MASTERING BREXITS THROUGH THE AGES

Entrepreneurial Innovators and Small Firms –
The Catalysts for Success

More Praise for *Mastering Brexits through the Ages*

Every generation experiences various challenges and for the current UK generation, Brexit is but one of these challenges. Brexit is a form of transformation and during such transformation road maps seldom exist. There might be more questions than answers, which are often in conflict with one another and the validity of solutions is questioned from a factual or emotional basis. In this regard, Culkin and Simmons utilise historical paradigms to create understanding how the UK can seize the opportunity to build a sustainable and innovative socio-economic environment for the future. They base their debate on a rich basis of literature and provide refreshing discussions on Brexit from a total different perspective.

– Prof Gideon Maas, President Institute of Small Business & Entrepreneurship (ISBE)

The uncertainty that Brexit has provoked affects the future of investment, trade, innovation and employment, and it will impact on micro, small and medium enterprises. This book seeks to make a novel contribution to the ongoing debate, identifying alternatives based on lessons learned from the past, before offering the reader an action plan for firms to cope with the future challenges. Nobody can say with any degree of certainty whether small firms will win or lose from the process, but it is urgent to ask these questions and prevent fallouts.

– Mdme Fiorina Mugione, Chief Entrepreneurship Section, Enterprise Branch, UNCTAD (in a personal capacity)

Culkin and Simmons take the opportunity of impending Brexit to remind us that this is not the first time that Britain has tried to sever its ties with Continental Europe or to be plunged into a crisis due to the disruption of foreign alliances. They look at these crises from a business perspective, drawing on a rich literature on how organisations cope with change and disruption. Firms that do adapt in the ways they suggest might reap the benefits.

– Professor Geoff Hodgson, Editor-in-Chief, *Journal of Institutional Economics*

MASTERING BREXITS THROUGH THE AGES

Entrepreneurial Innovators and Small Firms – The Catalysts for Success

BY

NIGEL CULKIN
University of Hertfordshire, UK

RICHARD SIMMONS
University of Hertfordshire, UK

emerald PUBLISHING

United Kingdom – North America – Japan – India – Malaysia – China

Emerald Publishing Limited
Howard House, Wagon Lane, Bingley BD16 1WA, UK

First edition 2018

British Library Cataloguing in Publication Data
A catalogue record for this book is available from the British Library

ISBN: 978-1-78743-897-2 (Print)
ISBN: 978-1-78743-896-5 (Online)
ISBN: 978-1-78754-500-7 (Epub)

Contents

This page intentionally left blank

About the Authors

Nigel Culkin is Professor of Enterprise and Entrepreneurial Development at the University of Hertfordshire. He has published widely in the areas of small business leadership, entrepreneurial universities, graduate entrepreneurship and the creative industries, as well as completing projects for UK and overseas government agencies, large multinational organisations and research councils. In 2014, he was elected to the post of President at the Institute for Small Business and Entrepreneurship (ISBE); and, in 2015, was invited to join the prestigious Peer Review College at the Economic and Social Research Council (ESRC). He is a regular attendee at the UNCTAD Expert Meeting on entrepreneurship and building productive capacities, held in Geneva.

Richard Simmons is an Economist with enduring expertise in SMEs as innovation engines. He has a strong belief in market solutions, with interests in growth processes, ethical financing and dynamic (including monetary) equilibrium in an entrepreneurially driven and financially sophisticated world. Formerly holding senior regional and global management roles in various leading-edge high technology and medical device firms, he has lived and worked globally. He now advises a senior global investor based in Riyadh and is a Visiting Lecturer at the University of Hertfordshire.

Foreword

The journey towards this book started with the result of the June 2016 Brexit Referendum and a nagging fear that a ‘black swan’ or two may be on the horizon. Given, that almost everyone’s prognoses differed from the immediate post-Brexit reality, we began looking for some form of reference as to potential outcomes. Could history offer any insights as to what these might be? And from that germ of an idea this book was born. Our manuscript was completed in October 2017.

Having just read the final proofs, it struck us how much about Brexit remains essentially the same as when the manuscript was completed. Every day, the press presents another strand as to what might be, and every day the Article 50 notice clock keeps ticking. Little healing appears to have taken place. What is said to be agreed in one breath seems to be challenged by someone else in the next. And so the arguments go on, but these debates are amongst us in the UK, rather than a genuine negotiation with our European Partners. This narrative often feels like an echo from the discussions of the 1840s and 1850s that culminated in the 1846 Corn Law repeal and the 1860 Cobden Chevalier Treaty. A familiar discourse covering Free Trade, Trade Agreements and with an underlying subtext framed in strategic aims to maintain and expand Empire; or, perhaps as some have more recently suggested, a network of Free Trade Agreements loosely based around the Commonwealth.

Sterling has risen against the US dollar over recent months, but the more business-related “trade weighted” exchange rate index continues to show a sharp decline in the value of Sterling since the 2016 Brexit Referendum. The many European Union – Third Country Treaties that will fall on Brexit Day remain an unresolved issue. And although little is featured in banner headlines, a number of companies and financial institutions seem to be taking steps to quietly move some of their operations into other EU States. It is hardly surprising they are quiet in doing this, as they are acutely aware that just over 50 per cent of the country believes passionately in Brexit as the way forward.

Almost two years after the Referendum, the bitter divisions continue. If anything, it feels like positions have become more entrenched. The 2016 General Election that saw the loss of the Conservative majority in Parliament was also characterised by a higher youth vote than previously registered. The participation of a younger generation in shaping what sort of country they want will, one senses, become a more important feature of the on-going narrative as the story unfolds.

In some sense, we live in a 'social media' framed future, a world in which new groups or 'Tribes' can form and re-form, according to the 'trending' issue of the day. These Tribes are hungry for news that helps confirm their 'Tribal Identity' and disparaging of anything that does not. The traditional print media largely plays to these Tribes to safeguard its own sales in a fast-changing and fast-digitising media landscape. In the sixteenth century, these Tribes would have been defined by religion, today it's more likely to be Leaver or Remainer or perhaps Old or Young, Urban or Rural and forth. The tracts of the Elizabethan or early seventeenth century printing press have morphed into the blogs and social media feeds of today. It's an ironic thought that advanced civilisation is more usually identified with the breaking down of tribal barriers than creating new ones.

Despite the backward-looking feel, we continue to believe that the UK's future well-being will rest upon how it can adapt and embrace emerging technologies and market transformations to leap-frog existing competitors. The winners in this arena will most likely be visionary entrepreneurs who seize the moment to build new, unique and profitable market spaces for themselves. Whilst favourable trade treaties can help, we believe that the 'magic growth dust' will be the entrepreneurs and the firms they build that go on to transform the global markets they operate in. The post-Brexit narrative has not changed this central theme in our book.

So, we are faced with the adage of *plus ça change et pas de change*. So much changing and nothing changing. We believe that history is perhaps the most meaningful window to help us evaluate potential Brexit impacts, in the same way innovation and entrepreneurship will be essential tools to building a new post-Brexit sustainable future. After so many column inches devoted to Brexit, perhaps the past six or so months can be summed up by our definition of Brexit below.

Brexit: *noun*: An act of the people of Britain (sometimes defined as Britannia) exiting foreign (colloquially European) imposed rules and practices.

Historical Precedent	***Synonyms***
End of Roman Britain (AD410)	*Empire 2.0*
Break With Rome (1529)	*Free Trade 2.0*
Break with Catholic Europe (1560s)	*Sudden Shock Therapy*
	Nostalgic Pipe Dream
	Project Fear
	Falling Sterling and Squeezed Real Wages
	Generational Imbalance and Pensioner Rights
	Bitter Intolerance

As our narrative will demonstrate, entrepreneurs who successfully push technological and market boundaries are key to constant renewal. In summary, entrepreneurs drive the rupture with the sterile, unfruitful or unproductive and build the future, perhaps another way of alluding to “Creative Destruction” in action.

In an echo from another age, we identify 14 points for consideration as the UK comes to establishing the 2019 Brexit Treaty. A treaty that we hope avoids becoming an idiomatic ‘2nd Treaty of Versailles’.

Brexit can act as a spur to reinvention and will be successful if it enables the support and resources the entrepreneurs, who will build our economic future, need to both attain the quest and surmount challenges they face.

This page intentionally left blank

Preface

> *Most people are in favour of progress, it's the changes they don't like.*
>
> – Unknown Source

'Taking back control' should unlock the energy of the Greek's immortal blacksmith Hephaestus (known as Vulcan by the Romans) and harness the wisdom of Athena to ignite a new age of Entrepreneurial Opportunity and National Pride according to 'Brexit Believers'. A gift to all.

> *Then Prometheus, in his perplexity as to what preservation he could devise, stole from Hephaestus and Athena wisdom in the arts together with fire – since by no means without fire could it be acquired or helpfully used by any – and he handed it there and then as a gift to man*
>
> (Vlastos, 1956, p. 19)

For the 'Brexit Naysayers' perhaps the journey will be like Icarus, son of Daedalus, who took the wings made of wax and feathers to escape with his father from the Minotaur in the Cretan Labyrinth, and soared too close to the sun with the wings collapsing as the wax melts and the feathers drop away…

Policy by megaphone is seldom the policy of evidence-based reason. It too easily becomes the policy of the zealot, and then anyone who disagrees with the zealot becomes an 'enemy of the people'. A narrative recited repeatedly over the ages, any contrarian opinion becomes in its mildest form 'fake news' and in its more extreme form the backdrop to the writing of texts such as Foxe's *Book of Martyrs* in 1563. Suppressed dissent can bubble over and be conflated with power battles between different groups and provide the fuel for events such as the English Civil War, a multi-dimensioned conflict which was both part secular and part religious. It is for our readers to take their own view on which was the dominant theme in that conflict.

Reason is lost in hyperbole. Foolishness overtakes wisdom. Wishful thinking replaces reality. ‘Snake Oil’ becomes ‘Miracle Cure’. The cancer of distrust contaminates leaders, representatives and institutions. Experts assert they have the answers without explaining that they only have the answers if their assumptions are correct. Equally, many people, just like Icarus, don’t want to listen to the expert, even if it means disaster when reality overtakes hyperbole.

Our book is about stepping away from predetermined views and using historical paradigms to understand future challenges. The 2019 Brexit will not be England’s first Brexit, as there have been a number of previous ones. We focus on three of these, the end of Roman Britain, the Henrician Reformation and the Elizabethan Settlement, but there have been others. For example, there is the 10-year Brexit in AD 286 led by Carausius, a Celtic nationalist[1] with distinctly ‘pirate’ like characteristics (Woolf, 2016). Having risen to Admiral of the fleet and contributing to supressing the Gauls (Franco – English tensions are nothing new), he was found guilty of corruption by Emperor Maximian and so decided his future would be best served by declaring himself ‘Emperor of Britannia’. Carausius ignites Celtic nationalism with phrases like ‘Liberty’ and ‘Restorer of Britain’ and brings both Army and Navy with him to seize power.

Notably, Carausius having seized power tries to do a deal to make peace with Rome, and fails. He doesn’t last long. Seven years later (AD 293) he is murdered by rivals and replaced by his Finance Minister Allectus, who lasts three years until reconquest by the Romans. Rather than creating the first British Empire, Carausius ended up becoming a footnote in history.

[1]There is some dispute on Carausius’s lineage following a 1911 entry by Chislom in *Encyclopedia Britannica* and copied into Wikipedia that Carausius was a Menapian (a Belgian tribe from north Gaul) of humble origin. Casey in a 1994 book on Carausius and Allectus traces Carausius to be a son of Bonosus who claims royal lineage to Cunobeline King of Ancient Britain from AD 9 to AD 41. Coincidently for lovers of children’s rhymes, Cunobeline appears to have had a son called Caractacus. It appears the disputed lineage comes from contrasting sources: Carausius’s tomb was a Celtic cairn and the inscription suggests he was a great Celt, the Britannica attribution from Roman historian Sextus Aurelius Victor writing many years after Carausius died.

Economic Background: Opportunity and Challenge

Nostalgic or progressive; traditional or disruptive; whatever our view on the world, a common thread runs through all. A hope and aspiration for a 'better world'. For our narrative 'better' is defined in 'economic' terms, namely defined as rising productivity that drives economic growth and leads to a rise in real living standards, so reversing poor post-2008 living standard growth trends. Machin (2015) tells us how median real wages grew by about 2 per cent per annum from 1980 to the early 2000s, but since the 2008 financial crash median real wages have fallen by around 8–10 per cent corresponding to a 20 per cent relative drop in comparison to the previous trend rate. Ultimately, real wage growth and living standards growth for the whole population depend upon economic growth consequent upon rising Total Factor Productivity (i.e. improved output per unit of labour/capital). In the ten or so years since the 'Credit Crunch' of 2007/2008, economic progress in terms of this Total Factor Productivity and associated real wage growth has been disappointing across the developed world and most especially in the United Kingdom (Haldane, 2017). This disappointment has been against the background of continued and rapid technical change in the products and services in everyday use.

The Pace of Change

We seem to be living in an ever-faster changing world. Illustrating this, many products that are ubiquitous today were figments of consumer imagination just 10 years ago. For example, in January 2007 Facebook did not work on mobile phones and was far from being widely used on PC type devices. In December 2007, there were a mere 58 million active users globally, by December 2016 this had risen to 1.86 billion active Facebook users, many of them (1.15 billion) active on Facebook's mobile platform (Facebook, 2017). The first iPhone, the start of the 'Smart Phone' revolution, was launched in June 2007. Nokia was still the number one mobile phone company globally with over 35% of the market in 2007 (source: Statista) and Android phones were unheard of to the common consumer as their initial commercial launch was not to come until 2008. In this rapidly changing dynamic world, British success has been limited. There have been some winners, for example Dyson, and until its recent acquisition by Soft Bank, ARM Holdings was a UK global technical champion in silicon chip design. More established companies such as Unilever and GSK have also been very successful at driving new products into established markets. Despite the United Kingdom having a number of top global universities – and being one of the world's key finance hubs – it has been unable to create a Google, Amazon or Facebook.

Community Fears and Frustrations

Becker, Pfaff, and Rubin (2016) tell us from a comprehensive study of the Brexit Referendum vote that Vote Leave was more successful where there were lower incomes, high unemployment with less adaptable workforces who are older and have lower qualifications. For many towns and communities located away from London's global finance hub, there has been a steady loss of big name manufacturing. Previous 'greats' such as Rover have disappeared along with their jobs. In their place have come new jobs, mostly in the service sector and many with poorer pay and conditions, including the rise of zero-hours contracts (that do not guarantee a monthly or weekly income) and the fashionable 'gig economy' (something broadly akin to what was known as casual labour). Self-employment has grown relative to salaried employment, particularly in older age groups. Housing has, for many, become more unaffordable, real wages have stagnated and final salary pensions have become, for many, a figment of imagination.

Growth performance and value added per head has substantial variations between regions (Harari, 2016). For example, top in terms of value added per head are the London Borough of Camden and City of London with a Gross Value Added per head in excess of £292,000, against a UK per head average of £25,000 and, a lowest value added per head at under £14,000 per annum (Harari, 2016).

Unease has been heightened by immigration. Culturally, especially Asian and Indian subcontinent immigration has unsettled the indigenous population near areas where these groups have settled. Sometimes integration has been synonymous with fears and phobias of Islamic extremism. European Union (EU) immigration from Eastern EU Accession States has, for some, become a narrative of interlopers taking away well-paid jobs and affordable housing from the native population. For others, especially the old, hearing groups of foreigners speaking an alien tongue conjures up fears for their physical safety. The UK's ageing society has become politically skewed towards protecting the old at the expense of the young, as pensions have their benefits protected, whilst low-pay families are targeted to reduce working tax credits and housing benefit. Measures have been enacted to withhold support for families with more than two children. These generational specific measures are unsurprising given that older people tend to vote more than young ones.

Britain's National Health Service is under a perpetual strain that grows as the population ages, with older people tending to have more medical issues. Equally, strains on health resources have fed back into resentment against immigration as fears are expressed that health service resources are consumed by immigrants. Cuts in Adult Social Care budgets increase the number of old people who cannot be safely discharged as there is no care available, so further increasing strains on hospital services as beds are blocked by people who cannot be discharged for lack of available social care. Such a narrative continues in many other areas of state services, as the government targets reducing public expenditure both to reduce public sector deficits and to reduce the state spending share of Gross National Product, on a belief this will enable the private sector to flourish.

Nostalgia and Radicalism: The Striving for Simple Answers

Facing uncertainty and hoping for the best, humans strive for simple answers. It's a common historical thread. Post-1945 Neo-Keynesian economic stabilisation programmes, 'Monetarism and Liberalisation', the Hayekian narrative of the Thatcher and Reagan years and the Cameron and Osborne world of austerity are examples of simplistic narratives seeking to address complex problems. The real world is more multifarious, a world that needs a supportive and nurturing framework of business to thrive. Look only at the post-1945 economic successes in Japan, South Korea, Taiwan, China and Silicon Valley, to name a few.

Support needs for growing innovating economies, driven by innovating capitalist entrepreneurs, could turn out to be nearly as unsettling as the people disrupting and changing them!

Entrepreneurs Drive Success

> *Someone is sitting in the shade today because someone planted a tree a long time ago.*
>
> – Warren Buffet (Kilpatrick, 2001)

Products, services and colossal ventures at some point started with an entrepreneur or a group of entrepreneurial thinkers, planting a small acorn. In some cases, the acorn grew into a mighty oak; occasionally, it may have spurted initial growth then withered and died; and often the seed did not even germinate. The Entrepreneur and their associated Micro, Small and Medium Enterprises (MSMEs) are the planters of these acorns. It is these MSMEs that are the heart of our thinking.

Some entrepreneurs are on the receiving end of change (for example, the humble corner shop owner); some entrepreneurs are partners in change (for example the small company providing high technology products to the Automotive or Aerospace industries); and some are crafting the change (the Big Bang Disrupters). The beauty of a smoothly functioning Capitalist System in full flow is that it allocates resources across all types of entrepreneurial activity according to entrepreneurial need. Innovative firms with great products thrive, receive necessary finance and firms with poor products that customers don't want, lose it.

There is nothing new in this. Wicksell (1898) spoke of banks allocating finance to business in line with their productivity and profitability with his *Natural Rate of Interest* giving *dynamic equilibrium* when capital is allocated to its most appropriate uses. Schumpeter (1934) developed further this theme, seeing a process allocating bank credit towards innovative entrepreneurs away from dying entities. Capital flows to businesses consumers want to succeed.

Financial liberalisation and financialisation have reduced financing (especially bank) flows to especially smaller and entrepreneurial SMEs (Krippner, 2005). This is crucial – *'a capitalist system can only function so long as the receipts of entrepreneurs exceed their outlays; in a closed system, and ignoring Government loan expenditure, this will only be the case if entrepreneurial expenditure exceeds workers' savings'* (Kaldor & Kaldor, 1978, p. xvi). Capitalism is about allocating capital to entrepreneurs who drive profitable productive change, not about private vs. public ownership.

Pictures vs. Brushstrokes

If you are a Brexit or Remain Zealot; if you are a Brexit or Remain Bolshevik on the Left or Right; you, as our reader, may be frustrated by our journey and seek to throw Henry Ford's, *History is Bunk*, at us! Can we encourage you to pause, step back and join us to see if using a broad window of history as context can help give form to the picture you are trying to paint?

If you are an expert on any of the events or issues we refer to in our narrative and find yourself in passionate disagreement on some point of detail, we seek your indulgence. Many events we describe are controversial and in many cases the evidence can be patchy. We do not claim solutions to age-old discourses, rather we see these events as brushstrokes in the overall picture we paint. For example, you may radically disagree with our description relating to the speed of events around the end of Roman Britain, or with any suggestion that the subsequent centuries could be labelled, a Dark Age, when scholars such as Bede were at work. Rest assured, we are not seeking to contribute to these debates, rather we are looking to use these as examples to form the detailed brushstrokes in a picture that provides a window into what promises to be an undeniable period of discontinuity and change.

It is these moments of discontinuity, moments of change that are our focus. We anticipate Brexit having the capability to be a similar moment of change. Our pictures from the past are intended to help the reader identify some of the challenges we may face. As the brushstrokes form into pictures, our readers should feel free to add their own examples, their own brushstrokes, not least to help crystallise the picture and strengthen understanding.

Seizing Opportunity

Brexit will be a moment of change, and at such moments throw up significant opportunity. This book is not about 'Leave' or 'Remain', although there may be some cautionary pointers on our journey. In many cases, indeed with most of the issues and proposals we identify, Brexit is not a *necessary condition* to take action, but it will become a condition where it is *necessary to take action*. Even without Brexit many of the proposals could easily be adapted and adopted in other countries and other situations.

Brexit is our trigger event, so necessarily this book will seek to set a road map to make the United Kingdom the number one innovative economy globally in a Brexit context. In some respects, Brexit will help this journey and in some respects, it will hinder it, but that debate is for elsewhere. Our goal is to understand how we can seize the opportunity.

A narrative then, about how to transform the United Kingdom into becoming the next global luminary.

This achievement will not happen by turning back to dreams of Empire, it will not happen by letting ideology drive policy and it will not happen by ignoring reality, by mimicking the actions of King Canute. Brexit is going to disrupt, damage and alter trading relations with our nearest and most important trading partner, the European Union. Brexit is going to lead to the recasting of some international supply chains and it is going to lead to the decline of some industries. Challenge will abound, the question is how to transform this challenge into opportunity.

The Fourteen Propositions

Paradoxically, our narrative identifies 14 propositions (a further echo from 1919); that is, 14 opportunities to change frameworks to drive success. These propositions are derived from looking at past experience from past Brexits and combining this with today's landscape. Our readers will find this analysis to be a cumulative process throughout the book, starting with a highlight of 10 features from previous Brexits, that are then ranked by impact and used to offer solutions.

Our formal narrative finishes at the point where we then close the circle, by contrasting our proposals to what happened in the previous Brexits, in a summary that assesses relative success in each one in their adjustment to the new situation. This is followed by an Epilogue that suggests some implementation and change frameworks. For every reader, the detail may be different, the brushstrokes of different colour and intensity, but the pictures feel consistently familiar.

Rejuvenated Hephaestus and Athena or an Icarus rerun? The keys are in all our hands. Success will come from learning from our past, from the success of others and building frameworks that inspire and support the seizing of the opportunities.

Acknowledgements

This book has been a living and time-consuming organism for many months, so first we would wish to thank our families for their understanding and forbearance.

Additionally, special thanks are due to The Master and Fellows of King's College Cambridge for access to both Lord Kaldor's and J M Keynes's papers; to the archivist at the Hull Historical Centre for helpful guidance through the Hull City Archives; to the archivist at the York Company of the Merchant Adventures for information supplied; to Simon West archaeologist at St Albans for a very illuminating discussion on how Verulamium transitioned from Roman rule; to Professor Ward-Perkins for a very helpful email correspondence and comments on the Europhile nature of the later Saxons; to Michael Simmons for patiently reading and commenting upon many early manuscript drafts and to many others. Thank you.

This page intentionally left blank

Chapter 1

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 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 'story' as to how all our expectations will translate into reality is yet to be written, but we can be sure that aspiration will remain throughout the writing.

Our narrative is a contribution to this journey; one that starts with the question '*How can we use changes to deliver economic development that helps deliver aspirations?*' Innovation and an associated rise in productivity 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 (MSMEs) 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 are combined with today's capacity to innovate to offer suggestive hope as an alternative to the current bout of seemingly existential nihilism.

As of November 2017, there were in excess of 5.7 million MSMEs operating in the United Kingdom with each one at its own individual unique stage of development (BEIS, 2017). MSMEs 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, concept or design for a new or improved device, product or process (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 the outputs 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 that patents and knowledge networks play 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, p. 17). Although the definition above is well understood today, it was Schumpeter who saw innovation very broadly as a product, a process and 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.

Productivity is a 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 with less or the same overall level of inputs and *inter alia* it is the result of some combination of improved products, services, processes, technologies, organisational structures and ideas. Evaluating how these elements evolve 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 can be expressed as the Production Function that looks to combine the different factors of production at a given state of technology to drive specific momentary levels of measurable productivity. Conceptually, the latter, dynamic efficiency relates to how the overall relative price system allocates resources across competing needs to arrive at an overall optimal resource allocation or 'General Equilibrium'. This allocation ensures resources are not misallocated into producing products that do not have market demand. Long-run growth rates are determined by changes in the Production Possibilities Frontier that reflect innovation and the pushing forward the technological frontier. Large step changes in technology often require government involvement to investing in new technologies (where risks are too high for the private sector to bear) to encourage firms to innovate and improve (Mazzucato, 2013; see Box 1.1).

Box 1.1. The State as Active Driver

Prior to his inauguration as the 34th president of the United States, 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 on the American Assembly; an area that he was particularly keen on and that helped shape his latter position on economic policies. Eisenhower saw the potential for the Council to become a great cultural centre 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 presidents of John Hopkins University, among others), Dwight Eisenhower did put his Colombia experiences to good use when, in 1958, as a direct response to the Soviet's success in launching Sputnik, he, as American President, funded the Defence Advanced Research Projects Agency (DARPA). Eisenhower was concerned that the United States was in danger of falling behind its Cold War rival in technological achievement, especially in the technologies of war fighting and defence.

DARPA's role was to fund, and coordinate, research programmes carried out by the military, private industry and academia to fulfil its mission of avoiding and creating technological surprise. Today, the agency claims 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 (Mehra, 2013; National Research Council, 2009).

DARPA's achievements have included seminal roles in the development of the Internet from the perspective of both technology and human capital. In her book *The Entrepreneurial State*, Mariana Mazzucato points out that DARPA 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 United States, thereby acting as a catalyst for ground-breaking research and development undertaken by industry and academia (Mazzucato, 2013, p. 77).

1.2. Accelerating Product Innovation and Consumer Expectations

The United Kingdom 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 increase in saved and searchable data storage and thereby creating 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 towards 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-1960s, to initial leading edge electronic products of the 1970s (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 1990s, to be followed by an unplanned unexpected stagnation. As shown in Box 1.2, yesterday's success and market leadership no longer guarantees future success, even in the medium term.

Box 1.2. 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 only 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 featured 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$11 billion in 2013 to just over US$1.3 billion. In 2017, cash reserves dropped by over US$220 million, while an increase in operating costs led to a reduction in net income from losses at US$208 million to losses in excess of US$1.2 billion (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. Keeley, Walters, Pikkel, and Quinn (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, as 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 terms, 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, 2017). 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', (Hughes, 1986) 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 MSMEs are key in the innovation and risk-taking process (OECD, 2010). What is equally 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 because these offer easier risk-and-return estimation than that required in innovating a whole new product line. Product gestation and new capital investment are uncertain and therefore incur sizable risks, especially if the new product is intended to disrupt a market. It is easier and safer to buy something already developed but without the global marketing reach. Since Professional Managers' rewards comes from meeting targets and increasing the share price, they are often incentivised to see their share options increase in value, thereby giving them a short term rather than long term view. This perceived performance improvement also helps reduce the threat from Private Equity Houses and Activist Investors who may seek to replace managements that fail to deliver this growth in earnings. Examples of this in action can be seen in many companies; three such examples are Valeant (grown by acquisition followed by ruthless cost cutting especially in research and development), Heinz after its merger with Kraft under the sponsorship of 3G Capital and the 2016 failed 3G Capital bid for Unilever.

1.3. Financialisation 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 principal. These returns are derived substantially from existing assets and cash flows and not from funding for new capital investment. Capital investment funding comes either from internal company financing such as in Alphabet/Google, issuing bonds (in some limited cases), equipment leasing and asset-based financing or from Capital Markets and, 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 the price of residential housing assets in relation to earned incomes. This shift in lending 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 because restrictions in bank finance to smaller businesses have not automatically or adequately been matched by openings in new types of finance. In the United States, there is now a sophisticated and mature Venture Capital market, whereas in the United Kingdom and the European Union, the Venture Capital as an asset class is – notwithstanding London's role in this sector – neither as mature as that in the United States 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 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 financial 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 the mode of ownership alone is overly simplistic. Friedman (1962) saw the distinction as being between imposed direction of resources (feudalism, socialism, etc.) and free-market allocation via voluntary cooperation (capitalism).

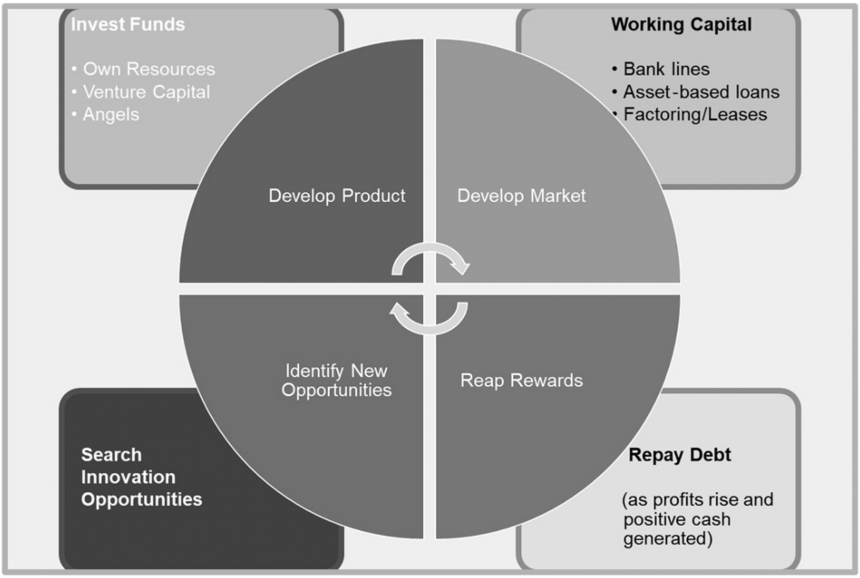

Figure 1.1. The Innovation and Profit Generation Circle. *Source*: Authors.

We see *Mission-Based Innovation* putting the Entrepreneur at the heart of the innovation and profit generation circle (Figure 1.1).

Financialisation 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 cash flows 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 financialisation *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. Financialisation in striving to remove risk from savings products misdirects resources (i) away from funding risk-taking, innovative 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 programmes that have short-term benefits but can be potentially damaging in the long-term.

Further impact arises from the very substantial money flows that can move from one country to another. These flows are especially substantial for the United Kingdom due to the importance of London as a financial hub. According to Borio, James, and Song Shin (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 1.3 describes the Iceland event.

Box 1.3. Iceland's 2008 Banking Collapse

Following Iceland's accession to the European Free Trade Area in 1993, the governments undertook a process of deregulation and privatisation (especially of the main banks to create national banking champions), and a strategy to make Iceland a global financial hub. Sigurgeirsdóttir and Wade (2015) report 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 2000s, 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 fast food shops to cover three 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. This process is known as the '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 and thereby 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 deregulation 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 peak of the boom, Icelanders had moved into the top-ten per capita rich list world-wide. This was a boom which was based upon finance raised via international money markets – inbound capital flows, where bank assets that were many times in excess of 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 were allowed to fail, depositors were 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. Nine 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 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 financialisation 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 '*tamkarum*' (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 *tamkarum* could pass from city to city and state to state even in times of war. Whilst we do not know the role of the *tamkarum* in growing productivity, we can safely learn from them the lesson of needing risk-bearing finance for entrepreneurial activity. Entrepreneurial ideas are being embedded and are flourishing as finance is directed to the most productive investments that incorporate entrepreneurial innovations. This is a key growth engine.

1.6. The United Kingdom 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 ongoing investment into product and technology development, markets, capital equipment and skills. The United Kingdom 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 (sometimes 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 in 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). Capital flows that partly reflect London's importance as a global financial centre currently funds the balance of payments deficit.

Despite a significant (immediate post Brexit Referendum) 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 that 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, Harvey, and Hegerty (2013) reviewed a number of studies and found, with one exception, that the United Kingdom 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, and 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 programmes. In addition, London's own strength arises from its role as a global financial centre.

1.6.4. Manufacturing

The United Kingdom has seen a substantial decline in the size of its manufacturing sector. The manufacturing fell constantly 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 United Kingdom, often creating 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 United Kingdom 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 United Kingdom following global trends have integrated internationally (especially, regionally across the EU), as some products, services and supply chains 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?

What are some of 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, up-skilling 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 commercialise 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.