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# 1.0 Today's Landscape

*Extinction is the rule. Survival is the exception.*
Carl Sagan (2007)

It is likely that almost every British citizen has a view on what Brexit will mean for him or her; some will see it as a dreadful end, others a glorious beginning. Whilst expectations may differ, hopes and aspirations are likely to have far more in common, namely to look to build a better and easier world, a component of which is positive economic development that supports a rise in individual and household living standards. The 'life story' as to how all our expectations will translate into reality is yet to be written, but we can be sure aspiration will remain throughout the writing. Our narrative is a contribution to this journey; one that starts from the question "*How can we use changes to deliver economic development that helps deliver aspirations?"* Innovation and associated productivity rises are the main determinants of economic development. *"From acorns, mighty oaks do grow",* is a simile that justifies our stress on the importance that entrepreneurs and their Micro, Small and Medium Sized Enterprises (MSME's) play in driving growth. Our part in this unfolding drama will be to seek (with the aid of the window of historical characters and anecdotes) to outline a set of 14 propositions that seek to help enable growth, and minimise negative impacts through learning from the mistakes of previous shocks. Past lessons combine with today's innovation to offer suggestive hope of a way to positively address today's current bout of oft repeated existential nihilism.

As of January 2017, there were in excess of 5.2 million MSMEs operating in the UK and each one is at its own individual unique stage of development. (BEIS, 2017). MSME's operate in different markets, develop differently and possess varying capabilities. Additionally, the type of innovation each engages in can be different according to the ambitions of their founding directors. In our context, innovation can be defined as the process of commercialising or bringing into common usage an invention**, which is posited within the context of an invention** as an idea, concept or design for a new or improved device, product or process that is available as concrete information in the form of a description, sketch or model (Freeman, 1982).

## 1.1 Innovation and Productivity

The term *innovation* was first employed at the start of the twentieth century during a time when the field of science was changing beyond recognition. New products were developed for both industrial

and consumer markets, which in turn led to a further rapid development of technologies across a wide range of industries, to sustain economic growth, from the 1950s onwards. As markets advanced and became increasingly global in reach, businesses and public research organisations turned to patents to protect their innovations from research and development programmes. However, growth in patenting corresponded to new modes of innovation research practice, which placed more emphasis on knowledge networks and markets than the individual firm as we approached the twenty-first century.

The original definition of innovation was too narrow to reflect the role, patents and knowledge networks, played in innovation and economic performance and the OECD was tasked with broadening its scope. The update - announced in 2005 – now asserted that innovation was, "the implementation of a new or significantly improved product (good or service) or process, a new marketing method, or a new organisational method in business practices, workplace organisation or external relations" (OECD/Eurostat 2005: 17). Although the definition above is well understood today, it was Schumpeter who saw innovation very broadly as a product, a process and as organisational change that does not necessarily have to arise from new scientific discoveries, but that may combine already existing technologies or their applications in a new context. It has been argued elsewhere that the concepts of both innovation and entrepreneurship are Schumpeter's most distinctive contributions to economics (Hanush & Pyka, 2007: 857) and while he was not the first to write about innovation, very few have been as influential as he.

Productivity is the other main determinant of economic development. Growth in productivity is, therefore, one of the major driving forces behind wealth creation and economic prosperity; and, strong economic growth is behind enhancements in living standards. We can measure productivity growth as the ability to produce more for less, and *inter alia* it is the result of improved products, services, processes, technologies, organisational structures and ideas. These measures can inform us how efficient an economy is functioning in both a static and dynamic sense. Economists usually distinguish between two main types of efficiency: allocative or productive efficiency, and dynamic efficiency (Hodgson, 1988). The former is a static concept, concerned with how much can be produced from a given mix of resources at a particular moment in time (e.g. firms operating at the current technological frontier) and can be measured by Total Factor Productivity (improvement resulting from both labour and capital). The latter is a dynamic concept, concerned with directly pushing forward the technological frontier; and often involves governments investing in new technologies to encourage firms to innovate and improve (Mazzucato, 2013 [see **Box 1**]).

**Box 1 – The State As Active Driver**

Prior to his inauguration as the 34th President of the USA, Dwight Eisenhower was president of Columbia University; (1948-1953), which, in itself included a sabbatical when Eisenhower became Supreme Commander of NATO. According to Jacobs (2000), Eisenhower's time at Colombia was not without controversy, punctuated as it was by his activity with the Council of Foreign Relations (CFR). His work at the CFR focused on the implications of the Marshall Plan and the American Assembly; an area that he was particularly keen on and helped shape his later position on economic policies. Eisenhower saw the potential in the Council to become a great cultural center where business and governmental leaders could meet to discuss and reach conclusions concerning problems of a social and political nature (Wiesen Cook, 1981).

Perhaps not as successful an academic administrator as his brother Milton (widely regarded as one of the most successful president's of John Hopkins University, among others) Dwight Eisenhower put his Colombia experiences to good use when, in 1958 as a direct response to the Soviet's success in launching Sputnik American President, Eisenhower, funded, the Defence Advanced Research Projects Agency (DARPA). Eisenhower was concerned that the U.S. was in danger of falling behind its Cold War rival in technological achievement, especially in the technologies of war fighting and defence. DAPRA role was to fund, and coordinate research programs carried out by the military, private industry, and academia to fulfil its mission of avoiding and creating technological surprise. Today, the agency claims that it has spearheaded initiatives that *changed the world* - a phrase frequently heard at DARPA to ensure a focus on transformative innovation as opposed to incremental improvements in existing technologies (National Research Council, 2009; Mehra, 2013).

DARPA's achievements have included seminal roles in the development of the Internet from the perspective both of technology and human capital. In her book, *The Entrepreneurial State* Mariana Mazzucato points out that DAPRA officers not only increased the flow of knowledge among research groups, it also engaged in increasing the pool of scientists and engineers available to propel innovations into the market. The agency funded the establishment of computer science departments at universities across the USA; thereby acting as as a catalyst for groundbreaking research and development undertaken by industry and academia (Mazzucato, 2013: 77).

## 1.2 Accelerating Product Innovation and Consumer Expectations

The UK is living and competing in a rapidly changing global market. There are many examples of this change. Here are two technological examples. First the information and data revolution, is leading to exponential increases in saved and searchable data storage and thereby to associate new product opportunities. Second, cost effective human genome mapping and advances in human immune system understanding are being combined into new focused cell based therapies that can target treatments toward individuals with specific genetics thereby transforming effectiveness. Equally in consumer facing sectors, for many products, the commercialisation process has shifted from seasons to "fast fashion" with constant updates. There are moves from generic products, to ones with rapid changes, in size, colour, function and style within constantly evolving consumer markets. One only has to look at the frequency of "App" updates on "Smart Phones" to appreciate this pace of change. Today's hot product is tomorrow's dinosaur, today's hot technology will be tomorrow's platforms waiting to be usurped. Change is fast, change is global, and consumer expectations are moving at the same pace.

The Japanese economic miracle went from "cheap plastic items" in the mid 1960's, to initial leading edge electronic products of the 1970's (e.g. Sony Trinitron TV), to being the global product sector leaders in key sectors such as automobile design and manufacture and consumer electronics by the 1990's, to be followed by an unplanned unexpected stagnation. As shown in **Box 2**, yesterday's success and market leadership, no longer guarantees future success, even in the medium term.

**Box 2 Smart Phone Wars**

Despite a five-year head start over the iPhone, Research in Motion's (RIM) Blackberry, once the world leader in 'smartphones' and adored by the corporate mobile world now provides enterprise mobility management (EMM) and mobile security, having outsourced manufacturing of its handsets in 2016.

From the start a technical leader, within four years of its conception, RIM became the first technology firm, outside of Scandinavia to produce connectivity products for Mobitex wireless packet-switched data communications networks. Their next move was towards smart pagers that would exploit packet-based networks to offer wireless internet access.

By 1998, their RIM950 Inter@ctive Pager captured the imagination as Intel CEO endorsed it saying any employee who could demonstrate a need could have one. Next with the Blackberry 5810 there was a device that could receive push email from a Microsoft Exchange Server and that features mobile web-browsing with a full Qwerty keyboard. By 2000, the stage was set for future enterprise-orientated products from the company, such as the BlackBerry 957, the first BlackBerry smartphone; a huge global sales success.

Competition would inevitably catch up, and Blackberry's fate was sealed when ARM Semiconductor Ltd, (whose relationship with Apple dates back to the Newton - the world's first PDA), created a business model around licensing its microprocessor core to customers and allow them to add custom circuitry to create a final integrated circuit (Tubbs & Gillett, 2011). While RIM's secure encrypted network was attractive to corporate clients, their handsets were viewed as less engaging to consumers than the iPhone and Android alternatives. Developers simply found it easier to produce Apps on the IOS and Android platforms, which is why they continue to be ubiquitous today.

As a result, in just three years, Blackberry lost over 60 million of its users. Revenue fell from US$11bn in 2013 to just over US$1.3bn. In 2017, cash reserves dropped by over US$220m, while an increase in operating costs led to a reduction in net income from losses at US$208m to losses in excess of US$1.2bn (CNBC, 2017).

### 1.2.1 Innovation Comes In Different Forms; All Forms Matter

Every innovation matters and every innovation can help drive competitive performance. Every viable business matters, but not every business is the same. Quinn *et al.,* (2013) identify 10 types of innovation ranging from the business model, to business processes, to the product itself and finally to the route to market. They stress that much progress can be made to how an existing firm works and

to evolving new products in the same essential genre by improving how an existing company works. Equally there is potential for new market disrupters, 'Big Bang Disruptions' such as the Googles', Facebooks and Amazons (Downes & Nunes, 2013). In addition, Haldane (2017) argues that we may be on the edge of a step change as artificial intelligence, robotics, the internet of things and other innovations kick in. These changes will disrupt existing companies whilst opening space for whole new industries as yet unimagined. In global leadership term, driving success requires a company to be in one of the top two slots globally, in a specific market segment (Welch, 2001). Blockbuster disrupters depend upon three developmental tiers: - (i) basic research, (ii) development of this research into products that can be manufactured and (iii) market offers that meet profitable customer needs. Entry can be made at any tier in the structure, but the rewards from commercialised products flow from participating in the top tier. To obtain a top tier place is a common objective globally.

All types of company matter and all companies are at a variety of developmental stages. An emphasis on growing "stars" for tomorrow must not be at the expense of failing to adapt today's workhorse companies to make them competitive in today's global markets. We need evolving processes to nudge the long tail of slow innovators to catch up with the trailblazers, whilst affirming and supporting the trailblazers to continue pushing forward (Haldane, *op cit*). Bringing all companies into the top performing productivity quadrant equips them for both survival and future growth, to be at the leading, but not bleeding edge. As Andrew Carnegie once said, 'Pioneering don't pay,' inferring that companies should adopt innovations once a clear payback is visible; an insight highlighted in Mazzucato (2013) that successful entrepreneurial innovation either requires that risks be reduced into market digestible chunks, or that the state needs to partner business to make the risk digestible.

### 1.2.2 A Perception of Risk. Entrepreneurs vs Professional Managers.

It is recognised that entrepreneurs and their associated MSME's are key in the innovation and risk-taking process (OECD, 2010). What is as important to understand is that entrepreneurial risk perception differs from that held in most mature 'managerial' businesses. Professional managers are rewarded on their ability to constantly increase earnings. This process can often occur through acquisition and subsequent cost stripping / asset sales as this process can offer easier risk and return estimation than innovating a whole new product line. Product gestation and new capital investment being uncertain incur sizable risks, especially if the new product is intended to disrupt a market. Easier and safer to buy something already developed but without the global marketing reach. For Professional Managers' reward comes from meeting targets and increasing the share price, often incentivising managers to see their share options increase in value. Equally this perceived performance improvement helps reduce the threat from Private Equity Houses and Activist Investors who may seek to replace managements that fail to deliver this earnings growth. Examples of this in action can be seen in many companies, but three topical examples are Valeant (grown by acquisition followed by ruthless cost cutting especially in research and development), in Heinz after its merger with Kraft under the sponsorship of 3G Capital and in the recent failed 3G Capital bid for Unilever.

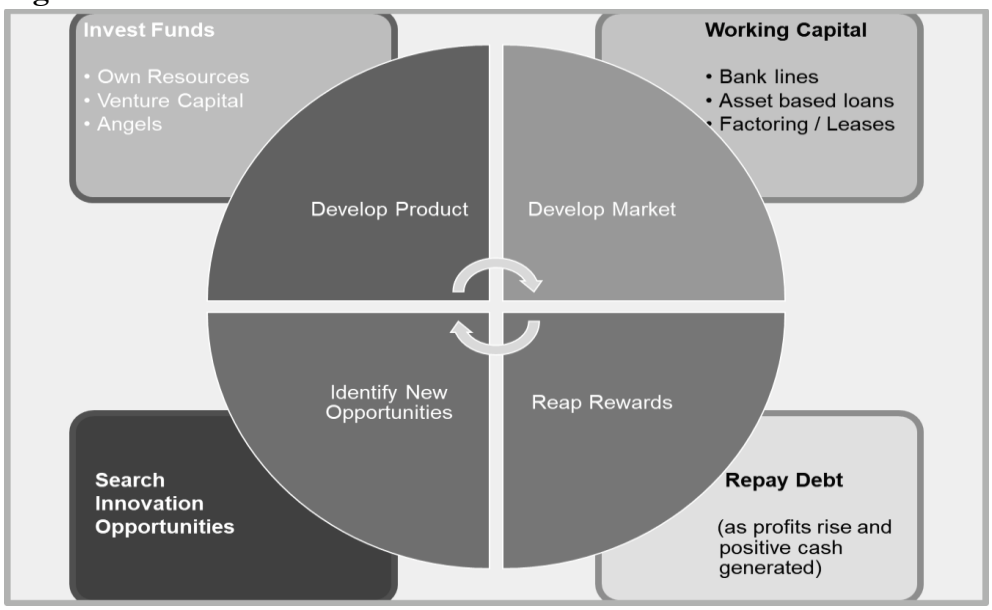
## 1.3 Financialisaton Has Interrupted Business Credit Mechanisms

We live in a financialised world. Ageing societies and financial markets responding to consequent lowering risk appetites tend to focus upon secure returns and safety for the invested principle. These returns are derived substantially from existing assets and cash flows and not into funding for new capital investment. Capital investment funding comes from either internal company financing in companies such as Alphabet / Google, bond issues (in some limited cases), equipment leasing and asset based finance or from Venture Capital or to a much lesser extent, Business Angels. Banks have over the last 40 or so years significantly reduced the share of business lending and in doing this greatly increased lending to residential mortgage markets, arguably a reason for the strong relative rise in price of residential housing assets in relation to earned incomes. This lending shift has been reinforced by Regulatory changes associated with the development of the Basel Capital Accords. This change in lending patterns is a major change with deep implications as restrictions in bank finance to smaller businesses have not automatically or adequately been matched by openings in new types of finance. In the USA, there is now a sophisticated and mature Venture Capital market, whereas in the UK and the Europe Union, Venture Capital as an asset class, is - notwithstanding London's role in this sector - neither as mature as the US nor as ubiquitous as Private Equity; so, funding flows are consequently more restricted. Real wealth increases require real productivity increases, which in turn require real capital investment and require real innovation (Haldane, 2017). The juxtaposition is that savings products and derivatives effectively re-sell cash flows from previous capital investments, *less* the fees and commissions charged by each intermediary involved in the resale. These are not providing risk capital but rather looking to extract 'dividend rents' for buying the shares or bonds and having an upside of capital gains for holding the assets over time. In general, consumer products are marketed on their safety in returning the original capital plus their returns.

## 1.4 Capitalism and The Entrepreneur

Entrepreneurs are at the centre of our innovation story. Under Capitalism resources flow to the successful Entrepreneur, away from the unsuccessful one. Whilst it is implicit that Entrepreneurs are running their businesses for private profit, defining Capitalism by mode of ownership alone is overly simplistic. Friedman (1962) sees the distinction as being between imposed direction of resources (feudalism, socialism etc.) and free market allocation via voluntary cooperation (capitalism). We see *Mission Based Innovation* putting the Entrepreneur at the heart of the innovation and profit generation circle (**Fig: 1.1)**.

**Figure 1.1: The Innovation and Profit Generation Circle**




**Source**: Authors

Financialisaton is different from Mission Based Innovation (Krippner, 2005). It does not seek to promote entrepreneurial innovation and market disruption, but instead it looks for safety; to repurpose cashflows into *saver friendly* products. This is a system designed to support the economic *rentier*, where savings are not investments in entrepreneurial risk taking, but rather where savings are a delay in consumption from one period to another. A delay that either accumulates wealth for the sake of it or saves the wealth to spend at some unspecified time in the future (Keynes, 1936). Paradoxically, this financialization *quest for safety* was at the heart of the 2008 crash, as inherently *unsafe* propositions (e.g. sub-prime mortgages) were packaged with insurance to make them look safer than they were. Financialisaton in striving to remove risk from savings products misdirects resources (i) away from funding risk taking, innovating Entrepreneurs (the potential cash flows of the future) and (ii) into funds and financing that emphasise short term performance through reducing product and market development, asset sales and cost reduction programs that have short but long-term benefit.

Further impact arises from the very substantial money flows that can move from one country to another. These flows are especially substantial for the UK due to the importance of London as a Financial Hub. According to Borio *et al.,* (2014), a change in direction in capital flows into an outbound cash drain can cause significant disruption. Such changes have occurred in the past, for example in the Asian Financial Crisis (1997) and in Iceland (2008). These are significant financial events that can be associated with a rapid decline in GDP of say more than 4 per cent in the subsequent 12 months. **Box 3** describes the Iceland event.

**Box 3 Iceland's 2008 Banking Collapse**

Following Iceland's accession to the European Free Trade Area in 1993, the governments undertook a process of deregulation, privatisation (especially of the main banks to create national banking champions) and a strategy to make Iceland a global financial hub. Sigurgeirsdóttir & Wade (2015) tell us of how essentially small local banks supporting a population of just 320,000 soared to being within the 300 largest banks globally in the space of a few years in the 2,000's with their assets approaching 10 times Iceland's GDP. This process had been facilitated by "light touch" regulation (47 staff located in non-distinct offices behind a fast food shop to cover three now huge banks), a strong national Credit Rating, and relatively high interest rates enabling huge capital flows as investors borrowed money at lower rates elsewhere and deposited them in Iceland for higher rates. A process known as a "carry trade". At the same time this wealth fed a housing and property boom, and consumption led to a growing trade deficit of over 15% from 2005 financed by inbound capital flows, raising the value of the currency so further worsening the trade deficit.

The rapid growth in response to deregulation became the darling of "Libertarian" economists. For example, Arthur Laffer (of Laffer Curve Fame) saw the fast economic growth as an example of how de regulation and tax cutting could raise growth. During a 2007 visit to Iceland in a local newspaper article, Laffer stated 'Iceland should be a model to the world' (Sigurgeirsdóttir & Wade, 2015). At the top of the boom Icelanders had moved into the top ten per capita rich list world-wide. A boom based upon finance raised via international money markets – inbound capital flows, where bank assets were many times in excess national GDP always depended upon continuing foreign confidence. The 2008 Lehman's financial event broke that global confidence overnight. In Iceland, the results were catastrophic as Capital Inflows switched to becoming Capital Outflows overnight. The Krona plunged, the banks became unstable, and investors realised that Iceland could not bail out the banks to repay the debts, they were simply too large in relation to GDP.

Instead of looking for a coordinated rescue after nationalising the banks to ensure a managed insolvency, Iceland went through a slow and painful restructuring – a sort of managed insolvency. Capital controls were applied, the banks allowed to fail, depositors allowed to lose their deposits internationally, and the country retrenched away from finance. Unemployment went from under 2% to 9% in 2 years, and wealth and real wages were squeezed. 9 years after the crisis Iceland was able to remove the last capital controls

The State is neither *per se* good nor *per se* bad. If the state is *effective* in investing in infrastructure, sharing technological risks, improving necessary skills (see Moudud, 1999), balancing market failures, providing necessary public goods and enabling entrepreneurship, then state spending will be making a contribution to innovation and is therefore within reason should be seen in a positive light. If the state is spending on transfer payments to keep resources non-productive, or taxing entrepreneurial innovators to subsidise laggards, then this spending will be unhelpful.

UK car company Rover failed for many reasons, not least that it was starved of funds to develop new competitive models to meet evolving customer needs, even though its customers were generally positive about the brand in its final years. Lucas (1988) when discussing his ideas for a growth model talks of an overemphasis in financial matters and infers financialisaton acts as a growth barrier.

Schumpeter (1950) returns our focus to the nub of the problem, that is not how to administer growth but how to engender it. In Schumpeter's (1934) entrepreneurial model the financial system acts to allocate credit for expansion to the most productive projects and innovations.

## 1.5 Historic Events Our Window To The Future

Sense and foolishness can have a habit of reoccurring with solutions being rediscovered. Unfortunately, many important lessons can also be forgotten as time goes by. Smart History, that looks beyond repeating dates and events into causes and solutions can offer windows into how previous generations dealt with similar types of challenge. The Ancient Civilisations understood the imperative of productive entrepreneurial finance. For example, the 'tamkārum' (merchants) from Assyrian and Babylonian times, early in the 2nd millennium BC played the role of the early springs of capitalism (Leemans, 1950). They funded entrepreneurs on a partnership (shared risk basis), and had such importance to the regional economies, that the tamkārum could still pass from city to city and state to state even in times of war. Whilst we do not know the role of the tamkārum in growing productivity, we can safely clear the lesson of needing risk bearing finance for entrepreneurial activity. Entrepreneurial ideas are being embedded and flourishing as finance is directed to the most productive investments that incorporate entrepreneurial innovations, is a key growth engine.

## 1.6 The UK Today

Against a background of rapid global change in products, markets and technologies every developed country needs to be looking to support today's successful business and to grow 'stars' for tomorrow. Such an approach requires on-going investment into product and technology development, markets, capital equipment and skills. The UK lags behind most of its peers in capital investment levels with current capital investment expenditures seemingly not even replacing the capital worn away by each year's production, according to the Organisation for Economic Co-operation and Development (OECD, 2015).

### 1.6.1 Consumers

Today's UK economy assigns significant importance to consumer spending. This spending is undertaken against challenging real wage conditions (sometime falling, sometimes static and for the great bulk of the population subject to very modest increases if these occur). Combined with the rapid rise in house prices there has been substantial growth of household debt as a portion of GDP since 1980, much of which is held against houses. Lending concentration (reinforced by bank regulation through the Basel Capital Accords) plus restrictive zoning and planning controls and 'Not In My Back Yard' local mentalities have arguably led to rapid house price increases and declines in home ownership amongst younger age groups.

### 1.6.2 Balance of Payments

There is a significant UK balance of payments deficit (between 5 per cent and 7 per cent of GDP over recent years) reflecting higher goods consumption than domestic productive capacity (there is currently a surplus on services). A mixture of capital flows that partly reflect London's importance as a global financial centre currently funds the balance of payments deficit. Despite a significant (and ominously, on-going) fall in UK Sterling against its - trade weighted - index there has not been a corresponding rise in exports. Export composition, exporter desire to increase profit margins, capacity restrictions and import and export elasticities may mean modest falls in sterling will not correct the deficit. The Marshall / Lerner condition, which compares consumer sensitivity to import prices with overseas demand sensitivity to export prices to see if a devaluation will improve the trade balance, has seemingly not been fulfilled. Bahmani *et al.,* (2013) reviewed a number of studies and found with one exception that the UK is *a priori* unlikely to find devaluation effective. Without London's role as a hub for financial flows, such a trade deficit would most likely not be sustainable. Consequently, any loss of confidence in London as a financial centre risks very sharp adjustment as the financial activities are out of proportion with real GDP. A similar situation existed in pre-2007 Iceland, which when the adjustment came, had insufficient financial strength to avoid a very sharp adjustment of the financial sector, its currency and the country's economy.

### 1.6.3 The Regions

Regionally there is a sense of disconnection between London's economy and the economies in the regions. Regional dynamics, employment patterns, tax revenues, house prices fall the further one moves away from London. There has been some limited devolution of activities from London, with for example some "back office" financial services operations being located away from London. Regions also have their own industry and dynamics and in some cases, have benefited from significant public spending programs. Equally London's own strength arises from its role as a global financial centre.

### 1.6.4 Manufacturing

The UK has seen a substantial decline in the size of its manufacturing sector. The manufacturing fell (at constant process) from being around 29 per cent of output in 1979 to 18.7 per cent in 2007 (Broadberry & Leunig, 2013), and even more dramatically to 12.4 per cent in 2007 of output at current prices. Its share of labour utilisation fell from 23.7 per cent to 9.5 per cent over the same period. Ownership has also shifted, with some key sectors such as automotive moving from being in the main nationally owned to being foreign owned. Well-paid manufacturing jobs for non-graduates disappeared and the UK experienced an increasing deficit on manufactured products.

### 1.6.5 Services

Significant growth in services employment has occurred across the UK, often lower paid and less secure (sometimes self-employed or zero-hours contract) jobs. Such works may attract tax credits and housing benefit, raising welfare spending burdens; benefits that under an alternative classification / nomenclature could be understood as proxy wage-subsidies to employers. Wage subsidies implicitly reduce labour cost, reducing incentives to innovate and invest in new capital equipment to raise

productivity and thereby enable higher real wages. Such strategies risk engendering a *low pay - low productivity* trap.

### 1.6.6 Generational Mismatch

The UK is an ageing society with a rising number of pensioners (making an associated strain on services and increasing pension bill). The current cohort of pensioners has benefited from rising house prices (the majority owned a house), defined benefit pensions (subsidised by current employees as they forego wage rises to divert funds to close pension fund deficits) and rising state transfer payments as the old age pension rises in real terms under the, triple lock.

## 1.7 International Dependence

As an open developed economy, a number of sectors in the UK following global trends have integrated internationally, (most especially regionally across the EU), and as some products and services have become more complex and specialist. Equally, some sectors have become dependent upon migrant labour, some for skills reasons and some for cost reasons. Specifically, UK high value adding manufacturing sectors such as Automotive and Aerospace have tended to integrate into complex global supply chains, chains in which semi manufactured products may move across national borders on multiple occasions prior to inclusion to the final manufactured item. Additionally, some sectors such as pharmaceuticals, medical devices and financial services have simplified their supply chains and customer operations through accessing common international regulatory frameworks. Manufacturing, financial services and construction businesses have accessed overseas labour markets for specific skills such as engineers, nurses and plumbers whose skills are in short supply. Other sectors such as the agricultural picking sector and the home care sector have accessed overseas labour to find staff to fill open positions.

## 1.8 Today's biggest challenges?

Growing new global champions, supporting existing champions, driving productivity growth into the long tail of poor performers are key challenges. Equally, closing the deficit on the balance of trade to reduce dependence on inbound capital flows, upskilling the indigenous population to replace the need for migrant workers and weaning employers off a model of low productivity, low real wages into higher value-added sectors need to be addressed. Asset prices such as houses will eventually need to align to income levels (their supporting cash flows). Questions will need answering as to what share of resources should be given to the old.

Changes such as these can be painful. There will be winners and there will be losers.

There will be many enablers, but above all resources need to flow to the innovators of the future, to companies that will be able to command leading positions in their markets. This will require new frameworks (i) to channel capital resources into today's entrepreneurs to create tomorrow's products, and (ii) to integrate research efforts and commercialises products within an understanding of commercially bearable risk. International comparison of the post 1945 'miracle states' suggests dynamic business needs to be export focused and supported by a smart and inclusive Entrepreneurial State, combined with Entrepreneur supporting banks and capital markets (Mazzucato, 2016).

Whether or not Brexit, a process that threatens to damage existing supply chains whilst threatening a key market for existing services and goods exports will help this process is a matter for debate. What is for certain is that Brexit will mean change. Our next chapter takes us on a journey to the past to see what we can learn from previous Brexits.