# SPOTLIGHT ON INNOVATION

## HOW GOVERNMENT CAN UNLOCK SMALL BUSINESS PRODUCTIVITY

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Experts in Business

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# ABOUT FSB

The Federation of Small Businesses (FSB) is the UK's leading business organisation. Established over 40 years ago to help our members succeed in business, we are a non-profit making and non-party political organisation that's led by our members, for our members. Our mission is to help smaller businesses achieve their ambitions.

As experts in business, we offer our members a wide range of vital business services, including advice, financial expertise, support and a powerful voice in Government. FSB is also the UK's leading business campaigner, focused on delivering change which supports smaller businesses to grow and succeed. Our lobbying arm starts with the work of our team in Westminster which focuses on UK and English policy issues. Further to this, our expert teams in Glasgow, Cardiff and Belfast work with governments, elected members and decision-makers in Scotland, Wales and Northern Ireland.

# SPOTLIGHT ON INNOVATION

## HOW GOVERNMENT CAN UNLOCK SMALL BUSINESS PRODUCTIVITY

**76%** of smaller businesses have introduced a **new innovation** in the past three years

**11%** are **considering innovating**

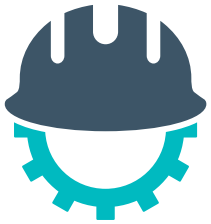
Of those who have innovated – **25%** have introduced a **new to market product** and **95%** a **new to firm innovation**

**Barriers to innovation for considerers:**

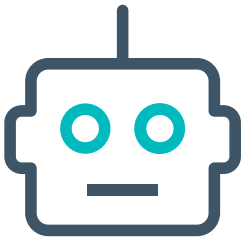
**43% lack** of **time**

**37% lack** of **staff** or **skilled employees**

**27%** too **challenging**



Only **6%** of innovators in the construction sector have introduced **new to market product innovation** – compared to **25%** all sector average



**32%** think **AI** would provide **value** to their business


40% of incorporated new to market product innovators are **not aware** of any **R&D tax relief** that's relevant to their business

Just **10%** of **innovating smaller firms** have **accessed financial support** from the **Government**

**Less than half** of smaller businesses have used **cloud services (40%)**, **online data storage** or **back up (37%)** or **file transfer technology (33%)**

# CONTENTS

# FOREWORD

The crucial importance of innovation to resolving the UK's productivity puzzle is undisputed. But what is meant by innovation opens up a Pandora's box.

What do policy-makers mean by the term innovation and how is this interpreted by smaller businesses? Throughout our research, we have avoided this ultimately technocratic term and have instead asked our members about their appetite to make significant business improvements. When the question is phrased in this way we see that the vast majority of entrepreneurs by their very nature are striving to improve. Our evidence bears testimony to their natural risk taking propensity, with the majority not interested in maintaining the status quo. Our research suggests the willingness is there. Now it is about unlocking that potential and enabling the ambition.

There is also a genuine question for policy-makers about balance and parity of esteem. Our research suggests that the focus should not just be on market changing innovations, important as they are. Of equal significance are the myriad of incremental business improvements that smaller businesses and sole traders can make to their goods, services, processes, organisational structure and marketing. These are most often 'new to firm' innovations. They do not in themselves disrupt markets but their impact in terms of improving aggregate small business productivity is immense.

FSB welcomed the Industrial Strategy and the commitment to increase R&D spending from 2.4 per cent of GDP to 2.7 per cent of GDP by 2027 – with the ambition of moving to a three per cent target in due course. The focus of the Industrial Strategy on Grand Challenges and their underpinning missions is undeniably important. The spillover effects from supporting innovation are well established. Small businesses will have a critical role to play in initiatives such as the Industrial Strategy Challenge Funds, Catapults and the Small Business Research Initiative, which principally aims to support new to market innovation.

However, just as important is the mission to support SMEs across all sectors to engage in new to firm innovation, or as they would say, to make significant business improvements within the firm. As recent research has shown, the productivity dividend attached to micro businesses increasing their adoption of digital technologies like cloud based accounting services or HR software applications could be game-changing. It is well established that improvements in leadership and management practices, generating, for example, more employee engagement, has a significant impact on improving productivity.

The recently published call for evidence on the SME productivity review is an important step in the right direction. We now have a unique opportunity to look again at how both direct funding (e.g. match funded grants and vouchers) and indirect funding (e.g. tax relief) can be used to support new to firm innovation. This is a key policy priority in addition to removing the grist from the mill from existing interventions such as R&D tax credits and the Patent Box Tax Relief to make them more effective and small business friendly.

Supporting innovation and enhancing productivity cannot be thought of in isolation of related policy interventions, such as supporting exporting. The likely replacement of EU funds and the design of the UK Shared Prosperity Fund represent opportunities to reboot the business support landscape. This does not require huge institutional change. In England at least, there has already been too much of that. But it does mean new ideas and a renewed commitment to supporting entrepreneurial talent within the UK to be the best that it can be.

**Martin McTague**
FSB Chairman,
Advocacy and Policy

# EXECUTIVE SUMMARY

Innovation, as defined by the OECD, "provides the foundation for new businesses, new jobs and productivity growth and is a key driver of economic growth and development".[1] A well-designed innovation policy should help the economy to grow.

This report aims to inform policy-makers how to improve the UK's innovation policy for smaller businesses and sole traders. With the right policy, the UK's smaller businesses have the potential to become more productive, more competitive and export more. It is well established that innovative firms grow faster, have higher productivity and are more resilient during difficult economic periods.[2] Within the UK service industry, innovation makes firms grow twice as fast,[3] with other evidence showing a significant impact on revenue growth for manufacturing firms.[4]

There are some clear first order definitional and communication issues for policy-makers to consider – namely what constitutes innovation? Innovation shouldn't necessarily be seen as making radical market disrupting changes. Smaller incremental changes are just as instrumental for innovation and productivity. These 'new to firm' innovations are critical for improving aggregate productivity.[5] And these changes can often be as simple as the adoption of digital technologies such as bespoke software packages for accountancy, HR-related functions or the adoption of cloud computing services.

In relation to new to market innovation the UK is considered a world leader.[6] The UK has been within the top five ranked countries in the global innovation index, for five consecutive years. However, there is an argument that innovations are not being 'diffused' within the wider business eco-system in the way they previously were, and it is the reduced rate of the diffusion of innovation,[7] which is a key factor in accounting for the productivity puzzle the UK is experiencing.

Our evidence supports this hypothesis through indicating that 'self-design' is the most common method of innovating. This does not, mean that firms are creating their own new to market innovations but that they have the perception of identifying a process or technology, e.g. adapting software 'off their own back', and applying it to their firm. The level of adaptation they undertake gives them the perception they have self-designed in a bespoke solution.

Small business innovators' awareness of what their competitors are doing is not low – with 32 per cent being very aware and 43 per cent being slightly aware of what their competitors are doing. However, there is plenty of scope for improvement.

This project is based on one of the broadest definitions of innovation utilised in current policy making, drawn from the OECD definition of innovation. Our sample base is distinct from both that of the UK Innovation Survey which does not include micro businesses and the Longitudinal Small Business Survey's (LSBS) research which uses a narrower definition of innovation. The UK Innovation Survey found that 49 per cent of businesses covered (including larger businesses) engaged in innovation activity. LSBS definition of innovation is largely focused on product and service innovation (whether new to market or new to firm) rather than organisational or marketing innovation. The survey we undertook was also noticeable for not mentioning the term 'innovation' once. Like productivity, the term is considered by many small businesses as a technocratic conceit.

Our research shows that the majority (76%) of small businesses have made some form of significant business improvement in the last three years. This figure drops to 63 per cent if the term is more narrowly defined as product or process innovation. Our research found that of those who had innovated, 84 per cent had introduced a product or process innovation (which could be either new to market or new to firm) over the last three years.

1 OECD. The innovation imperative. 2015, available at http://www.oecd.org/innovation/the-innovation-imperative-9789264239814-en.htm

2 ERC. Benchmarking local innovation, available at https://www.enterpriseresearch.ac.uk/wp-content/uploads/2015/05/Benchmarking-Local-Innovation1.pdf

3 ERC. "Innovation, Diffusion, Growth". ERC video available at https://www.youtube.com/watch?v=dTPKf9KXJzU

4 PWC. Rethinking innovation in industrial manufacturing Are you up for the challenge? PwC's Global Innovation Survey 2013: Industrial manufacturing perspectives, available at https://www.pwc.com/gx/en/industrial-manufacturing/publications/pdf/pwc-rethinking-innovation-in-industrial-manufacturing-are-you-up-for-the-challenge.pdf

5 Be the Business launched to drive up British productivity, July 2017, available at https://www.managers.org.uk/insights/news/2017/july/be-the-business-launched-to-drive-up-british-productivity

6 Bank of England, "The UK's Productivity Problem: Hub No Spokes, June 2018, available at https://www.bankofengland.co.uk/-/media/boe/files/speech/2018/the-uks-productivity-problem-hub-no-spokes-speech-by-andy-haldane.pdf?la=en&hash=EBFB24E61501EC24D0F0D2545A49821623491D4B

7 Ibid.

Within this population of innovators, new to firm innovation (95%) incidence, whether product or process is significantly more commonplace than new to market product innovation (25%), as would be expected. Our data suggests that the willingness of smaller businesses and sole traders to engage in significant 'improvement' activity is much stronger than many other studies have recently identified. This is also supported by data on risk aversion, with 63 per cent of all respondents stating that they were very likely or likely to take a risk and experiment with a product, service or business process.

However, our research also indicates that intention does not always translate into 'success', using the indicator of sales growth and turnover. Of course, by definition, some innovation will fail. And the causal connection between innovation and an actual impact in terms of improved sales is clearly not a direct one.

Nonetheless our data suggests a positive trend, where the more investment in innovation there is, the more likely they will report an increase in sales. Of those who invested between £10,001 and £25,000, 76 per cent reported an increase in sales, in comparison to those who invested less than £500 (51%). This finding shows that when small businesses are less poor in financial resources, they have better success in introducing innovations and generate positive outcomes on sales. On the other hand, some innovations result in failure, hence we see small businesses who invested more than £50K but had no change in sales or a decrease in sales or don't know the impact on sales (21%).

Overall our data suggests that while many small businesses are 'innovating' in the broadest sense of the term, they are perhaps not achieving the critical mass of innovation activity that can impact on sales/growth and ultimately productivity. One measure that could be used for the measurement of productivity would be increased sales growth per employee. However we believe our members would have struggled to accurately provide this data.

Our research also points to almost a quarter (24%) of smaller businesses and sole traders reporting they have not made any kind of innovation in the last three years. Eleven per cent of our members are non-innovative considerers. These are members who have not innovated in the past three years but are considering innovating in the next three years. These firms could be classed as being within the 'long tail' of unproductive firms, and a group that with the right Government support could innovate in the future.

Thirteen per cent of our respondents stated not only had they not innovated during the last three years, but that they had no intention of innovating in the next three years either.

## Adoption of digital technology

Our research shows the adoption of digital technologies over the last three years is still relatively low amongst smaller businesses and sole traders. However, there is a variance in behaviour between innovators, considerers and non-considerers. Innovators exhibit a higher level of adoption of digital technologies, whilst non-considerers exhibit lower levels of adoption. This is important as the penetration of these technologies is essential for supporting new to firm innovation.

Our research shows that in the past three years, more than half of small businesses have used online banking (59%), and paid for goods or services via BACS (55%).

However less than half of small businesses have used cloud services (40%), online data storage or back-up (37%), and File Transfer Protocol (FTP) e.g. Dropbox (33%). Twenty-nine per cent have adopted a bespoke software or applications.

## Management and leadership

It is widely acknowledged that leadership and management skills are critical to improving productivity. Our research shows a high willingness amongst small business innovative employers (86%) to take up innovations suggested by employees, which is a key indicator of employee engagement. However, turning intent into practice is more challenging, with our evidence suggesting that only six per cent of innovators who are employers have actually adopted an innovation as a result of the ideas of their staff. Only 12 per cent of innovators introduced an improvement because they sought to improve their leadership and management capability. Leadership and management practices are critical in translating ideas and good intention into action.

Among considerers of innovation, the major barriers to innovation were lack of time (43%), or lack of staff or skilled employees (37%). Twenty-seven per cent found innovation challenging because they could not decide whether it is worth the effort. Decision-making is a core component of effective leadership and management, and therefore it can be concluded that the top three barriers to further innovation are all related to 'management or leadership' related functions.

The importance of organisational change as an impactful form of 'intra firm' innovation is underlined by our evidence suggesting that of those who innovated, organisational innovation generated the largest impact on sales – a 76 per cent increase. Organisational change has been defined as improved methods of organisational structure, work responsibilities and decision making (including a first use of a new system of employee responsibilities, team work and decentralisation, integration or de-integration of teams, education/training systems). This draws into sharp relief how important effective leadership and management is to delivering impactful change.

## Tangibles vs. intangibles or other forms of knowledge management

More importantly it also highlights the role of intangibles in supporting innovation. Intangibles include investments in design, branding, software development and organisational improvement, e.g. better management practices and processes.[8] These intangibles are important innovation investments that drive productivity growth. Businesses can innovate with their intangibles, including their organisation[9], offering[10] and in relation to their customers' experience.[11] It is harder to value the worth and impact of these forms of innovations, but they are particularly important in the services sectors where investments in physical capital are often less relevant. According to research by IPPR, in some sectors only 25 per cent of innovation success is derived from technological innovations, while 75 per cent is explained by organisational innovations.[12]

In this report, we set out a framework for understanding the challenges which different segments of the small business community face when innovating. For some businesses, innovation is at the heart of what they do, with a high appetite for risk and growth. Other businesses will not have innovated in the last three years but are open to considering whether to do so in the future. Understanding the barriers holding them back from innovating will help the Government to better encourage these businesses to start innovating, therefore improving the overall levels of innovation within the economy.

8 OECD. The Innovation Imperative. Available at http://www.oecd.org/publications/the-innovation-imperative-9789264239814-en.htm

9 The way they configure their profit model, network, structure, production processes, job design, staff relaions and supply chains

10 Of product performance, or product system, marketing packaging, pricing, promotion

11 Of service, channel, brand or customer engagement

12 Industrial Strategy: Steering Structural Change in the UK Economy: A Commission on Economic Justice Discussion Paper. IPPR. Available at http://respond.gv-c.com/Mail/Click/213?a=9D11267E37B333DE45ED95ACEA599D1E&r=8D5465F47D023C4DF0E28DBC31A2BAA4&v=

# KEY FINDINGS

## Innovators

- 76 per cent of small businesses say they have introduced some sort of new innovation into their business in the past three years. This figure drops to 63 per cent if the term is more narrowly defined as product or process innovation.
- Of those who have innovated, 84 per cent introduced a product or process innovation (either new to market or new to firm) over the last three years.
- Of those who have innovated, 25 per cent engaged in new to market product innovation and 95 per cent have adopted a new to firm innovation.
- 24 per cent of small businesses say they had not made any kind of innovation in the past three years.
- Of those who innovated, 54 per cent had introduced organisational innovation and 46 per cent have introduced marketing innovation.
- The proportion of small businesses that innovated in the past three years was highest in manufacturing and information and communication sectors (both 84%).
- Businesses in the construction sector introduce significantly less new to market product innovation (6%) in comparison to the sector average of 25 per cent.

## Method of innovation

- As business size grows, the level of self-design increases significantly.
- This does not, of course, mean firms are creating their own new to market innovations, but they have the perception of identifying a technology and software and applying it to their firm and likely adapting it in the process. The perception of self-design increases with size of employer as they have the staff, time and resources to adapt an innovation to their business.
- Sole traders and micro businesses are more likely to adopt innovations from others around them. Of those who innovated, 13 per cent of sole traders and 11 per cent of micro businesses have adopted their innovation from another business or a competitor, compared to eight per cent of firms with 21+ employees. Of those who innovated, 17 per cent of sole traders and 17 per cent of micro businesses have adopted their innovation from a supplier, in comparison to 12 per cent of firms with more than 21 employees.
- These findings show the importance of promoting the adoption and diffusion of innovation amongst micro businesses and the self employed.

## Cost of innovation

- Around two thirds (67%) of innovators invested up to £10,000 to innovate in the past three years. 37 per cent spend up to £1,000.
- Only 10 per cent of innovators accessed Government support to make changes. Of those that did not, almost half (46%) said they did not know of any support. This suggests Government has had limited success in signposting smaller businesses to the type of support currently offered.

## Growth intentions

- 29 per cent of innovators plan to grow one to nine per cent per annum in terms of turnover or sales, 27 per cent of innovators plan to grow 10-19 per cent per annum, and almost a quarter (23%) plan to grow 20 per cent per annum. This is in contrast to considerers or non-considerers, which were both more likely to report lower levels of growth.
- Of those who innovated, business owners with fewer years in business have higher growth expectations. The rate of growth expected by business owners in their first years is higher. However, positive growth intentions are evident across all businesses, but they are more moderate for older businesses.

## Export ambitions

- Around a fifth (21%) of innovators currently export. Almost half (49%) of innovators report that exporting is not relevant or feasible for their business. Nine per cent of innovators have exported in the past and would consider doing this again in the future.
- 64 per cent of innovators expect none of their future growth to come from international sales.
- 10 per cent of innovators expect more than 20 per cent of their future growth to come from international sales.

## Non Innovating Considerers

This group is defined as those considering adopting an innovation within the next three years, and who have not introduced or adopted an innovation in the last three years.

- 11 per cent of members are non-innovative considerers.
- 45 per cent of considerers are looking at introducing product innovation that is new to the firm. Over a third of considerers (36%) are thinking of introducing an organisational innovation.[13] Similarly 37 per cent of considerers are considering introducing a marketing innovation.[14] Sixteen per cent of considerers (16%) may introduce a process innovation.[15] 10 per cent of considerers are pondering whether to introduce a product innovation that is new to the market.[16] These options are clearly not mutually exclusive.
- 18 per cent of considerers expected some growth to come from an increase in their international sales, while 73 per cent of considerers do not expect their growth to come from this source.
- 43 per cent of considerers report that lack of time is the key barrier to introducing innovation in their business. 37 per cent of considerers lack staff or skilled employees. 27 per cent of considerers found innovation challenging and responded they cannot decide whether it is worth the effort. Almost a quarter of considerers (23%) reported they are concerned about regulations, and 15 per cent are concerned by lack of external financial resources.

13 Organisational innovation includes any of the following activities: 1. New or significantly improved business model or practice (e.g. supply chain management, business re-engineering, knowledge management, cutting out waste whilst ensuring quality, quality management); 2. New or significantly improved methods of organisational structure, work responsibilities and decision making (e.g. first use of a new system of employee responsibilities, team work, decentralisation, integration or de-integration of teams, education / training systems); 3. New or significantly improved methods of organising external relationships with other firms (e.g. first use of alliances, partnerships, collaborations, outsourcing or sub-contracting).

14 Marketing innovation includes improvement in marketing concepts or strategies, including all the ways that a business connects the company's offering with customers.

15 Process innovation includes a new or significantly improved processes for producing, delivering or supplying goods or services.

16 Product innovation – New to Market includes a new product (good or service) to the market, as a firm was the first to introduce the innovation on its market.

## Non considering, non-innovators (steady state businesses)

This group is defined as those smaller businesses and sole traders who have not undertaken innovation in the last three years and have no intention of doing so in the next three years.

- 13 per cent of smaller businesses and the solo self-employed do not plan to make changes to their business in the next three years, and have not innovated in the past three years
- Over a third (36 per cent) of non-considerers aspire to remain about the same size, 39 per cent have an aspiration to grow in terms of turnover or sales.
- Non-considerers, if they are employers, stated a willingness to listen to their employees' suggested ideas. When asked "if you have employees, how likely are you to consider introducing a change that they suggested?" almost half (48%) of non-considerers responded they are likely or very likely to introduce a change that their employees suggested.

## Use of digital technology

While there are many different innovative practices and products which an individual firm could incorporate into their business to improve productivity, our data suggests two issues are of key importance: leadership and management practices and adoption of digital technologies, including digital skills and artificial intelligence (AI).

- More than half of small businesses adopted in the past three years online banking (59%), paid for goods or services via BACS (55%), and adopted a company website (51%).
- Less than half of small businesses have used cloud services (40%), online data storage or back-up (37%), and file transfer Protocol (FTP) e.g. Dropbox (33%).
- Less than a third (29%) of smaller businesses stated they had used bespoke software including digital software packages or applications during the last three years. This includes key digital technologies such as accounting software, customer relationship management software, supply chain management software, HR management software and Enterprise Resource Planning Software. This is an important finding given that the Small Business Productivity Review has highlighted the importance of digital software packages, including cloud accounting, e-commerce, accounting software and customer relationship management systems amongst others.
- 32 per cent of all smaller businesses think that AI would provide value to their business. This is in contrast to more than half of sole traders (57%) and micro businesses (52%) who disagree.

## Take up of existing Government initiatives

The intellectual property protection system, tax policy, and Government support all play an important role in fostering an innovative ecosystem. At the same time, our evidence demonstrates that the current system is not working as well as it could and will need further reform to enable smaller businesses to become more innovative.

- Despite a rise in the total number of claims for R&D tax credits to 26,255 in 2015-16 (an increase of 19 per cent compared to 2014-15, primarily driven by a rise in the number of SME claims), our research shows that of those who are incorporated and introduced a new to market product innovation, only 27 per cent have qualified for a R&D tax credit and have claimed it.
- Eight per cent of incorporated new to market product innovators qualified for a R&D tax relief but have not claimed it.
- 40 per cent of incorporated new to market product innovators are not aware of any R&D tax relief that is relevant to their business, in contrast to 43 per cent off all incorporated product innovators.
- Of those who have innovated, the most common IP protection that small businesses applied in their business was confidentiality (including non-disclosure agreement) (22%), and copyright (15%). The least likely type of protection is patents (5%). In general, small businesses do not protect their intellectual property and only a few apply for trademarks (11%) and design registration (7%).
- Of those who have engaged in new to market product innovation, eight per cent used patents.
- Only one per cent of innovators financed their innovation through Innovate UK grants.

# RECOMMENDATIONS

**Policy-makers should agree a standard definition of 'innovation' with a much stronger focus on new to firm or intra firm innovation, and on intangibles and other forms of knowledge management.**

Our research has shown a wide variety of definitions amongst policy-makers about what constitutes innovation. At its most narrow, innovation is limited to new to market products (goods and services). Increasingly, there is recognition amongst policy-makers that new to firm or intra firm innovation, which is often described as incremental innovation, is just as important as new to market innovation in improving the productivity of the UK. This could include the introduction of new or significantly changed products or processes to a firm. The importance of 'intangibles' such as knowledge management particularly to innovation in the service sector is increasingly being recognised.

**The term innovation, like that of productivity, should be re-conceptualised for communication with smaller businesses and sole traders. Discussing 'significant improvements made' might be more insightful than the use of the term innovation.**

As with productivity it is essential to find an easy, emotive way to talk about innovation to business owners. The concept of significant business improvement has more resonance with smaller businesses and sole traders than the term 'innovation' which is considered by many smaller businesses a technocratic conceit.

**Improvements should be made to new to market innovation Government support**

- UKRI should be the go-to-agency for smaller firms in all sectors looking to undertake new to market innovation. UKRI should be able to provide advice and support both on the funds they and Innovate UK run, but also more general advice on R&D tax credits and Patent Box Tax Relief.
- The Knowledge Transfer Network scheme must: (a) ensure that the consortia building workshops run by the Knowledge Transfer Network do not become dominated by the 'usual suspect' smaller companiesand; (b) operate an effective referral system between LEPs and local Growth Hubs.
- Government should improve its Industrial Strategy challenge fund design to enable smaller businesses to be able to directly apply for funds. Government needs to incentivise companies to access ISCFs directly, and overcome the hurdle of hiring external third-parties in order to fill out applications to IUK and UKRI. Where smaller businesses are involved in consortia or supply chains of larger businesses applying for the ISCF', the lead bidder must provide evidence of good supply chain practice as part of their bid, including how they propose to support smaller businesses in their supply chain to innovate.
- Government should consider ensuring a floor target i.e. that a minimum proportion of spend to support the four Grand Challenges is set aside for direct spend with smaller businesses.
- Government should look at the Canadian 'super-cluster' model. The Canadian Government has asked various industries to submit applications for an industry vertical 'super-cluster'. Super-cluster funds target contributions from both Government and matching funds from respective industries. The intended goal is to be able to compete globally and create greater commercial opportunity.
- In relation to R&D tax credits; Government should look at how complexity in the system can be reduced for smaller businesses with relatively little administrative capacity and to reduce the reliance of smaller businesses on intermediaries to navigate the tax relief system.

- Government should examine if the Advance Assurance is clearly enough signposted for SMEs and consider providing 'a faster track for R&D' for SMEs, which will incentivise small businesses to plan to undertake R&D.
- Government should improve clarity and understanding of the scope of what is covered through R&D tax credits. This will cover what we term 'new to market innovation for incorporated businesses'. However, smaller businesses need clarity on 'grey areas'. For example, the development of software, if it is unique to a firm and in the fields of science and technology can qualify for R&D expenditure.
- Government should ease the administrative burden on smaller businesses by explaining what constitutes development. Smaller businesses report that time filling in forms on what constitutes development is an opportunity cost. For example, a firm needs to break down the amount of time that an employee spends on development activities. A larger company will most likely have its own R&D department or a designated employee to undertake this work but this will be more challenging for smaller companies for obvious reasons.
- Government should do more to encourage larger companies, in particular those that have already claimed R&D tax credits, to support their own innovative suppliers, where in scope, to make their own claims. FSB is keen to see larger companies work with their supply chain to promote and improve understanding of the SME R&D tax credit, the R&D Expenditure Credit and HMRC's Advance Assurance scheme. The R&D expenditure credit is particularly relevant to supply chains as it can be claimed by smaller businesses that have been subcontracted to do R&D work by a larger company or have received a grant or a subsidy.
- Government must review the Patent Box Tax Relief to ensure it is small business friendly. Evidence suggests that in spite of the benefits of patent box it may be difficult for smaller companies to capitalise upon the benefits of the tax relief given they are likely to lack dedicated R&D and accounting departments. Anecdotal evidence suggests recent changes to applying for the patent box policy tax relief are having a detrimental impact on smaller businesses willingness and ability to take advantage ofwith this intervention. The requirement to show or track R&D expenditure to ensure the amount of IP income that can benefit from the relief is limited according to the proportion of R&D expenditure that the claimant has actually incurred is having a chilling effect. This is largely because of the additional administrative burden placed on smaller businesses. Whilst we understand the policy objective of the nexus approach,[17] the impact of the additional administrative burden on smaller businesses needs to be fully evaluated and mitigated. We are therefore calling for a review of Patent Box tax policy take up by smaller businesses.
- It is essential that strong small business engagement is hardwired into each business case with Catapults learning from best practice across their network.
- FSB is supportive of the recommendations within the Small Business Research Initiative Review to create a central SBRI fund with a five year budget. We believe this should be run from the Cabinet Office and build on the GovTech model. The scope of this should be wider than just that of looking at digital solutions for key public sector problems. To support demand, we are keen to ensure that new small business ministerial champions promote the SBRI both within their respective Departments and at Board level. It is important that any such new central SBRI fund is supported by governance that brings together the key players – including Innovate UK, UKRI more widely, HMT and Cabinet Office to name but a few.

17 The nexus approach, set out in the international tax guidelines, limits the benefit of the Patent Box to the share of R&D expenditure incurred by the claimant to develop the intellectual property asset. These rules do therefore require R&D expenditure to be tracked and traced to each IP asset.

**Government needs to put equal, if not stronger, emphasis on new to firm business improvements in its innovation policy to encourage an increase in the rate of diffusion and penetration of innovation. This includes focusing specifically on improving leadership and management and the adoption of digital technologies.**

- In the UK, successful management training for business owners include the 10,000 small businesses by Goldman Sachs and the ELITE programme run by the London Stock Exchange. These are highly selective programmes that in the main will focus on those businesses that are already scaling up. A relatively new offering is Productivity through People - a 12-month regional productivity programme for SME leaders. Government should continue to support this initiative which is sector agnostic and available to a wider range of smaller businesses over and above those who have already effectively started their scale up journey. However, the cost, time and eligibility criteria attached to these types of programmes, will not make them a feasible option for many smaller business members and therefore additional help and support will be required.
- Universities and business schools should refine their existing small business offer. There is a need for many universities to move engagement from an ad-hoc basis to a more systematic basis, developing a strategy or programme of engagement which can then be more easily marketed to small businesses. Learning would benefit from being 'bite sized' so small businesses can undertake this activity in a flexible way. To support this ambition more could be done to promote The Small Business Charter (SBC) award which gives recognition to business schools that play an effective role in supporting small businesses, local economies and student entrepreneurship. In order to achieve the Small Business Charter award, business schools undergo a rigorous assessment to determine the depth and effectiveness of their business engagement and business support. The effectiveness of the Small Business Charter Growth Voucher is currently being evaluated. It is important to learn lessons about what works and what does not work based on this evaluation.
- Government should work with organisations such as Be The Business to explore how to stimulate the supply and availability of management and training packages for all SMEs businesses. Offerings would need to be tailored according to the size of the business. Whilst some structured management techniques may not be as appropriate for micro businesses as opposed to small businesses, the objective of employee engagement is equally significant. It is therefore essential that the scope of any such initiatives covers micro businesses as well as small and mid-sized businesses.
- Given the importance of leadership and management more generally to smaller businesses, Government should explore whether a tax credit or relief could be put in place to alleviate the opportunity costs attached to small business owners taking time out of their businesses to undertake leadership and management training. It is important that any such tax credit is accessible to all smaller businesses including micro as well as small and mid-sized businesses, and in particular is marketed to those businesses most likely to be located in the long tail.
- Vouchers based on the business growth voucher model could be piloted as part of sector deals focused on sectors which struggle with innovation, the most notable of these being construction. The sector focus should also include those sectors with typically lower pay and tight margins, such as retail and hospitality. The retail sector specifically needs support because technology is rapidly re-shaping the retail workforce. That is why FSB has called upon Government to focus on sector deals for low pay, high employment sectors as well as high tech ones. This focused approach will help to meet the additionality test.

- International models that could be looked at include Israel's Small Business Administration grant for the diffusion of innovation and productivity increases. The SBA has launched a new policy tool to provide a grant for small businesses in the service and retail sectors.[18] This policy is targeting a specific peripheral region in the North of Israel which is considered less productive than the centre of Israel where most businesses are concentrated. The grant is designed to support a 'new to firm' improvement in one of the following types of innovation: process, product, or organisational. If the application is successful, the grant will provide 50 per cent of the total expenditure approved originally in the application, and up to a maximum of about £105,000.
- The Government should look at Germany's Innovation Assistants programme. This programme supports firms in recruiting young academics from universities and business schools. The newly employed assistants are employed primarily in the areas of product development/ product preparation/design. The financial conditions are designed so that in most cases the subsidy (40-50% of the employee's gross salary) is paid for the first two years of employment in the company. The Steinbeis Transfer Network is made up of more than 1,000 enterprises. Steinbeis Enterprises are frequently based at research institutions, in particular universities. The Steinbeis Network comprises around 6,000 experts committed to the practical transfer process between academia and industry. They provide a network of technical professionals whose skills and expertise can be accessed by smaller businesses operating across Germany.
- A judgement needs to be made on whether the focus should be on the costs and benefits of direct funding or whether to look at various tax incentives to achieve change. This could be achieved either through a broadening of the scope of R&D tax credits or through a separate tax incentive / relief. We think the latter is probably preferable.

**Government should support the promotion of digital technologies and Artificial Intelligence (AI), particularly to less tech-orientated sectors and to micro or small businesses and sole traders.**

- Government should encourage firms to modernise and work with digital technologies and experiment with AI. Smaller businesses will need to adapt to AI, in the medium to longer term if they are to successfully compete – both domestically and internationally. Based on the Juergen Maier, review on working smarter, the Government has announced funding for a pilot in the North West to accelerate the development and diffusion of Industrial Digital Technologies through focused support to small and medium-sized enterprises in the UK regions. Whilst this is clearly a step in the right direction for the manufacturing sector, there are other sectors that would also benefit from this focused approach.

**Government must play a critical role in providing co-ordination and stewardship to bring together the many actors involved in the complex and myriad business support landscape. The Government needs to support the penetration of innovation through investing in its diffusion infrastructure.**

- In the future, making tax digital and tech, more generally, could play an important role in targeting small businesses with the appropriate information they need at the right time in their business lifecycle. However, until this technological revolution achieves critical mass, it is essential that work is undertaken with key intermediaries such as accountants and lawyers to support smaller businesses.
- The private sector has an important role to play in this ecosystem. The work being developed by Be The Business – including its benchmarking and programme of peer-to-peer support – offers a new, business-led approach to helping firms improve. The insights generated through their work should also be applied, where possible, to broader public sector interventions. Enabling less productive companies to learn from more productive ones will support the

18 Israeli SBA. Grant for diffusion of innovation in small business in service and retail sectors. 2018, available at https://www.sba.org.il/hb/AidPrograms/Pages/pr49.aspx



CONTENTS

overall diffusion of innovation including technology transfer.

- We are also supportive of interventions by Innovate UK's Knowledge Transfer Network (KTN) to support the diffusion of adoption of new technologies amongst the wider business eco-system. The KTN has good visibility of innovations that can result in helping improve productivity and can help SMEs to understand the benefits of, for example, the '4 Manufacturing' Programme which supports the adoption of digital manufacturing as part of the fourth industrial revolution. The KTN can take a new technology and ensure that smaller businesses customers (effectively part of the market for the new technology) understand the technology and what it can offer. If the smaller business then chooses to adopt the new technology – this plays a critical role in supporting the diffusion and penetration of technology.
- New and existing Government interventions should be promoted through Growth Hubs in various regions across England, and the designated bodies in the devolved nations. However, Government should improve the signposting process undertaken by Growth Hubs.
- Our earlier research Chain Reaction, has shone a light on the importance of supply chains as a lever through which to encourage the diffusion of innovation. Whether in relation to technology transfer or other forms of support, the supply chain has a critical role to play.
- Internationalisation and innovation are associated and Government should join up policy across departments to reflect this. It is a well established fact that countries with greater openness including, in relation to trade, have higher levels of productivity. It is essential to not only adopt but to make the 'no wrong door' policy a reality. The synergies between access to finance, innovation and exporting should be capitalised upon by raising awareness of complementary initiatives whichever door a small business walks through. Exporting grants and vouchers should also be made available to small and micro firms as well as larger ones. This is particularly important in supporting exporting to outside of the EU single market/ customs union.

### Government should offer sector specific support.

- Our evidence suggests there is a particular issue with the construction sector which seems to struggle with innovation. Therefore, we would want to see innovation support for small businesses to be a feature within new sector deals, outlined in clear guidance. We would also want to see a published small business impact assessment for each sector deal, to enable proper scrutiny of the net benefits to smaller businesses.

# THE LANGUAGE OF INNOVATION AND ITS DEFINITION

The UK has been rated as one of the most innovative countries in the world – an 'innovation leader', and is 23 per cent above the EU average.[19] However, the UK's strength in relation to being a leader in new to market innovation (in essence, this covers products – goods and services, introduced to the market before a business's competitors) is not matched by progress in relation to the diffusion of innovation. There is compelling evidence to suggest that it is not that firms are creating less 'new to market' innovations, but rather that this innovation is not being diffused as it has previously – and as a consequence there is less intra-firm innovation.[20] It is the rate of 'innovation diffusion' throughout the rest of the economy that largely determines the overall productivity rate.[21]

The relatively low levels of productivity of many UK firms is a key challenge for policy-makers. The UK's productivity slowdown has been the largest of the G7 economies since the 2008 financial crisis.[22] Innovation, like the term productivity, is not easily understood by many small businesses, especially in the context that many policy-makers use it in. This report explores what innovation means to small businesses, and finds that small businesses find the term 'innovating' confusing.

*'There are problems with defining innovation. Innovation can be a distraction for most small businesses – I think it is more of a mind-set and something you do naturally, rather than set aside time to do.'*

FSB member, business support for start-ups, Wales, sole trader

*We embrace innovation, it is key to the success of any business, because if you don't innovate on a continuous basis your business will go under.'*

FSB member, marketing consultancy, London, sole trader

## The UK Innovation Survey's definition of innovation

The UK Innovation Survey's definition of innovation is based on an EU-wide definition adopted by Eurostat. This definition includes any of the following activities, if they occurred during the survey period:

1. The introduction of a new or significantly improved product (good or service) or process;
2. Engagement in innovation projects not yet complete, scaled back, or abandoned;
3. New and significantly improved forms of organisation, business structures or practices, and marketing concepts or strategies;
4. Investment activities in areas such as internal research and development, training, acquisition of external knowledge or machinery and equipment linked to innovation activities.

A business that has engaged in any of the activities described in points one to three is defined as being '**innovation active'**. A business that has engaged in any of the activities described in points one to four is defined as a '**broader innovator'**. Finally, any businesses that has engaged in the activity described in point three is classed as a '**wider innovator'**.

Policy-makers also often use a standardised definition of innovation: *'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.'*[23]

19 HM Government. Industrial Strategy White Paper: Building a Britain fit for the future. November 2017. Available at https://www.gov.uk/government/publications/industrial-strategy-building-a-britain-fit-for-the-future

20 CBI, From Ostrich to Magpie. November 2017. Available at http://www.cbi.org.uk/insight-and-analysis/from-ostrich-to-magpie/

21 Ibid.

22 Work Foundation, January 2018. Available at http://www.theworkfoundation.com/press_releases/prod-tech-work-anywhere/

23 OECD. The Oslo Manual. Available at https://www.oecd.org/sti/inno/oslomanualguidelinesforcollectingandinterpretinginnovationdata3rdedition.htm

## New to market definition vs. new to firm innovation

A core distinction is between new to firm innovation and new to market innovation. However, innovation is commonly understood as being only new to market. These innovations are brand new practices, products or methods which have never been introduced or implemented before. While critical to growth, most smaller businesses and sole traders do not engage in new to market innovation only.

New to firm innovation can be supported by the **diffusion of an existing innovation to a firm**, meaning that the innovation has already been implemented by other firms, but it is new to the firm.[24] The firm adopts innovation by following what successful firms already do. Hence, "**diffusion of innovation**" is about "established firms implementing productivity-raising technologies"[25] and introducing new leadership, management, HR practices and processes and more.

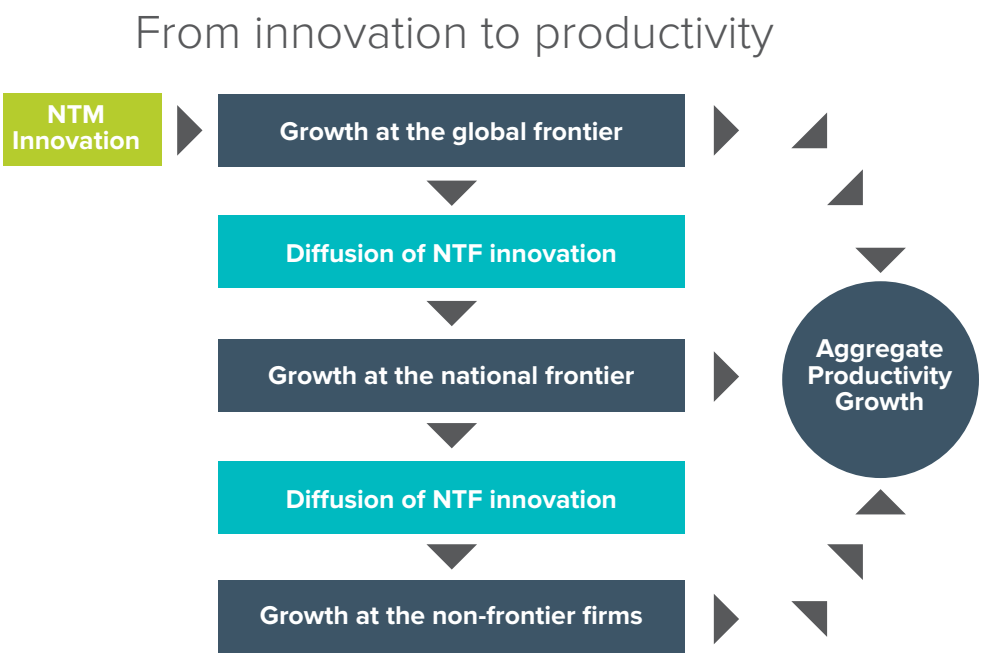
## Incremental vs. radical innovation

When policy-makers consider what innovation means for small businesses, they often use the term 'incremental innovation', which FSB agrees is most relevant to smaller businesses, in contrast to 'disruptive innovation'.

The OECD defines incremental innovation as "an existing product, service, process, organisation or method whose performance has been significantly enhanced or upgraded." Incremental innovation is the dominant form of innovation. The nature of innovation and the rate of technological change greatly differ from sector to sector and across countries and time periods. This is in contrast to radical or disruptive innovation, which has a significant impact on a market and on the economic activity of firms in the market."[26]

As Figure One demonstrates, the level to which different innovative products and practices are diffused across a sector has a key role to play in improving productivity. At the same time, our research demonstrates that there are many barriers to this diffusion which can hinder widespread adoption.

**Figure 1:** Diffusion of innovation and its link to productivity[27]




24 ERC workshop with FSB, March 2018.

25 OECD. The next production revolution. 2017, available at https://read.oecd-ilibrary.org/science-and-technology/the-next-production-revolution_9789264271036-en#page13

26 Innovation Policy Platform. Radical and incremental innovation definitions, available at https://innovationpolicyplatform.org/printpdf/12559

27 ERC. SME growth and productivity: evidence and strategic implications – adapted from the OECD, by Steve Roper and Mark Hart. ERC workshop for FSB policy team, March 2018.

New to market innovation can generally be seen as the driver of growth in firms at the global or national level. Diffusion of those innovations – copying, imitation - result in new to firm innovations which may drive growth in non-frontier firms.

If a small business introduces any innovation, it is most often a 'new to firm' innovation. And this must be looked at more broadly than just 'product' or tangible innovation. There is increasing recognition of the importance of intangibles. This includes investments in design, branding, software development and organisational improvement, e.g. better management practices and processes. Businesses can innovate with their intangibles, including their organisation[28], offering[29] and in their customers' experience.[30]

It is harder to value the worth and impact of these forms of innovations, but they are particularly important in the services sectors where investments in physical capital are less relevant. According to research by IPPR, in some sectors, only 25 per cent of innovation success is derived from technological innovations, while 75 per cent is explained by organisational innovations.[31]

*'Companies achieve competitive advantage through acts of innovation. They approach innovation in its broadest sense, including both new technologies and new ways of doing things. They perceive a new basis for competing or find better means for competing in old ways. Innovation can be manifested in a new product design, a new production process, a new marketing approach, or a new way of conducting training. Much innovation is mundane and incremental, depending more on a cumulation of small insights and advances than on a single, major technological breakthrough. It often involves ideas that are not even "new"— ideas that have been around, but never vigorously pursued. It always involves investments in skill and knowledge.'*

Michael E. Porter (1990). The Competitive Advantage of Nations.
Source: https://hbr.org/1990/03/the-competitive-advantage-of-nations

For small businesses, innovation means driving improvements in how the business works internally or externally, through its products (goods or services), processes, organisational structure or marketing. The recent Behavioural Insights Team study on innovation agrees that innovation is a 'buzzword' and "some SMEs think innovation lacks tangibility as a concept and are unsure how it applies to them".[32]

The study also found that some SMEs have a very broad concept of what innovation is, including having an ethical mission or "being honest about the limitations of technology". Other firms define innovation narrowly about technical improvements and R&D. The differences in terminology can have a significant impact on whether businesses self-identify as having innovated or not. The study found that some innovation-active businesses do not self-identify as innovators, potentially reducing their take-up of schemes labelled as supporting innovation.

28 How they configure their profit model, network, structure, production processes, job design, staff relations and supply chains

29 Product performance, or product system, marketing packaging, pricing, promotion

30 Including service, channel, brand or customer engagement

31 IPPR. Industrial Strategy: Steering Structural Change in the UK Economy: A Commission on Economic Justice Discussion Paper. November 2017. Available at http://respond.gv-c.com/Mail/Click/213?a=9D11267E37B333DE45ED95ACEA599D1E&r=8D5465F47D023C4DF0E28DBC31A2BAA4&v=

32 BIT, Increasing SME investment in R&D and innovation: Insights from qualitative research, December 2017.

*'Product innovation is common knowledge, but other types of innovation are not recognised. We should have a more inclusive approach to innovation. The other types of innovation support product innovation. Many small businesses don't know they are innovating but they do innovate.'*

Chris McDonald, FSB Innovation Chair

By aligning terminology and creating an understandable language, small businesses and Government will be able to understand each other better. Policy interventions will be better designed to encourage smaller businesses to engage with Government programmes, particularly if the Government achieves parity of esteem between its interventions in new to market and new to firm innovation.

# INNOVATORS: CHARACTERISTICS & PRACTICES

It is clear that when policy-makers discuss innovation, small business owners understand the term in a variety of different ways. Our data also demonstrates that many smaller businesses see themselves as innovating across a range of different areas.

In this chapter, the characteristics of those businesses owners who are currently innovating are explored, along with the different ways in which they are introducing innovation within their business.

## Innovation activity

76 per cent of smaller businesses have reported that they have introduced some form of new innovation into their business in the past three years. This figure drops to 63 per cent if the term is more narrowly defined as product or process innovation.

Our research found that of those who have innovated, 84 per cent have introduced a product or process innovation (which could be either new to market or new to firm) over the last three years.

Of those who have innovated, 25 per cent have engaged in new to market product innovation and 95 per cent have adopted a new to firm innovation.

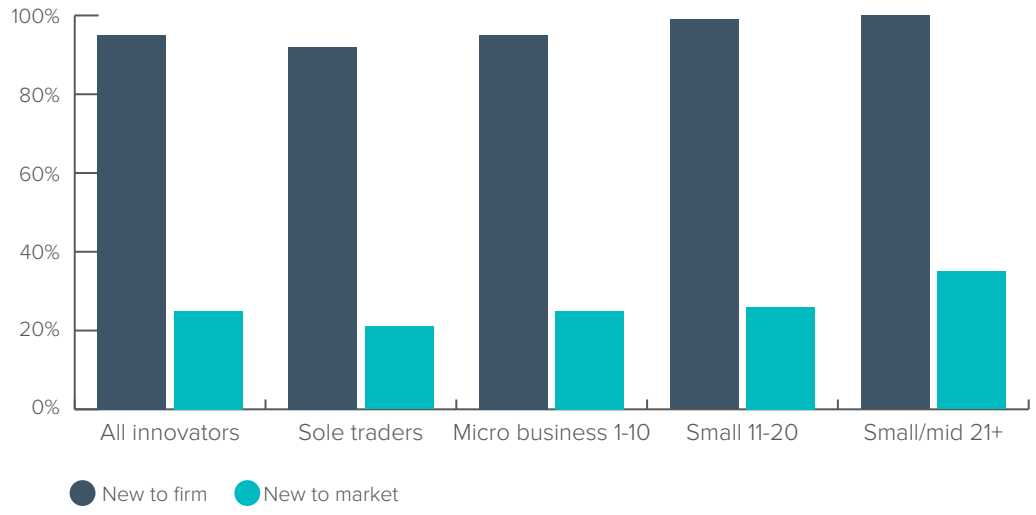
**Table 2.1:** New to firm vs. new to market innovation

| | |
|---|---|
| New to firm innovation | 95% |
| New to market innovation | 25% |

New to market innovations are less common and more challenging to create, especially for a micro business or sole traders. Business owners may often introduce more than one innovation, and this explains why the sum of innovation exceeds 100 per cent. And of course new to market and new to firm innovation, particularly in relation to product innovation, are not mutually exclusive.

The data shows that as business size grows, firms innovate more. Firms with more employees are somewhat more likely to innovate than smaller firms, and micro businesses innovate more than sole traders. This is consistent with LSBS findings, the UK Innovation Survey, and the Eurostat[33].

**Chart One:** New to firm vs. new to market innovation, across size, among innovators




33 Eurostat. Share of enterprises that are innovative, EU-28, 2012–2014 (%). Available at http://ec.europa.eu/eurostat/statistics-explained/index.php?title=Main_Page

Of those small businesses that have innovated, 71 per cent have introduced product innovation, with 36 per cent having introduced process innovation. Of those who innovated, 54 per cent had introduced organisational innovation and 46 per cent have introduced marketing innovation.

**Table 2.2:** Type of innovation that is new to the firm, among innovators only

| Innovators | Total |
|---|---|
| Organisational innovation | 54% |
| Process innovation | 36% |
| Product innovation | 71% |
| Marketing innovation | 46% |

## Sectoral distribution

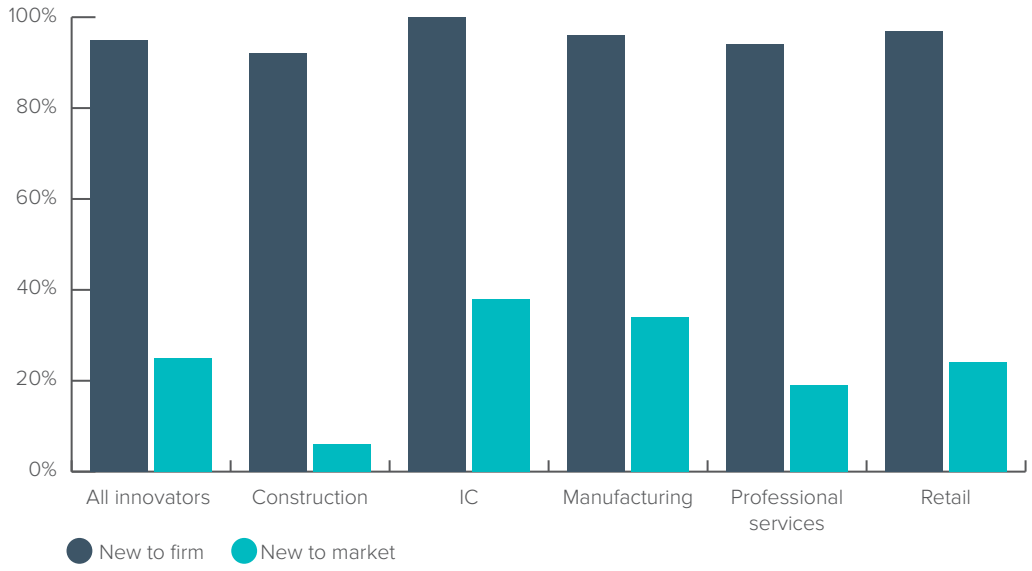
Within the main sectors there was variation in the likelihood that businesses have engaged in innovation activities in the past three years. While this difference is not substantial, there are clear differences between manufacturing and information and communication sectors and the sector average. Of those in manufacturing and IC, 84% have innovated.

**Table 2.3:** Percentage of businesses who innovated, by sector

| Sectors | All respondents |
|---|---|
| All sectors | 76% |
| Manufacturing | 84% |
| Information and communication | 84% |

This chart shows that businesses in the construction sector introduce significantly less new to market product innovation (6%) in comparison to the sector average of 25 per cent.

**Chart Two:** New to market innovation v new to firm, across different sectors



Product innovation in the manufacturing sector is often seen as the archetypal example of innovation. This does not however capture the full range of innovation which the manufacturing sector engages in.

Table 2.4 shows those that have innovated within the manufacturing sector, three quarters of innovators introduced product innovation within the firm (75%), more than half (58%) of innovators in the manufacturing sector have introduced organisational innovation, less than half (42%) have introduced process innovation, and 38 per cent have introduced marketing innovation.

**Table 2.4**: Type of new to firm innovation, among innovators in manufacturing

| Type of innovation | Percentage |
|---|---|
| Product innovation | 75% |
| Organisational innovation | 58% |
| Processes innovation | 42% |
| Marketing innovation | 38% |

*'Innovation is massively important. My risk appetite is huge - I am ready to take risks and experiment with my product and have been since I started the business 44 years ago. We have numerous plans to grow in different areas in the UK. We readily adapt and remain fully in touch with digital technology, and utilise almost all types of technologies. We have applied for patents where applicable.*

*The principle barrier for my business to adopt innovation is a lack of skilled staff. We had eight skilled engineers from Poland and other European countries, but they left the UK in the past year because they felt unwelcome. I am currently running a staff of 12 people and am short of eight.*

*The second barrier is that we do not have financial support at all to mitigate our risk. We financed innovation from our own working capital and our personal investment.'*

FSB member, manufacturer, Bristol, 12 employees

## Method of adoption of innovation

As discussed earlier, the level to which innovation is diffused within a sector, including its supply chains, has key implications for firm and sector level productivity. This means firms can benefit from advances hey have seen elsewhere with less financial or time resources into developing an innovation themselves.

FSB research found that 44 per cent of all innovators self-reported as introducing an innovation themselves, including creating or adopting a new software, service or method.

A minority have adopted innovation from other businesses, either from a supplier (16%) or from another business or competitor (11%). Five per cent adopted it from their employees, and four per cent adopted it from their customers.

*'As you become more specialised, you have to outsource the things you do not know how to do – like accounting or marketing. For the self-employed, it is important to know where your strengths are. That is why I don't spend my time on things that I can outsource and use specialists for.'*

FSB member, translator, exporter, London, sole-trader

**Chart Three:** Adoption of innovation among innovators

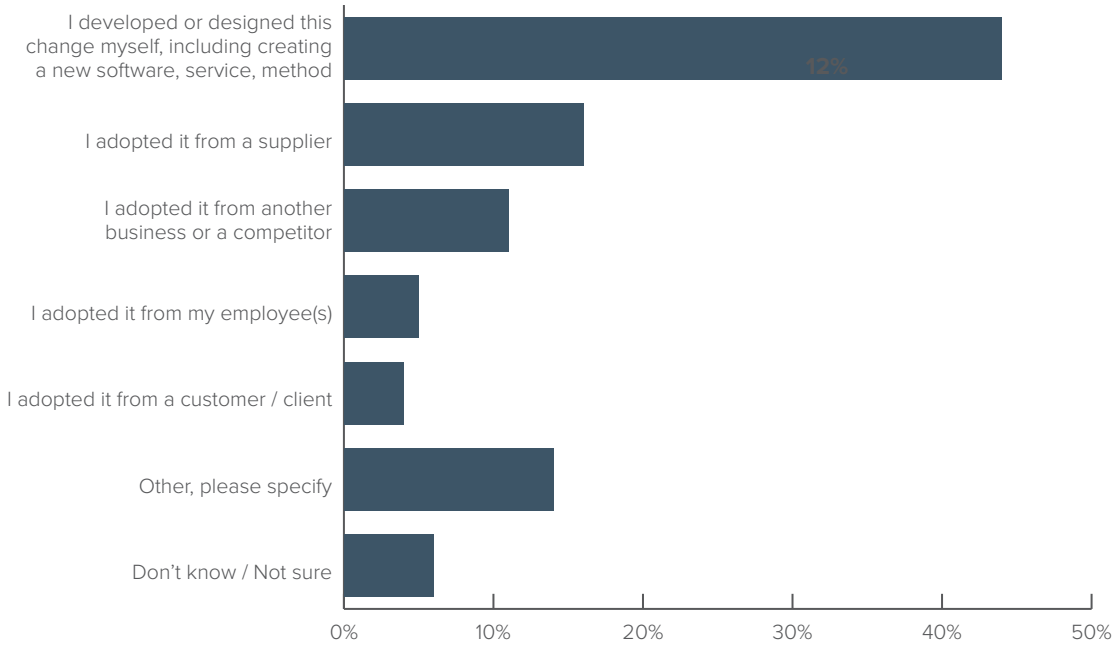



Table 2.5 shows that as business size grows, the level of self-design increases significantly.

This does not, of course, mean that firms are creating their own new to market innovations, but rather they have the perception of identifying a technology and software 'off their own back' and applying it to their firm and likely adapting it in the process into a bespoke solution. The perception of self-design increases with size of employer as they have the staff, time and resources to adapt an innovation to their business.

For sole traders and micro businesses, they are more likely to adopt innovations from others around them. Of those who innovated, 13 per cent of sole traders and 11 per cent of micro businesses have adopted their innovation from another business or a competitor, compared to 8 per cent of firms with 21+ employees. Of those who innovated, 17 per cent of sole traders and 17 per cent of micro businesses have adopted their innovation from a supplier, in comparison to 12 per cent of firms with more employees.

**Table 2.5:** Adoption of innovation and business size, among innovators

| Adoption of innovation | All innovative employers | Sole traders | Micro business 1-10 | Small 11-20 | Small/ mid 21+ |
|---|---|---|---|---|---|
| I developed or designed this change myself, including creating a new software, service, method | 45% | 38% | 44% | 51% | 54% |
| I adopted it from another business or a competitor | 10% | 13% | 11% | 6% | 8% |
| I adopted it from a supplier | 16% | 17% | 17% | 14% | 12% |
| I adopted it from a customer / client | 4% | 3% | 3% | 5% | 4% |
| I adopted it from my employee(s) | 6% | 2% | 6% | 7% | 13% |
| Other, please specify | 13% | 20% | 13% | 16% | 5% |
| Don't know / Not sure | 6% | 7% | 6% | 2% | 6% |

## A false dichotomy: self-design vs adoption

Our evidence indicates that 'self-design' is the most common method of innovating. This does not mean that firms are creating their own new to market innovations - but they have the perception of identifying a method or technology and software 'off their own back' and applying it to their firm and adapting it in the process into a bespoke solution.

If smaller businesses could learn more about what their competitors, suppliers or customers are doing, the adoption of digital technologies could increase. One of the key findings from recent research (focused on micro businesses) is the strong link between the adoption of these digital technologies to improved sales per employee as a measure of productivity. The study has found that the use of cloud based computing leads to an increase of 13.5 per cent in sales per employee after three or more years. Using a CRM adds 18.4 per cent to sales per employee over the same time period, e-commerce adds 7.5 per cent whilst web-based accounting software leads to increases of 11.8 per cent.[34]

Small business innovators' awareness of what their competitors are doing is not low – with 32 per cent being very aware and 43 per cent being slightly aware of what their competitors are doing. However, there is plenty of scope for improvement.

## Diffusion and adoption of innovation

Table 2.6 shows that 86 per cent of innovators who are employers are likely or very likely to introduce a change that their employee suggested. And from our focus groups and semi structured interviews, it is clear that the drive to improve how products and services are supplied to customers is of importance not just to the small business owner but also to their employees.

Table 2.5 shows that while many employers express strong willingness to take up innovations suggested by their employees, only six per cent have actually followed through and adopted an innovation as a result of input from their employees. This suggests that good intentions are not currently being translated into action, perhaps because management practices are not sufficiently strong within an organisation to enable this to occur.

**Table 2.6**: Willingness to adopt innovation from employees' ideas, innovative employers

| Willingness to adopt innovation from employees' ideas | Percentage |
|---|---|
| I am very likely to introduce a change | 36% |
| I am likely to introduce a change | 50% |
| I am unlikely to introduce a change | 2% |
| I am very unlikely to introduce a change | 1% |
| Don't know / Not sure | 12% |

*'I think that the role that employees have is huge, but in most firms innovation often doesn't happen through listening to the employee at the bottom. In our company everyone has a vote. Every Monday morning we always ask our most junior members of staff to tell us how our business could improve. They present a five minute presentation on what could be improved.'*

FSB member, software company, Wales, micro business

34 State of Small Business Britain report, 2018. ERC. Available at https://www.enterpriseresearch.ac.uk/wp-content/uploads/2018/06/SSBB-Report-2018-final.pdf

*'Starting as self-employed, and moving to work with people, I had to learn people skills. It's important to learn from being self-employed before you employ people. I learned to trust my people and to give them the space to innovate. I have limited resources and we go for a much flatter hierarchy to achieve that - everyone is a CEO in the making.*

*We have a lot of innovative practices within the business so that we nurture a creative and innovative environment. The flatness of the organisation allows employees to work directly with me and that has allowed me to attract top talent from university. These young employees want to change the world and I can give them the experience they're looking for in a short time, and I see employees as empowered innovators. This is our recruitment and retention secret.'*

FSB member, Health data software company, Glasgow, 16 employees

## Sole traders and micro businesses and adoption of innovation

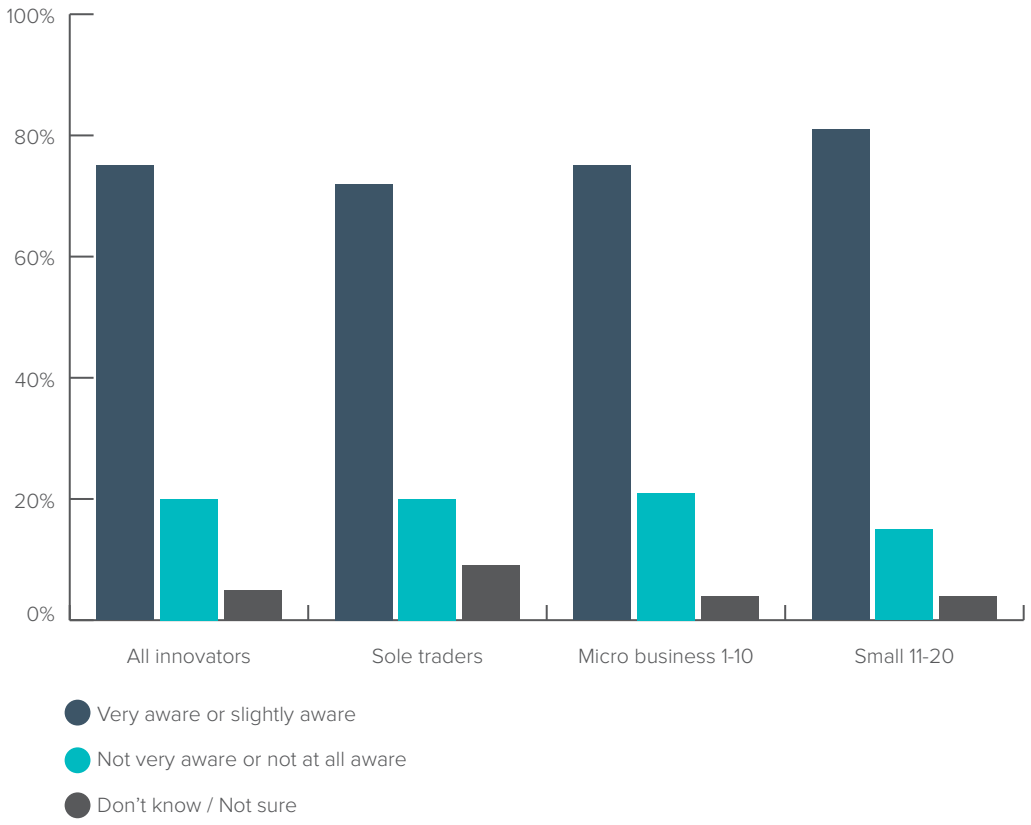
Of those who are sole trader innovators, 38 per cent have self-designed the innovation themselves, and 33 per cent have adopted it from others. Adoption of innovation among the self-employed includes from their suppliers (17%), from another business or a competitor (13%), and from a customer (3%).

**Table 2.7:** Adoption of innovation among innovators who are self employed

| Type of adoption of innovation | Total |
|---|---|
| I developed or designed this change myself, including creating a new software, service, method | 38% |
| I adopted it from a supplier | 17% |
| I adopted it from another business or a competitor | 13% |
| I adopted it from a customer / client | 3% |
| Other, please specify | 20% |
| Don't know / Not sure | 7% |

Competition provides a strong incentive to innovate. The majority of small businesses are aware of what their competitors are doing: 75 per cent are very aware or slightly aware. As business size grows, the level of awareness of competitor activity increases sharply. 72 per cent of sole trader are likely to be very aware of what their competitors are doing and this rises sharply to 81 per cent for those of our small business members with between 11-20 employees.

**Chart Four:** Awareness of competitors' innovation, among innovators




The Behavioural Insights Team (BIT) found in recent qualitative research on innovation that small businesses care about what their competitors are doing.[35]

The small differential between sectors could be explained by the fact that innovation may be harder to see where it is invisible or intangible i.e. connected to internal process or business model improvements.

However, the real outlier is in relation to construction and our findings are further evidence that there is a wider issue with this sector in relation to innovation. There may be specific challenges in this sector, given that only 59% of small businesses are slightly aware or very aware of what their competitors are doing. This could be explained by the fact that the construction sector has a large number of self-employed individuals.[36]

Construction is one of the largest sectors in the UK economy – with a turnover of £370 billion, contributing £138 billion in value added to the UK economy and nine per cent of the total UK workforce. We welcome the recent £420 million joint investment commitment which aims to transform construction productivity by driving the development of new innovative construction materials and techniques which will speed up building time, reduce disruption and ensure the homes, workplaces and public buildings of the future are more energy efficient. However we think that more needs to be done to support more of the activity described in the box below.

*One of our members is a small business in construction in Scotland, who provides services of glazing, and sells products for glazing that are environmentally-friendly. The business developed a new efficient glazing method, while improving one product, and launching a new one that is new to the market over the same period of time.*

35 The Behavioural Insights Team, Increasing SME investment in R&D and innovation: Key insights from qualitative research, December 2017.

36 ONS, Employees and self employed by industry. Available at https://www.ons.gov.uk/employmentandlabourmarket/peopleinwork/employmentandemployeetypes/datasets/employeesandselfemployedbyindustryemp14

**Table 2.8:** Awareness of competitors' innovation, across sectors, among innovators

| | All innovators | Construction | IC | Manufacturing | Professional services | Retail |
|---|---|---|---|---|---|---|
| Very aware or slightly aware | 75% | 59% | 82% | 71% | 73% | 74% |
| Not very aware or not at all aware | 20% | 36% | 17% | 23% | 23% | 18% |
| Don't know / Not sure | 5% | 5% | 2% | 6% | 4% | 8% |

*'In my view, competition is fierce and they requires a small business to respond immediately and innovate. We tried to protect our innovation with patents but they are bringing my business down because it requires too much time and money. Additionally, the risk of telling your idea to others is higher once I apply for a patent because then my competitors could tweak it. Other competitors used our patents and brought their ideas to market more efficiently with more time.'*

Construction, Scotland, micro business

Table 2.9 shows that more than half of members are likely or very likely to innovate due to competition. This is not surprising because according to the LSBS,[37] the most significant obstacle to the success of a business was market competition 51 per cent of small business employers said this was a major obstacle to the success of their business. Innovating to overcome competitive pressures is obviously a core driver of business survival.

When looking at those smaller businesses who have innovated in the past three years, the willingness to introduce a change due to competition increases. 62 per cent of innovators of innovators (62%) are willing to introduce a change to their business if their competitors introduced one. This finding is supported by a qualitative study on innovation in small businesses that was conducted by the Behavioural Insights Team last year.[38]

**Table 2.9:** Willingness to innovate due to competition, among innovators

| Willingness to innovate due to competition | Percentage |
|---|---|
| Likely or very likely to innovate | 62% |
| Unlikely or very unlikely to innovate | 23% |
| Don't know / Not sure | 16% |

37 Small Business Survey 2017. Available at https://www.gov.uk/government/statistics/small-business-survey-2017-panel-report

38 BIT, Increasing SME investment in R&D and innovation: Key insights from qualitative research. Presented to FSB, December 2017.

## The impact of innovation

Our research shows that of those who innovated, close to two thirds (65%) reported that the impact of innovation on sales was positive and generated an increase in sales. 19 per cent of innovators reported that there was no change to their sales. Three per cent of innovators reported that sales actually declined as a result of making an innovation, though it is possible that this decline was due to something other than making the innovation in the first place. We should add the important caveat that sales growth is not a proxy for productivity, which for example could be measured by increased sales growth per employee. However, we are using sales growth as an indicator of the impact of innovation as this is something small businesses are able to give a view on.

The importance of organisational change as an impactful form of 'intra firm' innovation is underlined by our evidence suggesting that of those who innovated, organisational innovation generated the largest impact on sales. Table 2.10 shows that of those who introduced organisational innovation, 76 per cent have increased their sales. Organisational change has been defined as improved methods of organisational structure, work responsibilities and decision making (including a first use of a new system of employee responsibilities, team work and decentralisation, integration or de-integration of teams, education/ training systems). This draws into sharp relief how important effective leadership and management is to delivering impactful change.

**Table 2.10:** Type of innovation and increase in sales, innovators

| | Organisational | Marketing | Process | Product NTF |
|---|---|---|---|---|
| Increased sales by up to 10% | 29% | 29% | 27% | 32% |
| Increased sales by up to 20% | 26% | 22% | 25% | 23% |
| Increased sales by up to 50% | 11% | 9% | 10% | 9% |
| Increased sales by more than 50% | 4% | 4% | 6% | 4% |
| Increased sales by 100% or more | 6% | 5% | 7% | 4% |
| No change to sales | 13% | 13% | 15% | 14% |
| Decreased sales by 10% or less | 1% | 1% | 1% | 1% |
| Decreased sales by 11% or more | 1% | 1% | 1% | 1% |
| Don't know / Not sure | 10% | 16% | 9% | 14% |

Of those who did not invest money to fund their innovation, 60 per cent increased their sales. However, investing money leads to higher increases in sales.

Table 2.11 shows that the more one invests in their innovation, the more likely they are to report an increase in sales. Of those who invested between £10,001 and £25,000, 76 per cent reported an increase in sales, in comparison to those who invested less than £500 (51%). This finding shows that when small businesses have more financial resources to invest, they have better success in introducing innovations and generating positive outcomes on sales.

On the other hand, some innovations may result in failure, hence we see small businesses who invested more than £50K but had no change in sales (21%) or decreased sales or responded they do not know.

**Table 2.11:** Cost of innovation and increased sales, among innovators

| | £0 | Between £1 to £500 | Between £501 to £1,000 | Between £1,001 to £10,000 | Between £10,001 to £25,000 | Between £25,001 to £50,000 | More than £50,001 |
|---|---|---|---|---|---|---|---|
| Increased sales | 60% | 51% | 64% | 68% | 76% | 75% | 79% |

However, we also acknowledge that an innovation and no increase in sales does not necessarily imply failure. The innovation may have been required to stand still in a declining, or competitive market.

## Appetite for Risk

Table 2.12 shows that close to three quarters (71%) of innovators reported that they are willing to experiment with their product, process, organisation or marketing. Their appetite for risk is higher than those who did not innovate in the past three years and do not plan to innovate in the next three years (26%).

Taking risks is integral to business success. A breakdown according to business size shows that sole-traders are less willing to take risks and experiment with their product, service or business process.

If we are to tackle the often referred to 'long tail' of unproductive firms, policy-makers need to find a way of reaching the 24 per cent of business owners who state they are unlikely or very unlikely to take a risk and experiment with their product, service or business process. This is discussed further in a later chapter.

**Table 2.12:** Willingness to take risks across business size, among innovators

| | All | Sole traders | Micro business 1-10 | Small 11-20 |
|---|---|---|---|---|
| Likely or very likely to take a risk | 71% | 66% | 72% | 76% |
| Unlikely or very unlikely to take a risk | 24% | 27% | 24% | 20% |
| Don't know / Not sure | 5% | 7% | 4% | 4% |

Table 2.13 shows that small businesses in specific sectors are more willing to experiment with their product, process, marketing or business model than others. 86 per cent of innovators in the information and communications sector, and 78 per cent of innovators in the manufacturing sector reported that they have appetite for taking risks. This could be explained by the more self-evident and direct potential of digital technology to improve these sectors competitiveness and productivity.

More than two thirds of innovators in wholesale and retail trade (70%) and professional, scientific and technical activities (69%) have an appetite for risk. These are notably lower proportions perhaps because the use of digital technologies to improve their efficiency/ productivity is less obvious.

Innovators in construction are more risk-averse as only 57 per cent said they are likely or very likely to experiment with their business. This could explain the lower levels of innovation which our data has previously demonstrated.

**Table 2.13:** Appetite for risks across sectors, among innovators

| | | Sector | | | | |
|---|---|---|---|---|---|---|
| | Total | Manufacturing | Construction | Wholesale and retail trade | Information and communication | Professional, scientific and technical activities |
| Appetite for risk | 71% | 78% | 57% | 70% | 86% | 69% |
| Risk averse | 24% | 19% | 35% | 26% | 14% | 28% |
| Don't know / Not sure | 5% | 3% | 8% | 3% | 0% | 3% |

## Reasons to innovate

FSB research identified various drivers for innovating. Close to half of innovative small businesses sought to increase turnover and accelerate their business growth (46%). Other reasons are to increase market share (35%), improve reputation, credibility and profile (31%), increase range of goods or services (31%) and improve efficiency or productivity (31%).

Twenty per cent of small businesses that engaged in innovation made improvements in order to respond to customers' requests, and 19 per cent innovated in order to increase their business resilience. Further reasons to innovate among small businesses are to improve quality of products (goods/services) (18%) and reduce costs (14%).

**Table 2.14:** Reasons to innovate, among innovators

| Reasons | Total |
|---|---|
| To increase turnover and grow | 46% |
| To gain access to more customers | 35% |
| To improve reputation, credibility and profile | 31% |
| To increase range of goods or services | 31% |
| To improve efficiency / productivity | 31% |
| To respond to customers' requests | 20% |
| To increase business resilience | 19% |
| To improve quality of goods or services | 18% |
| To reduce costs | 14% |
| To improve leadership / management capability and capacity in my business | 12% |
| To meet regulatory requirements | 10% |
| To provide opportunities for other collaborations | 5% |
| To develop business rights / technology | 4% |

Table 2.15 illustrates the difference across sectors. Increasing turnover is a significant driver for innovation in IC (57%), professional and scientific (51%) and retail (48%) sectors compared to the drivers for innovation in manufacturing (39%) or construction (29%).

Improving reputation, credibility and profile is an important driver for innovators in all sectors, but this is particularly important for the retail sector where 42% of innovators are motivated by this goal.

**Table 2.15**: Reasons for innovating across sectors, among innovators

| | All innovators | Manufacturing | IC | Construction | Retail | Professional services |
|---|---|---|---|---|---|---|
| To increase turnover and grow | 46% | 39% | 57% | 29% | 48% | 51% |
| To increase range of goods or services | 31% | 34% | 27% | 33% | 43% | 23% |
| To improve efficiency / productivity | 31% | 45% | 27% | 29% | 18% | 31% |
| To reduce costs | 14% | 15% | 9% | 22% | 13% | 11% |
| To improve quality of goods or services | 18% | 19% | 17% | 12% | 17% | 16% |
| To gain access to more customers | 35% | 24% | 43% | 27% | 43% | 26% |
| To improve reputation, credibility and profile | 31% | 23% | 24% | 28% | 42% | 30% |
| To increase business resilience | 19% | 22% | 12% | 20% | 19% | 22% |
| To improve leadership / management capability and capacity in my business | 12% | 14% | 14% | 12% | 10% | 16% |
| To provide opportunities for other collaborations | 5% | 3% | 3% | 6% | 4% | 8% |
| To develop business rights / technology | 4% | 4% | 11% | 6% | 1% | 6% |
| To respond to customers' requests | 20% | 31% | 21% | 22% | 16% | 13% |
| To meet regulatory requirements | 10% | 10% | 7% | 11% | 5% | 15% |
| Other, please specify | 3% | 1% | 4% | 8% | 1% | 3% |
| Don't know / Not sure | 0% | 0% | 2% | 0% | 0% | 0% |

## Barriers to innovation

Many small business innovators reported that there are several barriers holding them back from innovating.

Access to finance is known to be a major determinant for business growth among small businesses. The House of Common's First Report on Access to Finance[39] and the British Business Bank's (BBB) Annual report (2016),[40] identified negative trends affecting the UK small business finance markets. For example, BBB reports a declining loan application rate from 11 per cent in 2012, to six per cent in 2016; only 38 per cent of smaller businesses still went directly to their main bank when first identifying a financing need, and only around one per cent of SMEs have used equity finance between 2012-2015. It should be noted that VC and PE financing are associated with technological innovations.

The 2017 Business Finance Survey on SMEs[41] found that half of all micro businesses (48%) sought external finance, almost two thirds (65%) of small businesses employing 10-49 employees sought external finance, and a large majority of medium-sized businesses (77%) reported the same need. Of course external finance does not necessarily equate to growth finance.

Table 2.16 shows that small business innovators report that lack of access to internal finance (16%) and external finance (14%) as one of the barriers to introducing innovation.

**Table 2.16:** Lack of access to finance, innovators in the past three years

| Lack of access to finance | Total |
|---|---|
| I lack access to internal finance | 16% |
| I lack access to external finance | 14% |

Whether internal or external finance, access to financial resources remains a problem for small businesses because many of them are poor in cash and resources.

As illustrated in Table 2.17, only eight per cent of innovators incurred no cost at all. Circa two thirds (67%) of innovators invested up to £10,000 to innovate in the past three years, with more than a third (37%) of them spending up to £1,000.

**Table 2.17:** Cost of innovation, among innovators

| Innovators | Percentage |
|---|---|
| £0 | 8% |
| Between £1 to £1,000 | 29% |
| Between £1,001 to £10,000 | 30% |
| Between £10,001 to £25,000 | 13% |
| Between £25,001 to £50,000 | 5% |
| More than £50,001 | 7% |
| Don't know / Not sure | 7% |

39 House of Commons' First Report on Access to Finance. October 2016. Available at https://publications.parliament.uk/pa/cm200607/cmselect/cmcomm/685/68519.htm

40 British Business Bank's Annual report (2016) https://british-business-bank.co.uk/wp-content/uploads/2016/07/British-Business-Bank_Annual_Report_2016.pdf

41 The 2017 Business Finance Survey: SMEs. BBB. Available at https://british-business-bank.co.uk/wp-content/uploads/2018/02/2017-Business-Finance-Survey-FINAL-SMEs.pdf

## Government support to overcome the lack of access to finance

Clearly, many businesses are not able to access private sector finance to support their innovation.[42] The Government has a role to play in helping small businesses to reduce the risk attached to innovation, and incentivise them to drive improvements despite previous failure. Improving the availability of private sector finance would allow businesses to have the opportunity to apply for credit in order to drive further innovation.

It is clear from our research that the majority of small businesses have not used government support to finance their innovation activity.[43] This suggests that the existing system of government support for innovation is not working as well as it could do, and forces businesses to rely on private sector finance to support the implementation of innovation. Only seven per cent of innovators said they did not need Government support because they had access to private sector finance.

Only 10 per cent of innovators accessed Government support to finance innovation. The vast majority of innovating businesses (90%) have not accessed Government support to finance their innovation, and only one per cent have used Innovate UK grants.

**Table 2.18:** Challenges with Government support to finance innovation, innovators

| Government support | Percentage |
|---|---|
| Innovate UK grants | 1% |
| Small Business Research Initiative | 0% |
| Industrial strategy challenge fund | 0% |
| Invest NI or other NI innovation support | 0% |
| Scottish Enterprise or other Scottish innovation support | 0% |
| Business Wales or Development Bank for Wales | 0% |
| Local authority | 1% |
| I have not accessed Government support to finance this change | 90% |
| Other, please specify | 8% |

*'We don't use banks or government funding. We used venture capital and seed funding. For innovation we generally look to engage with customers who may be sponsoring that.*

*We may be looking at developing a new product and then create and curate the development results and deliver a report. Many people say that it's too expensive to innovate but the counter argument is that you can't afford not to innovate because your business may go bust.'*

Software company, Wales, 10 employees

42 SMEs remained more likely to meet the definition of a Permanent non-borrower (47%) than to be using external finance (38%). SME Finance Monitor, Q4, 2017. Available at https://www.bdrc-group.com/wp-content/uploads/2018/03/RES_BDRC_SME_Finance_Monitor_Q4_2017.pdf

43 This does not mean they have not accessed non-financial business support.

Table 2.19 shows that of those innovators who did not access Government financial support, almost half (46%) said the reason for this was that they did not know of any support. This finding reveals a key challenge in signposting smaller businesses to support currently offered. Twenty-two per cent of innovators responded that they found Government support not relevant to them. Eighteen per cent of innovators said they didn't access funding for their innovation because making applications for Government support is too slow, bureaucratic or time consuming. Fifteen per cent of innovators think that their business is too small, and twelve per cent of innovative small businesses thought that financial support by Government is too difficult or complicated. Only seven per cent of innovators said they did not need Government support because they had access to private sector finance.

*'Nobody knows about the funding options. Particularly, smaller firms don't know and don't have the time to go hunting for them.'*

Leadership and change consultancy, Glasgow, sole trader

**Table 2.19:** Reasons for not accessing Government support to finance innovation, among innovators

| | Total |
|---|---|
| I don't know of any support | 46% |
| Support is too slow, bureaucratic or time consuming | 18% |
| My business is too small | 15% |
| It is too difficult or complicated | 12% |
| I did not need it, I had access to private sector finance | 7% |
| Not aligned to business needs | 6% |
| Other, please specify | 6% |
| Not relevant to me | 22% |

## Planning for the future and growth aspirations

Over three quarters (79%) of innovators (compared to 71% of all respondents) expect to grow their business in the next 12 months. Having growth ambitions is linked to more innovation and R&D, but firms differ in their concept of growth (e.g. turnover, employment, profits). Innovation-active firms also have other motivations, such as 'being better'.[44]

Table 2.20 shows that 14 per cent of innovators expect to remain about the same size over the next year.

**Table 2.20:** Growth intentions, among innovators

| Growth intentions | Percentage |
|---|---|
| To grow in terms of turnover / sales 1-9% per annum | 29% |
| To grow in terms of turnover / sales 10-19% per annum | 27% |
| To grow in terms of turnover / sales more than 20% per annum | 23% |
| To remain about the same size | 14% |
| To downsize / consolidate the business | 3% |
| Close business | 1% |
| Sell / hand on the business | 3% |
| None of these | 1% |

Table 2.21 illustrates that of those who have innovated, business owners with fewer years in business have higher growth expectations. The rate of growth expected by business owners in their first five years is higher. However, growth intentions are evident across all businesses, but they are more moderate.

**Table 2.21:** Expectations to grow and years in business, among innovators

| | Years in business 0-4 | Years in business 5-9 | Years in business 10-19 | Years in business 20-49 |
|---|---|---|---|---|
| To grow in terms of turnover / sales 1-9% per annum | 19% | 25% | 33% | 32% |
| To grow in terms of turnover / sales 10-19% per annum | 34% | 22% | 26% | 27% |
| To grow in terms of turnover / sales more than 20% per annum | 40% | 35% | 22% | 14% |
| To remain about the same size | 3% | 13% | 11% | 17% |
| To downsize / consolidate the business | 0% | 1% | 2% | 4% |
| Close business | 1% | 1% | 1% | 1% |
| Sell / hand on the business | 1% | 2% | 4% | 4% |
| None of these | 2% | 1% | 1% | 2% |

44 BIT, Increasing SME investment in R&D and innovation: Key insights from qualitative research. Presented to FSB, December 2017.

The ERC has published research indicating that instead of seeing high growth as linear it is in fact episodic. Therefore the key question is **when** to support rather than **who** to support. If high growth is indeed episodic, FSB data suggests that any decision on the type of support provided to small businesses should factor in the number of years they have been in business.

*'There's never been a desire to scale. I am an accidental entrepreneur after being sacked. It took me longer than other companies, I didn't have much of a plan. We launched a new app in March and we developed it though it's slightly removed from our commercial needs. There was an opportunity to deliver a modern service to capture information and we see it as a marketing opportunity. We need to be seen in the digital space.'*

Parliamentary monitoring consultancy, Glasgow, 17 employees

*'I have a growth plan for my business for the next 12-18 months but it has to be very adaptable and flexible. My business is mostly dependent on maintaining relationships with clients and our reputation.'*

Leadership and management consultancy, Glasgow, sole trader

## Trade and internationalisation

Internationalisation is linked to innovation and both are important drivers of growth among small businesses. In turn, these have the potential to boost UK productivity.[45]

Table 2.22 shows that when asked 'what percentage of this growth do you expect to come from growth in your international sales', almost two thirds (64%) of innovators do not think that their future growth will come from international sales. 32 per cent of innovators responded that they expected at least some of their future growth to come from their international sales.[46] 10 per cent of innovators expect more than 20 per cent of their future growth to come from international sales.

**Table 2.22:** Intentions to grow international sales and years in business, among innovators

| Intention to grow international sales | Total |
|---|---|
| 0% | 64% |
| 1 - 20% | 22% |
| 21 - 40% | 3% |
| 41 - 60% | 2% |
| 61 - 80% | 2% |
| 81 - 99% | 1% |
| 100% | 2% |
| Don't know / Not sure | 4% |

45 Goldman Sachs. Unlocking UK Productivity – Internationalisation and Innovation in SMEs. Available at http://www.goldmansachs.com/citizenship/10000-small-businesses/UK/news-and-events/gew-2015-f/unlocking-uk-productivity.pdf

46 FSB. Destination Export. July 2016. The research found that one in five exports, and that the proportion of small businesses currently exporting is matched by those that would consider exporting. Available at https://www.fsb.org.uk/docs/default-source/Publications/reports/fsb-destination-export-report-2016.pdf

Table 2.23 shows that around a fifth (21%) of innovators currently export (compared to 18% of all small businesses), and 11 per cent of innovators have exported in the past. 49 per cent of innovators (in comparison to 54 per cent of all small businesses) report that exporting is not relevant or feasible for their business. Nine per cent of innovators who have exported in the past and would consider doing this again in the future

**Table 2.23:** Export ambitions, among innovators

| Exporting status | Innovators |
|---|---|
| I currently export | 21% |
| I have exported in the past and would consider doing this again in the future | 9% |
| I have exported in the past but would not consider doing this again in the future | 2% |
| I have never exported but am starting to explore the possibility / feasibility to export | 2% |
| I have never exported but would consider exporting in the future | 7% |
| I have never exported and would not consider exporting in the future | 7% |
| Exporting is not relevant / feasible for my business | 49% |
| Other, please specify | 2% |
| Don't know / Not sure | 1% |

*'We have never received any support, either financial nor technical. We sell abroad because the market, sector and solutions draw us abroad. We have plans for the future but the cost incurred through suppliers due to Brexit make it all very tough as our overseas competitors have seen their currency strengthen and buy supplies at lowers costs than the UK.'*

Manufacturing, Bristol, 12 employees

*'I wanted to sell to the far-east, but it was very expensive to launch because I had to pay lots of advisors. I understood that money is critical. It's difficult to sell overseas, it's not just about questions of distribution, or how to price your product but also about being intimate with understanding how things work in a new market. It's important to have the expertise of how to sell to this market, when and how you speak to clients or advisors. There's a range of things you need to know when you export, such as how do you handshake or which location you choose for a meeting. There are many unknowns. I understood that my business is too young, too delicate to go overseas. It's easier to do it as close to home as possible.'*

Construction, Glasgow, 10 employees

*'We are a small software company designing software using Microsoft SharePoint systems. Most of our sales are done using technology through Skype meetings, so that they see our computer. We only met half of our clients because we used technology to expand our business.*

*We got support from Glasgow council, trade mission to the Middle East, and they have taken us to trade internationally. We've got a site in Nigeria, Oslo, the USA and Ireland. We are able to trade everywhere in the world and the time zone difference sometimes works to our benefit. We were curious, and when we developed our partnership with the US partner we understood we can internationalise quite rapidly.*

*It all started from making a business deal in the US to help us grow with a trade partner. Then we considered further markets and at the same time, we were approached by Scottish Enterprise (SE) 12 months ago and we looked at that concept, but haven't thought about internationalising until then. We prepared for a trade mission and then we went through a six month process in which we learned how to make contacts, and SDI (Scottish Development International), which is part of the SE International Innovation doing trade in that particular market in Dubai and Abu Dhabi which also gave us entrance to Saudi Arabia.*

*It also allowed me to meet and interact with other Scottish-based businesses who were on the trade mission. Before the trade mission, we had our own preparation and many meetings with companies in the Middle East to plan for it. Just before that we got £5,000 to make it to market because we had engineers to send to America and that helped in internationalisation. Then, we've built a three year programme, which included a strategy for our management processes, and financing. We are on pipeline, and we got help from SE for that too. There is actually a Scottish office in the Middle East and it helps to expand our network and meet people locally.'*

Software company, Glasgow, 20 employees

# CONSIDERERS: CHARACTERISTICS & PRACTICES

Innovation depends on two factors: 1) the intention to improve one's business, and 2) to proactively embrace the change that may follow. Introducing change in a business is "an unnatural act, particularly in successful companies; powerful forces are at work to avoid and defeat it."[47]

Change, even when positive, is still unnatural because it will transform existing standards and management controls. The same author found that "successful companies tend to develop a bias for predictability and stability; they work on defending what they have. Change is tempered by the fear that there is much to lose."[48]

FSB identified two groups considering whether to innovate in their business. The first is the group of small businesses who have not innovated in the past three years, but are considering whether to innovate in the upcoming three years.

Our data shows 11 per cent of small businesses fall into this category.

The needs of this group should be analysed and addressed when designing any innovation policy intervention. In many ways, these businesses represent the most important group for the Government to focus on if it wishes to boost innovation in the wider economy – they are mentally prepared and willing to make innovations, but have not yet done so.

This group should be supported by Government, which recently invested £5.6m to support smaller firms adopt modern management practices and simple digital technologies through two new pilot programmes delivered by 'Be the Business'.[49]

The other important group are those businesses which have innovated in the past three years, and are considering whether to introduce further innovations in the next three years.

Our evidence shows that there are a range of different factors which can delay a business from innovating, which are set out within this chapter. In many ways, these businesses represent the low hanging fruit for the Government in terms of improving innovation and productivity – with the right encouragement and support, these businesses are the most likely to start innovating in the near future.

Table 3.1 shows most considerers (91%) are thinking about introducing a new to firm innovation. Ten per cent of considerers are pondering whether to introduce a product innovation that is new to the market. These options are clearly not mutually exclusive. This leads to a conclusion that most innovation that is pursued by considerers is new to firm, and Government should target these business populations.

**Table 3.1:** Type of innovation, among considerers who have not innovated

| Type of innovation | Percentage |
|---|---|
| New to firm innovation | 91% |
| New to market (product) innovation | 10% |

47 M. Porter, The Competitive Advantage of Nations. HBR 1990. Available at https://hbr.org/1990/03/the-competitive-advantage-of-nations
48 Ibid
49 Chancellor speech, May 2018. Available at https://www.gov.uk/government/speeches/chancellor-speech-cbi-annual-dinner-2018

## Type of innovation considered

Table 3.2 shows that of those who are considering innovating in the next three years, 45 per cent may introduce product innovation, more than a third (37%) may introduce marketing innovation, similarly (36%) may introduce organisational innovation, and only 16 per cent may introduce process innovation.

**Table 3.2:** Type of new to firm innovation, among considerers who have not innovated

| Type of innovation | Percentage |
|---|---|
| Organisational innovation | 36% |
| Product innovation | 45% |
| Process innovation | 16% |
| Marketing innovation | 37% |

Of those who are considerers, 10 per cent are thinking about introducing new to market innovations.

*We always try to improve, we change our menu on a regular basis, and try out new products, aiming to get ahead of the competition. Sometimes people would come in to tell us about new things. Around Christmas time you would get artisan product makers who would like you to stock their things. Our suppliers are also quite innovative and they will always try to keep us up to date, partly to ensure we remain with them.*

Bakery and restaurant, Downpatrick, NI, micro business

Technology is rapidly re-shaping the retail workforce and research on retail and innovation provides a better understanding on the nature of innovation among retailers. FSB has called on Government to focus on sector deals for low pay, high employment sectors as well as high tech and high growth sectors

*'Even if you work in retail, you can develop a new platform such as developing e-commerce for doing your own logistics.'*

Digital Health, data management and software, Glasgow, 16 employees

## Growth and future plans

Growth for small businesses requires owners to employ their strategic thinking and planning skills, and to embrace the business challenges of the future. This is not an easy task, and many small businesses have the intention to grow, but not the resources.

Over half of considerers (57%) aspire to grow in the next 12 months. Table 3.3 shows that, in terms of sales and turnover, 29 per cent of considerers aspire to grow one to nine per cent per annum, 14 per cent aspire to grow 10-19 per cent per annum and 14 per cent more than 20 per cent per annum. 28 per cent plan to remain about the same size.

**Table 3.3:** Growth aspirations of considerers over the next 12 months considered

| Growth aspirations of considerers | Percentage |
|---|---|
| To grow in terms of turnover / sales 1-9% per annum | 29% |
| To grow in terms of turnover / sales 10-19% per annum | 14% |
| To grow in terms of turnover / sales more than 20% per annum | 14% |
| To remain about the same size | 28% |
| To downsize / consolidate the business | 3% |
| Close business | 4% |
| Sell / hand on the business | 8% |
| None of these | 2% |

### Exporting

Table 3.4 shows that 18 per cent of considerers expected some growth to come from an increase in their international sales, while 73 per cent of considerers do not expect their growth to come from this source. 10 per cent reported they don't know and this group could potentially be influenced to grow international sales.

**Table 3.4:** International growth aspirations of considerers over the next 12 months, considerers

| International growth aspirations of considerers | Percentage |
|---|---|
| 0% | 73% |
| 1-20% | 14% |
| 21 - 40% | 1% |
| 41 – 60% | 2% |
| 61-80% | 1% |
| 81-99% | 0% |
| 100% | 0% |
| Don't know/ Not sure | 10% |

Table 3.5 shows that two thirds (66%) of considerers report that exporting is not relevant or feasible for their business. Only six per cent of considerers currently export.

Of those who consider innovating, 14 per cent also consider exporting. DIT should target these businesses through the new export strategy.

**Table 3.5:** Considerer's export status

| Export status | Percentage |
|---|---|
| I currently export | 6% |
| I have exported in the past and would consider doing this again in the future | 7% |
| I have exported in the past but would not consider doing this again in the future | 1% |
| I have never exported but am starting to explore the possibility / feasibility to export | 2% |
| I have never exported but would consider exporting in the future | 5% |
| I have never exported and would not consider exporting in the future | 9% |
| Exporting is not relevant / feasible for my business | 66% |

## Barriers to innovation

There are a range of different factors which can stop a business from innovating. This section of the report looks at some of these barriers.

43 per cent of considerers report that lack of time is the key barrier to introducing innovation in their business. Over a third of considerers (37%) lack staff or skilled employees. 27 per cent of considerers found innovation challenging and responded they cannot decide whether it is worth the effort. Almost a quarter of considerers (23%) reported they are concerned about regulations, and 15 per cent are concerned with a lack of external financial resources. Nine per cent mentioned their fear it will be too big a change for their firms.

**Table 3.6:** Barriers to innovation, among considerers

| Barriers to innovation | Percentage |
|---|---|
| I do not find the time | 43% |
| I lack staff or skilled employees | 37% |
| I cannot decide whether it is worth the effort | 27% |
| I am worried about regulations | 23% |
| I lack access to external finance | 15% |
| I lack access to internal finance | 13% |
| I am worried it will be too big a change for my company | 9% |
| None of the above | 9% |
| I lack external collaborators | 8% |
| I am worried about my competitors | 6% |
| I am worried my data might get lost / stolen / damaged | 4% |

*'My business has specific challenges as a retailer. We're selling a collection of historic and home souvenirs. I am also a licensed seller of Harry Potter merchandise. My business is 10 years old and the intention was always to scale it up. I have two branches in Scotland and one in Hong Kong. I have a strategy to take it into China and across Asia. Traditional retail is currently in a crisis.*

*I have had several innovation projects:*

- *Implementing Electronic Point of Sales (EPS). My team is growing fast and I need improved processes. I cannot grow at all without this system. I bought it a year ago but because of a lack of resources I have yet to implement it.*
- *I'm trying to build an online presence and just appointed a web developer but affordability hindered it in the past. The funding for independent retail does not exist. The support infrastructure is not innovative in itself and we need to look at more traditional sectors. Certain sectors receive all the support, and retail is not included most often.*
- *I need management accounts and tried to implement a process to update all the accounts but it's really hard. On top of that, I commission artists to produce items such as a mug, and then sell it as white label. This requires more than just organic growth, because I don't have enough resources.*

*Innovation is absolutely critical to my existing business and its future. I need better processes and systems but I cannot double my staff to take on all the roles that I need to fill. I am at a critical point grappling with'a number of projects, but they all rely on time-management and prioritising how to grow, and how to outsource to consultants.*

*In Hong Kong, we have better growth than in the UK because there is a more entrepreneurial spirit amongst everyone, and a willingness to work together. We need this frame of mind in the UK.*

*Our business has unique challenges because all my staff focus on customer service and sales. Both my wife and I worked in retail before and we saw that as a noble profession. Our staff are young ranging from 17 to 20+, also my staff are 90% female. We are focused on retention and in retail we have huge cost pressures. I am trying to create an environment where everyone feels good about coming to work. I bite my tongue quite a lot, but it's just about building a team because I have sites trading seven days a week.*

*I try to allocate tasks. It's an issue which I'm trying to work on, make everyone feel valued. I would like to offer my employees more training, and as the business grows I will be able to offer more jobs. It's about growth scale and affordability. I need to generate the sales in order to expand the business.'*

Retail, exporter, Glasgow, 10 employees

## Lack of time

Time is one of the most valuable assets that a business owner has. It is considered to be the largest barrier to innovation and that its scarcity hinders business owners from making business improvements. Business owners tend to be focused on the day to day operations of their businesses without having the capacity to make longer term plans, including decisions about how best to improve their business operations or diversify the products on offer.

> *'I had to free up my time to sustain business growth, and now I rely on my staff more than before.'*
>
> Software company, Glasgow, 20 employees

Government should be conscious of the time it takes small businesses to comply with taxation and regulation, and minimise time consuming reporting to a minimum. In doing so, they could free up capacity for business owners to take a longer term view about their business and where innovating would have the most beneficial impact.

> *'I have the ideas and the ambition to innovate, and I even purchased an IT system a year ago but I cannot find the time to implement it.'*
>
> Retail, Glasgow, 10 employees

### *How could business support help considerers to overcome the time barrier?*

From interviews with FSB members, we identified that accessing appropriate business support is a challenge because it takes time to become familiar with the different support mechanisms available. The referral system between local growth hubs in England and the Enterprise Europe Network and Knowledge Transfer Network (KTN) funded by Innovate UK could be improved.

Small businesses are invited to participate in KTN consortium building workshops,[50] which gives them an opportunity to provide inputs into consultations or make an impact on how a competition will be designed.[51] KTN takes a sectoral rather than regional approach. It is important that it is not just dominated by smaller companies within individual sectors who are the usual suspects.

### *Business support through LEPS and Growth Hubs in England*

The Government has set up 39 local Growth Hubs across England[52] which are designed with small businesses in mind and are often the best local source of information for companies that don't know where to start from.

The interaction between LEPs and local Growth Hubs and the EEN is key and would benefit from clearer guidance on when a referral to EEN would become appropriate, and vice versa. From the focus groups we held with members, we often heard that the quality of service varies from one LEP or Growth Hub to another.

FSB research on the future of EU funding post-Brexit[53] found that only 10 per cent of small business have used LEPs, eight per cent used local authorities and seven per cent have accessed support through Growth Hubs. Growth Hubs could be more useful by way of reducing time and better signposting small businesses and providing support to all small businesses in their regions.

50 Some calls are open for single applicants who are SMEs, some through a consortium.
51 Phone interview with Delina Evans, KTN, May, 2018.
52 Business support in the devolved nations is detailed in appendix I.
53 FSB. Reformed Business Funding. May 2017. Available at https://www.fsb.org.uk/docs/default-source/fsb-org-uk/reformed-business-funding.pdf

*'I don't have the time to train people to use a new technology so I often partner with another company. It depends on the product, but at the end of the road I want a happy customer so I will partner with others if that will work for me.'*

Software company, London, 5 employees

## Lack of adequately skilled staff

Forty-one per cent of small businesses reported that a lack of adequately trained staff was a barrier holding back innovation. This barrier is a well-known challenge for small businesses. Inadequate demand for skills is one of the 'intra firm' reasons for low productivity in many smaller British firms. This barrier is thoroughly discussed in recent FSB research.[54]

## Challenges in decision-making

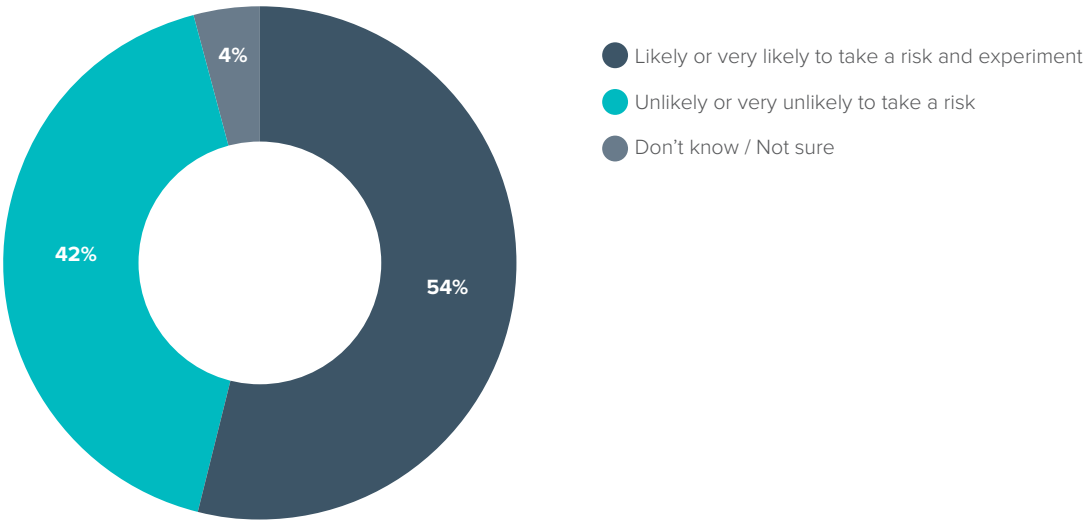
For most small business owners, their business is their sole source of income, and represents a significant financial and emotional investment. 27 per cent of considerers cannot decide whether introducing innovation is worth the effort. By definition the outcome of innovation is often uncertain and there are more factors in play beyond conducting a clear cost-benefit analysis. And considers may not have enough information to make the decision, which may be linked to their risk appetite and time limitations.

Making changes to a business which may appear to be working sufficiently well to produce a sustainable income can represent a significant risk to business owners, and it can be hard to assess whether making a change will be worth it. Investing in a new IT system or product, or introducing a new way of working, can often be disruptive, without generating immediate, or immediately recognisable, benefits to the owner. As a result, it can be hard for business owners to carry out a rational cost-benefit analysis of whether to invest the time and resources into introducing and implementing a new form of innovation.

## Appetite for risk

Chart Five shows that over half (54%) of considerers have a risk appetite and are likely or very likely to take a risk and experiment with their product, service or business process. 42 per cent of considerers responded they are unlikely or very unlikely to take a risk and experiment with their product, service or business process.

**Chart Five:** Risk appetite among considerers




54 FSB. Learning the Ropes. December 2017. Available at https://www.fsb.org.uk/docs/default-source/fsb-org-uk/skills-and-training-report.pdf?sfvrsn=0

*'Maintaining confidence to innovate after experiencing a failure is a barrier, and it doesn't matter how experienced you are. Business owners are confident individuals, but the real challenge is to maintain confidence over time. After you tried something and it doesn't work you have disgruntled employees, a void of money that is not coming in, and now there's a need to innovate again but it's a challenge. I need to learn from my failure. Most people are risk averse. The more data you have and the more evidence you have the better. That's the biggest challenge – to maintain confidence and positivity.'*

Software company, Wales, nine employees

*'It is relatively important for us to take risks – owning a small business is a gamble in itself.'*

Bakery and restaurant, Downpatrick, NI, micro business

*'We take calculated risks after checking market conditions and acceptance levels amongst peers. We plan through identifying needs and drawing up a plan to approach the market. We supply products to venues so World Cups, Olympics and large events are perfect for us and help us create our plans. I find planning helpful, but the barrier to grow and sell overseas is that a lot of companies don't believe in their own ability and remain indecisive whether or not to innovate. In Northern Ireland, we have about 150 companies who are exporting or keen to export and there's a problem that firms do not share enough with peers on how good they are. There is a human tendency that you don't want to tell others how good you are. From my experience, there's no point in going in to innovate half-hearted. I've been involved with selling overseas for 30 years and I am trying to learn from seasoned professionals in my network. The difficulty with exporting is that overcoming legal or late payments in new markets is difficult so the more information you have on the market, and the more planning you can do (market, competitors and learn from their activity) – the better you are prepared.'*

Environment solar products, Northern Ireland, 9 employees

## Concerns with regulation

Twenty-three per cent of considerers who have not innovated previously reported they are worried about regulation.

In previous FSB research on regulation, we identified various types of innovation that may have an effect on regulation.[55] Previous FSB research shows that small businesses think the current regulatory framework is too burdensome, with two thirds of small businesses stating that the burden of regulation outweighs its benefits.

55 FSB. Regulation returned. July 2017. Available at https://www.fsb.org.uk/docs/default-source/fsb-org-uk/fsb-regulation-returned-report.pdf?sfvrsn=0

# NON-CONSIDERERS: CHARACTERISTICS & PRACTICES

Thirteen per cent of members do not plan to make changes to their business in the next three years, and have not innovated in the past three years. This group represents a relatively small, but critical, population that Government needs to understand in order to design policy interventions to help change their mind-set. Doing so will help to boost their productivity.

The UK has a longstanding productivity gap compared with international competitors, and in 2016, output per hour worked in the UK was 16.3 per cent below the average for the rest of the G7 advanced economies. Some UK businesses at the bottom of the distribution have zero or negative levels of productivity, which occur when costs are higher than sales and will often occur in businesses that are new or about to exit the market.[56] There has been a decline in the number of businesses with zero or negative productivity since 2003, indicating that such businesses generally exit the market swiftly or improve their productivity.

The Behavioural Insights Team (BIT) qualitative study on innovation in small business found that ambition is not necessarily sufficient for innovation. "Ambitious non-innovation-active businesses are often held back by other barriers, such as lack of understanding of how to turn ambitions into reality."[57]

Chart Six shows that around two thirds (67%) of non-considerers are very aware or slightly aware of developments that their competitors are making to their products or services.

**Chart Six**: Awareness of developments that competitors are making to their products or services, among non-considerers

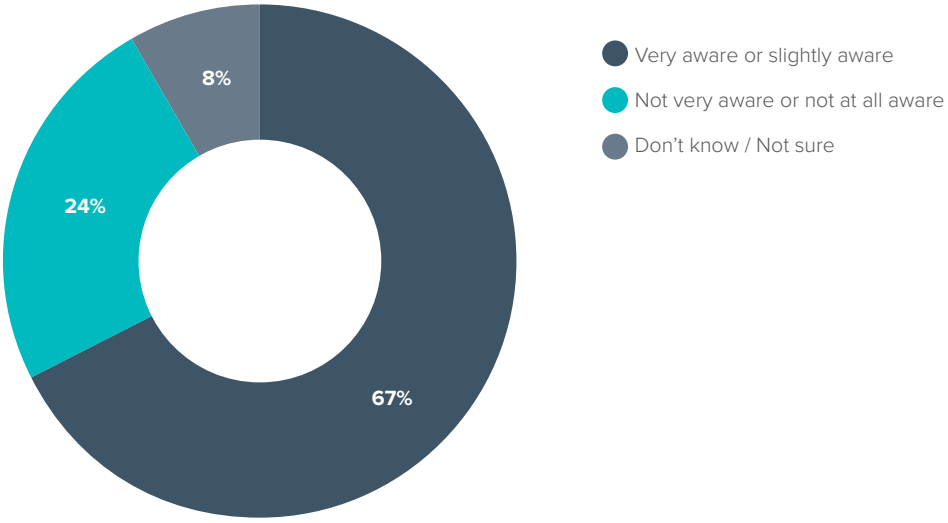



Table 4.1 shows that competition matters less to non-considerers. When asked 'if your competitors would introduce a change to their business process, product, service or goods, how likely are you to consider changing / improving yours?' more than half (55%) of non-considerers reported they are unlikely or very unlikely to introduce a change.

**Table 4.1:** Likelihood to innovate

| Likelihood to innovate | Percentage |
|---|---|
| Very likely or likely | 31% |
| Unlikely or very unlikely | 55% |
| Don't know / Not sure | 14% |

56 Business Productivity Review, BEIS. May 2018. Available at https://www.gov.uk/government/consultations/business-productivity-review-call-for-evidence
57 BIT, Increasing SME investment in R&D and innovation: Key insights from qualitative research. Presented to FSB, December 2017.

*'Scope for innovation is limited – we can't really change how we lead a horse to a field. There is no realistic way of using IT in a stable-yard apart from back-office work such as website enhancement, marketing & customer communication.'*

18 years, 4 full-time employees, South Gloucestershire

Table 4.2 shows that non-considerers, if they are employers, state they are willing to listen to their employees' suggested ideas. When asked 'if you have employees, how likely are you to consider introducing a change that they suggested?' almost half (48%) of non-considerers responded they are likely or very likely to introduce a change that their employees suggested.

**Table 4.2:** Willingness to innovate due to employees' suggestion, among non-considerers

| Willingness to innovate due to employees' suggestion | Percentage |
|---|---|
| Likely or very likely | 48% |
| Unlikely or very unlikely | 6% |
| Don't know / Not sure | 8% |
| I do not have employees | 38% |

## Growth

Table 4.3 shows that over a third (39%) of non-considerers aspire to grow over the next 12 months, and 36 per cent have the aspiration to remain about the same size. If a non-considerer has any intention to grow, it is most likely to be at one to nine per cent per annum growth in terms of turnover or sales.

**Table 4.3:** Growth aspirations of non-considerers over the next 12 months, non-considerers and non-innovators

| Growth aspirations of Non-Considerers | Percentage |
|---|---|
| To grow in terms of turnover / sales 1-9% per annum | 25% |
| To grow in terms of turnover / sales 10-19% per annum | 10% |
| To grow in terms of turnover / sales more than 20% per annum | 4% |
| To remain about the same size | 36% |
| To downsize / consolidate the business | 9% |
| Close business | 6% |
| Sell / hand on the business | 6% |
| None of these | 4% |

Table 4.4 shows that majority of non-considerers (75%) do not aspire to grow their international sales. Only 15 per cent of non-considerers plan to sell overseas.

**Table 4.4:** International growth aspirations of Non-Considerers over the next 12 months

| International growth aspirations of Non-Considerers | Percentage |
|---|---|
| 0% | 75% |
| 1-20% | 10% |
| 21-40% | 1% |
| 41-60% | 1% |
| 61-80% | 1% |
| 81-99% | 0% |
| 100% | 2% |
| Don't know/ Not sure | 10% |

Table 4.5 shows that the majority (71%) of non-considerers think that exporting is not relevant or feasible for their business, and only 10 per cent of non-considerers currently export.

**Table 4.5:** Non-Considerers' status of exporting

| | Percentage |
|---|---|
| I currently export | 10% |
| I have exported in the past and would consider doing this again in the future | 2% |
| I have exported in the past but would not consider doing this again in the future | 2% |
| I have never exported but am starting to explore the possibility / feasibility to export | 0% |
| I have never exported but would consider exporting in the future | 1% |
| I have never exported and would not consider exporting in the future | 9% |
| Exporting is not relevant / feasible for my business | 71% |
| Other, please specify | 2% |
| Don't know / Not sure | 1% |

## Risk appetite

The level of risk aversion of the decision-maker affects whether projects go ahead. Our study found that when observing non-considerers' appetite for risk, table 4.6 shows that only around a quarter (26%) of non-considerers are likely or very likely to take risks and experiment with their product, service or business process.

Two-thirds of non-considerers (66%) are risk-averse and are unlikely or very unlikely to take risks and experiment with their business product, service, or business process.

**Table 4.6:** Risk aversion among non-considerers

| Appetite for risk | Percentage |
|---|---|
| I am likely or very likely to take a risk and experiment with my product, service or business process | 26% |
| I am unlikely or very unlikely to take a risk and experiment with my product, service or business process | 66% |
| Don't know / Not sure | 8% |

# ADDRESSING THE UK'S LOW PRODUCTIVITY

This chapter looks at some key innovations that firms could implement, along with some of the challenges stopping them from doing so. This chapter also looks at how collaboration with universities could foster better management skills.

While there are many different innovative practices and products which an individual firm could incorporate into their business to improve productivity, this report will focus on two issues:

- leadership and management practices
- adoption of digital technologies, digital skills and artificial intelligence (AI)

Compared to our economic competitors, British firms require more labour and resource to produce the same quantity of goods. As shown earlier, innovation and productivity are linked.

## Leadership and management practices

There is a large and growing body of evidence that suggests that better management practices are associated with higher productivity.[58] Better management practices within small businesses are strongly associated with higher firm-level productivity, profitability and survival.[59]

> *'A by-product of improving reputation and credibility is to improve leadership or management capability.'*
>
> Innovation committee member

## Leadership and management current practices

An ONS survey found that good management practices are highest among specific types of firms[60]:

- Larger rather than smaller firms
- Not family-owned
- Multinationals rather than domestic
- Services rather than goods

There is a body of evidence that shows that differences in the way that businesses are managed is the main factor explaining large and persistent differences in firm-level productivity performance.[61]

In comparison to other countries, the UK performs particularly poorly on management quality.[62] It is widely acknowledged that the UK has a greater proportion of businesses with weaker management and fewer well-managed firms. Family-run firms tend to have weaker management than other types of firms and are more prevalent in the UK than the US and other OECD countries.

The research compared the impact of different management practices with other explanations of business performance, including R&D, information technology (IT) expenditures, and workers' skill levels. This research found that management techniques explained 18 per cent of any difference.

58 Business Productivity Review, BEIS. May 2018. Available at https://www.gov.uk/government/consultations/business-productivity-review-call-for-evidence

59 IPPR. Industrial Strategy: Steering Structural Change in the UK Economy: A Commission on Economic Justice Discussion Paper. November 2017. Available at http://respond.gv-c.com/Mail/Click/213?a=9D11267E37B333DE45ED95ACEA599D1E&r=8D5465F47D023C4DF0E28DBC31A2BAA4&v

60 ONS. The UK Management and Expectations Survey: First Results, RES Annual Conference 2018. Available at https://www.slideshare.net/statisticsONS/the-uk-management-and-expectations-survey-first-results

61 IPPR. Industrial Strategy: Steering Structural Change in the UK Economy: A Commission on Economic Justice Discussion Paper. November 2017. Available at http://respond.gv-c.com/Mail/Click/213?a=9D11267E37B333DE45ED95ACEA599D1E&r=8D5465F47D023C4DF0E28DBC31A2BAA4&v

62 Ibid.

By contrast, R&D accounts for 17 per cent; employee skills, 11 per cent; and IT spending, eight per cent.[63] In other words, management matters more than the most common explanations for differing levels of business performance.[64] According to this research, firms that tended to adopt better management practices were:

- Those in more competitive industries
- Had hired college graduates and benefited from proximity near universities
- Were located near a successful large new entrant improved practices, probably because it allows local companies to learn about best practices from leading firms.

*"Management is operating reliably and efficiently.... Management is a set of well-known processes, like planning, budgeting, structuring jobs, staffing jobs, measuring performance and problem-solving, which help an organization to predictably do what it knows how to do well."*

John P. Kotter, Harvard Business Review: Management Is (Still) Not Leadership
Available at https://hbr.org/2013/01/management-is-still-not-leadership

## Micro businesses

Those that run micro businesses said that training their staff and developing their own management skills, experience and best practices are challenging activities, even for seasoned business owners.

*'In my team I have one salesperson and she told me she's interested in joining our senior leadership. I'm very keen that she becomes a manager. But I told her that we first need to prove the business model and she is the only salesperson I've got. So unless she can prove that the model works we cannot employ more employees and promote her to become a manager. We have a weakness in planning ahead because future planning is tough, and it is impossible to plot for someone's future career development when they constantly need to prove their value.'*

Software company, Wales, nine employees

*'We work with 600 partners and are always looking to empower people as volunteers and employees, we're constantly searching for talented people and we're building and nurturing talent all the time.*

*'So whenever we have good people we're trying to help them build their talent and up skill. On the other hand, you train people and they move on and it's good for your industry but not that good for your business.'*

Construction, Wales, micro business, five employees

Through focus groups and interviews on innovation in practice, FSB found that business owners did not think they have the time or capacity to gain professional management training.

63 Harvard Business Review. Good Management Predicts a Firm's Success Better Than IT, R&D, or Even Employee Skills, Good Management Predicts a Firm's Success Better Than IT, R&D, or Even Employee Skills. April 2017. Available at https://hbr.org/2017/04/good-management-predicts-a-firms-success-better-than-it-rd-or-even-employee-skills?referral=03759&cm_vc=rr_item_page.bottom

64 Ibid.

### Small businesses employing 10 to 20 staff

*'We've scaled up from 10 to 20 employees recently. I had to bring in training to my staff because I don't think I'm giving them enough leadership. My staff are very good at innovating with the client base, but less in process innovation within the business and this is where I bring the ideas.*

*'The decision to get training for my staff came through a conversation I had with Scottish Enterprise (SE), where we discussed our HR gaps. SE came up with a solution to bring professional training and provided the funding for it.'*

*'I did not participate in the training myself but equally I tried to think innovatively and to surround myself with the right people because I don't think I'll be able to learn everything. I need to surround myself with good people so that I'm able to lead.'*

FSB member, Software Company, Glasgow, 20 employees

In some sectors, business owners believe that training must be in-house, and not through external support.

*'I promoted two managers and provide management training myself. It's partly in-house but they all have diplomas. When we bring them in we provide year-by-year training through a bottom-up process. We don't send them to external training as most training is not suitable for manufacturers. It's difficult for a small company to know how to cope besides doing it yourself.*

*'I'll be interested in official training but every time I deal with universities I find it irrelevant to my business.'*

FSB member, Manufacturing, Exporter, Bristol, 12 employees

Previous FSB research on leadership and management has found that most business owners update their skills each year but prioritise business strategy. FSB research found that just under a quarter (23%) of small businesses believe that leadership and management practices are the most important skills for future growth. If Government aspires to improve management practices, there needs to be a stronger emphasis on raising awareness as to why it matters for the small business owner who is poor in time and financial resources to gain formal management training.

*'The UK policy discussion around work quality considers good work as a key lever to improve the productivity of employees.*

*'There is a significant body of evidence that suggests greater uptake of progressive people management (high-performance working) practices that increase employee participation and involvement in decision-making can both enhance job quality and boost firm performance. For example, the presence of these practices is positively associated with profits, sales and profitability, while employees report higher job satisfaction, motivation, involvement and commitment and greater opportunities for innovation and creativity, alongside lower staff turnover (Department for Business, Innovation and Skills 2012).'*

Source: The road to Good Work, CIPD, available at https://www.cipd.co.uk/Images/road-to-good-work-discussion-paper_tcm18-40232.pdf

*'In an ever-faster-moving world, leadership is increasingly needed from more and more people, no matter where they are in a hierarchy. The notion that a few extraordinary people at the top can provide all the leadership needed today is ridiculous, and it's a recipe for failure.'*

John P. Kotter, Harvard Business Review: Management Is (Still) Not Leadership

Many business owners find existing terminology confusing and hard to understand. It will be useful to engage with business schools to identify leadership practices that are applicable to business owners.

Using existing 'touchpoints' – places where small businesses typically go for information and business support – to promote these messages will be useful. Growth Hubs and Local Enterprise Partnership (LEPs) would be obvious places at which to inform small firms about the benefits of engagement. These touchpoints should also include business groups, such as FSB, as well as start-up incubators and providers of shared workspaces. Small businesses also need to be encouraged to share their views on how they would like to engage with universities.

*'Leadership is associated with taking an organisation into the future, finding opportunities that are coming at it faster and faster and successfully exploiting those opportunities. Leadership is about vision, about people buying in, about empowerment and, most of all, about producing useful change. Leadership is not about attributes, it's about behaviour.'*

John P. Kotter, Harvard Business Review: Management Is (Still) Not Leadership

*'We were established 15 years ago. We had our weak time in the recession and we really struggled and we've picked up well since. We employ 100 people and most of them on apprenticeships.*

*'Our industry is so competitive and highly regulated so if we don't introduce innovation, like the new software we launched, we will be out of business. As the company is growing with more sites, we are working to maintain good communication with staff and getting messages out in the six sites we have.*

*'The recession was a big wake up call for us. Six competing nurseries closed down next to us because they couldn't change and no longer became sustainable. There is a shortage of nurseries in Wales so it is not that they closed down because of the nursery industry. It was just a tough period for parents to finance their childcare. We innovated in our service delivery, and we changed our schedule to offer flexi hours for parents. This enabled parents to pay less for demanding less. Innovation is what saved us and kept us going.*

*'We decided to apply digital technologies to almost everything we do. At that time it was a huge task to encourage all staff to use our software, and we also did little things like going from paper invoicing to email. Our staff were fearful of receiving email payslips, and some even claimed they do not have email addresses despite having a profile on Facebook. We decided to adopt digital technologies because we spent a lot of money on printing and our staff were reluctant at first, but we made sure that we communicated our messages well.'*

Childcare provider, Wales, 100 employees

Management and leadership training is key to improving the rate of diffusion of innovation and reducing the productivity gap. It is vital for business owners specifically. SMEs in the UK are less likely to use formal management and leadership practices than larger firms, even though they have demonstrable benefits for those who use them, helping firms to grow and increasing their productivity. The returns are most apparent for those SMEs that invest in human resource management practices, such as training and performance-related pay, and those that set formal performance targets.[65]

However, the reality on the ground shows much more needs to be done, as shown from our 'Learning the Ropes' report. While the UK has a number of top-tier business schools, business education and management training are not offered at anything like the scale found in many comparable countries.[66] The problem is particularly acute in the middle management tiers where there are few qualifications that command the respect of employers.

In the UK, a successful management training for business owners is the 10,000 Small Businesses programme by Goldman Sachs.[67] A relatively new scheme Productivity through People is a 12-month regional productivity programme for SME leaders. Initially launched by BAE Systems and the University of Lancaster in January 2017, participants undertake a series of master-classes, led by the leading business school faculty and industrial visits to some of the UK's leading businesses, alongside tailored mentoring. Programmes are currently underway in Lancaster, Bath and Glasgow, and a national roll-out is in development for 2019.[68]

## Management and leadership and engagement with universities and business schools

Universities and business schools already play a key role in promoting leadership and management skills among the small business community, but there is more to be done.

Business schools may find that marketing themselves as business support providers with a reduced price for micro and small business employers, as opposed to simply academic institutions, may make them more accessible and relevant to business owners. This will become increasingly important as more solutions for supporting small businesses are being designed around the idea of business schools taking on a delivery role.

Through focus groups, FSB found that demand for acquiring self-management skills is low among sole traders, and training for business owners and employed managers varies. Collaboration between employers and universities has a key role to play, both in providing a supply of highly skilled people and to improve their own management skills.

Leadership is essential and should be nurtured across businesses from all sizes. Leadership skills are about mastering five key pillars – define purpose, leverage your strengths, influence people, empower others and enable change. Successful leadership is about acting and thinking like a leader, activating your best self and unlocking potential in others.[69]

Increasingly, employers and universities around the UK are developing mutually beneficial arrangements. Facilitating work placements for students and working to create alternative pathways and opportunities for people to develop relevant and valuable higher-level skills can lead to improved competitiveness and productivity for the businesses involved and enable them to create better ways of attracting new talent. It can also boost student employability. Therefore, collaboration needs to be a higher priority for employers and universities.

65 NIESR. The Impact of Management Practices on SME Performance. Bryson. A. & Forth. J. NIESR Discussion Paper No. 488. Available at https://www.niesr.ac.uk/sites/default/files/publications/DP488_0.pdf

66 AIM and EBK Research. UK Business Schools: Historical Contexts and Future Scenarios. Available at https://www.researchgate.net/profile/Kathrin_Moeslein/publication/240616360_UK_Business_Schools_Historical_Contexts_and_Future_Scenarios_Summary_Report_from_an_EBKAIM_Management_Research_Forum/links/004635295f241b7816000000/UK-Business-Schools-Historical-Contexts-and-Future-Scenarios-Summary-Report-from-an-EBK-AIM-Management-Research-Forum.pdf

67 Goldman Sachs. 10,000 small businesses. Available at http://www.goldmansachs.com/citizenship/10000-small-businesses/UK/registration/index.html

68 Be The Business. British business leaders announce further plans to boost firm-level productivity at Bank of England. April 2018. https://www.bethebusiness.com/2018/04/british-business-leaders-announce-further-plans-to-boost-firm-level-productivity-at-bank-of-england/

69 London Business School. Essentials of leadership. May 2018. Available at https://www.london.edu/programmes/executive-education/topic/leadership/essentials-of-leadership

FSB wants to work with universities to help create and promote opportunities for collaboration that promote management skills and practices for all small businesses. This aspiration is encouraged by a briefing paper by Universities UK, who stated:

*"Universities are central to driving inclusive economic growth locally, regionally and nationally; improving productivity as part of the Industrial Strategy; and strengthening international trade and diplomatic relationships across Europe and the wider world."*[70]

As laid out in the Industrial Strategy, the focus should be on addressing the 'long tail' of lower productivity – on smaller and less productive firms. FSB is keen to encourage SME engagement with universities to create business innovation and support opportunities.

Our research shows that the majority of small businesses do not engage with universities for various reasons, including lack of time and resources. Many small businesses are unaware of the possibility of engaging with universities, culminating in small businesses finding universities inaccessible.

Anecdotally, this view is shared by FSB's local and regional representatives, who report that many small businesses do not engage with universities. However, where engagement has taken place between universities and smaller businesses, on the whole, universities have reported it to have been a positive experience:

- FSB's research found that over 75 per cent of universities surveyed rated their experience of collaboration with smaller businesses as good or very good, with only seven per cent rating it as poor.
- FSB research found that most small businesses have not conducted R&D on a product. However, this activity was the most cited form (78%) from the different types of engagement possible by universities. Universities that were likely to collaborate with industry, such as those with a business school, identified R&D as the most accessible way to engage with small businesses.
- Student recruitment was one of the highest areas of collaboration (76%), which is on a par with supporting student enterprise, including incubators and project hubs (71%).

Universities should refine their small business offer. There is a need for many universities to move engagement from an ad-hoc to a more systematic basis, developing a strategy or programme of engagement which can then be more easily marketed to small businesses. Universities are complex institutions akin to large corporations that have diverse focuses, interests and influences within them. Therefore, having a clear offer for smaller businesses is extremely important, as they typically have very limited time for investigating such opportunities.

## Training and skills

Previous FSB research found that on-the-job training has been offered to staff in 70 per cent of businesses, and undertaken by 62 per cent of business owners during the last 12 months. However, a quarter (24%) of businesses have not provided any training for their staff in the last year. Also, a quarter (27%) of business owners have not undertaken training for themselves in the last year.

Issues related to time, resource and cost, are the most common barriers to training, with a quarter (25%) of business owners citing 'busyness of staff'. Three-quarters of sole traders (75%) and almost half (49%) of micro businesses have neither a training plan nor budget. If we want to improve the ways in which labour is utilised this needs to change. More specifically, only 18 per cent of staff and 17 per cent of business owners have undertaken training in leadership and management.

Our recent research finds that 25 per cent of small businesses do not consider digital skills to be important to the growth of their business. This percentage is too high given the importance of the adoption or diffusion digital technologies.

70 Universities UK: How can the government ensure universities are best placed to maximise their contribution to a successful and global UK post-EU exit, March 2018. Available at http://www.universitiesuk.ac.uk/policy-and-analysis/reports/Documents/2018/brexit-briefing-march-18.pdf

## Slow adoption of digital technologies

If more small businesses adopted digital technologies and made greater investment in skills, the UK's productivity would grow significantly. The challenge in improving adoption of digital technologies is well known, and research by McKinsey Global Institute found that large firms usually are early adopters of innovative technology while smaller firms are more reluctant to be first movers.[71]

We believe that further policy interventions by Government are needed to increase the adoption of digital technologies. The data we present here will allow a more accurate discussion about what adoption of digital technologies means for all types of small businesses, including sole traders and micro businesses.

Our research shows that in the past three years, more than half of small businesses have used online banking (59%), paid for goods or services via BACS (55%), and half have a company website (51%). Less than half of small businesses have used cloud services (40%), online data storage or back-up (37%), and File Transfer Protocol (FTP) (e.g. Dropbox) (33%). Twenty-nine per cent have adopted a bespoke software or applications.

**Table 5.1** Adoption of digital technologies, all members

| Adoption of digital technologies | Percentage |
|---|---|
| Online banking | 59% |
| Paying for goods and services via BACS | 55% |
| Using HMRC online services or tools | 54% |
| Searching the internet | 51% |
| Company website | 51% |
| Cloud services | 40% |
| Online data storage or back-up | 37% |
| File Transfer Protocol or FTP (e.g. Dropbox) | 33% |
| Online advertising | 33% |
| Remote log-in to your work PC or laptop | 31% |
| Taking payment for goods and services online | 30% |
| Using bespoke software or applications | 29% |
| Other online marketing | 29% |
| Taking orders for goods and services online | 28% |
| Online video conferencing | 18% |
| VoIP | 17% |
| VPN | 12% |
| My business does not use any of these technologies or services | 4% |

71 McKinsey Global Institute: Artificial Intelligence: The next digital frontier? Available at https://www.mckinsey.com/~/media/McKinsey/Industries/Advanced%20Electronics/Our%20Insights/How%20artificial%20intelligence%20can%20deliver%20real%20value%20to%20companies/MGI-Artificial-Intelligence-Discussion-paper.ashx

*'Today I wouldn't have been able to run the business if it were not fully digital. We are using cloud services, we have Key Performance Indicators (KPIs) for each client, and we use Quickbooks. I had a lot of hesitations at first because I don't like computers, and I think I'm reactive. Before I used QuickBooks I was scared of innovation.'*

Accounting firm, London, five employees

*'We have to constantly see what's going on in the market and bring in new technologies. Innovation is key for us, it's a matter of trial and error. Large companies are always catching up with innovation, but as a small company we have to be out there and embrace new technologies, because we have to deliver for our customers.'*

Software Company, London, five employees

Chart Seven shows that on average, small businesses in IC adopt digital technologies faster than other sectors: of those in the IC sectors, those with a company website (63%), using online banking (62%), searching the internet (55%), using bespoke software or applications (41%), working with online data storage or back-up (70%), using cloud services (72%), online advertising (38%), and other online marketing services (42%).

**Chart Seven:** Adoption of digital technologies, across sectors

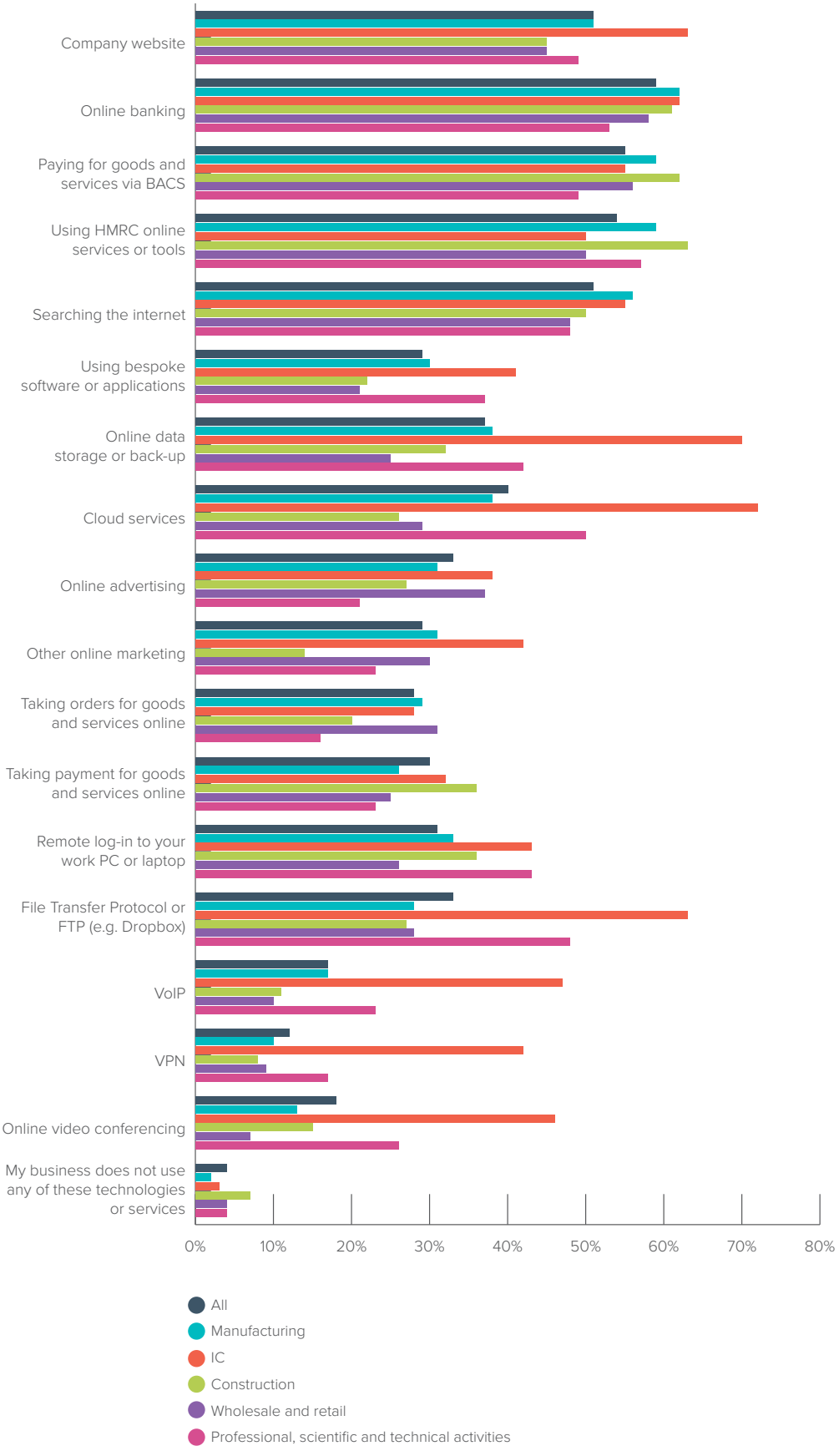
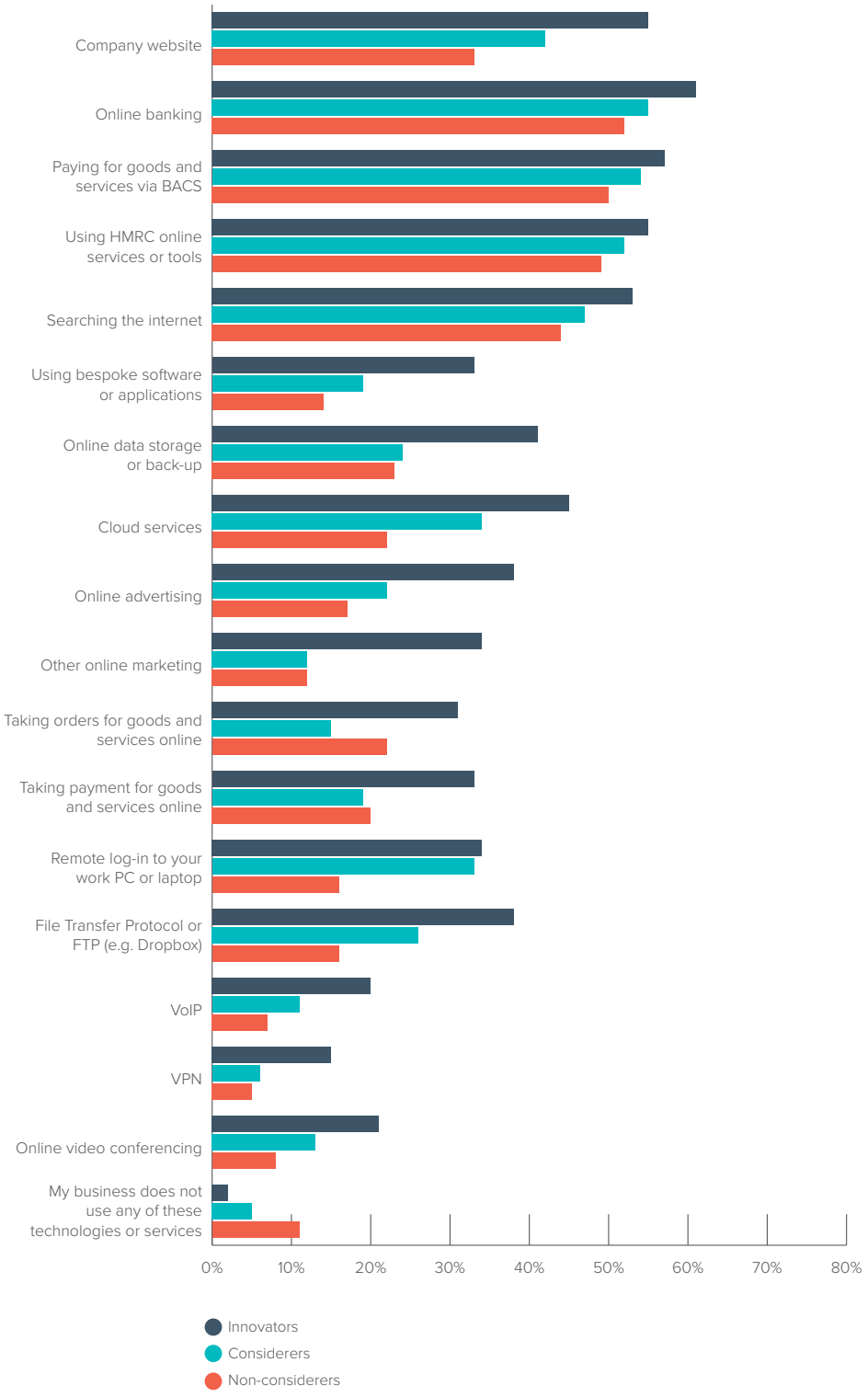


Chart Eight shows that innovators exhibit a higher level of adoption of technological innovation, whereas non-considerers exhibit significantly different and lower levels of adoption, mostly in using bespoke software or applications (33% of innovators in comparison to 14% of non-considerers), and using cloud services (45% of innovators in comparison to 22% of non-considerers). Of those who innovated, more than half (55%) had their own website, in comparison to 33 per cent of those who are non-considerers. 11% of non-considerers have not adopted any of the digital technologies asked.

**Chart Eight:** Adoption of digital technologies, among profiles of innovation






CONTENTS

## Digital skills

The adoption of even basic technology requires digital skills. However, FSB previous research found that a quarter of small businesses do not consider digital skills to be important to the growth of their businesses.[72] A quarter (26%) of small business owners report lacking confidence in their basic digital skills. Over a fifth (22%) believe that a lack of basic digital skills among their staff is preventing them from becoming more digital.[73]

In the future, employers will be seeking candidates who can adapt to take on tasks beyond their core function or have hybrid and generic skills, such as digital skills and project management experience. It is likely that this will particularly be the case in smaller firms where resources are often at a premium.

Digital technology continues to develop rapidly and businesses of all sizes are feeling the impact. Despite increasing augmentation of digital technology and ways of working into our everyday lives, the overall digital capability of small firms still requires improvement. Productivity growth in the UK will continue to stall without Government and industry action to tackle a digital skills deficit in small businesses.

The Government has outlined the introduction of a new adult digital skills entitlement to support basic training, and the National Retraining Scheme which will help people re-skill and up-skill in priority areas, including digital. These are welcome additions to the landscape of support available to individuals to improve their digital capability; however, it is difficult to clearly discern where smaller firms, particularly sole traders, fit into this landscape.

The Digital Skills Partnership represents an opportunity for Government to play an important role in convening partners to close the digital skills gap by coordinating between the various programmes, sharing of knowledge and best practice and improving the coherence of digital skills provision

## Artificial intelligence (AI)

As with other digital technologies, smaller firms are reluctant to be first movers, and there is evidence that a divide exists between large and small firms in adopting AI.[74] According to research by McKinsey, across all sectors, larger firms are at least 10 per cent more likely than smaller firms to have adopted at least one AI technology at scale or in a core part of their business.

Our research shows that of those who innovated in the past three years, only three per cent have adopted AI, while none of the considerers and non-considerers have.

**Table 5.3**: Adoption of AI

| Innovators | Considerers | Non-considerers |
|---|---|---|
| 3% | 0% | 0% |

72 FSB. 'Learning the Ropes', December 2017. Available at https://www.fsb.org.uk/docs/default-source/fsb-org-uk/skills-and-training-report.pdf?sfvrsn=0

73 Ibid.

74 Artificial Intelligence: The Next Digital Frontier? McKinsey Global Institute. Available at https://www.mckinsey.com/~/media/McKinsey/Industries/Advanced%20Electronics/Our%20Insights/How%20artificial%20intelligence%20can%20deliver%20real%20value%20to%20companies/MGI-Artificial-Intelligence-Discussion-paper.ashx

Table 5.4 shows that when observing all members, only two per cent have used AI in the past three years, and most of them are firms with 11+ employees.

**Table 5.4:** Adoption of AI, across business size

| | All | Sole traders | Micro businesses 1 - 10 | Small 11+ |
|---|---|---|---|---|
| Artificial Intelligence (AI) | 2% | 1% | 2% | 5% |

Table 5.5 shows that 32 per cent of small businesses think that AI would provide value to their business. This is in contrast to half (51%) who disagree, and think that it won't provide value to their business.

**Table 5.5**: Views on the value of AI to the business, all respondents

| | Percentage |
|---|---|
| Yes, I think that Artificial Intelligence would provide value to my business | 32% |
| I do not think that AI would provide value to my business | 51% |
| Don't know/ Not sure | 17% |

Table 5.6 shows that as business size grows, more small businesses think that AI would provide value to their business.

**Table 5.6:** Views on the value of AI to the business and business size, all respondents

| | All | Sole traders | Micro businesses 1-10 | Small 11+ |
|---|---|---|---|---|
| Yes, I think that Artificial Intelligence would provide value to my business | 32% | 26% | 32% | 45% |
| I do not think Artificial Intelligence would provide value to my business | 51% | 57% | 52% | 39% |
| Don't know/ Not sure | 17% | 17% | 17% | 17% |

Table 5.7 shows that only two per cent of all members have adopted robotics or AI in the past three years. However, of all members in information and communication, 15 per cent have adopted robotics or AI. Few members in manufacturing (4%) and professional, scientific and technical activities (2%) have adopted robotics or AI, whereas none in construction or retail have done so.

**Table 5.7:** Adoption of Robotics or AI, all members, across sectors

| All | Manufacturing | IC | Construction | Wholesale and retail | Professional, scientific and technical activities |
|---|---|---|---|---|---|
| 2% | 4% | 15% | 0% | 0% | 2% |

Table 5.8 shows that over half of small business in manufacturing (58%), construction (54%), and retail (52%) do not think that AI would provide value to their business, whereas over half of small businesses (54%) in information and communication think it would.

**Table 5.8:** Views on the value of AI to the business and sector, all respondents

| Views on the value of AI | All | Manufacturing | Construction | IC | Wholesale and retail | Professional, scientific and technical activities |
|---|---|---|---|---|---|---|
| Yes, I think that Artificial Intelligence would provide value to my business | 32% | 29% | 28% | 54% | 25% | 39% |
| I do not think Artificial Intelligence would provide value to my business | 51% | 58% | 54% | 35% | 52% | 48% |
| Don't know/ Not sure | 17% | 13% | 18% | 11% | 23% | 13% |

The recent AI sector deal announced in April 2018 demonstrates the interest in this technology, with £1bn being earmarked to make the UK a global leader in AI.[75] The deal also includes more than £300 million of newly allocated Government funding for AI research to make the UK a global leader.

The impact of AI will only grow in various sectors and jobs, and small businesses have a myriad of views on it. One of the investments included in the AI sector deal is in the Alan Turing Institute and Rolls-Royce who will jointly run research projects exploring how data science can be applied at scale, the application of AI across supply chains, data-centric engineering and predictive maintenance, and the role of data analytics and AI in science.

The House of Lords Select Committee on Artificial Intelligence published a study[76] emphasising that the AI sector has flourished largely without attempts by the Government to determine its shape or direction, and has resulted in a flexible and innovative grassroots start-up culture.

FSB is concerned that the more 'ordinary' firms are not well positioned to take advantage of the unpredictable opportunities that could be afforded by AI, in contrast to scale-ups. The House of Lords Select Committee recommended that the investment environment for AI businesses must be able to cope with this uncertainty, and be willing to take the risks required to seize the chances AI offers.

There are various views on the value of AI, and there is uncertainty about what would be the exact value.

FSB is aware that small businesses will need to adapt to AI, in the medium to longer term, and calls on Government to work with small businesses to enable them to integrate this technology into their future growth plans.

75 HM Government announcement, April 2018. Available at: https://www.gov.uk/government/news/tech-sector-backs-british-ai-industry-with-multi-million-pound-investment--2

76 House of Lords Select Committee. AI in the UK: ready, willing and able? April 2018. Available at https://publications.parliament.uk/pa/ld201719/ldselect/ldai/100/100.pdf

*"Two years ago I looked into using AI voice recognition and I thought I'd give it a try. It wasn't that good then, but I checked it again recently and the French version had two languages. It's learning very quickly and it saves me time. I'm a pretty fast translator naturally but the idea of using AI in my business came from the concept of 'psych-translating'. I type a lot so it saved my wrists from pain that is caused by typing for hours".*

Translator, London, sole trader

Table 5.9 shows that age of business owner is a key factor in determining small businesses' views on AI and its value. Just under half of small businesses (47%) whose owner is aged 16 to 44 think that AI would provide value to their business, but as age increases, this perception becomes negative. More than half of business owners in the age range of 55+ think that AI would not bring value to their business.

**Table 5.9:** Views on Artificial Intelligence and its value, age of business owner

| Small businesses' views on Artificial Intelligence and its value | All | 16 to 44 | 45 to 54 | 55 to 64 | 65+ |
|---|---|---|---|---|---|
| I think that AI would provide value to my business | 32% | 47% | 37% | 30% | 24% |
| I do not think AI would provide value to my business | 51% | 38% | 46% | 53% | 60% |
| Don't know/ not sure | 17% | 14% | 17% | 17% | 15% |

Table 5.10 shows that as for digital technologies, views on AI are more favourable among innovators and considerers than among non-considerers.

**Table 5.10:** Views on Artificial Intelligence and its value

| Views on Artificial Intelligence and its value | Innovators | Considerers | Non considerers |
|---|---|---|---|
| I think that AI would provide value to my business | 36% | 31% | 12% |
| I do not think Artificial Intelligence would provide value to my business | 47% | 58% | 69% |
| Don't know/ Not sure | 17% | 11% | 19% |

## The impact of the UK's innovation policy

The intellectual property protection system, tax policy, and Government support all play an important role in fostering an innovative ecosystem. At the same time, our evidence demonstrates that the current system is not working as well as it could, and will need further reform to enable smaller businesses to become more innovative.

### Research and Development (R&D) policy

Small businesses do not benefit enough from the current research and development (R&D) support policy. This is because it is not focused on diffusion of innovation to small businesses, but rather helps disruptive technology start-ups looking to scale-up fast.

R&D can be defined as:

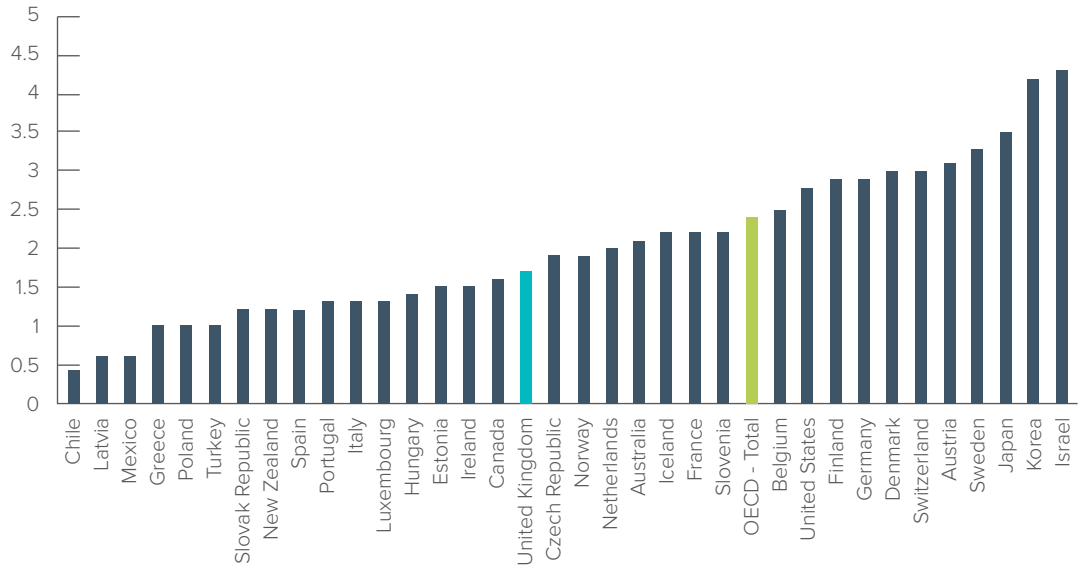
*"An advance in science or technology which means an advance in (the) overall knowledge or capability in a field of science or technology (not a company's own state of knowledge or capability alone). This includes the adaptation of knowledge or capability from another field of science or technology in order to make such an advance where this adaptation was not readily deducible."*[77]

R&D is narrowly defined to support firms to drive advances in science and technology. However, in some sectors, according to IPPR's research, only 25 per cent of innovation success is derived from technological innovations, while 75 per cent is explained by organisational innovations.

The UK spent 1.7 per cent of GDP on R&D in 2016, which is below the EU and OECD average.[78] As shown in Figure 2, the OECD average of R&D intensity is 2.4 per cent, with leading investors spending significantly more. Spend in the UK remains significantly behind France, Germany, Israel and the US.

Since the launch of the Industrial Strategy, the Government has developed a roadmap to reach a new R&D target of 2.4 per cent of GDP by 2027 and three per cent of GDP in the longer term. As a first step, an additional £2.3bn has been allocated in 2021/22, representing a total increase of £7bn over five years from 2017/18 to 2021/22. Additionally, the Government will invest a further £725m in the Industrial Strategy Challenge Fund (ISCF) over the next four years. It is vital small businesses are able to compete for this funding.

**Figure 2:** Gross Expenditure on R&D as a percentage of GDP.[79] Data is the latest available for each country.



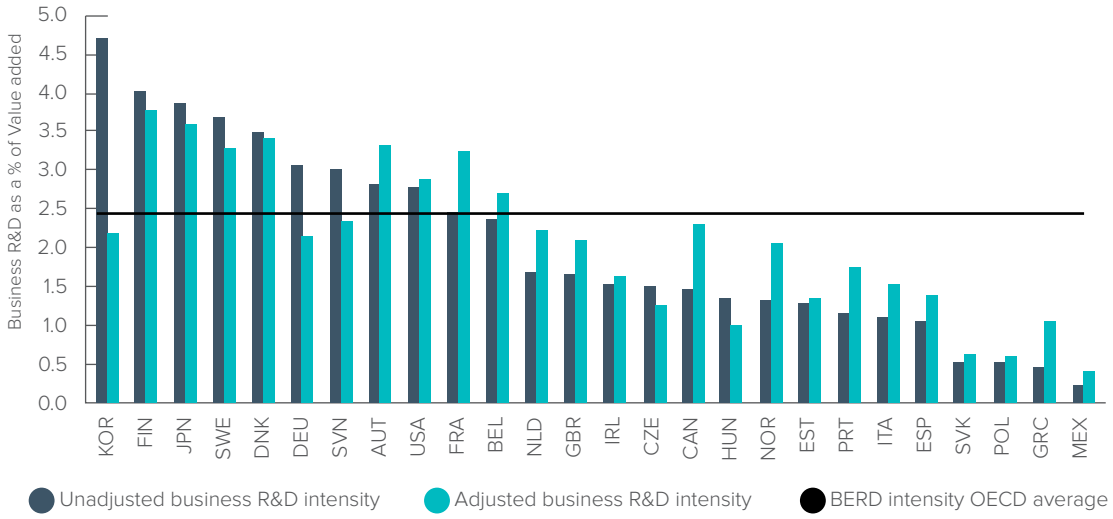

77 HMRC Internal Manuals. Available at https://www.gov.uk/hmrc-internal-manuals/corporate-intangibles-research-and-development-manual/cird81900

78 BEIS presentation at FSB innovation committee, April 2018.

79 OECD. Available at https://data.oecd.org/rd/gross-domestic-spending-on-r-d.htm

Figure 3 shows in the UK, both Government and business R&D investment are below the OECD average.

**Figure 3:** Business R&D intensity adjusted for industrial structure, 2015.[80]




Existing research and development spend is currently concentrated in a small number of big firms and sectors such as life sciences and motor vehicles. Over 60 per cent of firms in computer related industries conduct R&D, compared to less than 20 per cent of firms in the construction industry.[81] Indeed, just over three quarters of private R&D investment in the UK is driven by 400 businesses, with a 'long tail' of underperforming businesses.[82]

## Government spending on R&D credits

R&D reliefs support incorporated companies[83] that work on innovative projects in science and technology. It can be claimed by a range of companies that seek to research or develop an advance in their field. It can even be claimed on unsuccessful projects.[84]

The UK Government offers two R&D tax credits to businesses[85]: the Research and Development Expenditure Credit (RDEC) and the Small and Medium sized Enterprises (SME) R&D Relief.[86]

Government also provides a 'shortcut' for SMEs who are first time applicants for the SME R&D relief, which is called Advance Assurance (AA). The AA is relevant before a small business claims SME R&D relief.[87]

80 Ibid.

81 Nesta Innovation toolkit, 2017

82 HMG. Industrial Strategy White Paper: Building a Britain fit for the future. November 2017, available at https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/664563/industrial-strategy-white-paper-web-ready-version.pdf

83 A company that is liable to corporation tax can claim R&D tax relief (subject to them carrying out eligible activity). Company types such as Limited Liability Company, Public Limited Company, Private Company limited by guarantee and Unlimited Company, are subject to corporation tax and would therefore be able to claim R&D tax credits. Sole Trader/proprietors pay income tax, so would not be able to claim R&D tax relief. Partnerships and Limited Liability Partnerships also pay income tax and wouldn't be able to claim tax relief. However, where all necessary conditions are met corporate members of partnerships are able to benefit from R&D tax relief in respect of those partnerships activities.

84 HMG, Research and Development (R&D) tax reliefs. Available at https://www.gov.uk/guidance/corporation-tax-research-and-development-rd-relief

85 R&D is a Corporation Tax (CT) tax relief that may reduce a company's tax bill if the company is liable for CT or, in some circumstances, it may receive a payable tax credit.

86 HMG, Research and Development (R&D) tax reliefs. Available at https://www.gov.uk/guidance/corporation-tax-research-and-development-rd-relief

87 Advance Assurance is relevant before claiming R&D relief for SMEs. Available at https://www.gov.uk/government/publications/research-and-development-tax-relief-application-for-advance-assurance-for-research-and-development-tax-relief-ct-rd-aa

*R&D credits are really good, we have used them. However, it's paid in arrears and for a small business it's hard to have all the money up front. You have to pay for expenses during the course of the financial year. We self-funded our expenses on R&D for more than 12 months, and then reclaimed it at the end of the financial year. We've had two successful claims and because we're a tech start-up, we qualify. Qualification is based on whether you are taking on "high-risk" activities which you would not do otherwise, so this should be applicable to other small businesses and not just tech start-ups.'*

FSB member, Digital Health data management and software, Glasgow, 16 employees

In 2015-16 the total number of claims for R&D tax credits rose to 26,255, an increase of 19 per cent compared to 2014-15. This increase was primarily driven by a rise in the number of SME claims, which totalled 21,865 in 2015-16, up from 17,875 in 2014-15 (a 22% increase). The total amount of R&D support claimed rose to almost £2.9bn in 2015-16, an increase of £470m (20%) from the previous year.[88]

The requirement for a minimum expenditure of £10,000 on R&D was removed in April 2012.[89] This change has had a noticeable effect on the number of first time applicants claiming R&D tax relief, particularly for SMEs, where the number of claims has more than doubled since 2011-12. Our research found that of those who have innovated, only a quarter (25%) have spent more than £10,000 on their innovations.

The increases in enhanced expenditure rates and payable tax credit rates in recent years have made the SME scheme more generous and therefore more attractive to potential applicants. There is also greater awareness of the scheme. However, our data shows that of those who are incorporated and introduced a new to market product innovation, only 27 per cent have qualified for a R&D tax credit and have claimed it.[90]

Table 6.1 shows that 40 per cent of incorporated new to market product innovators are not aware of any R&D tax relief that is relevant to their business, in comparison to 43 per cent off all incorporated product innovators. 18 per cent of incorporated new to market product innovators do not qualify for a R&D tax relief but would claim it if they did.

Eight per cent of incorporated new to market product innovators qualified for a R&D tax relief but have not claimed it. Three per cent have reported that their business does not qualify for a R&D tax relief and they would not claim it if they did.

**Table 6.1**: R&D practices among product innovators

| | All | Incorporated product innovators | Incorporated new to market product innovators |
|---|---|---|---|
| My business qualifies for a R&D tax relief and I have claimed it | 12% | 17% | 27% |
| My business qualifies for a R&D tax relief but I have not claimed it | 4% | 6% | 8% |
| My business does not qualify for a R&D tax relief but I would claim it if it were | 25% | 27% | 18% |
| My business does not qualify for a R&D tax relief and I would not claim it if it were | 2% | 2% | 3% |
| I am not aware of any R&D tax relief that is relevant to my business | 49% | 43% | 40% |

88 Research and Development Tax Credits Statistics September 2017. Available at https://www.gov.uk/government/statistics/corporate-tax-research-and-development-tax-credit

89 This allows SMEs carrying out lower level R&D activity (i.e. spending less than £10,000) to make claims where these were not previously eligible.

90 To get R&D relief a business needs to explain how a project:
- looked for an advance in science and technology
- had to overcome uncertainty
- tried to overcome this uncertainty
- couldn't be easily worked out by a professional in the field

HMG. Available at https://www.gov.uk/guidance/corporation-tax-research-and-development-rd-relief

## Reasons for not qualifying, claiming and accessing R&D tax credits

FSB held focus groups with members in Scotland and England to understand the potential reasons why small businesses are not aware of or do not claim R&D tax credits.

Our evidence suggests that many accountants working on behalf of small businesses do not understand the R&D tax credit properly. Many members are of the view that HMRC's definition of R&D is more inclusive than Government's interpretation. The HMRC process to claim tax credits is a complex one.

Some small businesses are confused about what the term 'development' means. For example, for process innovation in the manufacturing sector, a business might have developed a process that is running more smoothly but keeps producing the same thing in the same way. The innovator does not know if the R&D tax credit is relevant to their improved process.

*'The Research scenario is clear cut, because Research is a process with an end goal of developing a new product, or conducting fundamental research.*

*However, there is uncertainty in the Development scenario. This challenge is acute for small businesses that are not in the manufacturing sector, as there is still R&D activity but it does not involve producing a good.'*

FSB member, exporter

## Potential reasons for not claiming R&D tax relief

For example, a firm needs to break down the amount of time that an employee spends on development activities. A bigger company can afford to allocate resources (money, time and people) or have its own R&D department or a designated employee. But for a small business it is challenging to apply for the tax credit because it needs to justify and count a portion of its activities as development.

*Government needs to be mindful – businesses would think that most of the things they do are not covered by the R&D tax relief, while if they develop a bespoke software then they could apply for the R&D tax relief. The communication around R&D is critical but not clear enough.*

FSB Innovation committee member

## Government spending on grants and loans by UKRI

Through its new framework, UKRI will invest and facilitate research and innovation activities across the UK.[91] One of the strategic objectives of UKRI is to 'maximise the impact of Innovate UK in supporting business-led innovation.'[92]

The Government intends to invest a further £725m in the Industrial Strategy Challenge Fund over the next four years. Allocation of this will be mainly offered to businesses through UKRI.

### Innovate UK

IUK is a business-innovation arm that has been part of UKRI since April 2018, and has played a key role in promoting innovation in the UK economy. FSB tested attitudes of small businesses to Innovate UK and found that the language on IUK's website and its ISCFs could be clearer and easier to understand for small business owners. Through our focus groups, FSB found that Innovate UK is not as accessible to small businesses as it could be.

*'I tried to use UKRI and Innovate UK websites but the language that was used in the website was completely mind boggling, very heavily technology based and not at all about service delivery. Innovate UK should also encourage more female business owners to apply. In general it has to be more user friendly.'*

Construction business, Wales, 5 employees

*'Innovate UK? It works really well for big companies... when IUK worked to include small businesses [in their ISCFs], big companies have encouraged specific small businesses in their supply chain to apply.'*

Innovation committee member, England, sole trader

*'I think that all small businesses should use UKRI support.*

*A lot of the challenges are set / advised upon by academics or experts who are university trained or specialised in tech. But some of the challenges should be designed with smaller businesses input. Small businesses innovate in areas which the university doesn't look at. They should have a voice on the challenges, often smaller problems, experienced by smaller businesses.*

*The Government has set up UKRI which is legally open to anyone. However, applications are judged on the strength of their resources so bigger companies and organisations are marked higher than small businesses. So all these competitions targeted at small businesses do not consider the disadvantage inherently ingrained within them. The marking is 10% on innovation and 10% on other factors. So we've lost that because we're still a small business and large businesses have won it.*

*Government should give better weight to small businesses if they're innovative. There are not many small businesses winning these contracts.'*

Digital Health, data management and software, Glasgow, 16 employees

91 UK Research and Innovation Framework Document, May 2018. Available at: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/706640/ukri-framework-document-2018.pdf

92 Ibid

UKRI has launched a new tool to finance innovation for small businesses called 'innovation loans'. The first innovation loan was paid out earlier in 2018. It is too early to tell if small businesses will benefit from this instrument.

**Innovation support and loans by UKRI**

Innovation loans

*UKRI is running a pilot programme of loan competitions over 2 years to the end of 2019. A total of up to £50 million is available for business innovation projects. Innovate UK is working to broaden the range of innovation finance support available to businesses, so they can access funding at all stages of innovation.*

*The innovation loans are targeted at latter stage R&D that has a clear route to commercialisation. These loans are for UK SMEs that want to scale up and grow through innovation, developing new or improved products, processes or services. They can be used for late-stage R&D projects, which have not yet reached the point of commercialisation.*

*UKRI is to offer up to £10 million in loans to SMEs for innovative late stage projects. The aim of this competition is to provide loans to help SMEs to undertake game-changing innovations with strong commercial potential across any sector or industry. Innovation loans will offer affordable, patient, flexible, repayable funding for later-stage research & development projects with a clear route to commercial success.*

Source: https://ktn-uk.co.uk/news/briefing-dates-announced-for-10m-open-innovation-loans-competition/

Regional innovation advice

*UKRI has commissioned Newable in London and the South East to provide fully-funded business support to help companies get to the next level. The support is provided through 12 hours of free advice. The advice also includes identifying and accessing appropriate financing and funding opportunities, expertise and facilities for product development and commercialising ideas.*

## Intellectual property protection

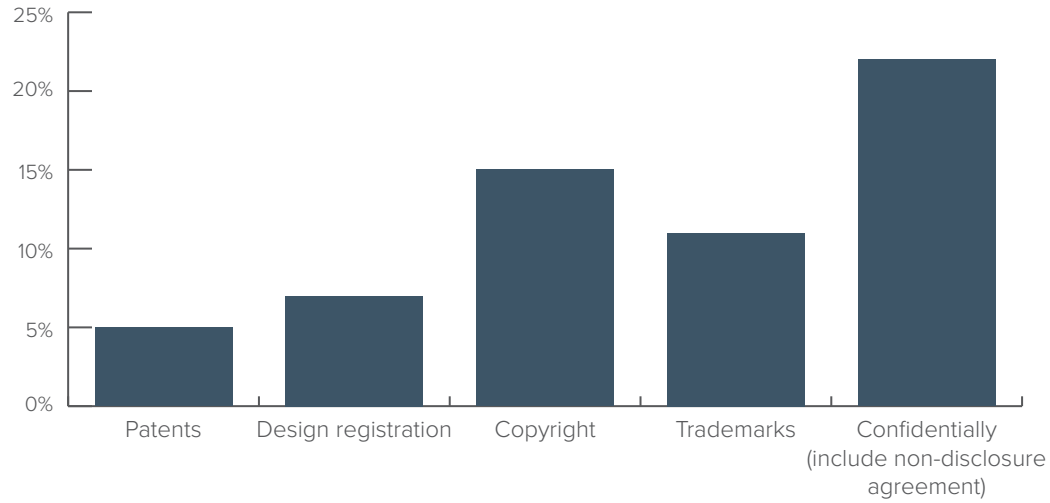
The protection of intellectual property (IP) should be a foundation stone for the innovation economy, and a vital part of the Government's Industrial Strategy. However, small businesses have raised concerns that existing IP policy is not fit for their needs.

While most small businesses have an awareness of IP, the value of it as an asset to the business and the importance of protecting their IP is, overall, quite poorly understood. This is particularly true for small firms which typically run on limited capacities and resources – investing time and money to get to grips with their IP can be a burden for many of them.

Additionally, there are real challenges in being able to clearly identify and measure the IP that exists in their business; many businesses will not even be aware that they have created, or own, IP worth protecting.

Chart Nine shows that the most common protection that small businesses use is confidentiality (including non-disclosure agreements) and copyright. The least likely type of protection is patents. In general, small businesses do not protect their intellectual property and only a few apply for trademarks (11%) and design registration (7%).

**Chart Nine:** IP protection that small businesses applied to protect their innovation




In the UK, patents can last up to 20 years and as with many of the other protections, it only gives the right to prevent other businesses from selling the invention.

Patents are costly to apply for and maintain. Understanding the procedure of applying for IP protection requires sophisticated knowledge that needs an investment of time, effort and money.

Many FSB members are deterred from applying their product for patents due to the cost involved. The Government offers a tax relief called 'Patent Box' which tries to encourage companies to make profits from their patents by reducing the corporation tax paid on those profits.

The evidence suggests that the majority of tax relief claimed to date under the Patent Box scheme (£616.6 million or 94.6% of the total) was claimed by 'large' companies, defined with a turnover above 50 million Euros or over 250 employees.[93] These 'large' companies represented just over a quarter of the companies enrolled in the patent box (305 of 1135). Despite a large number of small, medium and micro sized companies claiming patent box relief in 2014-15, such companies received only 5.5 per cent of the total tax relief under the scheme. This evidence suggests that in spite of the benefits of patent box it may be difficult for smaller companies to capitalise upon the benefits of the tax relief given they are likely to lack dedicated R&D and accounting Departments. Recent changes to patent box policy, namely the requirement to consider relevant R&D, may require additional record keeping and accounting expertise.

93 HMRC. Patent Box. Statistics on uptake of the Patent Box. September 2017, available at https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/657848/Patent_Box_Statistics_2014-15.pdf

*'I took over the company and bought the founder's invention. I had a seven year plan and planned to exit. Now we feel that our company is one we can take throughout the UK. In the previous times that I needed finance, I got external funding but this time I went for organic growth. It was challenging and* ***I know what to do but I often don't have the funds to do it.***

*It is very difficult to commercialise because it is costly. The early adopters have an advantage. In commercialising an idea you need early adopters who are wealthier and they were my market target but they didn't want to buy my product. The Government announced an environmental plan, which called for a new sustainable way of building homes, so we introduced a new product. We had to get investment and the external investors were very hung up on patents. Once we got the market, our competitors became critical, and tried to copy us. The only strategy I had was to reduce the price. I started this journey of commercialising a product through naiveté and not knowing how difficult it is while thinking I'm invincible.*

***The patents are bringing my business down because they require too much time and money.*** *Additionally, the risk of telling your idea to others is higher once I apply for a patent because then my competitors could tweak it. I think it is important to protect my innovation through IP, especially if I wish to bring in external investors but the direct and indirect costs of patent are too high for small businesses. Other competitors used our patents and brought their ideas to market more efficiently with more time.'*

Construction, Scotland, 5 employees

# INTERNATIONAL COMPARISON

## Israel

"The economy of Israel... (is) a living laboratory for the economic theory of clusters and, more broadly, what it takes for nations to generate – or stifle – innovation."[94]

The primary Government agency to promote policies for the economic growth of small businesses is the Small and Medium Business Agency (SBA), which is tasked with policy coordination across the Israeli government.[95]

The SBA's network of business development centres[96] is a critical part of the infrastructure for SMEs and entrepreneurship policy in Israel. There are 515,000 businesses in Israel in 2016, of which 99 per cent are businesses employing up to 20 people.[97] Small businesses employ 61 per cent of all employees.

### Innovation policy

Israeli innovation policy is led by the Israeli Innovation Authority (IIA), which is responsible for developing, strengthening and leading public spending on innovation policy. IIA focuses only on promoting technological innovation and supporting automation to sustain economic growth[98] and promotes both types of innovation - incremental and disruptive.

**Figure 4:** Israel's innovation landscape.[99]


94 Start-Up Nation, the story of Israel's economic miracle. Dan Senor and Saul Singer. 2011.

95 SME and Entrepreneurship Policy in Israel 2016. OECD. Available at https://www.oecd-ilibrary.org/industry-and-services/sme-and-entrepreneurship-policy-in-israel-2016/the-strategic-framework-and-policy-delivery-system-in-israel_9789264262324-8-en

96 A concept similar to LEPs in England, whereas MAOF is widespread across the country.

97 SBA Report for 2017, Ben-Aharon, N. 2017 Available at https://www.sba.org.il/hb/PolicyAndInformation/Researches/Pages/sr25.aspx

98 Interview with Naomi Krieger Carmy, Head of Societal Challenges Division at Israel Innovation Authority, May 2018.

99 Interview with Oren Harmbam, Executive Director at the Manufacturers Association, February 2018

## R&D expenditure on technological small businesses

Israel has the highest public expenditure on R&D amongst OECD countries, spending more than 4.1 per cent of GDP on R&D in 2016. From 2004 to 2013, the Israeli Ministry of Economy spent a total amount of ILS15.2 billion (c£3.11 billion) through IIA on technological innovation policy alone.[100]

The IIA designed the 'Yozma' policy and promoted a vertical[101] industrial R&D policy to support the tech industry and exporting of Israeli technological products. The policy encouraged entrepreneurs to develop their ideas while Government minimised entrepreneurs' risk when investing in R&D.[102]

Today, the IIA's local and international support programmes vary in investment type and grant level. Local programmes to cover a wide scope of industries ranging from traditional industries (e.g. food or metal) to high-tech industries. The programmes also vary in volume of grants, which may reach up to 85 per cent of the approved budget per business. In each application the business is required to report on the estimated R&D expenditure that the business will incur. Every business must receive an application approval by the IIA Research Committee.[103]

A specific programme designed for more 'traditional' firms is the Mechinat MOP[104] which is designed for 'low-tech' or traditional sectors which do not conduct any R&D activity, but want to begin planning such activity. As part of the programme, the firm undertakes a process of examining its needs with an IIA official, where they identify which products (goods most often) could be relevant to existing or new markets, and mapping the technological barriers that need to be overcome to plan R&D activities in the future.

## Israel's dual economy and low productivity among small business

The Bank of Israel (BOI) has found that the Israeli economy is divided into a dual economy where one part is highly productive while the other lags behind.[105]

The highly productive group includes the exporting sector and several of the service providers who take advantage of Israel's comparative advantage in human capital and innovation. The less productive group does not take advantage of this and is often considered as comprising of traditional or 'low-tech' firms, which includes non-exporting sectors.

The Government is trying to support the less productive group, while maintaining the advantage of the more productive cohort. Among OECD members, Israel is ranked third in academic education. Israel's national economic council reports that there is a shortage of engineers and scientists. Therefore, the IIA now offers programmes to add skills in coding, with a specific goal for targeting impoverished communities.

This is however, not sufficient to solve the productivity problem for the less productive group. According to the former CEO of Lahav, the largest business association for micro businesses and the self-employed, the less productive group is not different from other similar types of business in OECD countries.[106] The productivity problem of small businesses in Israel is challenging and in particular concerning to the SBA, who argues that the main problem exists among businesses employing 20-49 employees. [107]

100 Author's analysis of Israeli Ministry of Finance's data.

101 A vertical industrial policy is a 'selective' or 'targeting' policy which deliberately favors particular industries or sectors over others, against market signals, usually (but not necessarily) to enhance efficiency and promote productivity growth, for the whole economy as well as for the targeted industries themselves. In contrast, a horizontal industrial policy is a policy focus on 'public goods' that benefit all industries but are likely to be under-provided by the market, e.g. education, R&D and infrastructure – and not involve 'picking winners.' Source Vertical Industrial Policy. Available at https://www.slideshare.net/AbdulMalikOmar/vertical-industrial-policy-debate

102 Start-Up Nation, the story of Israel's economic miracle. Dan Senor and Saul Singer. 2011.

103 IIA website, available at http://www.matimop.org.il/

104 IIA. R&D Preparatory Programme. Available at http://economy.gov.il/Publications/Publications/DocLib/RnD_PreparatoryProgram.pdf

105 Bank of Israel, press release, March 2014

106 Interview with Mr. Moti Shapira, Former CEO of Lahav, March 2018.

107 Interview with Mr. Oren Harmbam, Executive Director at the Manufacturers Association, February 2018.

## Small business innovation practices among traditional or 'low-tech' firms, including non-exporting sectors

New academic research presents findings that support FSB evidence that a large majority of small business innovate.[108] However, the extent of innovation is low. The study provides findings from two hundred interviews with business owners of small businesses in the manufacturing and craft industry employing from 10 to 50 employees per business.

Table 7.1 shows that 96 per cent of small businesses have innovated in the past three years and introduced at least one type of innovation.

**Table 7.1:** Distribution of small businesses who introduced at least one type of innovation (from the four types of innovation acknowledged within the OECD definition)[109]

| Introduced at least one type of innovation | Percentage |
|---|---|
| 0 | 4% |
| 1 | 12% |
| 2 | 8% |
| 3 | 15% |
| 4 | 10% |
| 5+ | 51% |

The study also found that a large proportion of business owners are people with more than 20 years of experience in business. However, more than 75 per cent of managers were responsible for only one or two businesses during their career, i.e. they have not worked in several businesses and therefore, their experience is not diverse.

Table 7.2 shows that across all types of innovation, the 'new to firm' innovation and business improvements were higher than 'new to market' innovation.

**Table 7.2:** Distribution of small businesses who introduced at least one type of innovation (across the four types of innovation, and levels of innovation, as acknowledged by OECD definition)[110]

| Level of innovation | Product innovation | Process innovation | Marketing innovation | Organisational innovation |
|---|---|---|---|---|
| Innovation which is defined as improvement to the firm | 21% | 19% | 16% | 23% |
| Innovation which exists in the market, i.e. new to firm | 41% | 43% | 43% | 45% |
| Innovation which is new to local market | 5% | 1% | 2% | 0% |
| Innovation which is new to global markets | 1% | 0% | 0% | 0% |

108 Dr. Ronen Harel from the Department of Business Administration at the Guilford Glazer Faculty of Business Administration at Ben Gurion University of the Negev, March 2018.

109 Dr. Ronen Harel, Department of Business Administration at the Guilford Glazer Faculty of Business Administration, Ben Gurion University of the Negev, March 2018

110 Ibid.

### Digitalisation

Digital Israel is a relatively new inter-ministerial working group that was established to provide more adequate resources for policy coordination to promote the vision of a digital economy. Digital Israel has designed the national plan to make Israel a digital nation[111] by driving digital innovation in the public sector and improving services to businesses and citizens.

Digital Israel has published its new grant scheme to finance start-ups and companies' business ideas if they offer innovative solutions to problems in the public sector and its needs. The grants offer up to 80 per cent of financing for plans that may cost from ILS 300,000 up to ILS 4m.[112]

Digital Israel encourages the diffusion of innovation and incremental innovation through joint programmes.[113]

**The SBA Grant for diffusion of innovation and productivity increase** – The SBA has launched a new grant for small businesses in the service and retail sectors.[114] This policy is targeting a specific peripheral region in the north of Israel which is considered less productive than the centre of Israel where most businesses are concentrated. The grant is designed to incentivise two business improvements:

**To improve productivity** – The grant seeks to encourage a working process to improve the intra-firm business productivity, and will be judged in comparison to the current state of the business, and benchmarked to the market and industry in which the business operates.

**To improve diffusion of innovation** – The grant will support a 'new to firm' improvement in one of the following types of innovation: process, product, or organisational. It will be judged in comparison to the current state of the business, and benchmarked to the market and industry in which the business operates.

If the application is successful, the grant will provide 50 per cent of the total expenditures approved originally in the application, and up to a maximum of ILS 500 (~£105k). The SBA also offers two financing tools that enable risk taking and experimentation with incremental innovation: state guaranteed loans and guaranteed equity investments.[115]

## Germany

Germany is one of the leading world economies, performs better than the UK on productivity, and is a pioneer in automation.

Most firms are export-oriented, including smaller ones which are suppliers for German companies who are global leaders.[116] In Germany, there are unique policies to bring forward instruments to promote research and innovation. Germany has several attributes which make her a leader in automation and productivity.

### Training and engagement with universities

The German vocational education and training system, also known as the dual training system, is highly regarded worldwide due to its combination of theory and training embedded in a real-life work environment.[117] The main characteristic of the dual system is cooperation between mainly small and medium sized companies and publicly funded vocational schools. This cooperation is regulated by law. Trainees in the dual system typically spend part of each week at a vocational school and the other part at a company, or they may spend longer periods at each place before alternating. Dual training usually lasts two to three-and-a-half years. The Steinbeis Transfer Network is made up of more than 1,000 enterprises. Steinbeis Enterprises are frequently based at research institutions, in particular universities, which constitute the Network's primary sources of expertise. The Steinbeis

111 Interview with Shai-lee Spigelman, CEO of Digital Israel, National Digital Bureau, Ministry of Social Equality, May, 2018.

112 National Digital Bureau at the Ministry of Social Equality website. Available at https://www.gov.il/he/Departments/news/innovationfund2018

113 Interview with Moti Ben-Dov, Representative of Digital Israel at the Ministry of Economy, National Digital Bureau, Ministry of Social Equality, May 2018.

114 Israeli SBA website. Grant for diffusion of innovation in small business in service and retail sectors. April 2018. Available at https://www.sba.org.il/hb/AidPrograms/Pages/pr49.aspx

115 OECD. SME and Entrepreneurship Policy in Israel 2016. Available at https://www.oecd-ilibrary.org/industry-and-services/sme-and-entrepreneurship-policy-in-israel-2016/the-strategic-framework-and-policy-delivery-system-in-israel_9789264262324-8-en

116 Interview with Jost Vielhaber, BVOH, April 2018

117 Federal Ministry of Education and Research website, available at https://www.bmbf.de/en/the-german-vocational-training-system-2129.html

Network comprises of around 6,000 experts committed to the practical transfer process between academia and industry.

**The German dual system**

*"The German dual system offers an excellent approach to skill development, covering initial vocational education and training, further vocational education and training, careers, employability, occupational competence and identity. Thanks to the dual system, Germany enjoys low youth unemployment and high skill levels. In Germany, about 50 percent of all school-leavers undergo vocational training provided by companies which consider the dual system the best way to acquire skilled staff."*

*"There are currently around 330 occupations requiring formal training in Germany. Employer organizations and trade unions are the drivers when it comes to updating and creating new training regulations and occupational profiles or modernizing further training regulations.*

*As a result, training, testing and certificates are standardized in all industries throughout the country. This ensures that all apprentices receive the same training regardless of region and company. Moreover, employers have trust in these certificates as they provide evidence of what an individual knows and is able to do."*

Source: Federal Ministry of Education and Research website

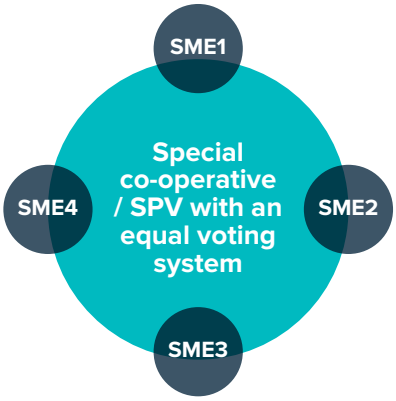
https://www.bmbf.de/en/the-german-vocational-training-system-2129.html

Innovation Assistants is a programme that supports firms in recruiting young accademics from universities and business schools. The newly employed assistants are employed primarily in the areas of innovation, product development/product preparation/design. The financial incentives are designed differently. In most cases the subsidy (40 – 50% of the employee's gross salary) is paid for the first two years of employment in the company.[118]

## A unique model for SMEs – the Mittlestand

UK policy-makers are well versed about the Mittlestand. This is a longstanding tradition that started in the industrial revolution due to market pressure, rather than government policy. The unique attribute of the Mittlestand is that SMEs are interdependent on each other because it is more affordable to cooperate.[119]

The below figure shows the structure of the Mittlestand where a group of small businesses are interdependent. The SPV is set up by the SMEs that join together, and is responsible for purchasing goods or services collectively in order to improve the bargaining power of each SME. The SPV is also responsible for HR, IT, licensing and other activities that are outsourced to it by the owners.



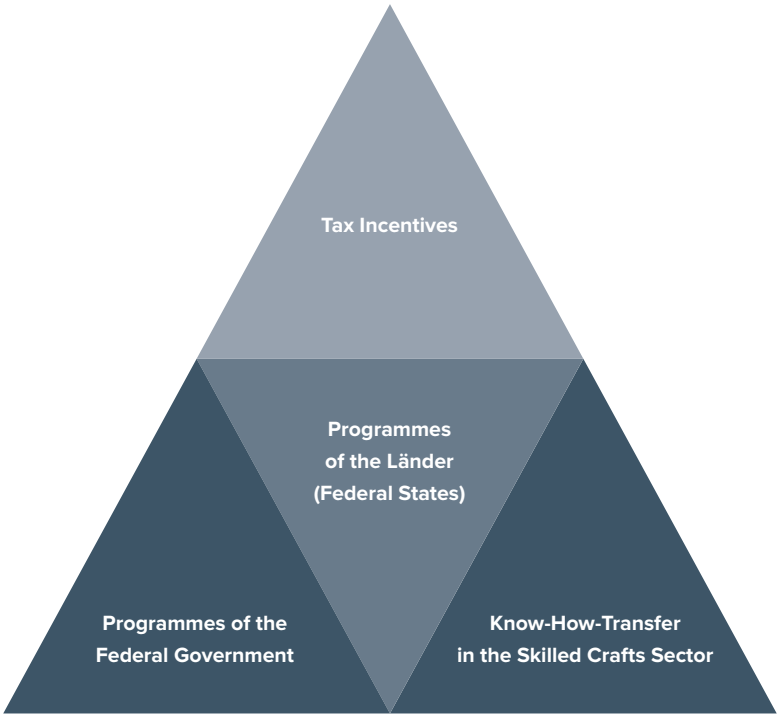

118 Interview with Dr. Gesa Koglin, ZDH, May 2018.

119 Interview with Paul P. Maeser, Senior manager at Research, Industrial and Economic Policy, BDI - Federation of German Industries, June 2018.

## Innovation policy

The Government does not offer R&D tax incentives. The introduction of such incentives is under discussion at present.[120] The German innovation ecosystem is described below:

**Figure 5**: The German Innovation Policy Structure: Instruments to Promote Research and Innovation[121]




A. Non-repayable cash grants: Germany provides tax incentives in the form of non-repayable cash grants for eligible R&D projects to promote R&D acitivities.[122]

B. Technology open programs for SMEs: The "Central Innovation Program for SMEs" (ZIM) is the best known of these programs and provides grants for research projects within SMEs, covering 35-50 per cent of project costs. Up to 5,000 projects per year are supported.

C. Bundesstaaten (states) Grants: Some states also provide grants targeted at SMEs. They do not necessarily require collaboration between the research institute and the company. More than 170 different programmes are run by Länder aiming at strengthening R&D and innovation.[123] In nearly all regions the number of technology-open programmes is higher than the number of technology-specific programmes. These grants usually cover a maximum of 80 per cent of project costs with a ceiling set at €200,000. SMEs are the main recipients.

D. Innovation vouchers: A policy instrument which aims to improve interaction between science and SMEs. The latter are encouraged to work more closely with universities and research institutions in the future and implement innovations more quickly. In most cases lump sums are provided for smaller projects.

E. Know-How-Transfer: is a specific programme for the skilled craft sector offering a network for information, consulting and technology transfer. It is run by the German ministry of economic affairs and energy. The programme offers firms consultants for technology and innovation and business consultancy points (Betriebsberatungs-stellen) from a pool of 460 consultants (maximum). This programme costs 16 million euros per year.[124]

120 Interview with Dr. Gesa Koglin, ZDH, May 2018.

121 Ibid.

122 European Commission. A Study on R&D Tax Incentives Annex: Country fiches. November 2014. Available at http://ec.europa.eu/DocsRoom/documents/8033/attachments/1/translations/en/renditions/n

123 From an interview with Dr. Gesa Koglin, ZDH, May 2018.

124 In German, their name is 'Gewerbespezifische Beratungsstellen'. From an interview with Dr. Gesa Koglin, ZDH, May 2018.

F. Programmes of the Federal Government: The Federal Government[125] offers about 110 programmes (Förderkatalog) aiming to promote research, development and innovation for companies. These are technology-specific programmes or technology open programmes with the goal of promoting R&D and innovation in existing SME, or promoting the creation of new companies. The government also offers R&D and innovation consultancy.[126]

## Diffusion and adoption of innovation

A recent survey on the innovation behaviour of German businesses was carried out by the Centre for European Economic Research (ZEW) in Mannheim on behalf of the Federal Ministry of Education and Research.[127] The study found that for the first time in many years, the share of enterprises introducing innovations increased in 2016. The "rate of innovators", the share of businesses that have implemented product or process innovations, has climbed from 35.2 per cent to 36.1 per cent.

## Industry 4.0

*"The term "Industry 4.0" was first introduced by the German Industry-Science Research Alliance (Forschungsunion) in 2011. It refers to digitising industrial production. The concept outlines the vision of a smart factory, which is characterised by the complete networking of all production parts and processes: real time control via ITC and the increased use of robots, which control themselves. These developments that should contribute to greater productivity through resource efficiency. The shift is already under way and the concept of Industry 4.0 is shaping the digital discourse in Germany."*

Source: Social Innovation Policy for Industry 4.0
https://library.fes.de/pdf-files/wiso/11479.pdf

Working with large companies in the supply chain is very common across Germany. Small businesses in Germany rely heavily on large companies. In 2016 the automotive industry accounted for one third of total innovation expenditure in Germany and more than half of total innovation spending in the industrial sector.[128]

The service sector increased spending on innovation at an above-average rate of 3.9 per cent in 2016. The industrial sector experienced a 1.5 per cent increase in innovation expenditure. However, just under 70 per cent of companies in Germany with an annual turnover of less than €5 million indicated that digital technologies play only a minor or no role at all in their processes of value creation today." Figure 7 shows that the metals, chemical and construction industry sectors lag behind in digitisation.

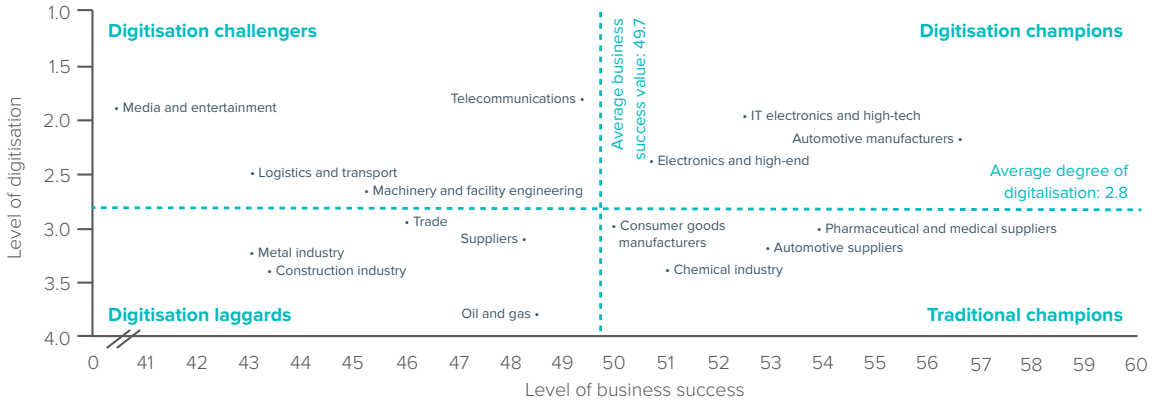
125 Project funding is delivered through the following ministeries: Federal Ministry of Education and Research, FMoEnvironment, Nature Conservation and Nuclear Safty, FMo of Economic Affairs and Energy, FMo Food and Agriculture, FMo Health, FMoTransport and Digital Infrastructure.

126 Interview with Dr. Gesa Koglin, ZDH, May 2018.

127 ZEW. Innovation Expenditure in the German Economy Reaches New Record High. February 2018. Available at https://www.zew.de/en/presse/pressearchiv/innovationsausgaben-der-deutschen-wirtschaft-erreichen-neuen-rekordwert/

128 Ibid.

**Figure 6**: Business success and degree of digitization according to sector, Germany[129]




The business success in the period between 2008-2012 is calculated as a value based on the average sales growth and the average profitability (measured as revenue and return on equity)' rating scale 100 = highest value and 0 = lowest value; the digitisation level is measured as a value based on digital frameworks, digital strategy, digital supply and digital processes and other sub-criteria; rating 1 = most, 2 = some, 3 = little, 4 = partially digitised, all values are calculated as unweighted averages. Source: Accenture 2014: 13.

129 Friedrich-Ebert-Stiftung. Social Innovation Policy and Industry 4.0. 2017. Available at https://library.fes.de/pdf-files/wiso/11479.pdf

# FULL RECOMMENDATIONS

## Definitions and language

Policy-makers should agree a standard definition of 'innovation' with a much stronger focus on new to firm or intra firm innovation and on intangibles and other forms of knowledge management. Innovation in relation to intangible assets such as investment in design, branding, software development and better leadership and management practices are all key forms of intra firm or 'wider' innovation. Further recommendations within this report will be focused on how to achieve parity of esteem between new to market and new to firm/ wider innovation.

Our research has shown a wide variety of definitions amongst policy-makers about what constitutes innovation. At its most narrow this follows conventional orthodoxy of innovation essentially being limited to new to market products (goods and services). Increasingly, there is recognition amongst policy-makers that new to firm or intra firm innovation, which is often described as incremental innovation, is just as important as new to market innovation in improving the productivity of the UK. This could include the introduction of new or significantly changed products or processes to a firm. We welcome the publication of the Small Business Productivity Review as it recognises the importance of incremental, intra firm innovation. There is also an even wider concept of innovation which includes a new marketing method or a new organisational method in business practices, workplace organisation or external relations. The importance of 'intangibles' and knowledge management particularly for innovation in the services sector is increasingly being recognised.

The term innovation, like that of productivity, should be re-conceptualised for communication with smaller businesses and sole traders. Discussing 'significant improvements made' might be more insightful than the use of the term innovation. Policy-makers and communicators should seek to learn from BeTheBusiness which strives to use practical language to engage smaller firms in the mission to improve the UK's productivity.

As with productivity it is essential to find an easy, emotive way to talk about innovation to business owners. The concept of significant business improvement has more resonance with smaller businesses and sole traders, than the term 'innovation' which is considered by many smaller businesses as a technocratic conceit. Our survey did not include reference to the term innovation and this seemed to broaden its appeal and relevance to our members. It also shows that most of our smaller businesses are striving to make significant improvements to their businesses. But translating this activity into significant improvements to sales growth, efficiency and productivity still has a way to go.

## New to market innovation Government support

The vast majority of Government support is focused on new to market innovation. Ninety per cent of smaller businesses have not accessed Government support to fund innovation. Forty-six per cent of those smaller business innovators who did not use Government support did not know about its availability. We would like to see the following put in place:

### UK Research and Innovation / Innovate UK

UK Research and Innovation should be the go-to-organisation for smaller firms in all sectors looking to undertake new to market innovation. Innovate UK (IUK), as part of UKRI, can provide advice and support both on the funds they run but also more general advice on R&D tax credits and Patent Box Tax Relief.

Support from the Knowledge Transfer Network (KTN) and the Enterprise Europe Network (EEN) is also offered as part of Innovate UK activity. Two specific areas for improvement are as follows:

A. Ensuring that the consortium building workshops run by the knowledge transfer network do not become dominated by the 'usual suspect' smaller companies.

B. That the referral system between LEPs and local growth hubs and the EEN operates effectively to ensure seamless support for small firms.

The Government should improve its Industrial Strategy Challenge Fund design to enable smaller businesses to be able to directly apply for funds as Government needs to incentivise SMEs to access ISCFs directly. They also need to overcome the hurdle of SMEs hiring external third-parties in order to fill out applications to IUK and UKRI. Where smaller businesses are involved in consortia or supply chains of larger businesses applying for the ISCF, the lead bidder must provide evidence of good supply chain practice as part of their bid, including how they propose to support smaller businesses in their supply chain to innovate

The Government should consider setting a floor target i.e. that a minimum proportion of spend to support the four grand challenges of AI/future mobility/clean energy and ageing society is set aside for direct spend with smaller businesses.

The Government should look at the Canadian 'super-cluster' model. The Canadian Government has asked various industries to submit applications for an industry vertical 'super-cluster'. An example might be a super-cluster for AI/machine learning and big data. The super-cluster would comprise of start-ups, SMEs and large companies. Super-cluster funds target contributions by both Government and matching funds from respective industries. The intended goal is to be able to compete globally and create important commercial opportunities.

## R&D Tax Credits

Governments in many countries have incentivised research and development investment in the economy by granting preferential tax treatment to eligible R&D expenditure, especially those incurred by firms. In 2016, 29 of 35 OECD countries, 22 of the 28 EU countries and a number of non OECD economies had offered R&D tax credits. As part of the R&D tax credits, super deductions are available.

In relation to the operation of R&D tax credits in the UK we recommend the following:

A. Government should not only pro-actively raise awareness of the R&D tax credits among small businesses, but also measure the increase in levels of awareness over time. We welcomed the proposed HMRC R&D tax credits awareness campaign announced in the Autumn Budget 2017, targeted on eligible small businesses. It is important that the campaign utilises LEPs and Growth Hub network. This is a key part of establishing a joined up approach.

B. Government should examine if the Advance Assurance scheme is signposted clearly enough for SMEs and consider providing 'a faster track for R&D' for SMEs, which will incentivise small businesses to plan to undertake R&D.

C. More broadly, the Government should look at how complexity in the system can be reduced for smaller businesses with relatively little administrative capacity. This will reduce the reliance of smaller businesses on intermediaries to navigate the tax relief system.

D. Government should improve clarity and understanding of the scope of what is covered through R&D tax credits. This will cover what we term 'new to market innovation for incorporated businesses'. However, smaller businesses need clarity on 'grey areas'. For example, the development of software, if it is unique to a firm and in the fields of science and technology can qualify for R&D expenditure.

E. Ease the administrative burden on smaller businesses by explaining what constitutes development. Smaller businesses report that time spent filling in forms on what constitutes development is an opportunity cost. Smaller business, more so than larger companies, need to make a significant effort to justify, record and account for HMRC procedures through the company's accounts. This entails significant administrative work, especially for year-long activities. For example, a firm needs to break down the amount of time that an employee spends on development activities. A larger company will likely have its own R&D department or a designated employee to undertake this work but this will be more challenging for smaller companies for obvious reasons.

F. Government should do more to encourage larger companies, in particular those who have already claimed R&D tax credits to support their own innovative suppliers, where in scope, to make their own claims. R&D tax credits are available for advances in science and technology that are considered 'new to the field', meaning the project must aim to create an advance in the overall subject area, not just within a particular business. FSB is keen to see larger companies work with their supply chain to promote and improve understanding of the SME R&D tax credit, the R&D Expenditure Credit and HMRC's Advance Assurance scheme. The R&D expenditure credit is particularly relevant to supply chains as it can be claimed by smaller businesses that have been subcontracted to do R&D work by a larger company or have received a grant or a subsidy.

## Patent Box Tax Relief

Eleven European Union (EU) countries have adopted "patent box" regimes that sharply reduce the corporate tax rate on qualifying intellectual property (IP) income to a nominal rate of 0-22 percent (effective tax rates typically are lower).

In the UK the effective tax rate for qualifying expenditure is 10 per cent. Tax incentives can be provided at the front-end of the innovation cycle, in the years when R&D expenditures are incurred, and/or at the back-end, in the years when income is generated from exploiting IP. Front-end tax incentives include "super" deductions and tax credits for qualifying R&D expenses. By contrast, patent box regimes are back-end incentives that provide a reduced corporate income tax rate for certain income arising from the exploitation of IP generally through a per cent deduction or exemption of qualifying IP income.

In addition to exploring the interaction of the patent box policy with R&D tax credit applications, the Government should also look at improving the awareness and understanding of it.

Evidence suggests that the majority of tax relief claimed to date under the Patent Box scheme (£616.6 million or 94.6% of the total) was claimed by 'large' companies, defined according to the EU Enterprise Size Classification (companies with a turnover above 50 million Euros or over 250 employees).[130] These 'large 'companies represented just over a quarter of the companies enrolled in the patent box (305 of 1135). Despite a large number (815) of small, medium and micro sized companies (again defined using the EU Enterprise Size Classification) claiming patent box relief in 2014-15, such companies received only 5.5 per cent of the total tax relief under the patent box.

## Catapults – supporting the commercialisation of innovation

Catapults are loosely based on the Fraunhofer model found within Germany.[131] We think that Catapults and Innovation, Research and Technology (IRT) private research organisations play an important role in supporting the commercialisation of innovation and we should also build on this existing infrastructure. All 11 Catapults are revising their business cases based on the recent E&Y review undertaken in November 2017.[132] It is essential that strong smaller business engagement is hardwired into each business case, with Catapults learning from best practice across the network. The IRT sector is vital in helping to raise the productivity of UK companies and in connecting businesses, government and academia to the resources needed for the successful uptake of new technology. A report by Oxford Economics shows the IRT sector has a combined turnover of £6.9bn and contributes £32-£36bn to UK GVA, supporting over 141,000 jobs.[133]

Innovation vouchers within England were available to support smaller businesses in accessing expert knowledge from a public institution in relation to innovation and were intended to pump prime interactions between smaller businesses, and for example, interaction through business and management schools. The efficacy of innovation vouchers is currently subject to evaluation

130 Patent Box, September 2017. Statistics on the uptake of the Patent Box. Available at: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/657848/Patent_Box_Statistics_2014-15.pdf

131 Bank of England, "The UK's Productivity Problem: Hub No Spokes" speech given by Andrew G Haldane, Chief Economist. 28 June, 2018, available at https://www.bankofengland.co.uk/-/media/boe/files/speech/2018/the-uks-productivity-problem-hub-no-spokes-speech-by-andy-haldane.pdf?la=en&hash=EBFB24E61501EC24D0F0D2545A49821623491D4B

132 Gov.uk. Catapult Network Review 2017, independent report from Ernst and Young. November 2017. Available at https://www.gov.uk/government/publications/catapult-network-review-2017-independent-report-from-ernst-and-young

133 AIRTO. Consultations and publications. Available at http://www.airto.co.uk/consultations-and-publications/

alongside innovation vouchers and business growth vouchers. However, in addition to looking at the possibility of vouchers, other interventions could be considered including, for example, the Innovation Assistants programme from Germany. This programme supports firms in recruiting young academics from universities and business schools. The assistants are employed primarily in the areas of innovation, product development/product preparation/design. The financial incentives are designed so, in most cases the subsidy (40 – 50% of the employee's gross salary) is paid for the first two years of employment in the company.[134]

### Small Business Research Initiative

The Industrial Strategy Green Paper, published in January 2017, highlighted the importance of public procurement in stimulating innovation within the UK economy, particularly through the Small Business Research Initiative (SBRI). In her speech to the CBI in November 2016, the Prime Minister announced a review of SBRI by David Connell *"to look at how we can increase its impact and give more innovators their first break".* His report was published alongside the Industrial Strategy White Paper in November 2017.[135]

Lead customer contracts to fund the development of new technologies and products have played a vital role in the early stages of the development and growth of innovative businesses, including not just small businesses, but those that have gone on to become major UK corporations. It is vital that the public sector plays its full role in this process. Innovative small businesses have much to offer in improving the public sector's cost effectiveness.

FSB welcomes the GovTech Accelerator fund established by the Government as a useful "first step" response to the Connell Review. However, this is restricted to digital technologies and has a very limited budget.

Though some very effective SBRI programmes have been run in some parts of the public sector, its penetration across eligible Departments and public sector bodies has been negatively impacted by different departmental perceptions of their responsibilities. FSB endorses the Review's recommendation to create a central SBRI fund to resolve this with a rolling five-year budget of £200m a year funded by the Treasury.

To ensure that SBRI programmes are fully "owned" by public sector customers, focused on unmet and emerging procurement needs, and run using best practice from the private sector, a small high level Board should be established to oversee the Fund as recommended in the Connell Review. We are keen to ensure that new small business ministerial champions promote the SBRI within their respective Departments.

## New to firm innovation

Achieve parity of esteem in Government interventions to support new to firm innovation alongside that to support new to market innovation. FSB evidence shows that new to firm innovation is significantly more prevalent than new to market innovation, and Government needs to put equal if not stronger emphasis on new to firm business improvements in its innovation policy to encourage an increase in the rate of diffusion of innovation. Increasing the rate of diffusion of intra-firm innovations, whether product or process, or wider innovation (organisational or marketing innovation) will lead, on aggregate, to significant increases in productivity.

134 Interview with Dr. Gesa Koglin, ZDH, May 2018.

135 Leveraging Public Procurement to Grow the Innovation Economy, An Independent Review of the Small Business Research Initiative by David Connell, November 2017, available at https://www.gov.uk/government/publications/leveraging-public-procurement-to-grow-the-innovation-economy-an-independent-review-of-the-small-business-research-initiative-sbri

## Business Basics Programme

We have welcomed the announcement of the new £8m fund to boost the productivity of small businesses in England through focusing on new to firm, incremental innovation. We are supportive of the pilots that are being progressed to identify the most effective interventions, such as the new Business Basics fund which is £5m of this £8m. Helping businesses, charities, trade organisations and public sector organisations support small businesses in adopting tried and tested technologies and management techniques is a worthwhile and important objective. However, it is important that the pilots take a stratified approach, for example, focusing on tackling the barriers that considerers and non-considerers report. This is also important to ensure genuine additionality. The adoption of digital technologies and leadership and management are two areas to focus on. We are also supportive of interventions by KTN to support the diffusion of adoption of new technologies amongst the wider business eco- system. The KTN has good visibility of innovations that can result in helping to improve productivity. They can help SMEs to understand the benefits of, for example, the '4 Manufacturing' Programme which supports the adoption of digital manufacturing. The KTN can take a new technology and ensure that smaller businesses customers (effectively part of the market for the new technology) understand what it can offer. If the smaller business then chooses to adopt the new technology this plays a critical role in supporting the diffusion of technology.

## Leadership and Management

Bridging the gap between ambition and reality to empower employees to have maximum impact by focusing on initiatives to support leadership and management development within smaller firms. Our evidence shows a significant discrepancy between the willingness of innovative employers for their employee's ideas to be a driver of innovation and the actual proportion of innovation that comes from employees (6%). It is also noticeable that the self-identified biggest barriers to innovating for 'considers' are essentially in relation to self-management (time management), strategic decision making (leadership) and skills availability/deployment (management). Remedies and interventions that we would like to see rectify this are as follows:

### *Supply side*

In the UK, successful management training for business owners includes the 10,000 Small Businesses by Goldman Sachs and the ELITE programme run by the London Stock Exchange. However these are highly selective programmes that in the main will focus on those businesses that are already scaling up. There appears to be a real gap in the market for more 'nuts and bolts' leadership and management training for those smaller businesses more likely to be located in the long tail.

A relatively new offering is 'Be the Business Productivity through People' programme - a 12-month regional productivity programme for SME leaders. Initially developed by BAE Systems, GSK, Rolls-Royce and Siemens and the University of Lancaster in January 2017, participants undertake a series of master classes, led by the leading business school faculty including industrial visits to some of the UK's leading businesses, alongside tailored mentoring. Programmes are currently underway in Lancaster, Bath and Glasgow, and a national roll-out is in development. We welcome this initiative, and its tripartite focus on academic learning, peer-to-peer support, and aiding diffusion from large firms to SMEs in their supply chain or in the regions where they operate.

Government should consider incentivising the further development of these programmes, and it is important to recognise the value of the large component of face-to-face engagement involved in these courses. However, the cost and time attached to these types of programmes can be off-putting for many smaller business members.

Universities should refine their existing small business offer. There is a need for many universities to move engagement from an ad-hoc to a more systematic basis, developing a strategy or programme of engagement which can then be more easily marketed to small businesses. Learning would benefit from being 'bite sized' so small businesses can undertake this activity in a flexible way. To support this ambition more could be done to promote the Small Business Charter (SBC) award which gives recognition to business schools that play an effective role in supporting small businesses, local economies and student entrepreneurship. In order to achieve the Small Business Charter award,

business schools undergo a rigorous assessment to determine the depth and effectiveness of their business engagement and business support. The effectiveness of the SBC Growth Voucher is currently being evaluated. It is important to learn lessons about what works and what does not work on this basis.

On a longer time frame we are keen to work with organisations such as Be the Business to explore how we can stimulate demand for, and the supply and availability of management and training packages for businesses. Offerings would need to be tailored according to the size of the business. Whilst some structured management techniques may not be as appropriate for micro businesses as opposed to small businesses, the objective of employee engagement is equally significant. It is therefore essential that the scope of any such initiatives has components relevant to micro businesses as well as small and mid-sized businesses.

### *Demand side*

Given the importance of leadership and management more generally to smaller businesses, Government should explore whether a tax credit or relief could be put in place to alleviate the opportunity costs attached to small business owners taking time out of their businesses to undertake leadership and management training. It is important that any such tax credit is accessible to all smaller businesses, including micro as well as small and mid-sized businesses, and in particular is marketed to those businesses most likely to be located in the long tail.

## Adoption of digital technologies

Encouraging greater take up of digital technologies to improve productivity. A significant proportion of small businesses are not introducing productivity-boosting technology into their businesses. Options to improve the uptake of digital technologies include enhancing demand for digital skills within businesses, developing a pipeline of workers with the appropriate digital skills and supporting the costs attached to adopting a new technology.

Business Growth Vouchers (a scheme which is currently being evaluated through Randomised Control Trial Methodology) allowed for up to £2,000 of Government funding, on the proviso this was match funded, to be provided to businesses seeking private funded external support. Strategic advice provided could be used to support smaller businesses to do any of the following: take steps to optimise the ability of customers to find the business through search engines, explore the costs of new hardware or software to enable the business to benefit from digital technology or to develop an e-commerce strategy. The first stage of the evaluation shows that while there is inevitably some deadweight, there is also material additionality. If policy-makers are looking at direct funding to support innovation there is scope for looking at how a variation of business growth vouchers could support smaller, and in particular, micro business take up of digital technologies. These interventions could be focused on supporting considerers, non- considerers, older established family businesses and other segments of the small business community where a financial nudge could have a material impact in supporting the adoption of digital technologies.

They could also be piloted as part of Industrial Strategy sector deals. This is particularly relevant for those sectors which struggle with innovation such as construction. The sector focus should also include those low wage, high employment sectors, such as retail and hospitality. The retail sector specifically needs support because technology is rapidly re-shaping the retail workforce. That is why FSB has called upon Government to focus on sector deals for low pay, high employment sectors as well as high tech ones. This focused approach will help to meet the additionality test.

International models that could be looked at include Israel's Small Business Administration grant for the diffusion of innovation and productivity increases. The SBA has launched a new policy tool to provide a grant for small businesses in the service and retail sectors.[136] This policy is targeting a specific peripheral region in the North of Israel which is considered less productive than the centre of Israel where most businesses are concentrated. The grant is designed to support a 'new to firm' improvement in one of the following types of innovation: process, product, or organisational. Performance will be judged in comparison to the current state of the business, and benchmarked to

136 SBA Grant for diffusion of innovation in small business in service and retail sectors. Available at https://www.sba.org.il/hb/AidPrograms/Pages/pr49.aspx

the market and industry in which the business operates. If the application is successful, the grant will provide 50 per cent of the total expenditure approved originally in the application, up to a maximum of about £105K.

The Government should look at Germany's innovation assistants programme. This programme supports firms in recruiting young academics from universities and business schools. The newly employed assistants are employed primarily in the areas of innovation, product development/product preparation/design. The financial incentive, in most cases the subsidy (40-50% of the employee's gross salary) is paid for the first two years of employment in the company. The Steinbeis Transfer Network is made up of more than 1,000 enterprises. Steinbeis Enterprises are frequently based at research institutions, in particular universities. The Steinbeis Network comprises of around 6,000 experts committed to the practical transfer process between academia and industry. They provide a network of technical professionals whose skills and expertise can be accessed by smaller businesses operating across Germany.

A judgement needs to be made on whether the focus should be on the costs and benefits of direct funding or whether to look at various tax incentives to achieve change. This could be achieved either through a broadening of the scope of R&D tax credits or through a separate tax incentive / relief. We believe the latter is probably preferable.

## Artificial intelligence (AI):

Supporting the gradual promotion of AI, particularly to less tech-orientated sectors and to micro or small businesses and sole traders. Government should encourage firms to modernise and work with digital technologies and experiment with AI. Our data suggests that 32 per cent of all small businesses think that AI would provide value to their business. This is in contrast to half (51%) who disagree, and think that it won't provide value to their business. Our data also suggests that AI is perceived as more relevant by the information and communication and professional, scientific and technical sectors.

Small businesses will need to adapt to AI, in the medium to longer term if they are to successfully compete both domestically and internationally in the future.

We recommend that Government works with small businesses especially in less tech-oriented sectors to make them AI-ready and to integrate the potential of this technology into their future growth plans. The age of business owners is a key determinant of small businesses' views on AI and its value. Half (47%) of all business owner aged 16 to 44 think that AI would provide value to their business, but as the age of business owner increases, the perception towards AI becomes negative.

Based on the Juergen Maier, review on working smarter, the Government has announced funding for a pilot in the North West to accelerate the development and diffusion of Industrial Digital Technologies through focused support to small and medium-sized enterprises in the UK regions. Whilst this is clearly a step in the right direction for the manufacturing sector – there are other sectors that would also benefit from this focused approach.

The business support landscape is complex, and is made up of public bodies alongside accountants, bank managers, lawyers and trade associations. All act as critical touchpoints with the smaller business and self-employed community.

Government must play a critical role here: providing co-ordination and stewardship to bring together the many actors involved in the complex and myriad business support landscape. In the future, making tax digital and tech, more generally, could play an important role in targeting small businesses with the appropriate information they need at the right time in the business lifecycle. However, until this technological revolution achieves critical mass, it is essential that work is undertaken with key intermediaries such as accountants and lawyers support to small businesses.

The private sector has an important role to play in this ecosystem. The work being developed by Be the Business, including its benchmarking and programme of peer-to-peer support, offers a new, business-led approach to helping firms improve. The insights generated through their work should also be applied, where possible, to broader public sector interventions. Enabling less productive companies to learn from more productive ones will support the overall diffusion of innovation including in relation to technology transfer.

New and existing Government interventions should be promoted through Growth Hubs in various regions across England, and the designated bodies in the devolved nations. However, Government should improve the signposting process.

The data suggests that any decision on the type of support to be provided to smaller business should factor in the number of years that the firm has been in business. Innovators' intention to grow changes with age or years in business. Based on our findings, small businesses with more years in business have more moderate growth aspirations.

Internationalisation and innovation are linked and Government should mainstream its policy across departments. It is essential to not only adopt but to make a reality of the policy of 'no wrong door'. The synergies between access to finance, innovation and exporting should be capitalised upon by raising awareness of complementary initiatives – whichever door a small business walks through.

Exporting grants and vouchers should also be made available to micro and small as well as mid-sized firms. This is particularly important in supporting exporting to outside of the EU single market and EU Customs Union.

## Sector specific support

Our evidence suggests there is a particular issue with the construction sector which seems to struggle with innovation. Therefore, we want to see innovation hardwired into its sector deal. We also want to see a published small business impact assessment for each sector deal, to enable proper scrutiny of the net benefits to smaller businesses.

# METHODOLOGY

The survey was sent to all FSB members across the UK. Individuals were invited to participate in the survey via email and social media channels. The survey was administered by the research agency Verve and was in the field from 19 March to 2 April 2018. The survey was completed by a total of 1,279 small businesses.

To supplement the survey, semi-structured interviews and focus groups were held in London, Cardiff and Glasgow with FSB members during April 2018. Interviews to develop international case studies on Israel and Germany were conducted from February to May 2018.

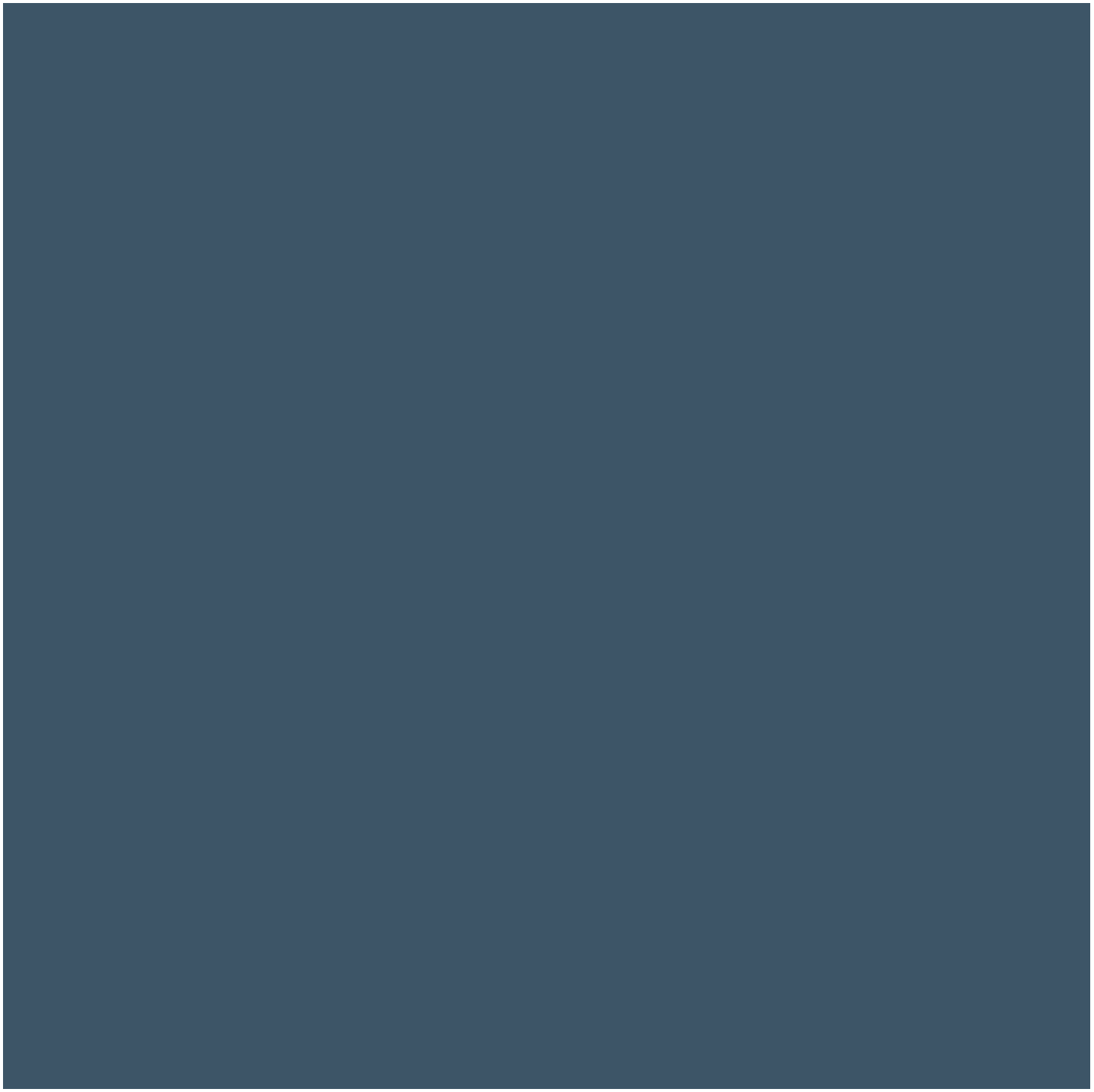
# APPENDIX I: BUSINESS SUPPORT FOR INNOVATION IN THE DEVOLVED NATIONS

Given that much innovation occurs without any Government intervention at all, together with interdepartmental spending priorities and private sector investment, it is no simple task to strategise and implement wide ranging stimulation measures across the UK, or within devolved nations.

Each nation has its own strengths, areas for improvement and political priorities which can be subject to constant change. However, it is clear that innovation is more than a concept in Government – innovation forms a key priority in each UK administration and in the overall UK Industrial Strategy. Given the analysis on England in Chapter 6 of this report, for information and further reading, the following table provides a link to each devolved nation's strategy, region-wide programmes and key EU funding draw down.

**Table 8:** Business support for innovation in the devolved nations

| Innovation intervention | Northern Ireland | Scotland | Wales |
|---|---|---|---|
| **Nation Innovation Strategy** | - Strategy in place 2014 to 2025<br>- Focus on cultural change, knowledge generation and knowledge exchange<br>- Specific micro/ SME section<br>- Progress reports every six months | - Innovation Action Plan 2017<br>- Focus on using Government spend to catalyze innovation, the circular economy, university expertise to diffuse innovation<br>- Measured through annual countrywide indicators | - Innovation Wales Strategy 2014<br>- Five key themes: collaboration, a culture of innovation, flexible support for innovation, creating critical mass, innovation in government.<br>- New body 'Research and Innovation Wales' is being developed |
| **Region wide programmes** | - Knowledge Transfer Partnerships NI<br>- Innovation Vouchers £5k<br>- SME Challenge programme<br>- Innovation Factory or equivalent in each council area<br>- institute of innovation & knowledge exchange | - Knowledge Transfer Partnerships Scotland<br>- Scottish Innovation Centres<br>- Highlands and Islands Enterprise<br>- Business Gateway Centres<br>- "Make Innovation happen" for Food and Drink | - Knowledge Transfer Partnerships Wales<br>- SMART Partnerships where WG provides 50% funding for collaboration between HE and SMEs<br>- CRISP funding, available to all organisations 50% funding up to £5,000 |
| **EU programmes** | - EU access to Finance programmes<br>- Horizon 2020 Northern Ireland<br>- ClusterS3 business collaboration project<br>- EU Private sector finance programmes | - Horizon 2020 SME Engagement Scheme<br>- Interreg Scotland<br>- EU Private sector finance programmes | - SMART Innovation provides consultancy and advice to SMEs, using EU funding<br>- Horizon 2020 Wales<br>- EU Private sector finance programmes |





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