the small enterprise leaders expresses the object, or issue, and has direct behavioural experience of it.

**Attitude Stability** – is derived from three factors:

the *Behavioural relevance* – that the attitudes are influenced by the knowledge or experience of the behavioural-relevance;

the *Information stability* - that the information is consistent, and is likely to predict future acquisition of information on the object or issue;

the *attitude confidence* – a measure of the small enterprise leaders level of information and direct experience of the object or issue, hence their confidence about their attitudes.

This meta-analysis conducted by Glasman and Albarracín (2003) suggested that ‘people form attitudes more predictive of behaviour when they are motivated to think about the object they are considering, have direct experience with the attitude object, report their attitudes frequently, construct their attitudes on the basis of information that is relevant to the behaviour, receive or generate either positive or negative information about the object, and believe their attitudes are correct’ (Glasman and Albarracín, 2005:814). This association between attitudes and behaviour linked to the acquisition of information that is both personal and relevant to the SME leader, is a strong predictor of both the attitude-behaviour relationship when these attitudes are expressed repeatably and are easily accessible and stable over time.

Our study's second research question emerges from the above:

2. *Are SME leaders' attitudes of the challenges and issues of sustaining and growing their enterprise, driven by particular external environmental drivers?*

### 2.2.2 The Link between Attitudes and Behaviour and External Environmental Drivers

If attitudes are created, developed and re-enforced by the acquisition of information and/or the direct experience of the attitudinal object, then what external environmental factors instil those most desirable attitudes and impact on future behavioural change? Research informs us that the importance of external environmental drivers is most often related to the SME leaders' awareness of the consequences of these on the sustainability of their enterprise's business model (Fujii 2006). Another factor determining likely attitudinal - behavioural change is the ability of SME leaders' to implement these changes (Ajzen and Fishbein 1969). More recent studies looking links between management satisfaction and the implementation of Environmental Management Systems (EMSs) suggests a positive link (Tiberio Daddi, Iraldo et al. 2019).

Our SME leaders are therefore more likely to drive pro-environmental behavioural changes, including some form of informal or formal EMS (Ammenberg and Hjelm 2003), based on the following three factors:

**Awareness of Consequences** – this is sometimes called attitudinal frugality, and measures our SME leaders' concerns about enterprise efficiency, and overall environmental issues (Stern, Dietz et al. 1993, Javier Aguiler-Caracuel and Ortiz-de-Mandojana 2013, Yunhui Zhao, Feng et al. 2018);

**Ease of Implementation** -the ability of our SME leaders' to implement the pro-environmental behaviour (Fujii 2006), and the underlying behavioural intention that would drive these changes (Martin A. Carree and Verheul 2012);

**Value of Implementation** - the relative costs of implementing the pro-environmental behavioural changes, set against the potential benefits (Stern, Dietz et al. 1993).

These three main themes/links of attitudes, behavioural intention and value are the three main constructs used in the development of the study's survey instrument, see the methodology section below.

## 3.0 Methodology

The study uses survey data collected from a range of businesses within the East Anglia region. This study establishes the first deductive steps, the establishment of the link between SME leaders' attitudes, values and behaviours associated with their business model, and the subsequent external environmental drivers initiating innovation.

The primary aim of this study was to explore the SME leaders' attitudes, values and behaviours associated with external environmental uncertainty and ambiguity, and the likely impact on their business model. The study considers both the ontological aspects of the small enterprise leaders, and their 'raison d'être' for being in business, and the epistemological approach to studying their perspectives and the link to actions around their enterprises' business model. Initial evaluation identified the need to take an interpretative ethnographic approach to data collection.

### 3.1 Research Design

The research study utilised a multi-stage investigative process consisting of three stages of inquiry.

1. The first stage utilized a survey instrument measuring the small enterprise leaders' attitudes, values and behaviours associated with external environmental factors, and the perception of its impact on their enterprises' business model. The one independent variable was the sampled small enterprise leaders, chosen to represent three different industry sectors, where the main sectors are to different degrees constrained either by enterprise-driven, industry-driven or



legislatively-driven constraints. The three dependent variables are these small enterprise leaders' attitudes, values and behaviours as measured by the survey instrument. The small enterprise leaders were largely randomly selected to represent different types of enterprises, and to be classified as small enterprise, less than 50 employees.

Information was gathered using initially an on-line survey instrument, this questionnaire was completed by 60 small enterprises in the East Anglia region.

### 3.2 Respondents

The respondents of this study were selected from hundreds of small & medium-sized enterprises that regularly engage with Hertfordshire Business School every year for resources, advice and guidance. In the interests of confidentiality, the SME leaders and their respective enterprises are anonymised.

Each online respondent was asked about their attitudes, practices and business value associated with environmentally driven changes either forced on them, or that pressured them to take action, or consider taking action.

## 4.0 Data Analysis

Following pilot-testing, which did identify some repeat measures that were then subsequently deleted from the final questionnaire. The final 36 attitude, value, and behaviours items were grouped into five sub-scales: key activities, relationship management, value propositions, key strategies and partnerships, and customer markets and productivity. The main research findings from the quantitative survey are shown in tables 1, 2, 3 and 4 below. The overall picture that emerges from the survey data is that SMEs in the three clustered industries (legislatively-driven, industry-driven, and enterprise-driven) are aware and acknowledge the external environmental uncertainty and ambiguity. These SMEs also are aware of the challenges, obligations and responsibility to act, only the industry-driven and legislatively-driven industry enterprises do.

### 4.1 Business Model Instrument: one-way ANOVA

The results shown in table 1, see below, shows no significant differences between the attitudes, values and behaviour perspective sub-scales for the five business model components of operational processes, suppliers and partnerships, product and service strategies, business goals and strategy, and finally external performance.

*Table 1. One-way ANOVA for Attitudes, Behaviours and Value Perspectives sub-scales*

Perspectives (Attitudes – Values – Practices)	F-values	Df	P	Sign.	Sign. Diff.
<b>Key Activities (OP)</b>	.399	(2,57)	.673	<0.05	None
<b>Key Resources (KR)</b>	.583	(2,57)	.561	<0.05	None
<b>Value Propositions (PSS)</b>	.200	(2,57)	.819	<0.05	None
<b>Key Strategies/Partnerships (KSP)</b>	.728	(2,57)	.487	<0.05	None
<b>Customer Market/Revenues (CMR)</b>	.153	(2,57)	.859	<0.05	None

This initial analysis was disappointing, but not unexpected as enterprises will respond differently to these external pressures based on their engagement based on compliance or commitment. To understand these drivers better we undertook a cross-correlational analysis across the three perspective sub-scales of attitude, behaviours and values with the data clustered by industry driver types: legislatively-driven, industry-driven and enterprise-driven.

#### 4.2 Environmental factors – Legislatively-, Industry-, or Enterprise-driven

The cross-correlational analysis for legislatively-driven enterprises showed significant positive relationships between all attitude, behaviours and value subscales. Showing that legislatively-driven enterprises attitudes towards external environmental drivers within their industry strongly correlate with their subsequent behaviours and enterprise values, see table 2 below.

Table 2. Cross-correlational Analysis for Legislatively-driven Enterprises

		ATTITUDES					PRACTICES					VALUES				
		KA	KR	VP	KSP	CMR	KA	KR	VP	KSP	CMR	KA	KR	VP	KSP	CMR
ATTITUDES	KA	1.00														
	KR	.77	1.00													
	VP	.57	.94*	1.00												
	KSP	.93*	.94*	.81*	1.00											
	CMR	.73	.86*	.74	.77	1.00										
PRACTICES	KA	.95*	.76	.56	.86*	.87*	1.00									
	KR	.73	.97*	.86*	.88*	.84	.74	1.00								
	VP	.53	.92*	.99*	.77	.74	.53	.84*	1.00							
	KSP	.87*	.88*	.71	.88*	.96**	.96**	.89*	.69	1.00						
	CMR	.67	.74	.63	.66	.99*	.85*	.76	.65	.93*	1.00					
VALUES	KA	.88*	.93*	.84*	.92*	.92*	.89*	.86*	.83*	.94*	.85*	1.00				
	KR	.70	.97*	.94*	.92*	.71	.66	.92*	.91*	.76	.59	.82	1.00			
	VP	.57	.92*	.99*	.80	.76	.57	.82	.99*	.71	.66	.86*	.92*	1.00		
	KSP	.89*	.91*	.79	.97*	.80	.89*	.85*	.75	.88*	.71	.90*	.90*	.80	1.00	
	CMR	.67	.81*	.70	.73	.98*	.84*	.86*	.71	.94*	.97*	.84*	.70	.71	.78	1.00

The cross-correlational analysis for industry-driven enterprises showed three exemptions to the overall strong positive relationship, these weak relationships were in the following operational processes, supplier and partnerships, and product and service strategy.

Table 3. Cross-correlational Analysis for Industrial-driven Enterprises

		ATTITUDES					PRACTICES					VALUES				
		KA	KR	VP	KSP	CMR	KA	KR	VP	KSP	CMR	KA	KR	VP	KSP	CMR
ATTITUDES	KA	1.00														
	KR	.84*	1.00													
	VP	.76	.97*	1.00												
	KSP	.56	.91*	.91*	1.00											
	CMR	.66	.90*	.94*	.86	1.00										
PRACTICES	KA	.81	.83	.94*	.66	.90*	1.00									
	KR	.78	.90**	.80	.75	.91*	.81	1.00								
	VP	.82	.94*	.97**	.81	.83	.71	.96*	1.00							
	KSP	.63	.91*	.89*	.95**	.93*	.83	.77	.76	1.00						
	CMR	.74	.89*	.95*	.77	.97**	.89*	.97**	.89*	.84	1.00					
VALUES	KA	.82	.71	.60	.50	.71	.95*	.60	.54	.71	.69	1.00				
	KR	.67	.88*	.80	.90*	.84	.81	.65	.69	.97**	.73	.78	1.00			
	VP	.67	.89*	.94**	.83	.99**	.89*	.94*	.85	.90*	.98**	.69	.80	1.00		
	KSP	.48	.82	.78	.94**	.83	.70	.60	.63	.97**	.69	.61	.96**	.78	1.00	
	CMR	.72	.91*	.94*	.83	.99**	.93*	.92*	.84	.92*	.98**	.76	.83	.99**	.80	1.00

The weak relationships noted in the cross-correlational analysis of legislatively-driven, industry-driven, and enterprise-driven industry enterprises highlighted the potential significant differences in the three perspectives (attitudes, behaviours and values) across the three different enterprise clusters. To explore this further one-way ANOVA analysis was conducted for each of the sub-scales operational processes, suppliers and partnerships, product and service strategy, business goals and

strategy, and external environmental performance, against the three perspective sub-scales (attitudes, behaviours and values).

Table 4. One-way ANOVA of Industry-based Significance Differences

Perspectives		F-values	Df	P	Sign.	Sign. Diff.	
Sub-scale One-way ANOVA							
<b>KEY ACTIVITIES (KA)</b>	Attitudes	3.105	(2,57)	.071	<0.05	No	
	Practices	3.272	(2,57)	.063	<0.05	No	
	Values Post-hoc (1&3)	3.969	(2,57)	.038 .048	<0.05	Yes Yes	
<b>KEY RESOURCES (KR)</b>	Attitudes, Practices and Values	.786 .830 1.426	(2,57)	.472 .453 .267	<0.05	No No No	
	<b>VALUE PROPOSITIONS (VP)</b>	Attitudes Post-hoc (1&3)	4.101	(2,57)	.035 .053	<0.05	Yes No
		Practices Post-hoc (1&3)	4.166	(2,57)	.034 .034	<0.05	Yes Yes
Values Post-hoc (1&3)		4.639	(2,57)	.025 .038	<0.05	Yes Yes	
<b>KEY STRATEGIES/PARTNERSHIPS (KSP)</b>	Attitudes Post-hoc (1&3)	5.921	(2,57)	.011 .019	<0.05	Yes Yes	
	Practices Post-hoc (1&3)	4.837	(2,57)	.022 .024	<0.05	Yes Yes	
	Values	2.917	(2,57)	.081	<0.05	No	
<b>CUSTOMER MARKETS/REVENUES</b>	Attitudes Post-hoc (1&3)	4.773	(2,57)	.023 .037	<0.05	Yes Yes	
	Practices Post-hoc (1&3)	4.838	(2,57)	.022 .029	<0.05	Yes Yes	
	Values Post-hoc (1&3)	4.127	(2,57)	.035 .046	<0.05	Yes Yes	

The levels of perception and knowledge associated with these external environmental challenges and issues vary even in the legislatively-driven industries. This variability of acts and responses is largely down to the small enterprise leaders' personal values and beliefs, and it is these which are imposed on the enterprise. Like previous studies, especially those just focusing on environmental performance, commitment to act and responses comes down to perceived costs against both financial and no-financial benefits to the enterprises' business model.

## 5.0 Discussion and Conclusions

The study and subsequent discussions contribute to the narrative around the important relationship between leaders' attitudes and behaviours towards sustainability, and subsequent sustainable business model innovation. The authors have outlined the link between SMEs' sustainable business model innovation and their business growth, and particularly that of the SME leaders' perspectives of their business environment (internal and external), and their enterprises' sustainable strategy. This builds on earlier work by Bansal and Roth (2000), and later researchers studying managerial satisfaction and business performance (Jana Hojnik and Ruzzier 2016, Justin Doran and Ryan 2016, Tiberio Daddi, Iraldo et al. 2019), who found strong correlations between individuals, organisations and environmental drivers and an organisations responses based on the drivers of competitiveness, legitimation and environmental responsibility (Bansal and Roth 2000, Costa-Campi, Garcia-Quevedo et al. 2017). We will also show that eco-innovations affecting both the sustainable business model innovation and the broader sustainable strategy does provide both competitive advantage and business productivity (Justin Doran and Ryan 2016).

The 36 attitude, behaviours and value items grouped into five business model innovation component sub-scales: Key Activities (KA), Key Resources (KR), Value Propositions (VP), Key Strategies/Partnerships (KSP), and Customer Markets/Revenues (CMR) survey instrument was tested

and validated for internal reliability for strong relatedness. The one-way ANOVA's comparing the means across all three perspectives sub-scales (attitudes, values and behaviours) initially showed no significant differences, suggesting that SME leaders' attitudes towards external environmental uncertainty, and the business value resulting out of business model innovation, was a good predictor of their current and future behaviour. This was unexpected, but by clustering the enterprise data by industry types there emerged a clear pattern of significant differences between enterprise operating in a legislatively driven industry, and those in a unregulated and largely enterprise-driven industry. Previous research studies on enterprises responding to external challenges suggested that legislatively-driven industries are forced to comply with national standards or directives around environmental measures (Ransom and Lober 1999, Bansal and Roth 2000). But enterprises which do not operate in heavily regulated industries have a choice of undertaking environmental-driven measures on a purely voluntary basis, and as such these enterprises are largely driven by the small enterprise owner-managers' personal attitudes and beliefs (Hillary 2004). The differences and drivers of these business model innovations are commented on below.

Our cross-correlational analysis of the enterprises clustered around being legislation-driven, industry-driven or enterprise-driven reveal some interesting findings.

## 5.1 Industry-driven Environmental Drivers and subsequent Business Model Innovations

The first of our research questions posed "*Are SME leader's perceptions of the challenges and issues around sustaining and growing their enterprise driven by external environmental factors alone?*" to this we suggest enterprise operate in three broad industry types. As a consequence, there is a rationale for the significant differences in their attitudes, values and behaviours, especially between those who operate in legislatively enterprise-driven industries.

Those **legislatively-driven enterprises** show strong positive relationships for all combinations of the three perspectives (Attitude, Behaviours and Values) and across all five respective sub-scales (OP, SP, PSS, BGS, EEP). This result was expected as these enterprises operate in heavily regulated industries where there is constant surveillance and self-reporting, and any transgressions are severely penalised. Interestingly, for those enterprises operating in industries that have their own standards of operating, and are largely monitored by the industry themselves, there were three areas where weak relationships between the three perspectives were observed:

**Key Activities** Previous research indicates that small enterprise leaders' attitudinal accessibility would be relatively strong in terms of their awareness and constant expressions of interest in external environmental concerns, like 'quick wins' on waste management and interest in lean manufacturing. - Yet these same small enterprise leaders' behaviours and business value on the same operation areas would be weighted by the relative cost and benefit to their enterprise overall. Small enterprise research on any strong link between enterprise performance and lean management activities is inconclusive, and without a direct link between these activities and business benefits both financial or non-financial then enterprise are loath to commit (Montabon, Sroufe et al. 2007);

**Key Strategies/Partnerships** Enterprises are also forced by their suppliers and partners to relay on information about the sources of their raw materials, and thus help provide traceability from end-product to raw materials. Yet most end-customers neither require or value this level of traceability, but it becomes a de-facto standard of the industry (Yunhui Zhao, Feng et al. 2018). Several of the enterprises operating in the baby furniture industry, reported

## Value Propositions

the sustainability of the materials used, yet the end-customer neither values or really understands what FSC standards for;

New product and service development is a bottom-line cost for enterprises, as such changes in either existing product/service lines are most often instigated based on direct end-customer needs. More general external environmental changes are weighted against direct benefits to the enterprise, either the perception that this will lead to a more sustainable competitive advantage, or as a consequence of perceived latent or expressed customer needs. Broader drivers like improving environmental footprint of their products/services are seen as a cost without a corresponding financial or no-financial return (Akgun, Lynn et al. 2006).

Those enterprises operating in an industry where there are no overarching industry standards (**enterprise-driven**) are largely driven by the enterprise leaders and their culture. Our results showed two general areas where a weak relationship existed between the small enterprise leaders' attitudes and their behaviours and values:

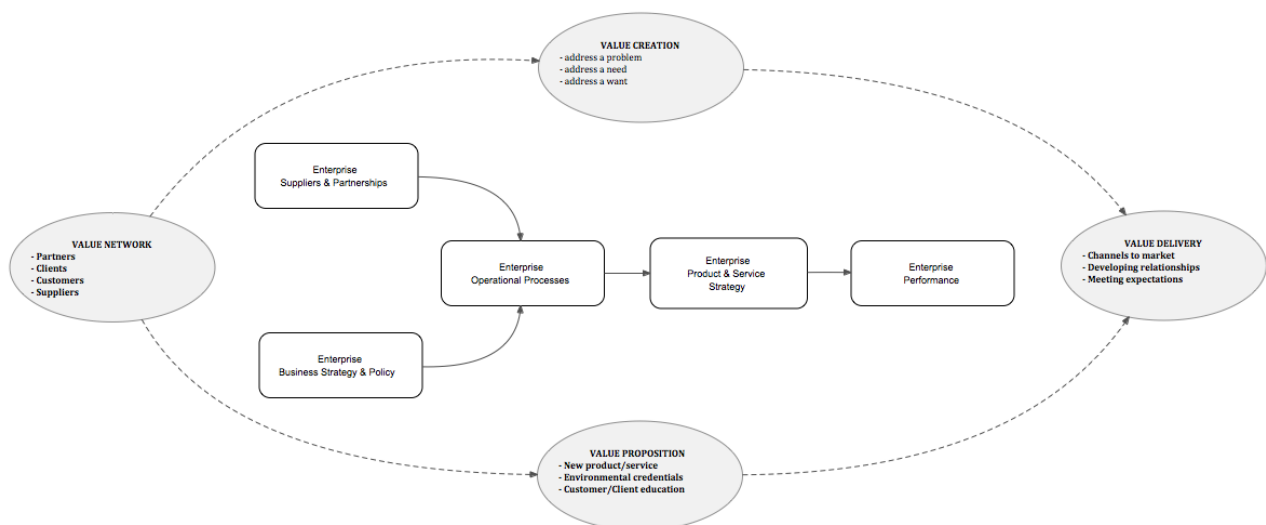
### Key Resources

small enterprise leaders when questioned over their concerns about external environmental issues were aware but reluctant to take action whilst no direct financial or no-financial enterprise benefit was discernible. Exceptions were found within this enterprise cluster, but these were driven by single acts of the small enterprise leader and founder to implement changes based on their personal beliefs and desire to run a more ethical enterprise (Shaw, O'Loughlin et al. 2005);

### Customer Markets/Revenue

as expected with enterprises under no obligation, either by legislation or by any industry-wide initiative to undertake external environmental forces, there is a perception that there is neither no value to the business or to the end-customer of initiating changes to the product/service or their operating processes any environmental or ethical innovations.

To understand further the sustainable business model innovation journey (see figure 2.), and particularly the challenges of both achieving sustainability and growth from their business models, the next section explores particularly these small enterprise owner-managers' awareness of consequences (Fujii 2006), value and ease of implementation of any pro-environmental behaviour (Ajzen and Fishbein 1969, Stern, Dietz et al. 1993).



**Figure 2: Small Business Leaders' Attitudes, Values and Behaviour linked to Sustainable Business Model Innovation**

The researchers focus in presenting the outputs from this study have been to generate more meaningful and relevant insights for actual practitioners, and to back-up previous important research studies (Jana Hojnik and Ruzzier 2016).

## 6.0 Implications and limitations of this Research

We acknowledge that this research study has several limitations. The first of which is the comparative small size of enterprises sampled, and the regionality of these to the East of England. This limitation does restrict making larger generalisations to other industries and regions. The second is that the narrative is largely limited to the SME leaders' perspective, though this is a limitation it is also a potential strength in that these leaders are very influential in the process of sustainable business model innovation, within their enterprise.

This paper started with the premise that small & medium-sized enterprise research into the outcome and impact of external environmental challenges and issues was limited. However, by exploring the correlation between industry-drivers, either internal or externally motivated, and the SME leaders' understanding and interpretation of the potential impact of these on the enterprise's sustainable business model, we have found some insightful additional contributions to the literature, and understanding of SME leaders' motivations to change their enterprises' sustainable strategy. Importantly, making the connection between the SME leaders' attitudes, values and behaviours toward external environmental challenges and their sustainable business model innovations. That simultaneously helps these leaders tailor their sustainable business model innovations to maximise the likelihood of delivering improved productivity. Improved sustainability, and future business growth.

SMEs operating in legislatively-driven industries are most likely to see external environmental challenges as positive opportunities to deliver additional value to their sustainable business models:

- Competitive advantage, through both complying and then exceeding the sector requirements, agreeing with those researchers perceiving sustainability having a positive effect on value creation, accepting that adoption reduces the risk to future environmental policy changes (Karambu Kiende Gatimbu, Ogada et al. 2018);
- Enhanced environmental performance, delivering both cost benefits, and the potential for increased pricing on greener products and services to their customers/consumers (Ali Alshehhi, Nobanee et al. 2018);

The SME leaders of these legislatively-driven enterprises have closely aligned attitudes, values and behaviours with their business model innovation. SME leaders operating in industry-driven industries had less alignment of their attitudes, values and behaviours with any evidenced Business Model Innovation. These SME leaders are very careful about their evaluation of external environmental challenges/opportunities and only act on those that have direct value-adding potential (financial or non-financial). SME leaders operating in enterprise-driven industries, where any initiatives are driven by the single enterprises, the focus is on 'win-win' innovations that have most often a positive financial output. Equal to the drivers of internal attitudes and behaviour of the SME leaders in these largely customer-driven sectors, is the positive influence of individual consumer groups (Eerdun Taoketao, Feng et al. 2018), and their take on the importance of sustainable measures/performance of the SMEs' value propositions (Julia Hartmann and Vachon 2018). This study is part of many other studies taking a longitudinal exploration of the critical linkage between elements of an enterprises' sustainable business model innovation and the external environmental antecedents that most likely initiate this change.

Sustainable Business Model Innovation is a non-perfect mechanism by which enterprises proactively, and reactively, respond to changing external drivers, and thus constantly re-invigorate their enterprises' value propositions and their chance to maintain both a competitive advantage and long-term sustainability. Previous research has highlighted the importance of these SMEs in integrating these external environmental drivers into their business models and sustainable strategies (Wai Wai Ko and

Liu 2017). These same studies often suggest that SMEs are disadvantaged by embracing sustainability strategies around operationalising these activities and partnerships, and in exploiting any subsequent business opportunities from it (Wai Wai Ko and Liu 2017). Our findings contradict this suggesting that these SME leaders (entrepreneurs) see business opportunities in these new environmental regulations, eco-business practices and new sustainability mindsets. Both in terms of adding business value and customer value (Eerdun Taoketao, Feng et al. 2018).

Larger studies have identified that regulation (compliance-drive) environmental drivers and customer demand (pressure) are consistently the best mechanisms to encourage enterprises to engage, and are more strongly linked to productivity impact (Doran and Ryan 2016).





22	Integrating our environmental policy into the longer-term enterprise strategy?																		
23	Working on an environmental training/development program (internal and external)?																		
24	Creating an environmental team to report on and initiate innovations?																		
25	Constantly surveying the market for environmental opportunities?																		
26	Seeking alliances with other enterprises to jointly work on environmental projects?																		
<b>KEY CUSTOMER MARKETS</b>																			
27	Reducing the number of environmental incidents?																		
28	Commitment to continuous improvement?																		
29	Meeting, or exceeding our recycling performance goals?																		
30	Seeking the opinions of our stakeholders on future environmental performance goals?																		
31	Seeking independent assessment of our environmental performance goals?																		
32	Meeting or exceeding current industry's waste reduction targets?																		
33	Meeting or exceeding current industry's resource consumption targets?																		
34	Setting cost-savings targets for the environmental projects and activities?																		
35	Setting product/service innovation performance goals?																		
36	Meeting or exceeding our process innovation performance goals?																		

\*\*\* Definitions: where 5 equates to Strong Agree, and 1 equates to Strongly Disagree.

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