

White Paper:

Analysis: Growing a sustainable UK economy post Covid, post Brexit

Synopsis

This paper proposes a new business model for innovation and investment in the UK.

It considers the current issues and failure of the business, innovation and investment processes today. It considers the options for competing on an equal footing with leading economies for investment, growth and innovation.

Future growth at scale is considered mandatory for the UK to maintain the current global trading position and importantly maintain the ability to fund the national debt without recourse to excessive quantitative easing leading to spiralling inflation.

A new business and investment model is considered to meet the UK's need to innovate at scale and protect UK assets for future generations.

The key findings are:

- The UK is being left behind in the global competition to innovate
- The UK does not currently offer a path for businesses to scale quickly or easily
- The next few years are critical for the UK to drive innovation if the UK is to compete globally with emerging technologies
- A new type of business structure offers a significantly improved path for innovation across the UK
- By tightly integrating these new structures within a digital portal, the UK can leverage available investment to allow business to scale to reach global markets
- UK innovation growth at scale can be significantly unlocked by exploiting part of the large (£1.5 trillion) household savings available for investment
- New tightly integrated business structures, banking and information systems offer a path for entrepreneurs, innovators and business people who wish to create sustainable, environmental friendly, purpose driven businesses.

1. Introduction

Between the Rock and the Hard Place

Britain needs a methodology to escape the long-term effects of the national debt and still provide for a dynamic growth environment.

A new methodology is now mandatory to enable the UK to keep its place in world markets. Failure to achieve this is likely to cause a systemic failure of the whole UK economy.

The UK once led the world for innovation and commerce. The UK developed much of the industrial revolution, changing the world with new technologies. The UK is now at a tipping point. The debt could have long-term detrimental effects, pushing the UK into a downward spiral of rising market interest rates, reduced employment and higher borrowing costs.

After the second world war, Britain was also in a similar situation. Then, as now, Britain had the technologies and innovators to create new markets. These were the new vehicles, new household appliances, road infrastructure, nuclear power stations, new engineering processes, mass production industries, housing and new-towns such as Welwyn Garden City. These same growth options cannot be repeated, times have changed, different technologies have replaced many of these post war opportunities and whole industries have already been automated.

Yet, Britain must again find a path for real sustainable growth at scale. Success for Britain must include increasing export capability to maintain the UK's sovereign debt equation.

It is well documented that there are many new opportunities where the UK could implement growth through technical leadership. These include energy and transport systems, increasing automation in many sectors, data-driven applications and many cross-sector, collaborative solutions for climate change and sustainability.

The current business and investment models were created during Britain's distant past when the UK led the world in commerce and innovation. The London stock market created a new way for investors to create new businesses, the London stock market became the centre for the leading companies in the world.

Global Investment strategies

The US and China have developed investment strategies due to their global positions and large economies. These models are not open to the UK but the UK has not modernised its investment and innovation strategy to allow the UK's SME's to compete internationally.

Most growth comes from small to medium sized organisations (SME's). To leverage the UK's innovation opportunities, the UK needs to create a new business and investment framework. The current capital markets and out-of-date investment processes will not leverage emerging opportunities at scale. To leverage growth at scale, the UK must provide SME's with a new framework for innovative and investment..

Perspective for younger people

The UK has many younger people who, post Covid, have been disenfranchised from a clear path for their individual success. The UK must make it possible for them to impact their lives through their own endeavours. This paper puts forward a viable option for real change and continuing innovation that will impact the lives of these younger people directly and provide future high level jobs and future investment opportunities.

2. Analysis of Current Investment Processes:

Britain does not lack the people or technical know-how for creating new innovative products and services. Our many universities, researchers and business innovators try every day to find a way to leverage their ideas, most fail.

The current world leader, the US also has these people but crucially the US has many highly capitalised, high risk investors that create new businesses to make these ideas happen. The size of the US economy means that businesses can innovate and test their business models effectively in their home market. The US stock markets only come into play at a secondary stage after the businesses have proven their innovation and market positioning. The US also has a certain ruthlessness in the way it competes globally. It has to date been very effective at creating leading global positions in most innovative technologies through its global political and market positioning.

China is also becoming increasingly effective at innovation. China's has close collaboration between business and state to leverage their innovation. This requires state intervention that is possible due to China's political stability and its state owned enterprises. This investment

strategy coupled to China's massive internal market, (800 million smart-phone users), and growing middle class, creates a powerful system for continuing innovation at scale. The Chinese model also has the advantage of closing out international competitors for many of its core technical markets such as internet media and online applications.

Britain needs a different approach. The UK cannot conjure up the many high risk billionaires the US has, neither can the UK government directly risk taxpayers money on massive new industrial growth. The UK does not have a comparable home market to help innovators establish their business models at large scale. If the UK is to continue to compete internationally in the emerging technology sectors, it must create the environment that allows businesses to scale to international levels quickly and easily.

The UK has many individual people with capital to invest. It has large financial sector with access to pension funds, saving funds and external investment money. The UK has world-class research and technical abilities in the most promising emerging technologies. What is needed is a smart way of utilising these strengths to allow our many entrepreneurs and creative people to scale new businesses that can compete in global markets.

Current business & funding structures

The current business structures are designed for business and administration processes that existed two centuries ago. These structures have been modified somewhat but still cannot provide a modern way to leverage what Britain needs today in terms of investment, business administration and ownership models.

Attempting to raise significant capital for investment via entry to the AIM or main capital markets is long, arduous and expensive. Other funding such as business angels or direct bank loans provides a small amount of help, but compared to our US and Chinese competitors it has never, and will never, provide serious investment for the larger contingent of SME's. Government seedcorn investment and loan guarantees are welcome, but are a drop in the ocean compared to access to serious ongoing investment capital.

The growth of online crowd-funding sites has been driven in the UK by the lack of formal and safe online funding opportunities for UK businesses and entrepreneurs. While these have plugged a gap, they do not present the serious investor with a strategically capable offering. Nor can they offer investment for small and medium sized businesses that allows businesses to scale as their growth accelerates.

The result is that most innovative ideas do not see the light of day, many entrepreneurs never find a way to develop their ideas any further than the most basic research and development; often carried out by an individual or small number of researchers at their own cost. Many ideas and creative people are not cognisant of the ways to leverage further funding and most projects fail before being fully developed. Only when companies finally reach the main capital markets can businesses scale and compete at international levels. This takes many years and limits growth at scale for most small groups of innovators and SME's.

SME Growth

The SME sector is where most growth starts. Many good, efficient SME's do not continue to grow even though they have much larger market potential. Many of the more innovative are snatched up by large corporations, often from outside the UK.

The export markets are key to the UK's longer-term success. This is significantly hampered by SME's that choose not to extend into export markets. The reasons for this reluctance is that while many SME's have excellent products and services they simply lack ambition to tackle the difficulty and cost of export market entry.

Technical Innovation

The current government is attempting to find a new way forward. What seems certain is that core emerging technologies will be fundamental to success in the near future. The UK must find a new way of engaging our talent and scientific community to leverage innovation. If the UK is to succeed in the changing world order, not only does the UK need innovation success but it must be at scale. Within the current business and financial structures there is no easy way to achieve the scale and funding required to allow the transition from home market to international markets.

The opportunities for innovation have never been greater. The world is at the beginning of the fourth industrial revolution. Covid, has furthered the speed of this advance. The UK has a presence in all of the emerging technologies such as: Artificial intelligence (AI), big data, nanotechnology and biotechnology, robotics, driverless vehicles, the Internet of Things (IoT), hydrogen & solar energy systems, 3D printing, & manufacturing, augmented & virtual reality, blockchain, quantum computing, 5G telecommunications.

To create new products and services that will scale to international markets, these base technologies require coupling and developing into real world solutions that create specific solutions. This requires collaborative ecosystem of creative innovation processes and entrepreneurial people. The UK already has innovation hubs and business parks. While these are useful, they do not directly integrate to the wider economic systems and investment processes within the UK as a whole.

“As science and technology becomes increasingly important in driving national economic development, governments all over the world are placing innovation as a core strategy at national levels, presenting a new pattern of competition for innovation globally. Major countries have all deployed in advance future-oriented technological innovation strategies and initiatives.”

Deloitte September 2019; Innovation as a driver of economic growth.

Changing Business Values

Across the world we see a changing philosophy in business values. Societal pressures , climate change, sustainability, pollution, changing wealth demographics; all these have led to a re-evaluation of what business is for. Younger people especially, are considering different business organisational models that encompass these changing values.

The UK is arguably at the forefront of these changing societal values. The current business models are designed for an older generation. New business and organisational models are needed that implicitly encompass new values. Currently, most of these values need to be added to the core business models. Certification such as IIP, B Corp, ISO 9000 are examples and all these require additional certification that can be expensive and inefficient to incorporate.

Money markets, Debt and the Balance of Payments

Britain's share of world trade continues to shrink. Post Brexit, the UK now needs to be able to stand alone leveraging the UK strengths to ensure its continuing place in a competitive world. The natural long-term growth in countries such as China, India and Asia is driven by their low GDP per head of population. This growth will continue at pace until they catch-up. It is expected that these emerging nations will continue to reduce the UK's long standing international trading position for the foreseeable future with the UK's current innovation model.

Markets are fickle by nature. Britain must provide a long-term growth strategy that makes sense and is based on our world leading technologies. If the UK does not apply this knowledge and succumbs to limited growth or growth in lower value jobs, the UK shall fall foul

of the world's view of the UK's net worth. This is not without consequences. The UK's external trading position, especially the balance of payments, provides the UK with its valuation as a trading nation.

While market sentiment is high, the UK can rely on external investors to buoy up the UK's valuation and hence the currency. At some future point, if these fickle markets decide that the UK is not a good place to invest, then the UK's valuation is based on its ability to export more than it imports. The UK can, as a sovereign nation, print its own money through quantitative easing. The markets will adjust for this and the value of the pound will fall. This could create a very difficult monetary situation for the UK and its citizens.

The UK's national debt, (25% financed abroad), could become unworkable due to rising market interest rates. If more money is printed to pay off the UK's large national debt, inflation will almost certainly follow and make economic growth untenable. Costs of imports will rise, due to the lower pound. Once in this situation, the UK will find it increasingly difficult to maintain sensible payments for health, welfare and core services.

The clear message is that the UK has a window of opportunity to change. Britain must find a way to create significant long-term growth applying the UK's core technical strengths. The UK must ensure that this growth is channelled at scale to enable exporting to world markets.

If such a strategy can be found and implemented, as international markets continue to grow, the UK can also continue to grow. Such a strategy will be effective in maintaining wealth creation and keep Britain safe from the fickle world money markets.

3. The Proposed Solution

Britain is fortunate with the timing to introduce the proposed changes for dynamic, innovative growth. ***The proposed solution creates the environment for ongoing investment and dynamic innovation.*** It does so by applying current technology coupled to new integrated business models and funding structures.

The proposed solution is a complete solution both technically and in terms of business values. It creates a completely new ecosystem for all UK organisations, their employees, their owners and their financial backers.

This proposal works because it is based on existing, proven technologies. It also now happens to arrive at the perfect place at the right time. The core technologies apply to all business sectors and can be implemented to all types of existing organisational structures. In time, it will replace most of the current business structures in the SME sector.

Core Components

Four new, tightly coupled core structures are required to create an integrated digital solution:

- **New business / organisational structure(s)**
- **A linked investment, banking, accounting and information system**
- **A UK government backed Innovation Bank (with a new digital innovation currency)**
- **An (optional) UK-wide open data system**

These core processes are all linked through a digital portal. This portal contains all the data and data exchange require for investment, banking, accounting and information. This proposed integrated data portal is based on existing technology available from UK sources.

The above integration offers an immense opportunity due to the fact that it couples together a small number of current processes within a new digital framework. By doing this, many current cultural and business limitations are swept away.

Tight coupling includes; a new organisational structures with a new investment processes, a national innovation bank and a new digital information system. This tight coupling creates a new UK wide ecosystem for doing business in a completely new way.

This solution creates a way for Britain to develop innovative services and products that in the past have been difficult or impossible to fund and take to market quickly. These can then scale to international markets due to the open access to large scale investment.

Built into this whole business innovation process is the prerequisite for accepting and mitigating failure for innovation businesses working with emerging technologies.

Due to the digital nature of all of these core components, it does not matter where a business is located. This new type of integrated innovation vehicle creates a level playing field across the whole of the UK. It effectively turns the whole of Britain into a UK wide innovation hub.

Implementing this model in the UK will be world-leading, it will usher in a new wave of entrepreneurs, innovators and private investors across the UK.

4. Detailed Design

The researchers started with a clean sheet to create these proposed solutions. The main characteristics for the new organisational structures are designed to leverage quick and easy funding for research, development and production. Such a structure must also provide for the most effective governance, provide for exemplary information for investors while being structure to protect British interests longer-term.

From these considerations, ideas for a new business and organisational structures were considered and linked to modern methods of data integration. These structures and data integration are at the core of this proposal. As such, these new structures and systems are straightforward and easily achievable within current proven technologies. Together they confer significant advantages over the current innovation processes available within the UK.

Post Brexit, the UK has the opportunity to create new vehicles for business innovation without hindrance from EU regulations. Online data processing technology already exist more or less off the shelf and can be applied to create an open system for investment for these new organisations. These open systems allow access for both individual and institutional investors.

Structures, Integration, Investment & Banking

The new organisational structures provide for different value propositions. They all encompass basic values for collaboration and values for sustainability, extended employee involvement and profit sharing. They also protect the UK's long-term investment by limiting ownership and control.

The new organisational structures implicitly offer SME's a clear path to extend their growth potential. This path includes; finance and investment, government backed services for exports, fast tracking for public contracts and collaborations with other organisations offering key growth services.

The integrated online platforms make SME's visible to investors, (private and institutional). The investment offerings are controlled within a tightly coupled data driven information, accounting and banking system.

Taken together, these new structures, integrated data system and investment platform create

a new ecosystem for all innovators and business people who have ideas to take to market. Such entrepreneurs will be able to quickly and easily create the exact organisational model they require whilst opening channels for initial and ongoing funding.

Financial Risk Mitigation

The structure is implicitly 'safe' for investors, key personnel, employees and crucially the UK as a whole. This safety is derived from the integrated data systems and the information flows that cannot (easily) be corrupted, unlike current business and investment systems. As such, this linked business structure and data information system provides the UK with a modern approach that has world-leading potential without any downsides or additional risk - either political or monetary.

Risk mitigation is built into the structures and investing mechanisms. With current offline accounting and funding, there are many potential loopholes from basic fraud through to misinformation.

Failure risk is mitigated in several ways. Firstly, the close coupling of business structures and accounting information provides all investors with a clear view of the exact up-to-date company position. Secondly, basic checks and balances are built into these systems, so that fraud, misaccounting or poor business control is alleviated almost completely. These checks and balances are an integral part of these new integrated data and investment processes.

Organisations and their key personnel will set out the terms of their investment proposition and these will be built into the new investment offering. Thirdly, investments can be insured across these new organisations. While some organisations will fail, part of the investment funding may be insured, (depending on the investment model chosen), so that investors will be protected from total losses. Again, due to the integrated nature of the information and investment systems, this insurance can be built-in, ensuring in the event of the failure, the protected investment is secured.

Organisational Efficiency

The world is becoming data-integrated. These new business structures and systems provide for significant administration efficiency through this data integration. Accounting, reporting, vat and taxes become automated. These efficiencies allow smaller organisations to cut their costs and concentrate on adding value to their innovation and operation processes. The UK benefits directly from this data integration through increases in efficiency for accurate collection of tax and business information.

Emerging Technologies

The new structures are ideal to leverage emerging technologies. They offer investment opportunities for small and larger scale projects within a safe environment where failure is understood to be part of the innovation process. This creates a world-leading innovation opportunities and will usher in many new innovative ideas where everyone can take part in the success of the organisations that go on to make world-leading businesses progress in national and international markets.

5. The New Organisational Structures:

A new type of business organisation is required. The current structures; limited company; not for profit; quoted; and AIM provisions, are either too complex, take too long to create or do not provide the essential provisions for innovation, good governance or sustainability. The UK needs to create a modern model that works for everyone; key personnel, employees, investors, collaborators and the wider public. It will lead the way in creating a new digitally integrated vehicle for innovative growth that will be the envy of the world.

The idea that a business is mainly for the owners and is a private vehicle for profit does not provide a modern twenty-first century view within a changing world. The proposed structures take a wider view of success, they create improved governance and restrict any individual from taking actions that harm the overall proposition and future growth potential. They view employees, stakeholders and investors as part of the ongoing success of the business model.

For some business people, these new proposed structures will be seen as too limiting. These individuals are likely to have access to other investment sources. This proposal does not replace the use of the current business structures.

The starting point is to define a new organisational structure. There are many possibilities, below is a starting point for these new structures:

Openness, Reporting & Values

The basic structure is one of openness and cooperation. The structure introduces a new type of business operator; a 'Key Personnel'. Such individuals or external bodies are defined as holding significant influence within the organisation.

Integration of all data processes ensures that the company reports openly and instantly on all key processes within the organisation. These include accounting, reporting, employment along with key objectives of the organisation's plans and how these plans are measured on a day to day basis. Access to most of this reporting will be available online by everyone. This guides investment planning and investment oversight. The exceptions are detailed technical, marketing and research information that will be kept within the business environment.

The organisations legal provisions are written in modern parlance and are designed as a valuable guide for investors and employees. These articles become integrated within the data and reporting systems and as such highlight key issues for the ongoing success of the organisation and its financial stability on a day to day basis:

- Type of base structure (eg Business, Charity, NFP, Collaborative, Innovation)
- Main aims
- Key personnel and their responsibilities (linked to type of structure)
- Specific conditions for finance, investment and reporting (eg Charities reporting provisions)
- Core public reporting using (a few) essential key performance indicators
- A sensible cap on pay rates for key personnel (owners, key personnel, associates, collaborative leaders)
- Built-in profit share thresholds and values for key personnel, employees
- Capitalisation thresholds for mandatory change of key personnel and tenure of key personnel

Company ownership and control is envisaged as follows:

- Key personnel do not hold overall control. The Innovation Bank (see below) along with special advisors if appointed, (from a relevant investment organisation), make up the voting rights along with the key personnel. (and potentially employees).
- Investors may also vote on key issues set by the board, or where there is a call for a vote if more than (say 40%) of the investors request it.
- Key personnel have just one vote whatever their investment or share capital.
- Once the organisation reaches a threshold size, key personnel must rotate and are unable to return within a set period

- Limitations on the sale of the business - such that it remains within this new organisational structure and is effectively part owned by UK public via the innovation bank. Organisations may change their type if required.

Further to this structure these new type of organisations will have leveraged access to special innovation and other growth services:

- Quick, easy, low cost company setup via online systems
- Immediate access to finance (innovation bank and investments)
- Preferential tax rates
- Fast track for government contracts
- *Fast track* for specialist growth services and help with exporting (see below)

Fast Track Processes

These help businesses succeed. Due to the tight governance and open reporting, these new businesses are less risky entities for government help, funding and direct grants. Many of these new businesses will seek export opportunities, this is the lifeblood for success for the UK economy as Britain moves forward. Helping these innovation businesses succeed especially with export opportunities will be hugely important.

- Export licenses
- Export finance
- Export marketing
- Patents, licensing help and grants
- Guarantees for purchases (for key supply chains)
- EU marking and other essential product quality and export services

6. Investment Opportunities

Investment opportunities are transformed by leveraging online investing mechanisms specifically linked to the new organisational structures. What has become clear over the last few years is that there is a pent-up requirement for direct investment in business opportunities that offer sustainable technological advance. The demographics within the UK, linked to low interest rates provides a significant opportunity to harness the billions that now languish in under-utilised in saving bank accounts. Total household savings are approximately £1.5 trillion. This compares well to total pension funds (approx £2.3 trillion). It is clear that investment funds are available from individual savers even after taking into account household savings kept for a rainy day.

Current investment processes only work for financially savvy and technically proficient people. The coupling of online systems to the new business structures provides for easy and safe investing. They also offer new possibilities such as investing within a sector or group of businesses or in new collaborative style organisations. These are important for two reasons. Firstly, people need to have a say in new ways to tackle climate change, new processes to create sustainability, new ways of changing the local environment. Secondly, people have already shown they wish to invest directly in innovative businesses, businesses that provide a different approach to a sustainable and more equitable progress to future growth.

The current systems are mostly hidden from the general public. It is difficult for individuals or families to have their say in where to place investment funds that they hold. The large institutional investors cannot easily offer such provision at sensible risk profiles. The proposed online systems, linked to the new business structures provide a simple way for everyone to invest. Furthermore, it offers innovative groups with specific ideas to come together and create a new offering that meets a wider public need. The new investing systems will provide

a safe investing process where the risks are completely transparent. It creates a new type of crowd-funding opportunity, but one without the current hazards for investors.

These new business structures and online investing processes are not an invitation to create under-funded, poorly thought-out businesses. The strict conditions for accessing public and private investment will ensure that unless specific requirements are met, investment funds are not available or marked as very high risk and the total investments by an individual will be limited to sensible amounts. The system itself will have a break mechanism where the organisation is prevented from obtaining further funding as soon as it does not meet the core accounting and financial constructs within the automatic reporting provisions. This does not mean that all misuse of investment funds can be eradicated, but it provides a much better system than any current strategy. The proposed structure is much safer and more transparent than any online crowd-funding, investing or betting system currently available for the individual investor.

The final outcome is to create a highly controlled yet accessible investing environment for both individual and institutional investors. As technology is now enabling many more people to access online systems, (such as investment and crowd-sourcing platforms), often with very poor investment outcomes, there is a clear need to establish a safer and equally accessible investment platform. This in turn creates the impetus and funding for the innovators and entrepreneurs to succeed across the UK in every sector.

7. Opportunities for Growth at Scale

This new business and investment structure provides for ongoing growth. Due to the nature of the investment led opportunities, these new organisations are automatically aligned to growth in innovation opportunities and in sectors that offer ongoing growth and success. Technology will play an ever increasing role in all business and social processes. The push to move to greener and more sustainable processes across every industrial and commercial sector provides these growth opportunities now and into the foreseeable future. These are therefore real growth opportunities in new and emerging markets. Many of these will scale to world markets.

This growth is not just limited to highly technical products and services. There will be many new growth opportunities due to changing markets and changing behaviours. These new organisational structures may be used to solve any societal issue that can be sensibly addressed, financed and provide a longer term outcome that raises efficiency. Current business models cannot easily do this. For instance these new structures and investment platforms may be used to create vibrant new models such as collaborations between councils and businesses that offer new services such as integrated transport and energy solutions. Provide the business model meets the embedded criteria for initial finance and ownership, these new structures provide a safe operating platform for such collaborative goals as both the investment offering and financial position is regulated automatically in real time.

The new structures put forward, not only allow this growth to occur seamlessly, but these structures directly create a powerful investment ecosystem. This allows the UK to harness the very real and necessary changes required to address climate and sustainability issues. And it address them for the benefit of the UK as a whole as all investment within these integrated digital systems acts for and on behalf of all British people due to the ownership criteria.

Charity and Not for Profit Organisations

Innovation occurs across all sectors and types of endeavour. The UK has many charities and not for profit organisations that make a significant impact to the wellbeing of the UK. This proposed structure provides equally well for such organisations and improves their ability to collaborate with other organisations as well as public bodies. The investment platform will couple also as a charitable giving platform, the only difference being the expected outcome. Charities may derive new ways to use such an investing and giving platform.

There may be opportunities to invest in charitable and NfP organisations to help them grow and succeed by a limited investment bond that has a final outcome and return. This will allow such organisations to innovate, collaborate and help solve the more intractable issues facing local communities. These new structures and platforms provide a mechanism to create long-term change which current third sector models cannot achieve.

These new structures will provide many collaborative opportunities for businesses, public bodies and charities to work together to create significant change using new transport opportunities such as electric car sharing schemes, reducing parking and traffic density. The investment processes will work just as well for these local projects as they do for international businesses and will make it possible to create a new ecosystem for local people who benefit from investing and from implementing change at scale.

Investing in Emerging Tech

There are now very many emerging technologies, some of these will, in future, work together to create significant change. The UK is well placed to address these technologies through its universities and research organisations. It is currently less well placed to leverage these new technologies and scale them to create ongoing growth and jobs. The UK has innovation hubs that attempt to leverage this growth. These are often locally placed and do not scale well for UK wide endeavours or international markets.

The new integrated data structures will leverage innovation in technical sectors such as health, biotech, nanotech, robotics, AI, fintec, sustainable manufacturing, fuel cells, hydrogen production & storage, carbon capture, materials science, transport, driverless vehicles and sustainable energy systems. There are many collaborative opportunities that link together these new technologies to create improved ecosystems. As an example, there is a need to solve the energy distribution issues for transportation across the UK. A range of technologies are required to work together to enable sustainable low carbon, low pollution, personal and public transport solutions that scale throughout the UK.

If the UK does not implement a new comprehensive way to leverage the need for such change, the UK will simply outsource these growth opportunities to competitive markets outside the UK. This will reduce key jobs growth and export opportunities while increasing UK imports. *This trading balance of payments is most important to the UK's financial health as it defines the value of Britain and the UK's currency going forward.*

UK wide Benefits

This new integrated data structure provides immense benefits for the society as a whole. It provides not just for innovation, but for ongoing business competitiveness. With sensible key personnel profit sharing and unparalleled governance, it provides the ability for the average saver to become part of the next generation of new technology businesses, and share directly in their ongoing profits. By safeguarding the governance and assets within this new integrated structure, it provides for the UK's long-term innovation success, where the profits are returned to the people of the UK for the long run and the assets retained for future generations.

8. Leveraging a UK-Wide Data System

A further development is to create an open, UK-wide data structure. This has necessary difficulties both in the areas of security and of acceptance. However, the rewards are remarkable and this development should be actively considered.

All data-integration businesses rely on freely available data or data gathered through interaction with their products. The world has seen the rise of such business models, along with their efficiencies, power, and also with deep concerns over their business practices. The proposal put forward is to create a new UK-wide, open data structure where individuals and businesses have control over all their data. This reduces the misuse of data and also reduces the likelihood of a small number of businesses leveraging personal data for their own

advantage and locking out competitors. This creates a more favourable open playing field for ongoing business innovation.

Moreover, it provides a massive opportunity for these newly structured, integrated UK organisations to reach out and create innovative data-led services. This new open data structure will be exclusively available (under strict conditions) to these newly structured innovation organisations to enable them to develop world-leading applications. This will enable further investment funding for UK organisations and UK investment opportunities

Appendices

a) Integrated Data & Information Systems:

Key Implementation Points:

- New nationwide innovation banking structure linked directly to the digital data systems
- Web based accounting and reporting system. This would be automated and include all processes from purchasing through to sales, including standard web & app interfaces. Some effective systems already exist and should be adapted.
- Investment and information system. For instance the IG Group has an excellent online and app based systems. These work well and provide all the essential information systems required. As IG is a UK company they can be licensed from the IG Group and modified to provide the web portal information and investment system.
- Included within the investment system, (search, selection, buying & selling), will be the formal feedback and information service for each company (cf. IG Index news and company profiles).
- Active investment in these new organisation types requires an intermediary to create liquidity and depository for transactions. This can be handled by the new UK Innovation Bank.
- Takeovers would be controlled by an independent UK innovation panel and only allowed in the interests of ongoing growth, innovation and business synergy. No organisation can be purchased by any business outside this integrated structure.
- Investment by individuals could have a guarantee - eg percentage that protects a proportion of the of their total investment if a company fails. This guaranty would come from a small levy on the profits of the other innovation companies.

Financial & Information Controls for Organisations

Full information disclosure will be automatically presented on the online digital platform linked to the integrated data systems underlying these organisations.

This is an essential provision for every organisation within this new structure. This is challenging because the key personnel in most organisation do not wish to open their books and internal situation to the world or their competitors.

It is essential because this new digitally integrated system creates a new way of working in the UK. It creates a cultural change that opens up massive opportunities that are international and supported by every person within the UK. It creates a new, open way of doing business and

offers collaboration with others from different sectors, public, private and third sector. It creates a new model for success, driving growth that is sustainable, creating high level jobs

This creates a new paradigm for organisations, they need to be efficient and effective as their performance will clearly set out against their competitors and within their sector. This will drive additional growth due to the necessary pressure on organisations to create exemplary business process and practice across their organisation.

The outcomes far outweigh the concerns for secrecy that surrounds most organisations today. For organisations that feel they cannot exist within such an open environment, there is no necessity to join. In future they are not precluded from joining this new way forward.

The downside for presenting an organisation's information to the world is that competitors may learn something that helps them to compete. Some critically sensitive information will be omitted to prevent innovative processes or research from being disclosed.

Most competitors will not be directly helped by knowing general accounting information or the key performance indicators, but the potential investor requires this information to make the best decisions. Indeed, the openness of these disclosures presents a new way of investing. Current investments are shrouded in disinformation and guesses about current business performance, there is a whole industry providing insight into company performance and future predictions. Most of this creates a very complex investment process and disinsensitise many private investors from investing at all.

This new way forward offers the easiest possible path to investing. As such it will create additional funds for these organisations that are now unavailable. This in turn will stimulate the growth the UK needs.

The proposed basic information provisions are:

- Within the core provisions for each type of organisation, the information presented to potential investors, the innovation bank, the employees and public are set.
- These may change as the organisation grows or changes type. The innovation panel has the final say in arbitration for such changes to these provisions for each individual organisation.
- The information flow is automated from basic processes and is presented in real time on the information portal.
- Core financial and accounting information is made available within the portal for public scrutiny. This would include all the key financials such as the balance sheet, profit and loss account, overall employment costs, key personnel employment payments and the cash flow position
- Other key information disclosure will be mandatory. This will include key performance indicators (such as sales targets, profitability by sector or service, quality performance, customer service performance)

Investment Options

- Investment holdings can be of different types, some could include profit sharing, (perhaps tax free for individuals), or just capital growth that reflects the underlying valuation of the business from the accounting provisions.
- No barriers or additional cost will be applied to investments. Portfolios may be built by individuals and institutional investors using the online purchasing with zero charges. This provides excellent investment opportunities for everyone.
- Investments can be purchased across groups of businesses within a sector or organisations that offer specific accreditation such as sustainability

- Investment opportunities may be calibrated by risk and reward. High risk opportunities such as emerging technology businesses may have imposed limits for each investor type (eg private, professional or institutional). This safeguards individual investors from high losses if the business fails.
- Investors can choose to spread their investment across a selection of say high risk technical businesses to help their overall portfolio risk
- This risk spreading will provide better overall investment opportunities for both investors and organisations.
- Information from the data integration can be utilised to provide exceptional insight into each organisation or groups of organisations to help investment decisions and highlight organisations that are successful driving further growth. These insightful processes can be provided by the investment platform itself

b) Banking Provision

Funding for research, development, testing and cash flow is a pre-requisite. While most funding will come from either the key personnel within each organisation or external institutional and private investors, there is very often a need for grant funding and reasonably priced loans to provide cash-flow. This is particularly important in the early days for new SME's before they can show market penetration to raise ongoing funding.

The Innovation Bank proposed will dovetail directly into the digital data systems envisaged. This reduces the time, the administration and the risk for funding new organisations. Most of this funding is likely to be in the form of start-up loans for SME's for research, development and testing. As the number of organisations within these new structures grows, some of this funding can be insured across these organisations. The successful organisations will pay a levy back into the funding pot to insure the Innovation Bank against defaults. Key personnel will also be expected to provide an uninsured proportion of any start-up funding. In this way, quick and efficient start-up loans can be made on the basis of the core accounting and information systems within the digital data structure. This will transform the difficult and time consuming process of establishing start-up funding for entrepreneurs.

UK Climate Commitments, Public Funding

The UK needs to leverage specific growth opportunities within the sustainability, energy, transport, carbon reduction sectors to meet climate change commitments. This new proposed data integration structure is ideal to leverage growth in these sectors. These new organisational structures also reduce the risks due to the inherent integrated accounting, information and balancing processes for risk sharing.

This means that the Innovation Bank can make high quality lower risk investments and grants in specific organisations that are organised to create innovation in these specific sectors. The linking of government (local and central) contracts directly to these new organisations will establish a very secure and formal process that protects public money due to the close data integration and open reporting.

Today, public funds are often provided to organisations that have no provision for immediate accounting and reporting. Often, today, the first instance of serious failure of a particular organisation comes too late to prevent total loss of public funds. With the proposed system, this will be impossible as the information systems will immediately flag any serious issues at the time they occur. In these instances, funds can be immediately frozen and the underlying issues understood before proceeding. Moreover, the data integration systems can provide instant information for key processes and contracts as they occur. This helps mitigate against failure and provides accurate up to date progress across a sector.

Digital Currency

The new integrated accounting, banking and information systems provide a serious opportunity to leverage a new digital currency within the confines of the closed data systems. Most issues with digital currencies arise due to their availability, flawed security, non controllability and changing values. Within the integrated data systems proposed, non of these issues can arise. This provides for an innovative approach to creating an internal market for specific objectives such as training, collaboration, internal services and sustainability. The cost of such provisions for the wider UK is zero.

Today, the levers that government have to create new strategies for such agendas is limited to cajoling industry sectors and placing grant funding and creating new structures to attempt to entice businesses to change. This is expensive, inefficient and time consuming. A new digital currency provides excellent leverage, immediacy and ensures instant reporting of the effectiveness of any scheme introduced such as STEM training.

There are specific actions that this digital currency can make a significant difference. These are in the areas of training, STEM provision for schools and colleges, innovation collaboration between sectors, apprenticeships and sustainability. As the number of these new structure organisations exponentially grow, the leverage and opportunities for such provision also grows exponentially. Within a few years, these provisions will be making significant impact on the UK's overall training, apprenticeship's, STEM provision for younger people and sustainability goals. The cost of these provisions is essentially derived form the success of the new organisations, without any direct cost to the taxpayer.

The digital currency (Innovation Currency or IC), resides only within the digital space between these new organisations and the Innovation Bank. As such its value is constant and its flow can be maintained by the Bank. The Bank can choose to redeem the IC at a fixed rate from organisations within the digital system if it chooses or on a fixed scale. This provides for an internal market such that organisations may sell their services to each other. This will create additional internal growth opportunities while protecting the wider economy from inflationary pressures.

For example, the Bank may choose to pay organisations that sign-up and undertake STEM training provision for local colleges and schools. When training has been completed and the college provides the digital confirmation to the bank via the online data portal, (using a digital security signature), the digital payment is made automatically by the Bank to the provisioning organisation.

This digital money can then be used to purchase internal services from a provider within the new structure. For instance, it may be used to purchase web design or consultancy services that directly help the improvement of their business model. The Bank may choose to exchange some Innovation Currency at a fixed rate to internal providers if their holding grows over a threshold limit. This does mean that UK money is flowing into the internal system, but at a reduced rate compared to the normal provision for such STEM training. As the total value and amount of digital currency is controlled only by the Bank within the closed system, there can be no unforeseen stress or complexity introduced to the wider economy.

c) Innovation Oversight Panel

There will be an independent panel that adjudicates on specific matters such as accountability, collaboration, employment issues, sustainability, banking, loan and grant funding situations and wind-up procedures where organisations have not stayed within their set accounting limits.

The new structures will necessarily lead to some issues for these organisations. While these issues sit within the standard UK laws, the panel can simplify and efficiently deal with many aspects of concern. The panel would make first pass non-binding directives for issues that fall into the new organisational structures codes and legal requirements.

d) Close collaboration for technical innovation

Direct coupling is essential between the business themselves and with research organisations, universities and further education colleges (FE's). Opportunities for apprenticeships and all part-time educational roles such as doctorates will enhance both employment opportunities and each business.

The new business structure opens-up a key opportunity for inter-company collaboration. Current businesses have difficulty and see potential risks in undertaking such collaboration. By turning this on its head, close collaboration is built into the structure and companies will need to opt out if they do not wish to collaborate, (overseen by the innovation panel). The culture of collaboration is therefore built into the underlying structure. This is likely to provide additional growth opportunities.

The creation of STEM understanding for *all* young people is also a continuing requirement and will have long-term results for the UK. By linking the business structures to these organisations and by linking STEM provision for students into the way these organisations operate will enhance STEM learning and experience throughout the UK.

- A sponsoring University or Research organisation
- Open links to research Universities and Research centres
- Direct sponsorship and links to apprenticeship schemes
- Direct links to FE's for STEM students
- Fast track apprenticeships, fast track top individuals from universities and FE's on special introduction schemes, fast track MSc and doctorates.
- Collaboration between each innovation company (with a mandatory sign up to enable unfettered access to innovation ideas and research with a strong non-disclosure agreement for all company people)

e) Fast Tracking Public Contracts

The integrated digital structures provide accountability and risk mitigation for awarding public contracts

- If the business performance slips below set accounting or other agreed thresholds, then key personnel can be replaced immediately.
- Banking loans via the proposed nationwide innovation bank at preferential rates with immediate funding.
- Built-in access to special innovation think tanks – specialist from all areas – provide regular discussion and input to each business.
- Innovation Bank guaranteed loans for cash-flow requirements. These would enable organisations to gain quick access to working capital for specific instances such as confirmed orders.

The proposed Innovation Panel will adjudicate on key issues when required before progressing to further legislative action if necessary. The panel must have a specific power to legally remove a key personnel or all key personnel of any of these new structure organisations to prevent losses to investors and funding bodies.

f) Fast Track Exporting

Key to the UK's success is exporting and maintaining a positive trade balance. These new organisational structures will provide for significant export opportunities. However, most smaller organisations are not well equipped to market their products and services to external markets. This requires specialist knowledge along with high quality marketing and sales provision. These are expensive and often beyond the available resources of many SME's.

This is where these new digitally integrated structures provide significant advancement over current possibilities. Knowledge is key here, the first endeavour is to match each organisation's potential export offerings to actual needs within different overseas markets. Some direct government funding is required here via the Innovation Bank. Market reports, market understanding, competitive analysis and precise on the ground opportunities need to be researched and resolved. From this analysis, direct opportunities can be passed to the organisations that best match these opportunities.

The nature of the controlled environment within the digital integration structures allows improved control for this UK investment in export marketing. Only organisations that meet the basic requirements for key issues such as financial stability, sustainability, production capability and quality control would be awarded these opportunities to pursue.

Additional direct help for export administration and export financing can be fast tracked to any organisation within the new structure to maximise their export effectiveness. Over time, these new export opportunities will grow UK exports and improve the UK's trade balance.

The digital innovation currency (IC) provides additional opportunities for creating export opportunities for SME's. These revolve around market understanding and skills training for key personnel. Digital payments may be conferred on organisations to allow them to tackle these issues and reward them for doing so. Such an incentivised export development plan will create a new generation of businesses that are capable of creating export opportunities and grow their organisation to new levels providing new high level jobs.

g) Training, Apprenticeships, STEM

The proposed digital Innovation Currency (IC) leverages significant opportunities to improve the take-up of key UK needs in the areas of:

- Adult Training
- Skills & Management Training
- STEM training provision for schools and colleges
- Apprenticeships
- Sustainability processes
- Internships
- Collaboration between different industry and technical sectors
- Research collaboration with Universities, colleges and research organisations
- Innovation hubs
- Volunteering and secondment

As this new digital infrastructure grows, the ability to influence the above UK wide needs also grows. In future, this will ensure that critical processes such as effective STEM education for younger people will be massively improved. Such young people will become the next generation to get involved within these new integrated data structures. This then becomes a virtuous cycle that creates future opportunities, future real growth and future innovation success.

A key issue facing us all is sustainability. The digital innovation currency (IC) can be utilised to help achieve sustainability goals. The digitally integrated structures and systems allow for automatic processes that organisations can sign-up to. As their information reporting systems accounting are integrated and open, the organisation can be monitored automatically against set targets for sustainability. There are a number of ways organisations that maintain there sustainability record can be rewarded. This can include direct digital IC payments. It may include the ability to apply for specific grants for exporting help, local and central government

contracts, reduced cost of borrowing and acknowledged accreditation for investors within the investment portal.

h) Creation of a Secure, Open Data Structure for the UK

Such a data project requires careful introduction. The new business structures allow for a limited trial of such data integration in a phased approach that ensures both security issues and for the necessary buy-in from initial data providers (individuals and businesses).

Key points:

- Encrypted, distributed, logged (blockchain / distributed ledgers)
- As all transactions of data are held within the distributed ledgers with public and private keys, such that the data and transactions are immutable
- A new independent body, with the trustees allocated from a selection of potential candidates put forward from independent organisations. These trustees to rotate on an agreed basis (3 or 5 years maximum)
- Clear terms of reference; To create and maintain a publicly owned, secure yet open data platform for the benefit of the whole UK.
- Cloud data storage locations designed to provide data integrity, uptime, quick access, strong oversight and high level physical security
- Provision of data in standardised (encrypted) format to allow sharing for all applications. This standard is immensely important as it will define the ongoing world-wide standard for data provision and sharing
- Data security level ensure access only to the necessary level of data for that application. These are set by the holder of the information under strict rules and using an effective checking system.

The Researchers:

This paper is written from a background of strategic and practical business consultancy. Areas actively covered include accountancy, IIP, marketing, manufacturing, quality and IT. This includes detailed work across a large number of sectors including engineering, manufacturing, service organisations, professional organisations, charities, stocking & logistics and local and central government departments.

The researchers have approached this paper from a rounded view of what works on the ground across many different business environments and from practical expertise within IT, financial systems, and online systems design.

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