techUK
FOR WHAT COMES NEXT

Budget 2021

techUK's representation to HM Treasury for the UK Government's March 2021 Budget

January 2021

Contents

Achieving tech-led growth in 2021

2020 was the most difficult year many of us will have ever faced in our lifetimes. The COVID-19 pandemic has had a terrible human cost and forced the economy into a state of hibernation. A late conclusion to United Kingdom (UK)-European Union (EU) trade negotiations provides a degree of certainty and opportunity for the future, but the near-term implications have resulted in further stress on businesses trying to stay afloat.

However, within all the strife of 2020 we saw huge innovation powered by a desire to triumph against the odds. The tech sector was happy to play a part in helping the country continue to operate in the darkest of times. Technologies such as Zoom, Cisco's Webex, Microsoft Teams, and Google Meet saw huge uptake and helped families and businesses remain connected. Engineers and developers helped keep our internet infrastructure running, built new solutions to manage supply chains, and created new digital public services to mitigate the social and health impacts of COVID-19. Simultaneously, the cyber security industry worked to underpin and secure the enormous shift to remote working and the increase in online activity for business and society alike.

As we look ahead into 2021, we are asking how we can provide the social and economic support needed to build a better future. Reflecting on the best of our efforts and innovation to tackle COVID-19, we believe that the route to renewal lies in boosting productivity, driving the adoption of green technologies, and creating smarter, leaner, and more adaptable supply chains and opportunities for trade.

In the 2021 Budget, the Treasury needs to begin this national mission to improve productivity and our ways of doing business. This will not be done in one fiscal statement, but the Treasury has a unique role for setting the agenda across Government and driving delivery through subsequent departmental strategies. However, to fully enable this across the public sector and its suppliers, a multi-year Spending Review is needed as soon as possible.

During the pandemic those able to use digital services and infrastructure were best able to adapt to social distancing, protecting thousands of jobs, and keeping businesses open. In the recovery, digital services and infrastructure will be vital to growth, expansion, and navigating new consumer habits and demands as life returns to our towns and cities.

The goal is not just to focus on the growth opportunities that can be achieved by the tech sector alone, but the role of the tech sector in driving tech led growth across the whole economy.

In our submission to the 2021 Budget, we and our members set out the steps that need to be taken to achieve this tech-led growth and the benefits it can bring, such as economic growth and job creation across the UK, reaffirming the UK's place as a top-tier destination for tech businesses, building a smarter and more connected country, beginning a green technology revolution, and ensuring that the UK becomes a digital-first trading nation now that we have left the EU Single Market and customs union.

We would like to thank techUK's over 800 members whose insights have helped shape our input into this submission.

Executive summary

Tech-led growth means supporting the deployment of the UK's leading digital services sector across all business types to increase productivity, resilience, and adaptability. The road to rebalancing the nation's finances, creating high-wage, high-skilled jobs and driving sectoral innovation runs through encouraging productivity growth, for which technology adoption is history's greatest tool.

In this submission, techUK and our members set out the five key benefits driving tech-led growth can bring and the steps needed to deliver them.

1. **Economic growth and job creation across the UK:** to achieve tech-led growth across all business sectors, we need to drive up adoption of digital tools at both a basic and intermediate level. This will require an ambitious mass nudging effort from Government and the sector as well as significant financial support:

- Support cash-strapped small and medium-sized enterprises (SMEs) through **financial incentives help them adopt the technologies they need** and a **Chief Digital Officer (CDO) credit** to help existing adopters advance to use productivity-boosting combinations of digital services.
- Further tackle cashflow problems by **extending the value-added tax (VAT) repayment period into 2023.**
- Boost job creation through **a Government-backed Skills Platform** and **reforms to the apprenticeship system.**
- Plan for the acceleration of hybrid and home working and its distributional impacts through a **Future of Work Council.**
- Support **local tech cluster groups** and **ensure the uptake of digital services is not discouraged by regressive tax policy.**

2. **The UK as a top-tier destination for technology businesses:** growing the tech sector is now a strategic aim of countries across the world. The UK is a leader, but our competition is catching up. We must therefore double down on making the UK one of the best and easiest places start a tech company:

> Launch **a review of the funding system** while taking immediate action to increase the UK's attractiveness for initial public offerings (IPOs) and enacting supply-side reforms suggested since the 2017 Patient Capital Review.

> **Build a more inclusive funding system** by expanding and improving diversity reporting, taking a lead from the Treasury's Future Fund.

> **Ensure the National Infrastructure Bank can invest in digital infrastructure** such as 5G and full-fibre broadband.

> **Align research and development (R&D) spending criteria with economic growth objectives**, for example by following through on commitment in the 2020 Budget to allow R&D tax credits to be claimed against data, data analytics, and cloud computing costs and acting on cross-industry calls to expand the R&D tax credit to cover capital expenditure, such as spending on plant, machinery, and buildings.

> Create **a one-stop shop of Government financing and support** to help small and growing tech firms navigate the UK's offerings.

3. **A smarter, more connected country:** connectivity and digital infrastructure are vital. Without next-generation infrastructure, UK companies will simply not be able to develop and provide the latest and most innovative services to consumers and the public sector, capping tech-led growth:

> **Drive forward the 5G diversification strategy** and make good on the Government's commitments to broadband rollout by **deploying an ambitious, fully funded strategy to complete the broadband rollout.**

> As more of the economy moves online, cyber security becomes economic security. The Treasury should continue to **back the cyber sector through an ambitious National Cyber Strategy and support for cyber skills.**

> **Support the continued tech revolution in our public services** through new rounds of the Local Digital Fund, a multi-year settlement for health tech investment, and continuing to invest in updating legacy information technology (IT).

4. **A green technology revolution:** COP26 marks a major turning point for the UK and the world to set out how in the recovery from one natural disaster, we aim to mitigate the next. To do so, we must fundamentally tilt our economy towards a net-zero future while also seeking to deploy our best technologies against the threat of climate change.

- **Launch an International Centre for AI and Climate Change at COP26**, providing the UK with 575 direct and indirect artificial intelligence (AI) and climate change jobs and setting the UK's ambitions high in the battle against climate change.
- **Tilt the economy toward green tech** by using new powers to cut VAT across green technologies such as solar panels and e-vehicles, as well as stimulating the second-hand market for e-vehicles.
- Expand green innovation with **further support for Digital Twins and a net-zero innovation board.**
- **Embed sustainability in the economy** through support for SMEs, green councils, and smart cities, as well as **making the UK a green data hub.**

5. **A digital-first trading nation:** the UK has left the EU Single Market and customs union; this is a major change. To make a success of Brexit, we must support new ways to reduce the impacts of non-tariff barriers and compliance, while also reviewing our trade and investment strategy to retain the UK's place as a top-tier destination for investment:

- **Begin a revolution in RegTech**, through a cross-sector sandbox initiative and revising how we create and enforce new regulation. This should be driven by close consultation with business, and a digital by default approach to compliance.
- Retain the UK's place as a top-tier destination for foreign direct investment (FDI) by **listening to industry concerns on the Government's National Security and Investment proposals** while seeking to support trade shows across the UK to **bring international investors to the UK's nations and regions.**
- Increase support for SMEs to trade and **review the UK's export strategy** for the new era of trade under UK-negotiated free trade agreements (FTAs).

1. Economic growth and job creation across the UK

With the advent of new vaccines and a pathway to ending social distancing, we now focus on how we restart the UK's economy after a year in hibernation. In doing so, we face a further challenge as businesses across the UK adjust to the UK's new trading relationship with Europe. While the UK-EU Trade and Cooperation Agreement presents many opportunities, the immediate term will see higher input costs and new compliance requirements.

To counteract this and lay the bedrock for an accelerated recovery, we must seek to turbocharge the UK's productivity and make commonplace the use of digital solutions such as trading platforms, RegTech, and cloud services to help businesses to find the tools they need to cope with new challenges and revolutionise the day-to-day of the way the UK does business. Doing so will support tech-led growth across all sectors, creating new and well-paying jobs.

This means incentivising digital adoption across SMEs, reducing the debt burden on businesses as they get back on their feet, providing a support to help those out of work retrain and find new jobs, support local tech ecosystem initiatives, and ensure digital adopters face equal treatment.

Boost productivity and employment by helping SMEs adopt digital technologies securely

COVID-19 has forced businesses to adopt digital technologies at a fast pace, changing their businesses to cope with the realities of a socially distanced economy. This adoption is impressive and has helped keep many businesses afloat. However, despite this many have not fully embraced the tools available to achieve the productivity gains we need.

Now that we as have left the EU Single Market and customs union, many businesses face new barriers to trade and higher input costs which must be made up by productivity increases. The effective use of digital services such as trading platforms, customer relationship management (CRM) systems, and cloud computing services are major tools for businesses to achieve this.

While business has effectively used technologies to find new ways communicating internally and externally, this has not yet served as the gateway to the next level of productivity-enhancing tech. 65% report having used digital tech to create new forms of communication, however just 18% have used it to find new ways of selling and only 16% have used it to produce new types of goods and services.[1]

Both Government and industry have long recognised the need to improve digital uptake with the aim of boosting productivity, particularly in the long tail of UK SMEs for whom increases in productivity have proven difficult to deliver.

At no point in the past has this boost in productivity been more essential and neither have we had such a good opportunity to deliver and getting to where we need to go will not happen on its own. COVID-19 has put significant pressures on SMEs cashflow, with half saying they currently have no money to invest,[2] while research by Be the Business has shown that businesses willing to adopt face challenges understanding what solutions are best for them and getting management to fully implement digital transformation strategies.[3]

techUK and our members are committed to working with the Government to determine the most effective package to boost secure digital adoption. Based on our members insights and feedback from stakeholders, we need a dual approach which supports cash-strapped SMEs to adopt the solutions that they know they need such as trading platforms, accounting software, and cloud computing; and a more tailored delivery system that helps businesses who have begun their digital transformation scale up their use of digital services.

There is a huge prize to be won here, as realising SMEs' current appetite for technology investment in full could deliver £325 billion in additional revenue, drive £145 billion in economic output because of improved productivity, and support up to 2.7 million jobs across the UK.[4]

- **Deliver a general-purpose financial incentive to boost SME adoption:** modelling by Capital Economics for techUK member Sage found that 89% of SMEs believe that if the Government introduced financial incentives to help their business adopt new technology, it would help them improve their performance. Industries facing challenges from COVID-19 and Brexit adjustment such as retail, manufacturing, hospitality, and the construction sector were most likely to benefit.

  SMEs reported tax incentives or vouchers would be the most effective and accessible policies to help boost tech adoption. A tax incentive allowing SMEs a reduction on the value of the adoption of new technologies from their tax bill was viewed as the most popular suggestion, with 37% of SMEs supporting such an initiative. This approach also benefits from being straightforward for Government to implement.

  An encouraging nudge towards tech adoption could be provided by simply adding an additional box in the annual tax return of SMEs and entrepreneurs. Caps could be established to determine upper limits on the amount of relief available under the scheme. A further 36% said digital vouchers for SMEs to reimburse two-thirds of the cost of adopting technology, while 16% supported free digital skills training.[5]

  If delivered effectively, 61% of SMEs expect to be able to increase their workforce if they can fully invest in tech to help them to optimise their businesses.

- **Provide tailored support through a Chief Digital Officer Credit to help more advanced businesses find the solution right for them:** data from the 2019 Lloyds Bank Digital Business Index shows that more digitally skilled businesses have a greater appetite to gain new skills. 19% of small businesses that had all six Essential Digital Skills said they had plans to acquire e-commerce specialists within the next two years, compared to only 8% of those with two to five skills and 2% of those with zero or one of the skills.[6]

  However, research from Be the Business has shown that some businesses willing to begin this journey face challenges understanding what solutions are best for them and find it difficult to generate confidence in leadership to deliver digital transformation strategies.[7] Businesses who gain this confidence and use a combination of cloud-based IT systems, online accounting software, and digital training can achieve increased annual turnover of £262,000 compared to those who do not use any of these services.[8] They are also then more likely to embrace new technologies as and when they come on stream.

  Supporting uptake, improving leadership, and encouraging experimentation with digital solutions is therefore key to boosting productivity, however this requires confidence and knowledge. techUK has suggested creating a Chief Digital Officer (CDO) credit to reduce the costs for SMEs to access impartial advice on how to identify the best solutions available and to support business leadership to deliver an effective digital transformation.

techUK has written to the Chief Secretary to the Treasury to provide an open offer of the industry's assistance to help inform the design of a digital adoption package that is effective and provides value for taxpayers. We are also keen to explore how the UK Shared Prosperity Fund, Levelling Up Fund and reforms to Coronavirus business support schemes could be used to deliver support for digital adoption.

If Government pushes ahead with financial support, communicating this to SMEs and driving uptake will be vital. techUK and our members stand ready to do what we can to support the roll out of an adoption scheme.

Support SMEs to manage the debt burden from COVID-19: in November, the Treasury announced a 10-year repayment period for government-backed loans schemes. This was a welcome step, as flexibility to enable cashflow management will be vital to businesses' ability to recover. However, repayments of the VAT deferment will need to be repaid throughout 2021 and 2022, despite a likely delay of the economic recovery until the late spring or summer of 2021.

VAT deferral was widely used across the economy and was particularly valuable to SMEs. To support cashflow during the recovery, the VAT repayment period should be extended from 2021/2022 to the end of the financial year in 2023. This would provide significant additional flexibility for business at little overall cost to the Treasury. We would also suggest the Treasury review requests for a further deferral of VAT from sectors hard hit by the COVID-19 pandemic.

Support digital skills and retraining: to make digital jobs accessible to everyone, techUK has put forward a proposal for a Government-backed Skills Platform[9] which would help connect individuals to training available online and in-person, and to jobs in the new economy. At of a cost of £25 million, this could be drawn from the £3 billion National Skills Fund.

Government, industry, and education providers should work together to expand short modular digital skills courses, those accredited by industry and employers, to open up more accessible and affordable pathways for people looking to retrain for digital roles. More modular learning can drive lifelong skill building and offer easier avenues for people transitioning between sectors.

The Government is uniquely positioned to create a skills platform to bring together citizens interested in entering the digital workforce, the training material, and available roles.

Deploying such a platform has become more urgent as research from the Resolution Foundation shows that workers from COVID-19 hit sectors are still looking for work in the same, or other struggling industries. While jobs will come back, there will undoubtedly be a need for career switching which is currently being considered by too few.[10] This is despite vacancies in tech jobs increasing 36% between June and August 2020, with only the healthcare sector recruiting for more jobs in this period.[11] Establishing a Skills Platform will provide extra support for those looking to switch and help reduce frictional unemployment, supporting the recovery.

Government must also review the role of the Apprenticeship Levy in supporting businesses. The levy should be expanded so that employers can use the funds more flexibly for wider skills and retraining. This would unlock more funds to be spent on training through supply chains, rather than the current focus of skilling in low-productivity areas. More flexibility here would improve the quality of the programmes for both employers and apprentices.

Deliver a future of work council: the UK economy has taken a significant shock from the COVID-19 crisis, as the Office for National Statistics (ONS) has recorded that gross domestic product (GDP) in October 2020 remained 7.9% below February 2020 levels. As the UK starts to look past successive lockdowns, it will need to shape what the return to work, and the future of work will look like, and how to best drive an economic recovery.[12]

The adoption of remote working technologies has helped to keep the country moving throughout lockdown. The use of Zoom, Cisco's Webex, Microsoft Teams, and Google Meet, among others, increased significantly and have now become second nature tools across all business sectors.

This mass upskilling and the flexibility it brings means the adoption of hybrid working practices are likely to become more common. How we use office space is now at the forefront of minds across the UK.

Shifting working patterns can also increase footfall and consumer spending in smaller towns and cities, furthering the Levelling Up agenda. However, understanding what infrastructure is needed will be vital, so Government should therefore review research by Vodafone and others into the role regional digital hubs and better connectivity can play in creating secure, well-connected working environments to support hybrid working[13] as well as new business models for the high street.[14]

To examine all of these factors and shape a coherent strategy, the Government should convene a future of work council, bringing together businesses, business groups, and trade bodies on the shifts in working patterns and how we can support workers newfound flexibility to increase productivity, creativity, and drive the economic recovery across the UK.

Support funding for Tech Cluster organisations across the UK: the Scottish Government's Logan Review[15] and Welsh Government's Brown Review[16] both concluded that strong digital ecosystems are essential for generating a steady stream of viable start-ups and scale-ups. Analysis of organisations such as Tech City and other clusters has shown that where there is a strong voice and collaboration and coordination control units, this has helped to drive ecosystem creation from the bottom-up.[17]

techUK has explored the key role such organisations and the voice and bargaining power these can provide to tech ecosystems in our recent reports, Building the Future We Need, which took evidence from 260 business and civic leaders across seven of the UK's nations and regions.

The UK Shared Prosperity Fund should be a vehicle through which to support such initiatives. The fund should be open to not just to providing full funding to these kinds of projects, but also matched funding where there is already existing interest and support from the public and private sectors.

Ensure providers of online services are not unfairly penalised: the percentage of retail sales conducted over the internet has steadily rising in the last decade, with internet sales making up 7.1% of all retail sales in January 2010, and then more than doubling to 20.1% in January 2020. Over the course of the pandemic this trend has accelerated, and the percentage of retail sales conducted over the internet hit a high of 32.8% in May 2020.[19]

Online channels have become a lifeline for small businesses and individual sellers, many of whom will only have been able to trade online at various stages of the pandemic.

The Government should therefore ensure that online sales are treated with equivalence to physical sales. An online sales tax would be regressive, having the greatest impact on small traders who are increasingly reliant on online sales, but would not be able to absorb the costs, thus having to pass those on to consumers. Such a tax would also be counterintuitive to the Government's aims for a dynamic competitive economy, as well as the need for continued physical distancing.

The Government has already implemented at Digital Services Tax (DST) for larger firms; however, the implementation of this tax needs to be reviewed with additional support provide via HM Revenue & Customs (HMRC) to help firms clarify liability, particularly where this relates to Business to Business (B2B) services.

Further, given the increased importance of delivery services throughout the course of the pandemic, which is likely to continue in the future, the Treasury should also take steps to remove revenue generated from delivery fees from the scope of the DST, as is the case with DST-equivalent taxes in France, Spain, and Italy.

2. The UK as a top-tier destination for technology businesses

The tech sector is the UK's modern success story. Before the outbreak of the pandemic the sector was growing nearly six times faster than the rest of the economy.[20] Even in 2020 under the economic strain of COVID-19, UK tech companies are expected to raise around £12.5 billion in investment, around one-third of the European-wide total.[21]

Building and growing this success will be vital to ensure that tech-led growth can be a key component of the economic recovery. Achieving this, however, means ambitious plans to reshape how we support growth in the sector across the country, targeting R&D spending toward economic outcomes, and investing in the right infrastructure and resources to ensure the UK tech sector remains competitive and a magnet to investment.

Create a UK funds strategy with the explicit aim to support growth outside London and the South East

2019 saw investment outside of London and other major tech hubs in the Golden Triangle increase. Five UK cities were ranked within Europe's top 20 for tech investment: London, Cambridge, Oxford, Manchester, and Bristol.[22] Manchester has seen increasing investment, up 277% from 2018. Growth was also seen in Bristol, with the city benefiting from a strong local partnership and strong investment.[23]

However, funding remains a problem for growing clusters. Tech Nation found that tech communities in key growth areas such as Belfast, Edinburgh, Southampton, Glasgow, and Newport all reported access to funding as their number one challenge.[24] This was echoed in our Digital Dialogues with participants in Scotland, the North East, and Yorkshire and the Humberside identifying finance and investment as key challenges.[25]

London still drives investment in the UK, and there is a risk that because of COVID-19, investors stick to familiar territory. In 2019, London received £6.8 billion of the UK's £10.1 billion share of venture capital (VC) investment, about 68%.[26] However, from January to June 2020 as the COVID-19 pandemic began to sweep over the globe, London's share rose to 76% of all VC investment in the UK.[27]

We have also seen this trend towards London and the South East in the Government's Future Fund. While this was an essential intervention to support fast-growing firms, 73% of the £770 million delivered through the scheme by October 2020 had been received by companies based in London and the South East.[28]

As we recover from the economic impact of COVID-19, better access to finance and investment will be the lifeblood for driving up new company starts and supporting founders to launch innovative start-ups and scale their successful businesses. However, for a fully levelled up recovery, this must be balanced across the UK.

We welcome recent steps by the Treasury such as the increase in start-up loans and the Lord Hill Review of the listing system. However, the Treasury and the Department for Business, Energy & Industrial Strategy (BEIS) should go further and work with the devolved governments to review existing funding support considering the impacts of COVID-19.

This review should address co-ordination as well as considering potential new funds with the aim to expand and build upon the roles of the British Business Bank, Scottish National Investment Bank, Development Bank of Wales, and Invest NI to ensure there is sufficient capital liquidity to drive investment into tech ecosystems across the UK.

With a growth capital gap of £15 billion for scaling firms in 2020[29] and the need to level up outside of London, this review of the UK funding system would be warmly welcomed by the tech sector as well as other industries.

The review should also act on proposals business see as vital to increasing London IPOs, such as increasing visa routes for tech workers and investors, enabling dual class shares and quickly enacting supply-side reforms to unlock investment from pension funds, corporate venturing, and insurance schemes recommended since the 2017 Patient Capital Review.

Improve diversity reporting across the UK funds system: by mid-December, the Treasury had backed over £64 billion of loans through Coronavirus Business Interruption Loan Scheme (CBILS), Bounce Back Loan Scheme (BBLS), and Future Fund supporting over 1.5 million UK businesses.[30]

However, data on the diversity of applicants and loans awarded is sparse. The Treasury and British Business Bank provided strong leadership and a good example to others in diversity reporting under the Future Fund. This provided early transparency and highlighted the stark reality that only 1.2% of the 745 businesses loaned to have all female management, while 25% had all male management teams.[31]

There is important work to do to create more opportunities for diverse founders and management teams, and this reporting helps us identify the problem and begin taking the steps to finding solutions. The Treasury must act as a beacon of change and work to replicate and improve the reporting carried out under the Future Fund across other Government sponsored schemes, including new schemes such as the Levelling-Up Fund and National Infrastructure Bank.

Ensure the National Infrastructure Bank can invest in digital infrastructure: it is vitally important that the National Infrastructure Bank is able to support digital infrastructure investments such as full-fibre broadband and 5G installation.

Including these within the scope of the bank will have tremendous local benefits, as local authorities can see up to 3.2% increase in new businesses operating in the area with full-fibre and 5G connectivity.

If reflected in business rates, a local authority could see an increase in gross revenue of over £10,000, while existing businesses will see an increase in productivity which should result in an expected increase in turnover of up to 3.8% per worker per annum.[32]

Ensuring co-investment through the National Infrastructure Bank will not only have localised economic effects, but local authorities will also realise indirect benefits through a greater capacity to be able to implement more innovative digital public services, helping to driving down costs as well as increasing quality.

Better align R&D incentives and metrics with economic growth targets: Treasury can better align R&D incentives with economic growth by following through on commitment in the 2020 Budget to allow R&D tax credits to be claimed against data, data analytics, and cloud computing costs, supporting cross-industry calls to expand the R&D tax credit to cover capital expenditure such as spending on plant, machinery, and buildings and reviewing the patent box. techUK members see the patent box as a useful tool, however the Dutch innovation box provides a model which is better suited to the iterative innovation that occurs in advanced economies. Government should look to review the patent box and explore options to align it more closely with examples of international best practice such as the innovation box.

Beyond this, there is a wider role for the Treasury to ensure metrics such as private investment in locations near research institutes and universities, patent citations, product launches, and the sustainable growth of new companies in a local area are used to evaluate R&D spending. Making these criteria for how the Treasury analyses the costs and benefits of R&D spending, capital and resource investment, and the universities strategy will help align innovation with our strategy for growth.

Produce a route map to greater UK supercomputing capacity: Government should look to increase UK supercomputing capacity in line with European and other comparative nations where significant investments are being made. This should include investment in new supercomputing infrastructure alongside reviewing bids for new supercomputing centres. Outside the EU, UK businesses will be more reliant on domestic capacity or else be required to bid for time with non-domestic machines. To ensure UK-based companies and scientists can access the most advanced computing capabilities, the UK needs to lift its ambition on supercomputing and plan for future capacity now.

When the UK's new national supercomputer, Archer 2, is installed it will already be 20 times less powerful than Japan's newest system. There is a risk that without a forward plan for computing capacity for scientific and industrial purposes, the UK will be at a disadvantage to comparable markets. techUK members and wider industry rely on computing power in product design and development, and in university partnerships across a wide range of projects. When a business weighs up where to locate R&D facilities, access to computing power is a key factor. Without a clear route map for future capacity, the UK may miss out on long-term investments.

Create a one-stop shop of information for UK start-ups and firms seeking investment: according to Nesta and BEIS, there are roughly 560 accelerators, incubators, start-up hubs, and online resources available from public bodies and the private sector. However, there is little signposting to help entrepreneurs identify the right support for them. A one-stop shop of support would encourage aspiring entrepreneurs to take advantage of the resources available. Interactions with this one-stop shop could also provide live data on the types of businesses seeking support and their needs, helping to better target future interventions. It could also incorporate a self-diagnostic tool to tailor advice to the individual user, like the self-diagnostic tool used to provide advice on the end of the transition period on gov.uk/transition. The Treasury should provide funding to BEIS to develop this tool.

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3. A smarter, more connected country

Good connectivity is the lifeblood of the UK tech sector. Without reliable, secure, and fast connections, UK companies will not be able to provide the highest-quality services to consumers, with negative impacts for the tech sector itself, reducing its innovative capacity.

Falling behind on 5G could see the UK lose out on £173 billion of growth over the next decade.[33] Furthering our ambitions on 5G and achieving the Government's 2025 target for the rollout of gigabit broadband are therefore vital to building a truly next-generation economy.

Building a smarter, more resilient, and more connected public sector, we must also ensure that as we do this, we support local government to go the extra mile in delivering local digital services, ensure that as we use the power of tech to revolutionise our healthcare system and vitally enable strong cyber security protection across the public and private sectors.

Invest in 5G diversification and our industrial base in next-gen telecoms

Countries which lead in 5G infrastructure will see domestic businesses develop the first-generation of products and services that utilise 5G technologies. If the UK can establish a leadership in this area, it means that these next-generation businesses will become key domestic suppliers, supercharging local economies, as well as exporters and leaders in a new global market.

The Government has made important decisions based on national security to limit potential vendors for 5G technologies. This has an impact on the UK's ability to lead in 5G adoption, however with quick and strategic actions the UK can still secure its place as a 5G leader and create new domestic champions of 5G technology. The £250 million of funding to support the 5G supply chain diversification strategy is welcome[34] and to further build momentum in this area, two immediate actions that should be taken are:

- **Swiftly build confidence in alternative vendors and ensure cyber security is a part of the design process around 5G technologies:** this is a widely accepted challenge even for scaled global vendors not yet present in the UK market, such as Samsung or NEC.

  There is therefore a strong case for Government intervention in the form of an expanded remit for a National Telecoms Lab.[35] Government funding is necessary as individual operator intellectual property (IP) would need to be stored to create accurate digital models of real-world networks.

- **Invest in alternative technologies such as Open RAN (Radio Access Networks):** these technologies offer us the possibility to break up the monolithic architecture approach of traditional telecoms Original Equipment Manufacturer (OEM) vendors into fully open and interoperable subsystems. This open architecture means that multiple vendors could play a role in providing RAN hardware and software solutions to an operator.

techUK believes that a strong intervention here alongside an expanded remit for the National Telecoms Labs would cost around £300 million of R&D investment delivered through the Department for Digital, Culture, Media & Sport (DCMS), similar in scale to the existing 5G Testbeds and Trials programme which has already returned positive results.

This should be aimed at both the supply-side (UK telecoms operators) and demand-side (Open RAN vendors) to produce the capacity to deliver diversification in the UK supply base, limiting the impact on the 2027 5G coverage targets.

Even with a successful diversification strategy, if Government wishes to hit the 2027 5G targets it needs to continue to raise the ambition of its own enabling measures. It needs to consider spectrum defragmentation for 5G, swift and ambitious planning reform around mast height, business rate relief and access to public sector land.

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This has an impact on the UK's ability to lead in 5G adoption, however with quick and strategic actions the UK can still secure its place as a 5G leader and create new domestic champions of 5G technology.

Ensure the Government can meet its manifesto target of universal gigabit connectivity by 2025: to ensure that businesses and families can take advantage of the technologies enabled by gigabit connectivity, the Treasury needs to bring forward the promised £5 billion subsidy for the hardest to reach areas and create lots of sufficient size to attract network builders to deliver at scale. This subsidy alongside private sector investment is vital to ensure as many premises as possible can benefit from world-class connectivity. Without bringing forward the full package of support, meeting the target by 2025 is in doubt.

Renew the Government's Gigabit Voucher Scheme: the scheme has proved to be extremely popular, but it has now been closed to applications as the funds are expected to be fully allocated from the existing requests that have been made. If the 2025 target is to be met, the £5 billion F20 "outside-in" programme needs to be delivered via simple and effective mechanisms that encourage competitive and credible bids from operators of all sizes. The Government should therefore renew the gigabit voucher scheme, at least matching the £67.8 million in funding previously offered. The Treasury should remain open to further extending the scheme if it continues to prove popular and helps the Government deliver on its 2025 target.

Bring forward a full package of barrier-busting measures: around business rates, planning reform, access to public sector land, and spectrum defragmentation for both fixed gigabit broadband and 5G. The current business rates relief on new fibre builds is due to end in April 2022. At a cost of £60 million, this relief package must be either extended to help incentivise network providers to increase fibre build, or fully exempted. Further action should include ring-fencing the Barrier Busting team's funding in DCMS and continue to engage with the UK's nations and regions, and industry on best practice in fixed gigabit broadband and 5G.

Announce new rounds of the Local Digital Fund: to grow local digital economies and help local authorities achieve a potential £14.7 billion in savings through greater digitisation of local services,[36] the Treasury should seek to continue support for the Local Digital Fund. The fund has proven to be popular and successful, but funding has not been allocated for the financial year 2020/2021. The Treasury should support the Ministry of Housing, Communities & Local Government (MHCLG) to at least match the £7.5 million offered in 2018/2019 and 2019/2020 for 2020/2021 and 2021/2022. This should be done quickly to allow local authorities to engage early with the market to begin to identify new potential partnerships.

Define multi-year budgets for health and social care technology: following on from the findings of the recent Public Accounts Committee and National Audit Office reports, techUK believes that the Government should reflect on its strategy to best deliver a digitally mature health and social care system. Achieving this will require targeted and dedicated investment in technology for the health service. The Treasury should work with the Department of Health and Social Care (DHSC) to identify ring-fenced funding and multi-year budgets for healthcare technology that allows flexibility between capital and revenue expenditure where needed. More details are available in techUK's draft 10-point plan for HealthTech.[37]

Invest in addressing the legacy IT estate to drive digital transformation: legacy IT systems impede government departments' ability to harness new technologies and act as a barrier to transformation. They are expensive to maintain and pose significant risks to cyber security and operational resilience. Over the years there has been a historic lack of focus on legacy IT issues during the budgetary process.

To drive the next step change of digital transformation, government departments must be given the resources necessary to tackle the legacy estate. Work should be funded to understand the scale of the problem inside each department, allowing them to build up asset registers of the IT estate, and then suitable funding to address the legacy IT challenge can be allocated.

Government should also focus on delivering financial resources for local IT modernisation. This will empower local government to deliver digital services. According to statistics, UK local councils faced 263 million cyber-attacks in first half of 2019. If the security and resilience of infrastructure and IT capabilities is not assured, not only can local governments suffer significant financial losses, but their ability to deliver services to citizens also suffers.

Addressing the issue of legacy IT will require a long-term funding settlement. The Government should seek to proceed with a three-year plus spending review at the earliest opportunity to allow this work to begin.

Support schools and disadvantaged children and young people: the tech sector, in partnership with Government, has provided help to students and young people in need, with more than 350,000 free data SIM cards having been distributed by Vodafone to students, and more than 560,000 devices delivered to schoolchildren so far.[39]

However, while these measures are very welcome, more needs to be done to tackle the digital divide and ensure that all children in the UK can learn successfully and thrive at home. Government should continue to work with the tech sector to ensure that all students and families who need them have access to the necessary devices and internet access to successfully learn and study at home.

Supporting a robust and ambitious National Cyber Strategy: previous National Cyber Security Strategies have enabled the UK to develop a strong public–private partnership across UK cyber security. As a result, cyber security remains a field where the UK is world-leading, with a vibrant SME ecosystem, impressive exports statistics, and leading-edge capability.

Over the course of the last 12 months, we have seen the UK cyber security sector increasingly underpin and enable citizens and businesses alike. During the pandemic, we have seen a 600% increase in malicious attacks, including the recent Solar Winds attack, with schools, universities, offices, hospitals, and government agencies targets for cyber criminals.

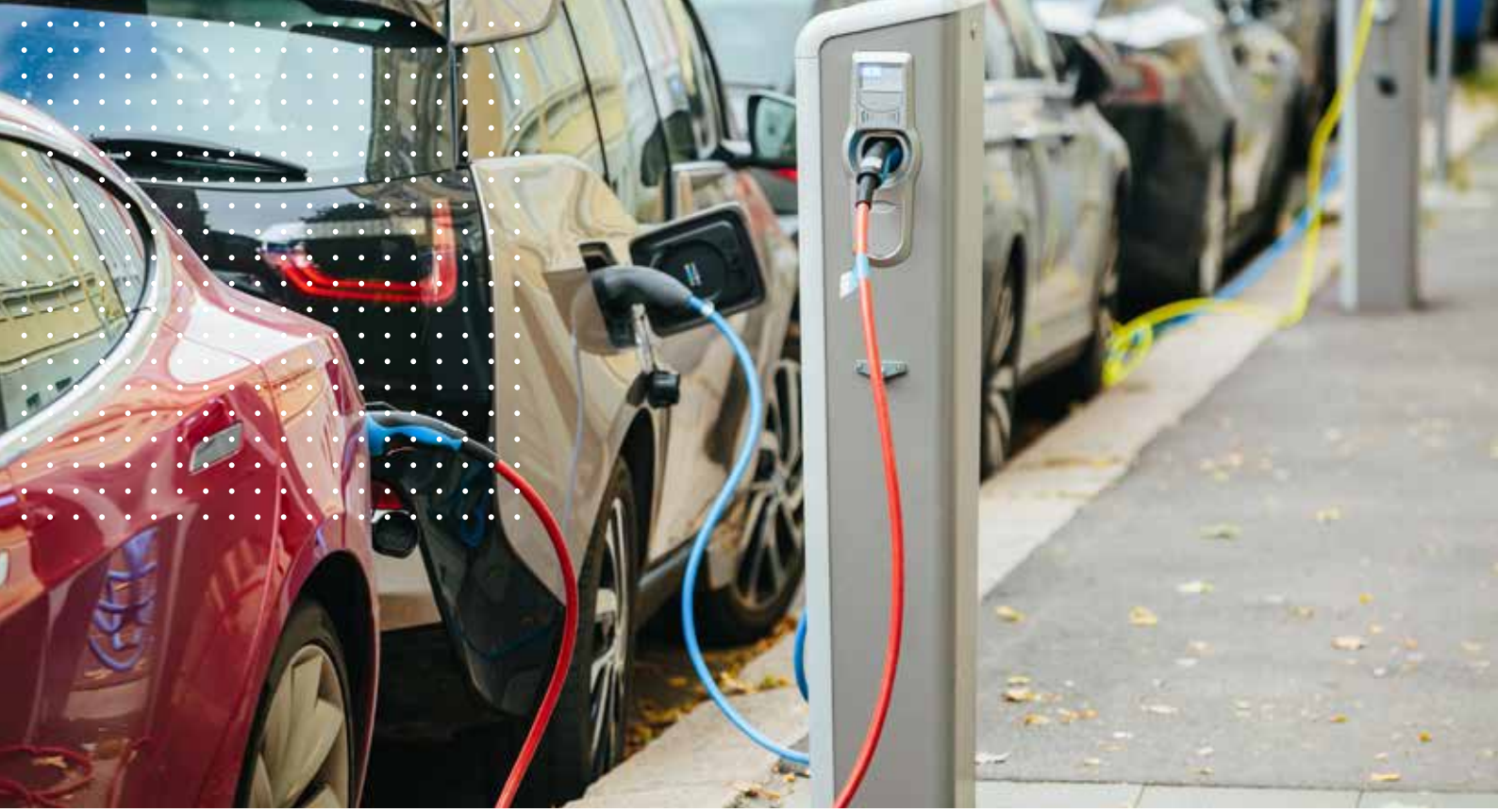
Cyber security will be an anchoring feature of the recovery, as more economic activity takes place online, cyber security must remain a key priority for Government investment and intervention, notably around skills, resilience, exports, and levelling up.

Continue to support cyber skills: there is a global cyber security skills shortage, and the Government must continue efforts to support initiatives such as the UK Cyber Security Council and CyberFirst, and support techUK's proposal for 'CyberNext' targeting mid-career candidates with transferable skills and experience.

We must continue efforts to increase cyber security capacity across all sectors of the economy and technology is only part of the solution, we need a well-structured cyber profession with the appropriate educational and training building blocks that will enable the UK to have the right blend and level of skills needed to secure the UK.

4. A green technology revolution

All eyes are on the UK as we countdown to this year's crucial climate talks in Glasgow. To achieve success here, the UK must continue to demonstrate strong climate leadership and establish the credibility needed to convince others to match our ambition. The Royal Society has concluded that "while digital technology is just one part of the solution it is absolutely central to the net zero future we must build."[40] In 2020, techUK research with Deloitte confirmed that existing digital technology can already enable nearly one-third of the 50% carbon emissions reductions needed in the UK by 2030 whilst delivering £13.7 billion gross value added (GVA) to the UK.[41]



To capitalise on this exciting emerging new area of climate action, and building on our national strengths in AI, we believe announcing support for a Centre for AI and Climate Change at the COP26 summit can create a base in the UK to deploy one of our greatest technologies to tackle our greatest challenge.

We can also take steps to tilt our economy towards a more sustainable footing by refocusing our net-zero innovation investments, investing in new climate tech to support scale-ups, investing in the next-generation of digital twin use cases, encouraging the greater uptake of e-vehicles, and build on the UK's position as a hub for green data hosting.

Launch an International Centre for AI and Climate Change

A recent study by PwC and Microsoft estimated that applying AI to reduce greenhouse gas emissions in four key sectors (energy, transport, agriculture, and water) can lead to global GDP gains of up to 4.4% relative to business as usual. The GDP gains in European countries, including the UK, are expected to be higher still, with expected gains averaging 5.4% gains by 2030.[42] In parallel, the report estimated that adoption of AI in these sectors can expect to reduce global emissions by 4% by 2030.

These GDP gains are generated from the systemwide productivity benefits of AI applications across the four key sectors, driven by optimised use of inputs, higher output productivity, and the automation of manual and routine tasks.

Through the proposed International Centre for AI, Energy & Climate the UK can accelerate the application of AI to key sectors in the UK, solidifying the UK's position as a leader in AI and attracting international AI talent, whilst enabling reductions in greenhouse gas emissions in key sectors.

If the UK were to support the International Centre for AI, Energy & Climate it is estimated that the Centre could deliver:

- 575 direct and indirect jobs, including some of the top AI talent internationally.
- 450,000 net induced jobs delivered through productivity gains in the sectors that the Centre facilitates the application of AI for.
- Enable emission reductions in key sectors of 17.2 million tonnes by 2030.

A delivery package of £100 million has been identified by a coalition of industry, academia, and third-sector partners.[43]

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Use new powers over VAT to drive the green tech market: now that the UK has full control over VAT rating, the Treasury should seek to use this flexibility to boost the UK's green industrial revolution. For example, the Treasury should support the transition towards decarbonising electricity generation and transport by zero rating VAT on products such as solar panels, heat pumps, battery technologies, and electric vehicles, including electric mopeds and e-bikes which are vital to decarbonising the last mile of journeys and delivery services.

Stimulating the market for second-hand electric vehicles: further demand-side measures are needed to encourage the uptake of electric vehicles. E-vehicles represent around 2% of the market. Cars that are purchased new for commercial purposes (e.g., for fleets or private hire vehicles) form the basis for a second-hand market, tilting this market toward e-vehicles can facilitate mass adoption. This could be supported by:

- Extending the changes to benefit-in-kind tax rules for charging electrified company cars should be extended to all commercial vehicles.
- Introducing a phased-in VAT reduction, or scrappage schemes, which could help businesses transition, especially in large goods vehicles and heavy goods vehicles where the price differential is significant.
- Establishing a year one 'no-tax' benefit for companies switching, which will also reduce running costs for fleet operators.

A Net-Zero Innovation Board: the UK has committed to net-zero but will not achieve the target unless the UK's overly complex innovation system is overhauled. The network of Catapults, short-term pilots, government challenge funds, university R&D, and private sector research is not coordinated and often duplicates work. The Budget should fund a Net-Zero Innovation Board with the resources and oversight ability to coordinate net-zero innovation efforts, with a greater focus on challenge-led innovation and digitalisation.

Grow the UK's digital twins capabilities: a digital twin is the generation or collection of data representing a physical object. Digital twins allow for testing and innovation in a simulated environment with huge productivity-boosting potential for design and innovation.

The modus-operandi of digital twins, to offer the analytical capability to help realise whole systems thinking, is a reoccurring theme from a range of stakeholders, such as the Prime Minister's Council for Science and Technology.[44] In December 2020, the Royal Society argued that data, in conjunction with technologies such as digital twins, should be at the heart of the net-zero transition.[45]

The work of the Centre for Digital Built Britain (CDBB) has helped to seed a common framework to consider digital twins, and with further investment we can unlock inclusive, R&D-led growth, strengthen environmental resilience, embed expertise, and enhance and optimise public administration at a local, national, and even international level.

We recommend the following series of investment to level up the UK's digital twin capabilities:

- Form a 'UK Digital Twin Programme' with funding of £100-125 million over 10 years. This kind of programme would drive a more coherent government, industry, and academic digital twin community, and give the UK a world-leading position in the emerging multi-billion-pound digital twin market. Building towards a 10-year programme of investment, R&D hubs should be devised that focus on enhancing strategy and planning, performance optimisation, in, net-zero and energy supply, built environment and geospatial, public sector and public good, movement of people and goods and productivity, manufacturing and engineering.
- Continue and expand the £1 million funding for the rollout of the CDBB's Information Management Framework (IMF).
- Fund a one-year COP26 demonstrator (<£1 million) to showcase the UK's digital twin capabilities around net-zero and energy supply.
- Dramatically enhance funding (£100-£150 million/year) for 'capacity' supercomputing infrastructure, an essential enabler of digital twin development where the UK currently lags.
- Fund the development of a dynamic online platform that streamlines digital twin procurement and systems integration (SI) efforts (<£1 million), enabling UK public limited companies (PLC) to sell into the public sector effectively.

A green reward scheme for councils: Central Government will not be able to meet the net-zero challenge alone. Local authorities hold a key role in supporting sustainable mobility choices and in the development of local smart grids, which in turn can unleash local innovation. Local authorities have faced major funding challenges and increasing numbers are voting to declare 'climate emergencies.'

Treasury should use the Budget to review a potential reward and incentive scheme for councils. Councils that set measurable and ambitious decarbonisation objectives should receive support from Central Government if they achieve them.

Smart, sustainable cities: smart, flexible infrastructure at a cities level will be critical in the transition to net-zero. While we strongly support the path-finder approach outlined in the Energy White Paper to test energy innovation on a cities level, we lack a mechanism to share insights and showcase opportunities. Invest £6 million in the formation of a 'smart city' centre of excellence to address the lack of domain ownership in central government and the strong need to enhance sharing of expert knowledge, inspire collaboration (between industry and academia), showcase new opportunities, and conduct community outreach.

Supporting data centres as a green tech growth engine: the UK's data centre sector is a real success story, is globally important and leading edge in terms of technology, expertise and year-on-year growth.[46] Data is as important to our economy as concrete or steel. Data centres are the physical manifestation of our digital economy and enable the UK to punch well above its weight in digital exports and services. The successful delivery of a multitude of initiatives, from carbon reduction targets to the Levelling Up agenda, rely on data centres.

The UK's strength as leader and net exporter of digital services depends on world-class data infrastructure that is secure, efficient, reliable, and competitive. It also depends, now and in the future, on adequate data centre capacity and a thriving competitive market with choice at every level.[47] This means that UK operators must be able to compete for digital businesses against other markets. Even with the welcome relief from the Climate Change Agreement, UK electricity prices currently place domestic providers at a disadvantage compared to their overseas counterparts. We would therefore ask for data centres to be formally recognised as electro-intensive industries. Alternatively, we recommend a review of non-commodity charges on electricity in line with the 2016 commitment to make UK energy costs competitive, and the findings of the 2017 Helm Review. Operators also need to invest in efficiency upgrades to compete internationally. While the Climate Change Agreement provides welcome relief, some participants may be subject to punitive buyouts due to adverse business conditions related to COVID-19 impacting their customer base. We ask that special consideration be given to Target Period 4 buyouts: a hefty buyout removes the very funding that is needed for refits and improvements.

Data centres and the technologies they underpin will play a critical role in delivering the UK's carbon reduction commitments by improving carbon productivity, underpinning smart technologies, and enabling dematerialization. However, we must ensure that data centre facilities are themselves optimally efficient, and that they are positioned to support a flexible, smart grid and stimulate renewable generation. Moreover, the green credentials of data centres will be increasingly important in winning future business and will be vital to greening the digital economy while also offering the UK advantages in international trade by securing the UK's position as a premier global destination for green data. The decarbonization of the UK's data centre estate is already well underway, but more can be done:

- Power Purchase Agreements: the sector already purchases electricity from certified renewable sources, but operators want to invest in power purchase agreements, which fund additional renewable capacity at utility scale. Working with the sector to help de-risk PPAs would enable operators of all sizes to fund additional capacity of this type.

- Fueling a Hydrogen market: data centre adoption of alternative energy sources like fuel cells depends on the existence of a supply chain and a market for green hydrogen. We ask that government puts in place sufficient support measures to ensure a meaningful hydrogen market and in turn, a successful fuel cell industry.

- Supporting battery storage development: operators would like to phase out emergency diesel standby generation and move to battery storage. The sector will be an important anchor customer for successful large scale battery storage capability.

5. A digital-first trading nation

Now the UK has left the EU Single Market and customs union, we have an opportunity and a challenge to reinvigorate our approach to trade. However, this new era and its freedom come with costs in the form of non-tariff barriers with our nearest and largest trading partner and businesses not yet used to conducting all their trade under bilateral agreements.

Quickly adjusting the economy to this new trading system must be a priority. The UK is a major exporter of digitally delivered services, a home to high-tech and advanced manufacturing, and a centre of research excellence with the capabilities to carve out an important place in the global trading system.

The first steps of reinvigorating our approach to trade is already complete through 63 trade agreements, including one with the EU. The next steps to ensure tech-led growth in our trade is to develop a strong domestic market for RegTech to support UK firms export services across regulated markets, ensure the UK remains an attractive destination for FDI and provide practical support for businesses to become the driving force of global Britain.

Driving a RegTech revolution

Now that the UK has left the EU, our trade is organised principally via bilateral trade agreements as well as regulator-to-regulator dialogues and memoranda of understanding. This new flexibility presents opportunities but the loss of the country-of-origin principal and financial passporting means that all UK trade must now routinely manage non-tariff barriers such as compliance costs with all our major markets.

It is vital to ensuring market access and productivity growth that businesses have the tools to smooth these barriers. The UK already has one of the world's leading markets for RegTech. This is typically associated with the financial services sector, however the applications of RegTech go well beyond financial services and could be applied across a variety of business areas, from transportation and freight to healthcare.

By driving the development of competitive and wide-ranging RegTech market, the UK can increase opportunities for global trade by minimising the costs of trade barriers, this will be particularly important for small and medium-sized firms.

A successful RegTech market also has huge export potential. However, to begin a revolution in RegTech we need to revise our approach to regulating well as taking action to stimulate the market.

- **Review how we regulate:** developing a successful RegTech market will mean adjusting how we do regulation, ensuring all new regulation is developed in close consultation with business and with clear timetables. Predictable, risk-assessed, and proportionate regulation, the expertise of the regulator, and overall willingness of the regulator to engage and seek to understand new technologies can be the difference between caution and low innovation and a dynamic sector.[48]

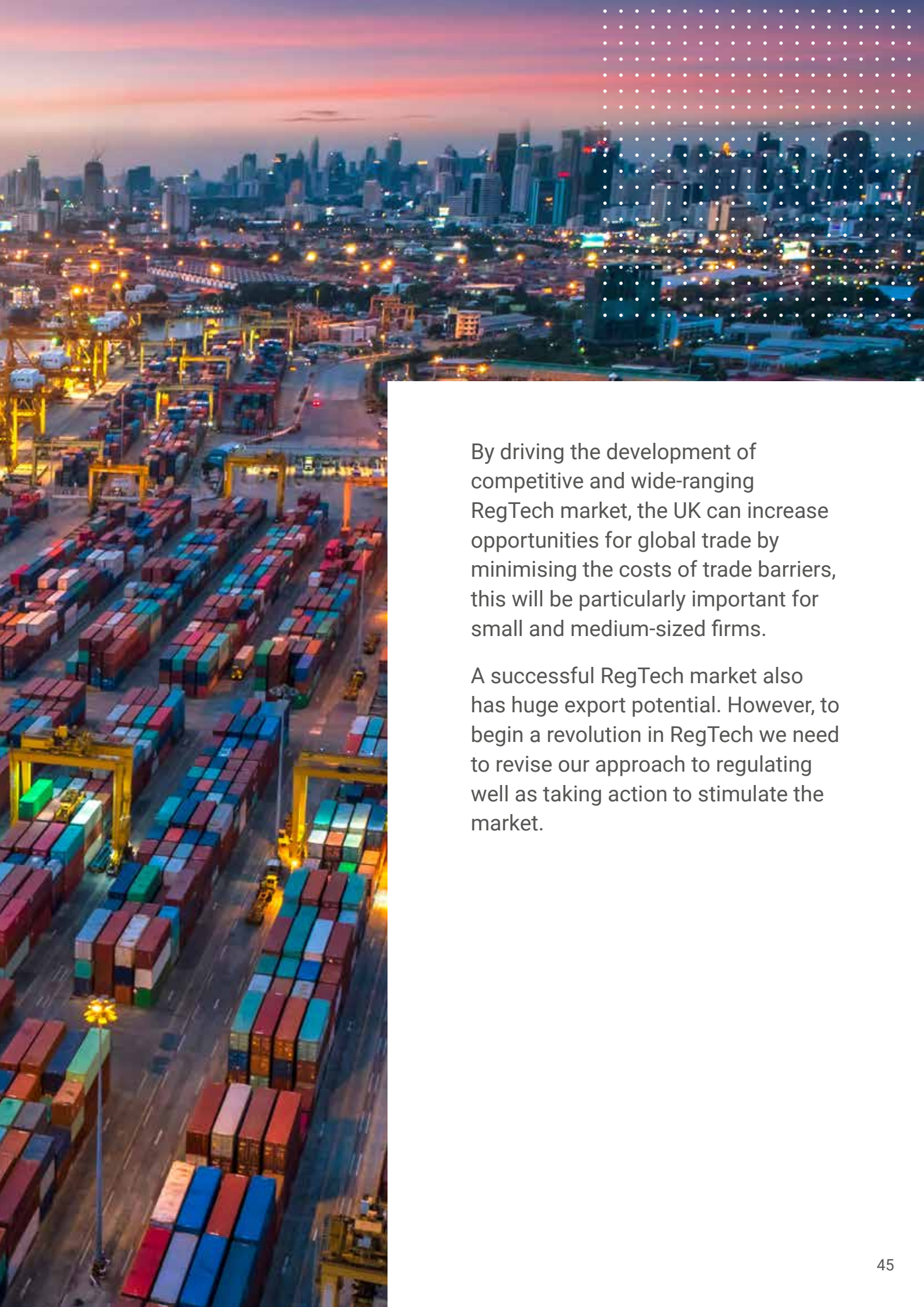
Government also needs to ensure that UK regulation is compatible with international best practice, as incompatibility and major divergences between regimes creates significant barriers for companies with growth ambitions beyond the UK. Maximising compatibility, pursing common best practice through international agreements and institutions, and supporting bilateral regulator-to-regulator dialogues and memoranda of understanding with key markets can help reduce barriers. This, as well as free trade agreements must be central to the UK's trade strategy.

- **A cross regulator sandbox initiative for RegTech:** currently a UK RegTech sandbox only exists within the FCA. This is a successful model, but it should be radically expanded, pulling in other regulators to create a cross-sector approach.

  Achieving buy-in from other regulators will be vital to giving confidence to innovators across the economy. Active engagement between industry and the regulator through sandboxes can also help produce better regulatory practices that support innovation while also achieving the aim of preventing harm.

  techUK proposes the Treasury begin a consultation into a cross-sector RegTech sandbox. The consultation should also include a call for evidence on how to facilitate improvements in the RegTech market for example by promoting open data, digital identification (ID), recognition of remotely certified documents, making e-signatures and e-certification the default, defining new regulations in a machine-readable format, and identifying key markets for regulator-to-regulator partnerships.

- **Provide financial support for SMEs:** SMEs, particularly those in the retail, manufacturing, hospitality, and construction sectors will be facing additional pressures due to the UK's new relationship with Europe. Providing financial support such as tax incentives and vouchers to subsidise purchases of RegTech services will not only help them trade more efficiently, but it will also stimulate the growth in the RegTech market, meaning a greater variety of solutions for SMEs sooner.



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Ensure the UK remains a top-tier destination for FDI: FDI into the UK is one of our great successes. Since 2011, FDI in the UK has been steadily increasing, and despite uncertainties caused by prolonged negotiations over the UK's relationship with Europe and the impact of the COVID-19 pandemic, investment into the UK has continued to be strong. Ensuring the UK remains an attractive destination for investment will be vital and, following the outcome of the UK-EU trade negotiations, the UK must send strong signals that it is open for business.

The Government should therefore take account of industry concerns around the National Security and Investment Bill and ensure that any screening and notification systems are tightly defined in scope, well-resourced, and phased-in, to create an effective system which supports the Government's policy aims but does not create practical barriers to legitimate investment.

Incentivise investors to discover opportunities across the UK: much of London's success relies on the network effects and serendipitous interactions that occur in a global capital. London is also a well-recognised global investor hub, however with every mile you move away from the capital the opportunities for investment decrease.

It does not have to be this way. The UK Government should begin by taking the practical step of using its convening power and networks to create prestigious trade shows bringing investors interested in the UK's strong international brand to locations and hubs outside the capital.

Modelled on the success of the GREAT campaign, regular roadshows could do much to increase awareness of the growth opportunities across the UK's nations and regions. To support the Government's global Britain agenda, the Treasury should consider providing funds for a one-year pilot of trade shows in partnership with devolved governments, local authorities, and the private sector to increase awareness and investment in entrepreneurs and businesses of the UK's regions and nations.[49]

Increase financial support for trade and investment: As the UK economy adjusts to a new trading settlement outside the EU Single Market and customs union, new support across the economy to support trade and investment will be vital.

The Government's recently launched 'check for barriers to trading and investing abroad' service is a welcome start and through its development it has taken on concerns raised by industry. However, across all sectors there is growing need for further support to fully take advantage of the opportunities for businesses presented by global trade.

At the Spending Review, the Department for International Trade (DIT) was granted a less than 2% rise in its resource and capital budget. This does not seem commensurate with expanding requirement for trade support needed in 2021 now that we have left the EU Single Market and customs union.

In the Budget, the Treasury should therefore provide support to DIT to take on the extra needed trade facilitation work that will emerge from the UK's new trading relationship with Europe.

techUK members have found regional export corridors, for example, the UK-India Tech partnership that links West Midlands and Northern Powerhouse with specific regions in India, based on sector specialisations effective at promoting trade links.

Devolved governments, regional mayors, and local authorities should also be supported to strengthen the role of export advocates and deliver events, expositions, and workshops to upskill SMEs in international trade. For example, by expanding the Export Champions Initiative across other regions and beefing up the role of the Export Academy.

There is also a strong case for a wider Government review of UK's export strategy because of the significant number of new trade agreements signed between the UK and international partners in 2020. This will be vitally important as UK businesses had a low utilisation rate of the preferential terms of FTAs, even when we were a member of the EU.[50]

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techUK
FOR WHAT COMES NEXT

About techUK

techUK is a membership organisation that brings together people, companies and organisations to realise the positive outcomes of what digital technology can achieve. We collaborate across business, Government and stakeholders to fulfil the potential of technology to deliver a stronger society and more sustainable future. By providing expertise and insight, we support our members, partners and stakeholders as they prepare the UK for what comes next in a constantly changing world.

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