



"This report argues that small firms should make better use of digital technologies to tackle the sluggish productivity which characterised the pre-Covid economy and bounce back faster post lockdown."

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FOREWORD



GARY TURNERManaging Director, Xero UK

While the impact of the coronavirus pandemic on small firms is yet to play out in full, it has shown us that firms that can put digital delivery at their core will fare better in most circumstances.

Indeed, one of the remarkable achievements of so many small firms in recent months has been how they have been able to switch their business models to operate differently.

Using technology to adapt

Office workers became home workers, using cloud and other digital technologies. Retail firms quickly moved online to both capture and serve customer demand.

A mature post-Covid-19 economy will look different in ways that we cannot yet know. Meanwhile, we remain vulnerable to new interruptions for some time.

Technology will be critical to help firms get, sell and operate online, to be ready for future disruption and to adjust to changing customer patterns.

Small businesses are discovering new digital ways to achieve greater value, scale and resilience.

We now need to accelerate that to help small firms recover and rebuild.

The benefit of digital adoption

Some firms will find it easy to make the most of the right technology and adapt. Others will struggle.

Hence, the lessons in this study on how we can encourage greater use of the right technology are more important than ever. Not only will they help close the digital gap, but they will help firms digitise to drive growth and productivity and guard against future disruption.

The policy recommendations here are important to help firms across the country to recover and rebuild. In doing so, they support the government to make good on its election promise to 'level up' the UK's regions.

"The lessons in this study on how we can encourage greater use of the right technology are more important than ever."

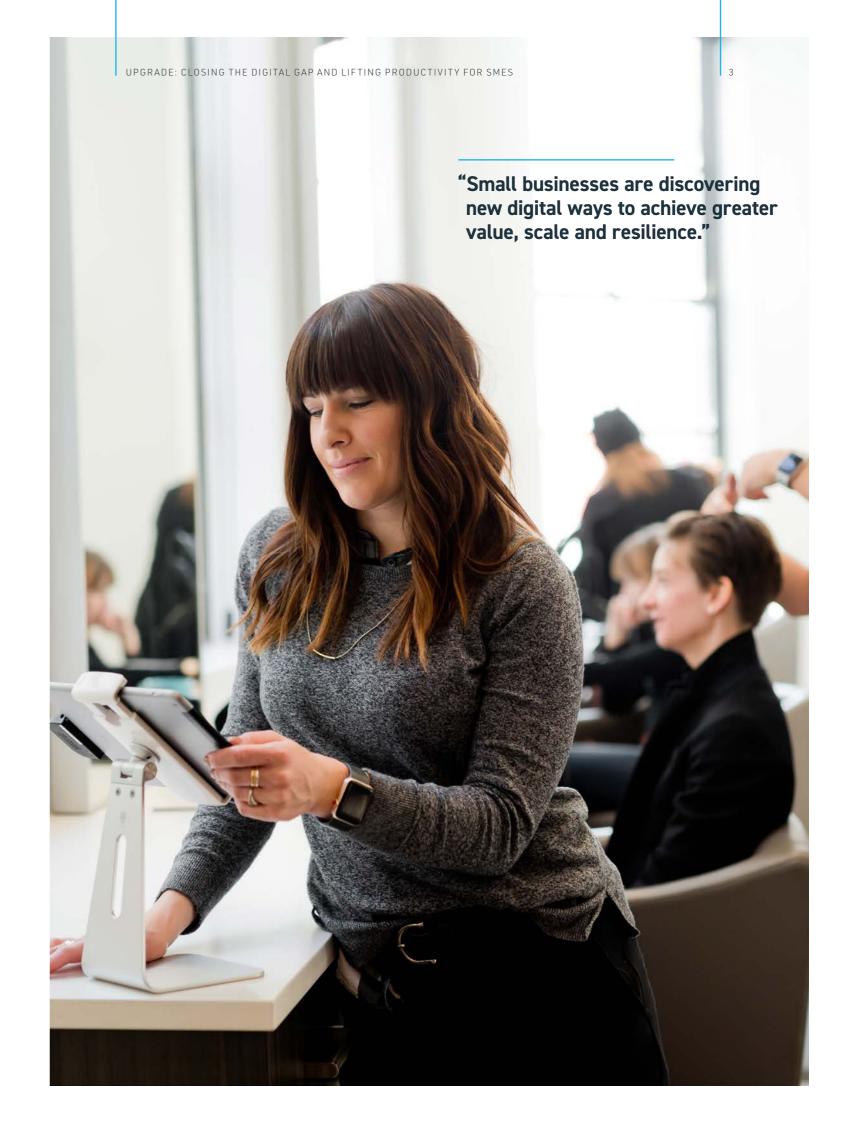
This study follows a report we launched in New Zealand on the benefits of cloud-based tools. That report shows that a 20% improvement in the uptake of cloud computing would grow New Zealand GDP by between NZ\$3.5bn and NZ\$6.2bn.

Supporting the UK's small business economy

At Xero, the UK's leading online platform for small businesses and their advisors, we support more than 600,000 British businesses.

We understand how difficult it has been for small businesses over recent months.

That's why we want to do all we can to make life a little simpler, more seamless and smarter for small firms to create the right conditions to recover and rebuild.









EXECUTIVE SUMMARY

The UK is a world-leader in innovation, with 70 tech unicorns (privately-held startup companies valued at over \$1 billion). That's twice as many as our closest European rivals. Yet a third of UK small and medium enterprises (SMEs) have very low levels of digitisation. The story is reflected in our productivity statistics.

These productivity problems have been well documented but are notoriously hard to shift.

Key to understanding the UK's poor productivity performance is understanding the gap between the UK's most and least productive businesses. This gap is a major contributor to the UK's persistently low levels of productivity relative to other major economies.

The UK underperforms on most productivity measures (Gross Domestic Product (GDP) per worker and GDP per hour worked) compared to other G7 countries, a group of seven advanced economies. If the UK were as productive as the average G7 nation, GDP would be 16.3% higher.

Since the global financial crisis, the UK has experienced a dramatic slowdown in productivity growth. This has impacted wage growth. If productivity had grown at its precrisis trend, the average worker would now earn £5,000 more a year.

This report argues that poor take-up of digital technologies by small businesses is a central element of our productivity crisis. It also quantifies the cost to the UK economy of this digital gap for GDP and shows what closing that gap would mean in terms of increased productivity.

If the UK's 1.1m micro businesses (one to nine employees) doubled their uptake of five key digital technologies, it would lead to a £16.6bn boost in gross value added. These five technologies include customer relationship management (CRM), e-commerce, cloud-based computing, web-based accounting software, and computer-aided design.

This digital uptake amounts to a £4,050 average productivity boost for the 4.09m workers employed by micro businesses. For this group, it would restore four-fifths of lost productivity since the financial crisis.

As the COVID-19 pandemic has forced businesses to go remote and adapt to social distancing measures, digital adoption has become even more important. Businesses that fail to adopt digital technology, whether e-commerce or cloud storage, will increasingly struggle.

"As the COVID-19 pandemic has forced businesses to go remote and adapt to social distancing measures, digital adoption has become even more important."

Digital adoption boosts productivity

Closing the gap between the productivity leaders and laggards will be key to levelling up productivity in the UK. This matters because in the long run, higher productivity is the only way to increase living standards.

Better productivity boosts wages and tax revenues

It follows that improving digital take-up among small businesses would improve productivity overall. It would mean fewer unnecessary business failures, higher wages, and more tax revenue to fund public services.

Lifting the digital adoption rates of this long tail to catch up with Europe's leaders would translate to sizable productivity gains.

We examine the barriers to the uptake of digital technologies by UK SMEs and argue that government policy should address these challenges much more explicitly.

We identify three key steps the government and other actors should take.

Key issues: knowledge, skills and finance

We recommend reforms on improving the knowledge and skills of entrepreneurs, as well as recommendations around access to finance.

In particular, we focus on expanding access to information through networking.

SME owners are often unaware of the benefits of digital adoption and under-invest as a result. Even when the need to go digital is identified, SMEs can struggle to find the right product or tool.

Peer-to-peer learning has proven to increase digital uptake in other countries, and the UK government should ensure we do the same here.

Encouraging digital capability will help solve the productivity problem

Solving Britain's productivity puzzle has been at the top of the government's agenda for years. It will be complex to solve but focusing on the digital capabilities of SMEs will be a critical step in the right direction.

SUMMARY OF RECOMMENDATIONS

The UK's productivity puzzle will not be solved by any single intervention. However, we identify three barriers preventing businesses from adopting digital technology: knowledge, skills, and finance.

We propose specific policy recommendations to help overcome these barriers.



If businesses are unable to identify the benefits of adopting a digital solution or cannot assess whether a solution will work, then they will under-invest in technology.

The government should follow international best practice and fund established business networks to deliver peer-to-peer training programmes for SMEs.



Even if a business can identify the right solution, they may not be able to implement it if they lack digital skills in-house and cannot afford to hire external specialists.



Many digital solutions can be trialled cheaply and may even generate costsavings in the near term. However, more ambitious bespoke solutions may be expensive to implement and only pay off in the long term.

Accessing external finance for digital projects can be difficult as banks prefer to fund less risky investments in physical capital where their expertise is greater and there is a physical asset as collateral.

Recommendation 1: prioritise support for peer-to-peer learning initiatives

Recommendation 2: outsource the provision of business advice to existing trusted groups

Recommendation 3: do more to leverage relations between SMEs and accountants

self-funded training

Recommendation 5: improve awareness of and access to digital

Recommendation 4: allow tax relief for **Recommendation 6:** ensure better awareness of tech grant schemes

> **Recommendation 7:** improve the impact of tech grant schemes

Recommendation 8: allow research and development (R&D) tax relief for user interface and user experience development work

Recommendation 9: improve the promotion of and access to R&D tax credit schemes

"If the UK's 1.1m micro businesses doubled their uptake of the five key digital technologies, it would lead to a £16.6bn boost in gross value added."

INTRODUCTION

The COVID-19 pandemic has forced businesses to adapt to a dramatically different business environment. Shops have shifted to selling online, accelerating a long-term trend towards e-commerce. While cloud computing and video-conferencing have enabled workforces to go remote and allowed businesses to continue trading. Digital technologies have been a lifeline.

However, many businesses will have struggled to adapt. The UK has a long tail of SMEs with very low levels of technology use. Before the pandemic, their failure to adopt digital technologies was a key contributor to the UK's low productivity levels. In this report, we review the evidence on the relationship between digital adoption and productivity and identify ways to get more SMEs to use productivity-enhancing technology.

This report is divided into three sections.



1. Technology and productivity

We review the academic evidence on the link between digital adoption and productivity. We discuss a range of digital tools that directly address the businesscritical issues that SMEs face, from managing cash flow and dealing with late payments to finding new sales leads.



2. Digital adoption in the UK and beyond

We look at the levels of small business digital adoption within the UK and benchmark performance using a range of international sources to better understand the opportunity.



3. The barriers to digital adoption

Finally, we consider the underlying causes and barriers to further digital adoption by SMEs, focusing on knowledge barriers, the value of networking, skill shortages, and access to finance. We put forward a range of tax and informationfocused recommendations to address these barriers.

THE ENTREPRENEURS NETWORK



1. TECHNOLOGY AND PRODUCTIVITY

Improving productivity is about finding new ways to do more with less. It is the driving force behind sustainable economic growth. For workers, higher productivity translates to higher wages. For businesses, it could be the difference between failure, survival, and success.

The productivity challenge

Analysis of the UK's productivity puzzle reveals that while we underperform on average, our top-performing companies are on par with top-performing companies in other G7 nations. The problem is the large gap between the UK economy's 'leaders and laggards'.

"Almost two-thirds (65%) of SMEs that fail do so because of cash flow issues."

The issue is particularly stark in the services sector, where the gap between the top- and bottom-performing 10% of businesses is 80% larger in the UK than in France, Germany, and the US. If middling businesses matched the performance of the UK's topperforming firms, the productivity gain would take the UK to within

90-95% of German and French levels respectively.² The challenge for policymakers is to ensure that business best practices spread from the top performers to the long tail.

Establishing the link between productivity and technology

The UK's Office for National Statistics (ONS) compared the productivity of businesses with different levels of information and communications technology (ICT) adoption. The ONS found that firms using more digital tools had more sales per worker.

The study used three ICT intensity indicators covering e-commerce, business organisation, and ICT resourcing (i.e. does the firm hire ICT specialists and/or provide ICT training to staff?). The ONS found that a 1.0% increase in turnover share through web sales correlates with a 0.2% increase in productivity.

The gains associated with adopting digital tools vary by sector. Service businesses tend to have a stronger relationship between commerce and business organisation adoption and productivity. On the other hand, manufacturers see a stronger productivity link when hiring ICT specialists.

How technology can boost productivity

Digitisation can support productivity-enhancing innovations in two ways.

First, direct and tangible innovations work to reduce the admin or time burden of particular tasks.

For instance, optical character recognition (OCR) applications help users scan printed or handwritten documents into versions that can be edited in word processors.



^{2.} Jackson, G. (2017). Inside the project to fix Britain's low-performing businesses. The Financial Times.





"A 1.0% increase in turnover share through web sales correlated with a 0.2% increase in productivity."

These apps can automate data entry tasks and reduce resource use. As a result, workers can be deployed to more valuable tasks. When OCR applications are integrated with cloudstorage systems, they can also enable workers to access documents securely from home.

The second type of innovation is indirect and intangible. These innovations work by giving managers better information and facilitating communication between workers.

For example, project management apps enable large teams to work on complex projects. Using this kind of software helps managers identify unnecessary duplications of effort and where workers need more support.

Along the same lines, CRM software lets a business keep track of potential customers, translate leads into more sales, and better monitor worker performance.

In some cases, the superior information that software provides can help solve business-critical issues such as late payments.

Research from global small business platform Xero finds that almost two-thirds (65%) of SMEs that fail do so because of cash flow issues.³ Data from Xero's Small Business Insights,

its scorecard on the health of the small business economy, shows the average UK small business is owed £23,360 in late payments. 4

Research from the Federation of Small Businesses (FSB), the UK business lobby that represents small firms, finds that 37% of small businesses run into cash flow issues.⁵

"If middling businesses matched the performance of the UK's topperforming firms, the productivity gain would take the UK to within 90-95% of German and French levels."

However, a new range of products integrate with accounting software to produce detailed cash flow forecasts in an easy to digest format. As a result, business owners are made aware of future crunch points and can plan accordingly, for example, by using invoice finance if necessary. Better information on cash flow will improve productivity by allowing entrepreneurs to take on more work and operate at full capacity, improving sales per worker.

Xero. (2017). Make or Break? An investigation by Xero into what separates successful entrepreneurs from those who fail.

⁴ Xero. (2019). The State of Late Payments 2019.

⁵ Baruch, B. (2016). Time to Act. Federation of Small Businesses



CASE STUDY USING AUTOMATION AND MACHINE LEARNING TO REDUCE ERRORS AND ADMIN

Polaris Transportation Group, a 25-year-old trucking company that employs 180 people, automated their cross-border freight document processing. This move saved two-to-three hours a day on paperwork and cut errors by 30%.

Dave Brajkovich, Polaris' Chief Technology Officer, said "The automation enabled our sales pipeline to scale without relying on hiring temporary workers." Less time spent on paperwork meant the customer service team could spend more time on exceptional cases that required extra attention.

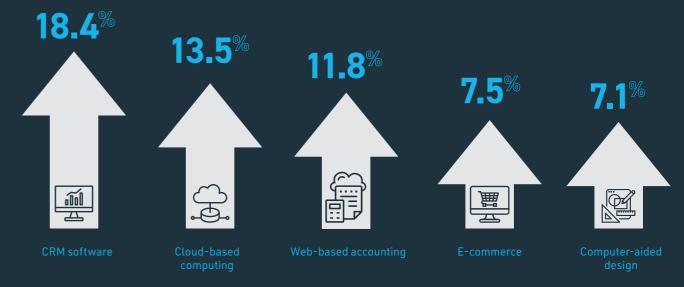
This automation supported Polaris' managerial effectiveness by creating more time to talk with planning and dispatch teams. Brajkovich says, "The adoption was well received once employees realised that automation allowed their skill sets to move beyond just clerical functions." The team has

also automated order entry and is now "on a path to create a userless systems environment for the entire order to cash process."

To deliver digital change, Polaris teamed up with WorkFusion, a dedicated automation service, and worked with NorthStar Digital Solutions, a professional service provider. "We enlisted the help of professional service providers and industry subject matter experts from NorthStar Digital Solutions and did deep due diligence to pick the right solution and method of attaining our goals."

THE IMPACT OF TECHNOLOGICAL SOLUTIONS ON PRODUCTIVITY

(Source: Enterprise Research Centre)



A £16bn prize: the impact of getting it right

The Enterprise Research Centre (ERC), the UK's leading SME research centre, surveys micro businesses across Britain. It interviews 6,200 micro firms (with one to nine employees) and asks them about their turnover, technology adoption and business ambition. The survey considers seven different technological solutions.⁶

While the study is correlational, the time-lag in the relationship between technology adoption and turnover per employee lets the researchers draw a causal link.⁷

Three years after adoption, they found that:

- CRM software increased sales per employee by 18.4%
- Cloud-based computing increased sales per employee by 13.5%
- Web-based accounting software added 11.8% to sales per employee

- E-commerce added 7.5% to sales per employee
- Computer-aided design (CAD) added 7.1% to sales per employee

Based on these numbers, if the UK's 1.1m micro businesses doubled their uptake of the above five technologies, it would lead to a productivity boost of £16.6bn. Which translates to a £4,050 average wage increase for the 17.6% of workers employed in micro businesses. For this group, it would reverse four-fifths of the wage-growth slowdown since the 2008 financial crisis.8

This research only covers the UK's 1.1m micro businesses but the findings likely apply to larger SMEs employing between 10-249 workers. The opportunity to boost productivity, wages and living standards by increasing digital adoption is massive.

⁶ CRM, ecommerce, cloud-based computing, web-based accounting software, computer aided design, Al, and machine learning.

Roper, S., Hart, M., Bourke, J., and Hathaway, K. (2018) "Micro-business Britain: Pathways to productivity – ambition, innovation, adoption" in State of Small Business Britain 2018

The ERC data also found that adopting machine learning or artificial intelligence technologies led to lower levels of sales per employee. The productivity hit may reflect the perils of being an early adopter. Alternatively, it may be that many AI/ML investments only pay off when a firm reaches scale. For example, an algorithm designed to deal with automatically directing customer service issues to relevant departments might make sense if you have thousands of customers but not if you only have 50. This is supported by further ERC research which finds a link between a firm's growth ambitions and the likelihood they adopt less mature technologies. In other words, whether or not you invest will depend on your estimated ability to spread out the large upfront costs over thousands of sales.

CASE STUDY UNLOCKING NEW OPPORTUNITIES FOR DIGITISATION WITH OPEN BANKING

but sending money across borders can be expensive and time-consuming. Over the past decade, a range of businesses potentially enabling them to reduce financing costs for SMEs. have started to make this cheaper. TransferWise, one of the largest, processes £4bn in payments each month, which they estimate saves their 7m business and personal customers around £1bn per year. Beyond reducing fees, they enable businesses to open multi-currency accounts and integrate with accounting software such as Xero, allowing SMEs to pay multiple bills in a single transaction.

THE ENTREPRENEURS NETWORK

TransferWise takes advantage of the UK's pro-competition open banking reforms, which enables individuals and SMEs to securely share their bank account information with third-parties through an API. For instance, to fund their TransferWise transfers, customers in the UK have three options: they can make a bank transfer manually from their bank account, they can use a debit/credit card directly on TransferWise's platform, or they can use Open Banking. Using the Open Banking system TransferWise prefills the bank transfer form, and customers are then redirected to their bank of choice where they can confirm the payment, streamlining the process significantly.

Open banking has wide-ranging potential to help SMEs grow. Under the status quo, SME borrowers typically have to submit three to six months' worth of bank statements to demonstrate creditworthiness and cashflow. The process typically meant most SMEs were reluctant to approach lenders other than their main bank. By allowing SMEs to share data securely with lenders, it's easier for SMEs to shop around. A number of business loan providers, including iwoca, Funding

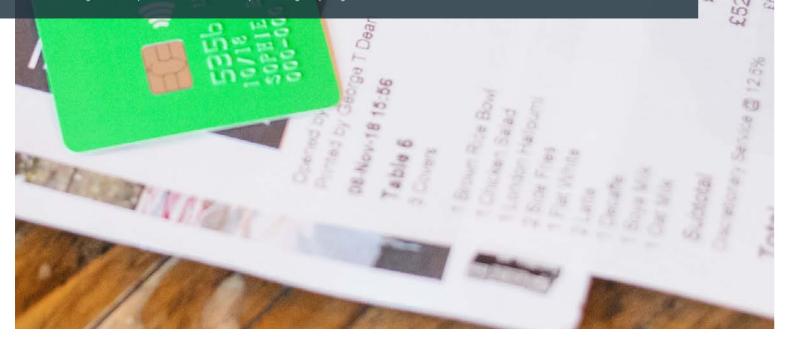
Exporting can be a key driver of productivity growth for SMEs, Options, and GrowthStreet are testing using Open Banking to streamline the lending process and reduce risks of fraud,

> But as Lars Trunin, Head of UK Product at TransferWise, notes: "One of the biggest challenges for Open Banking is to improve the user experience. Currently, banks' user interface can be flawed, making the success rate of open banking transactions low, even if the process is faster and easier compared to normal bank transfers."

> One potential reform to make it more user friendly would be to change rules which require customers to re-authorise third-party providers (i.e. fintechs like TransferWise) every 90 days, a move which increases friction for customers. In a recent report, one third party provider also claimed that the requirement undermined investments into customer acquisition, stating: "What are the chances that the customer comes back and re-authenticates? Certainly not a hundred per cent. So, I've just got arbitrary churn in my business introduced by fairly spurious regulation."1

TransferWise's Lars Trunin suggests another reform that would help SMEs would be "to make account information more accessible and usable in a wider range of applications." He argues this "would allow accounting softwares and payment services providers to use Open Banking for all their connectivity needs." Open banking reforms could drive digital adoption in the UK, but it will require banks, policymakers, and innovators to work together to ensure the reforms are fully implemented.

1 Fingleton and Open Data Institute (2019) Open Banking: Preparing for lift off.



2. DIGITAL ADOPTION IN THE UK **AND BEYOND**

Two-speed digitisation

As outlined in the previous section, a stark feature of the UK economy is the chasm between the most productive and the least productive firms.

Digital adoption is a similar story.

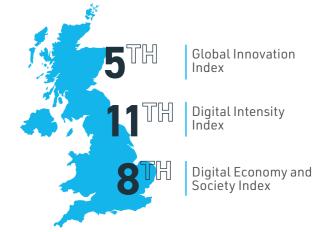
- The UK is a world-leader in innovation, placing in the top five out of 129 countries on the World Intellectual Property Organisation's Global Innovation Index for each of the past six years.9
- The EU's Innovation Scorecard describes the UK as a 'strong innovator' and the UK has 50% higher employment in knowledge-intensive industries such as tech, finance, and pharmaceuticals, relative to the EU average.10
- We also have higher rates of SMEs introducing new product, marketing, and organisational innovations compared to the EU average.¹¹
- As a share of GDP, the UK has the fifth largest ICT sector in the OECD, highlighting how we punch above our weight.12
- The UK outperforms the EU average on most measures of business digitisation. For instance, nearly a third of UK firms (30%) use cloud solutions (versus the EU average of 18%).

However, the UK's innovation strength isn't resulting in triedand-tested digital best practices being diffused throughout the wider economy.

The most recent Global Innovation Index of 129 countries ranks the UK fifth for knowledge creation (for instance, patenting, creating new tech business). However, on knowledge diffusion (spreading best practices to all SMEs), the UK ranks 12th, up from 20th the year before.

UK PERFORMANCE IN INTERNATIONAL INDICES

(Source: European Union's Digital Economy and Society Index)



Our performance is underwhelming given our broader strengths in innovation. Of 28 countries in the EU Digital Indices:

- The UK ranks 26th for use of enterprise resource planning
- The UK ranks 10th on e-commerce (selling goods and services online) and 8th on e-business (use of digital technology in business).14

There is a significant digital gap between the UK and Europe's digital leaders:

- The UK ranks 11th on the EU's Digital Intensity Index. The sub-index measures the uptake at a firm level of 12 different digital technologies, ranging from sending electronic invoices to fast broadband. This ranking is ahead of Germany and France but behind the Nordics, the Netherlands, Belgium, and Ireland.
- In the UK, just 3% of businesses use ten or more of 12 key digital technologies. By contrast, 12% of Danish businesses use ten or more.

8

Dutta, S., Lanvin, B., & Wunsch-Vincent, S. (Eds.). (2019). Global innovation index 2019: Creating Healthy Lives - The Future of Medical Innovation. World Intellectual Property Office.

European Commission. (2019). European Innovation Scoreboard 2019.

¹¹ Ibid.

¹² International Monetary Fund. (2018). Measuring the Digital Economy.

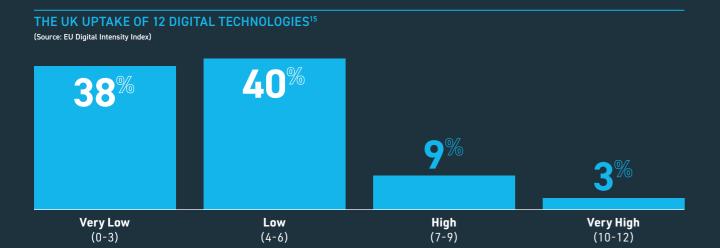
¹³ European Commission. (2019). Digital Economy and Society Index.

European Commission. (2020). Digital Economy and Society Index.

THE EU DIGITAL INTENSITY INDEX

BUSINESSES ARE ASSESSED ON THEIR USE OF 12 KEY DIGITAL TECHNOLOGIES.

	Internet for at least 50% of people employed
	Recourse to ICT specialists
7	Fast broadband (30 Mbps or above)
	Mobile internet devices for at least 20% of people employed
	A website or homepage
®	A website with sophisticated functions
<u></u>	Social media
E	Paying to advertise on the internet
	Buying cloud computing services
	Sending e-invoices suitable for automated processing
	E-commerce web sales accounting for at least 1% of total turnover
	Business-to-consumer (B2C) web sales of over 10% of total web sales



- The UK has a large proportion of businesses (38%) with very low levels of digital adoption (ticking three or fewer boxes). However, this is better than the EU average (44%).
- Overall, there is substantial room for improvement. In Sweden and the Netherlands, 79% of businesses tick four or more boxes (15pp higher than the UK), and in Finland, it rises to an impressive 89% (27pp higher than the UK).

"In 2012, just under 10% of micro businesses stored data in the cloud; in 2018 that had more than quadrupled to 40%"

Putting a spotlight on micro businesses to understand digital adoption

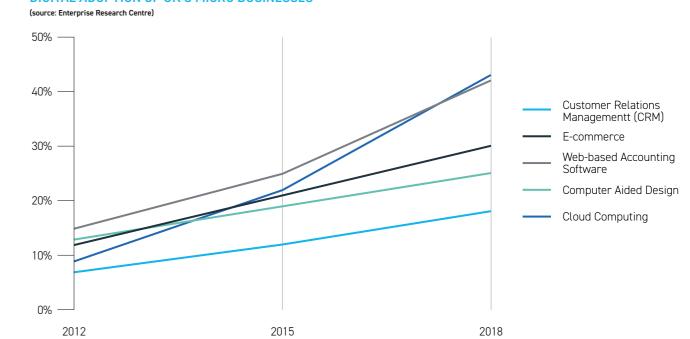
The ERC's Micro Business Britain survey highlights a significant trend of micro business digitisation over the past six years. For instance, in 2012, just under 10% of micro businesses stored data in the cloud. In 2018 that had more than quadrupled to 40%. ¹⁶

The proportion of micro-businesses using CRM, web-based accounting software, and selling goods online has more than doubled. However, while adoption has improved, there are still a large proportion of micro businesses with low levels of digital adoption contributing to low levels of productivity in the UK.

There is hope yet for the 38% of British businesses with very low levels of digital adoption. Micro businesses are closing the gap. Reaching Finnish, Swedish or Dutch levels of adoption is achievable, with the right support.

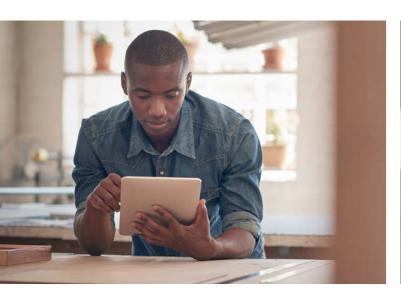
But why do some firms innovate and adopt digital solutions, while others don't? In the next section, we consider three major barriers to digital adoption: knowledge, skills, and finance.

DIGITAL ADOPTION OF UK'S MICRO BUSINESSES



¹⁵ European Commission. (2018). Digital Intensity Index 2018.

¹⁶ II







3. THE BARRIERS TO DIGITAL ADOPTION

While the causes of the UK's digital adoption underperformance are complex, three potential reasons stand out.

First, research suggests small business owners often fail to monitor productivity and don't have the time to research technology solutions.

Second, businesses complain of a skill shortage and digital skills are in high demand.

Third, ambitious digital transformations may require access to external capital, but traditional lenders are often averse to financing them.

"80% of SME owners believe their business is as productive or more productive than their peers."

Knowledge

Adopting digital tools isn't without risk. Implementing digital solutions can be expensive, disruptive and time-consuming, and there's no guarantee of a long-run payoff. The decision to digitise shouldn't be taken lightly.

When it comes to adopting technology to boost productivity, we find small businesses lack knowledge in two critical areas.

They often fail to measure their productivity and they often don't know where to turn when it comes to finding out more.

For both problems, networks are a promising solution. But not all networks are equally helpful. We discuss the research explaining why some work better than others.

Monitoring productivity, processes and digital alternatives

Business owners may be unaware of the potential productivity gains from implementing digital solutions because they do not monitor their productivity. This failure can lead to overconfidence and complacency.

- One study found that 80% of SME owners believe their business is as productive or more productive than their peers.¹⁷
- The Behavioural Insight Team, a research-led organisation that was previously part of the Cabinet Office, suggests small firms often believe other firms in their sector have poor productivity. This leads to complacency where small firms don't try to improve their own productivity.

Given improvements in productivity can be the difference between an SMEs failure and success, we should be concerned that the Institute of Directors (IoD), a business lobby group for small and medium sized firms, finds that the majority of SME owners do not benchmark productivity. Many don't think it's even necessary. 18

Monitoring productivity by reviewing business processes can have significant benefits.

An analysis of a Swedish scheme, the Regional Business Development programme, which offered to fund business support, provides surprising evidence for the claim.

It finds that businesses may have received more benefits from applying for the grant than they did from the grant itself. This is because, in applying for the grant, these businesses invested the time to identify problems and formulate solutions.¹⁹

Even when business owners do appreciate the need to improve productivity, they often lack the time and resources to research digital tools and test solutions. The IoD finds this to be the top challenge for SME owners when developing technological solutions for their business.

Networking and knowledge sharing

Networks, both formal and informal, can help business owners overcome knowledge gaps. To the extent that trust is an issue, business owners are more likely to trust other business owners as impartial sources of information. Furthermore, exposure to businesses with high levels of digital usage may challenge inaccurate beliefs about productivity. Research finds founders with more connections are more likely to be exposed to useful knowledge about the benefits of digital adoption and appreciate the importance of digital adoption.^{20, 21}

For example, a Chinese randomised-controlled trial found businesses that met monthly for a year were more likely to adopt management best practices. They were also more likely to introduce new products and had 8.1% higher revenues (compared to a control group).²²

Micro businesses that engaged with formal business organisations or networks had higher levels of digital adoption in the UK, US, and Ireland. Furthermore, among UK SMEs with 50 or fewer employees, contact with external sources of advice through membership of business advisory networks is linked to best practice adoption. 4

Parikh, T. (2018). Lifting the long tail: the productivity challenge through the eyes of small business lenders. Institute of Directors.

¹⁹ Jonas, M. A. and Widerstedt, B. (2012). The Swedish Business Development Program – Evaluation and some methodological and practical notes. European Regional Science Association.

²⁰ Choi, H., Kim, S. H., & Lee, J. (2010). Role of network structure and network effects in diffusion of innovations. *Industrial Marketing Management*, 39(1), 170-177.

²¹ Roper, S. and Bourke, J. (2018). Industry 4.0 is coming: Is digital adoption a new mechanism linking entrepreneurial ambition to business performance? ERC Research Paper 72.

²² Cai, J., & Szeidl, A. (2017). Interfirm relationships and business performance. The Quarterly Journal of Economics, 133(3), 1229-1282

Roper, S., & Bourke, J. (2018). Industry 4.0 is coming: Is digital adoption a new mechanism linking entrepreneurial ambition to business performance? ERC Research Paper 72.

²⁴ Wu, N., Bacon, N., & Hoque, K. (2014). The adoption of high performance work practices in small businesses: the influence of markets, business characteristics and HR expertise. The International Journal of Human Resource Management, 25(8), 1149-1169.



CASE STUDY HOW BUSINESS NETWORKS SUPPORT DIGITAL ADOPTION

Sales of vegan beauty products in the UK grew 38% in 2018, while Google searches for 'vegan beauty' have doubled every year since 2012. One new entrant to the ethically conscious sector is <u>KIND2</u>, a range of shampoo and conditioner bars. KIND2 taps into the consumer's mindfulness about what they're putting into – and onto – their bodies, and the war on plastic.

"Learning that shampoo is 80% water got me thinking that it was a product ripe for innovation to eliminate plastic at source," founder Sue Campbell (pictured) says. "Plus, the majority of shampoo bars in the UK are soap-based and high pH, which means they are not effective in hard water."

Of course, getting a company off the ground requires more than a great idea. KIND2 has been trading for just nine months but Campbell is all-too-aware of the challenges of bootstrapping a business while balancing the driving growth in sales. Her advice? "Don't try and do everything. Find the right people to support you from the beginning. Bringing in expertise and outsourcing can help accelerate a business."

Integral to KIND2's success has been a HeadsUp! training programme delivered by business network Enterprise Nation, in partnership with Brunel University and funded as part of the government's Business Basics Programme. Through the programme, small and micro businesses receive up to 10 hours of free advice to help them adopt digital technology and more efficient management techniques to improve cash flow and sales

It was a wake-up call. Campbell says, "After completing the HeadsUp! programme, I realised that we needed to be ready with all the infrastructure to support trading from day zero, otherwise I risked being too distracted by the financial and administrative management of the business to focus on growth." In KIND2's case, this meant investing in cloud-accounting software Xero from the get-up.

Campbell is aware that there is a reluctance among many new business owners to invest in administration-related technology or services. She suspects a lack of understanding or appreciation at how time-consuming these tasks can be is at the root of the problem. "It can be painful spending days searching through emails and receipts just to do your VAT return," she says.

Access to supportive networks has been a key part of Campbell's entrepreneurial journey. Being part of a business network has been a useful source of inspiration and information. "It's great for gaining knowledge and hearing the stories of other businesses. It helps spark ideas and the contacts have been useful."



CASE STUDY LESSONS FROM AN INTERNATIONALLY RECOGNISED SCHEME

UPGRADE: CLOSING THE DIGITAL GAP AND LIFTING PRODUCTIVITY FOR SMES

PLATO, a Belgian government-supported networking and training programme run by the Voka Alliance, the largest Flemish network of enterprises, may provide further lessons. PLATO is an intensive programme (one of the required sessions takes place over a full weekend) and prioritises peerto-peer learning.

Groups are divided into 15 SME managers with two coaches to encourage openness. Businesses that are direct competitors, suppliers or customers are not included in the same groups. The sessions are focused on problem-solving and can be seen as 'a form of free consultation'.' Looking at more than 24,000 SMEs, researchers found that participation in the PLATO

scheme led to significant improvements in labour productivity.

Focus groups attributed the programme's success to the strong bonds of trust and openness with the participants.

The weekend-long team-building sessions were considered crucial to creating the trust to facilitate knowledge sharing.

Interviewees also cited the importance of keeping groups small (10-15), as larger networks were difficult to maintain.

Participants thought the programme benefited from being delivered by Voka, a network of business owners, as opposed to the government, since business groups are more in touch with the challenges faced by entrepreneurs.

1 Van Cauwenberge, P., Bauwhede, H. V., & Schoonjans, B. (2013). An evaluation of public spending: the effectiveness of a government-supported networking program in Flanders. *Environment and Planning C: Government and Policy*, 31(1), 24-38.

THE ENTREPRENEURS NETWORK

"Entrepreneurs perceive business groups as being more in touch with the needs of SME owners than civil servants."

Recommendations for successful peer-to-peer learning

While networks are beneficial, research shows that some are better than others for helping to pass on the required knowledge.





Make peer-to-peer learning attainable

Focus groups from the North East's Growth Hub's high-performance programme highlighted the value of learning from similar businesses. By using large SMEs (Virgin Money, Orangebus) instead of large businesses (Rolls Royce, Amazon) as examples, the programme made best practice seem attainable.



Businesses participating in the PLATO programme emphasise the importance of the strong bonds of trust. Trust is hard to build over large groups, so keep groups small.



Leave it to the experts

The PLATO programme benefited from being delivered by Voka, a network of business owners, as opposed to the government. Unsurprisingly, entrepreneurs perceive business groups as being more in touch with the needs of SME owners than civil servants. Entrepreneurs may also be reluctant to seek government assistance as it may come with strings attached.

Recommendation 1: prioritise support for peer-to-peer learning initiatives

The government should prioritise support for peer-topeer learning initiatives delivered by trusted business groups. These initiatives should be based on an understanding of what interventions work best.

Recommendation 2: outsource the provision of business advice to existing groups

The government should outsource business advice to trusted groups, such as business membership organisations like the IoD, Enterprise Nation and the FSB, and focus on monitoring uptake. This would ensure that business owners are exposed to best digital practice.

Recommendation 3: do more to leverage relations between SMEs and accountants

The government should leverage the relationship between SMEs and their accountants to raise awareness of the benefits of digitisation. The government should convene the major accountancy bodies and investigate the best way to promote digital adoption through the profession.

Not all businesses will have the time or desire to engage with peer-based learning programmes. To support these businesses, web-based information may be more appropriate.

Although there is information available for small businesses looking to digitise, it is typically not in one place and, in the case of Growth Hubs, varies significantly between providers.

Some groups have advocated the creation of a 'one-stop-shop' for business support. There is merit to this idea, but there are risks to an over-centralised approach. If the advice is seen as being dictated from Whitehall then businesses may fail to

Business organisations could work in partnership with business schools across the UK to produce an online portal for time-poor business owners in need of advice and information. This could allow small and micro businesses to compare different software solutions and read feedback from similar businesses that have tried the same solution.

There is also a role for accountants to promote the uptake of digital technology. As the case study opposite shows, accountants are a trusted source of external advice for SMEs and the use of accounting software can help them to shift into a more strategic role. For instance, they could provide SMEs with detailed cash flow forecasts and identify the businesses most profitable products.



fellow university alumni-turned-

entrepreneurs revealed many felt

the same frustrations. A lightbulb

Accounts & Legal was registered

moment ensued.

played in boosting the business. The decision to move clients onto a single digital accountancy platform has given Accounts & Legal more time to offer the

to grow, while spending less time

on bookkeeping and data entry. Two of Accounts & Legal's small

blogger and social media influencer uses Xero and Float, a financial forecasting app, to

Maya Magal started working with Accounts & Legal three years ago. Kotarba-Harris says,"The first thing we did was to properly organise the business's data in Xero. We then used this insight helps Maya grow and manage her business." This deeper Maya expand from one to three

Skills

A further barrier to SME digitisation is the skill level of both management and employees.

Creating an online store or a CRM system to track customers will typically require a certain level of digital literacy among employees, especially if firms cannot hire external IT professionals.

On the other hand, if digital literacy levels are high, employees may identify potential digital solutions and promote them to management.

Whether adoption is successful or not will also depend on the managerial skills of the business owner. Effective managers may be better at overcoming employee tensions when business practices change, and can see where adopting an innovation could reduce costs.

Combining management and ICT training

Research from the OECD, a grouping of 37 developed economies, finds that combining management training with support in ICT use is an effective way to promote innovation in small low-tech businesses. ²⁵ The benefits of some digital technologies can only be realised when a business owner is using best practices. These practices might include monitoring performance and setting targets.

For instance, a CRM system is only useful if management is using it to identify new leads and business opportunities. Without adequate managerial focus, digital adoption could merely create unnecessary admin for employees.

Close to one-fifth of SMEs believe they have a poor understanding of technology, with over a third ranking e-marketing as an area where they lacked understanding.²⁶

This lack of understanding extends to the link between business growth and survival, and digital capabilities. For instance, 25% of FSB members did not consider digital skills important for their growth.²⁷

Finding the right staff

Part of the problem for SMEs is finding the right staff. A 2015 survey found 49% of SMEs were unable to hire workers with adequate digital skills.²⁸

Long-term efforts such as reforms to the computing curriculum and the digital T-levels should help, but in the short term, workplace training will have an important role to play.



"Close to a fifth of SMEs believe they have a poor understanding of technology, with over a third ranking e-marketing as an area where they lacked understanding."

Access to training

However, business-owner engagement with workplace training and adult education is relatively low in the UK when compared to other OECD.²⁹

IoD polling suggests that business owners do not fund training opportunities for employees because they cannot fit the training around a worker's core tasks.³⁰

Tax incentives for training

Recommendation 4: allow tax relief for self-funded training

The government should allow employees and the self-employed to claim tax relief when they self-fund their training.³¹ This would bring the UK's tax system in line with other OECD nations. Limiting tax relief to preapproved digital training schemes would ensure that the goal of increasing business productivity is prioritised.

- 25 OECD. (2018). Promoting innovation in established SMEs.
- 26 Good Things Foundation & JP Morgan. (2019). Improving digital skills for small and micro businesses.
- 27 Elman Vishkin, D. (2018). Spotlight on Innovation: How Government can Unlock Small Business Productivity. Federation of Small Businesses.
- 28 BMG Research and Durham University. (2015). Digital Capabilities in SMEs: Evidence Review and Re-survey of 2014 Small Business Survey respondents. Department of Business, Innovation, and Skills.
- 29 Heller Sahlgren, G. (2018). Human Capital and Business Stay-up. Centre for Education Economics.
- 30 Parikh, T. (2018). Lifting the long tail: the productivity challenge through the eyes of small business lenders. Institute of Directors.
- Read Management Matters (2019) for more details on this recommendation.

Recommendation 5: improve awareness of and access to digital training

The government should commission research into the awareness of schemes that are designed to support digital training, and trial different approaches to increase uptake of existing schemes.

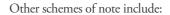
Reforms to the tax system could significantly improve the access to and uptake of digital skills training.

Under the status quo, while employer-funded work-related training is tax-deductible, employees who self-fund training outside of work receive no tax benefit.

The system is also restrictive for the self-employed who can claim tax deductibility only when the training updates or maintains existing skills. A freelancer trying to add additional digital competencies may not qualify for tax relief.

The primary objection to this kind of tax relief is that it will be used to bankroll 'hobbyists'. However, a modest change would simply allow tax relief to be claimed on pre-approved digital training schemes. This may help more workers to reskill between jobs and take advantage of the opportunities offered by private coding schools for instance.³² This reform is particularly necessary to help people adapt to economic disruption.

There are free or low-cost digital training options available for business owners. For example, the Digital Business Academy, a government-commissioned, free online training platform delivered by TechNation, offers 56 short courses. These include topics such as search engine optimisation (SEO), digital marketing, and data analytics. The service has had more than 25,000 entrepreneurs sign up in the five years it has been running.



- Nominet's Digital Neighbourhood, which trains young people aged 18-24 with limited professional networks in basic digital skills, such as using social media and Google Ads, over two days. Participants are then matched with an SME that requires their skills for a two-week paid-work placement.
- Google's Digital Garages, which offer coaching across the UK to help small businesses improve their digital outlook.

Access to finance

SMEs that have identified a viable digital solution may not be able to put it into place due to a lack of access to finance. However, the lack of finance may affect SMEs looking to undertake more ambitious projects.

It is possible to buy market-leading cloud accounting services, e-commerce tools, and CRM software for under £100 a month, with many services offering free trials. More bespoke digital solutions, such as building a smartphone app, may require external finance.

SMEs who are looking for external finance for a digital project will typically face two problems:

- Banks often lack adequate expertise to fund digital projects and instead prefer to focus on funding tried and tested physical projects such as investment in new buildings or machinery.³³
- Investments in digital assets are inherently riskier. If a borrower defaults on an investment in a physical property, then the lender can recoup some of the cost by taking the property as collateral. However, a digital project such as an app is much harder to value in the first place and then sell on.

³² The Entrepreneurs Network and Coadec. (2018). The Startup Manifesto.

³³ European Investment Bank. (2019). The digitalisation of small and medium enterprises in Ireland: Models for financing digital projects.

Grant-based funding

Recommendation 6: ensure better awareness of tech grant schemes

The government should work with an organisation like the Behavioural Insights Team to ensure future grant scheme messaging is effective. The government should also take into account that many SMEs struggle to keep up with the schemes on offer as they change every few

Recommendation 7: improve the impact of tech grant schemes

The government should increase the impact of grant schemes by tying funding to participation in knowledgesharing networks.

Other nations have attempted to address financing gaps by making grants available for business digitisation and IT security investments. These provide co-funding, rather than the full costs, to reduce the risk of waste since businesses are incentivised to only apply if they have a viable project.

In Bavaria, Germany, firms can apply for up to €10,000 worth of funding to introduce hardware or software. Bavaria will fund up to 50% of the project's costs.

In Israel, small businesses in the service and retail sectors of a low-productivity region can apply for a grant of up to £105,000 to support investment in a 'new to firm' process, product, or organisational innovation improvement. This scheme co-funds up to 50% of the project's costs.

The UK's own experience with grant-based funding is mixed. For instance, the UK government Growth Vouchers scheme, which gave businesses funding to seek expert advice, was initially beset by low application rates. So were Connection Vouchers, another UK government programme which funded businesses to get superfast broadband.³⁴ It appears the schemes were undermined by a combination of underpromotion and complicated application processes.

R&D tax credits

Recommendation 8: allow R&D tax relief for user interface and user experience development work

Businesses should be allowed to claim R&D tax relief for spending on UI/UX development work, cloud services, and datasets. This will support more advanced digitisation projects. The government should also work to reduce the bureaucracy associated with applying for the relief.

Recommendation 9: improve the promotion of and access to R&D tax credit schemes

Improve the promotion of the R&D tax credits scheme and ensure HMRC provides clearer feedback on rejected applications. This will incentivise businesses to make productivity-saving investments.

Small businesses can use R&D tax credits to support the adoption of some digital solutions, provided the project is innovative. Merely purchasing a well-known CRM software package wouldn't count.

Small businesses claiming the relief get the benefit of an additional tax deduction worth up to 33% of a project's costs (or up to 14.5% of a surrenderable loss for loss-making companies).

A survey of startups found that 69% thought that navigating the process to claim R&D tax credits was complex.³⁵ Some reforms have made it easier but there is still room for improvement. For example, removing the £10,000 minimum expenditure requirement in 2012 led to significantly more first-time applications for the relief.

Despite rapid technological changes, the list of consumables that startups can claim has not changed in decades.³⁶ For instance, a startup cannot claim the relief on the purchase of cloud services or datasets, even though both are often essential for modern R&D projects.

Nor can they claim relief for user interface (UI) or user experience (UX) development work. This is a problem because the success of a new web store or online booking system depends in large part on the user experience.

A survey of tech startups from the Coalition for a Digital Economy (Coadec), a lobbying and policy organisation for tech startups, found that 80% considered UI/UX work as a vital R&D expense.³⁷ There are signs that this sub-optimal state of affairs will change. At the Budget, Chancellor Rishi Sunak announced that the Treasury would consult on whether qualifying R&D tax credit costs should include investments in data and cloud computing.

Overcoming the barriers to digital adoption will be necessary if we want to take advantage of the £16bn+ opportunity. Strengthening networks, developing the digital skills base, and modernising the R&D tax credit will all support SMEs to harness the benefits of digital technologies.







³⁴ Broughton, N., Costa, E Pickering, J., Shakhina, N., Tilleard, R. & Hubert Wu. (2019). Boosting businesses: applying behavioural insights to business policy. Behavioural Insight Team.

³⁵ Coadec. (2018). Credit where credit's due: Reforming the R&D Tax Credit.

³⁶ The Entrepreneurs Network and Coadec. (2018). The Startup Manifesto.

³⁷ Coadec. (2018). Credit where credit's due: Reforming the R&D Tax Credit.



CONCLUSION

There is a massive opportunity to boost productivity by increasing the rate of digital adoption among small firms. Britain is a world-leader in innovation, but too often best practices are not spreading to all SMEs.

While recent events have highlighted the importance of digital technology in enabling businesses to continue trading in the most difficult of circumstances, increasing the rate of digital adoption will be key to raising productivity levels as the economy returns to normal.

There is a £16.6bn prize for doubling the rate of digital adoption by micro businesses alone. For the four million

workers employed by micro businesses, this would restore four-fifths of lost wage growth since the 2008 financial crisis.

There is no silver bullet for lifting the UK's low productivity levels. But modest changes to regulation, taxation, and business support can have a dramatic impact on the rate of digital adoption, boosting the productivity of SMEs up and down the country.

Taking the opportunity will mean overcoming three key barriers:



Knowledge sharing

Building stronger networks for SMEs will be key to encourage knowledge sharing and give business owners the confidence to adopt the digital tools that are right for them.

Policymakers should design policies that build on the lessons of international schemes by drawing on the strengths of existing trusted business networks rather than reinventing them.



Improving the digital skills of SME owner-managers and ensuring they have a pool of digitally-literate workers to draw from will be key too. Reforms to the way we fund training and efforts to increase the uptake of successful schemes should be prioritised.



Access to finance

Better access to finance is important as well. The government should work to improve awareness of existing schemes, promote a better understanding of financing digital projects for lenders, and reform R&D tax credits to support more ambitious digital solutions.

APPENDIX

Digital adoption and productivity — a complex relationship.

There is a strong theoretical case that SMEs would become more productive if they were to adopt digital tools.

For example, CRM systems enable businesses to keep track of potential customers and translate leads into more sales. However, establishing that relationship and quantifying the benefits of increased digital adoption by SMEs is not straightforward.

Correlation, not causal

It is important to note the studies discussed in the report are correlational and not causal. While there are good theoretical reasons to assume digital adoption leads to higher productivity, there are also reasons to believe that the causation may also go the other way. For instance, Clayton and Criscuolo find that businesses with higher levels of ICT adoption tend to have a higher share of skilled workers.

By way of analogy, there is a strong positive relationship between people who own £10,000 racing bikes and cycling ability, yet it would be a mistake to assume that owning an expensive racing bike leads to large improvements in cycling ability for all cyclists.

The relationship between productivity and digital adoption is further complicated by short-term adoption costs for more advanced technologies.

Productivity might fall in the short term if investments in new technology also require staff training and organisational restructuring. For instance, a study by Brynjolfson and Hitt finds that investment in computers (1987-1994) leads to modest output and

productivity growth in the short term (one year out), but productivity gains are five times larger in the medium to long term (five to seven years out).

The ERC study, from which the £16.6bn figure is drawn, finds a similar relationship and we can use that to identify a causal relationship. Shortterm costs may explain why some firms are reluctant to invest in digitisation. However, as this report shows, SMEs have good reason to overcome that initial reluctance.



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ABOUT THE ENTREPRENEURS NETWORK @TENTHINKTANK

The Entrepreneurs Network is a think tank for Britain's most ambitious entrepreneurs. We support entrepreneurs by:

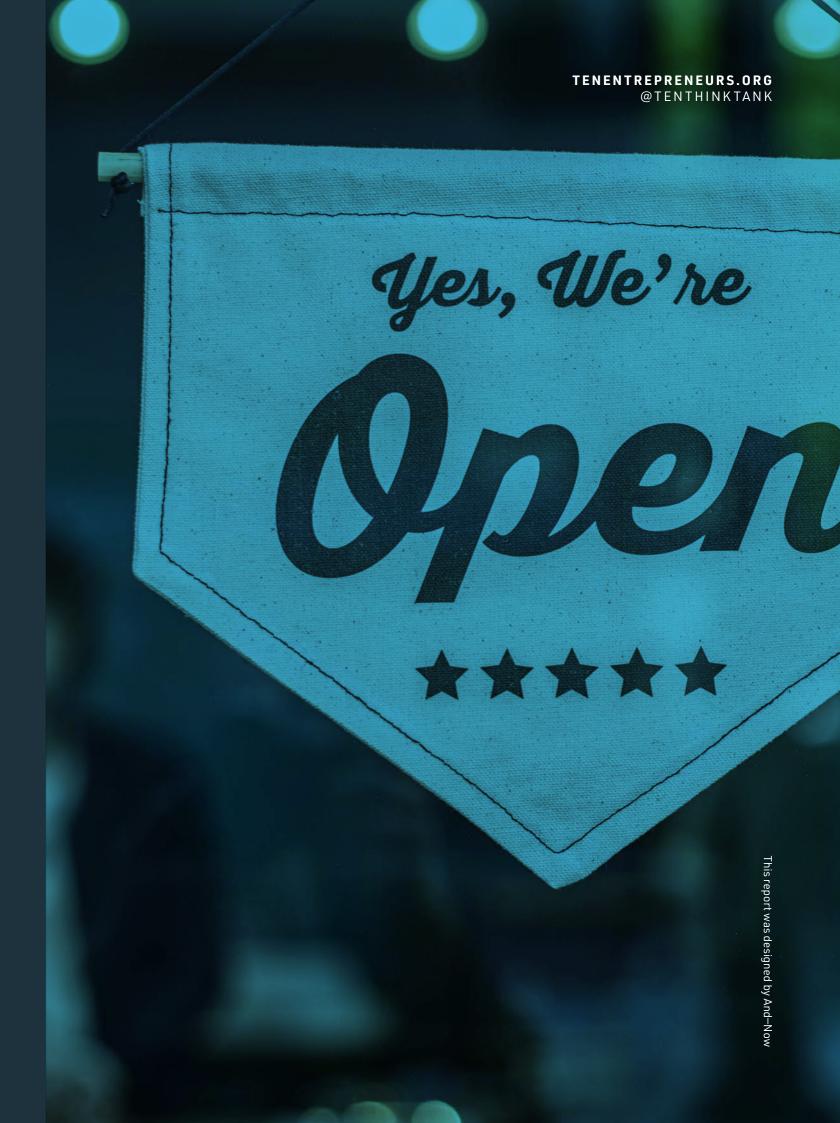
- Producing cutting-edge research into the best policies to support entrepreneurship;
- Campaigning for policy changes that will help entrepreneurship flourish;
- Hosting regular events and webinars to bridge the gap between entrepreneurs and policymakers;
- Updating entrepreneurs on how policy changes will impact their business;
- Making the case in the media for entrepreneurs' contributions to society.

We are the Secretariat of the APPG for Entrepreneurship, which was set up to encourage, support and promote entrepreneurship and to engage with entrepreneurs; and to ensure that Parliament is kept up to date on what is needed to create and sustain the most favourable conditions for entrepreneurship.



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Xero provides a beautiful and easy-to-use cloud-based accounting software service for small businesses and their advisors around the world. Xero connects more than two million subscribers with an ecosystem of over 800 thirdparty apps and 200 plus connections to banks and financial service providers. The IDC MarketScape recognised Xero as a Leader in the Worldwide SaaS and Cloud-Enabled Small Business Finance and Accounting Applications 2020 Vendor Assessment. On the 2020 Financial Times High-Growth Companies Asia Pacific list, Xero was the largest company by revenue to come from New Zealand or Australia. Xero has also been included in the 2020 Bloomberg Gender-Equality



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