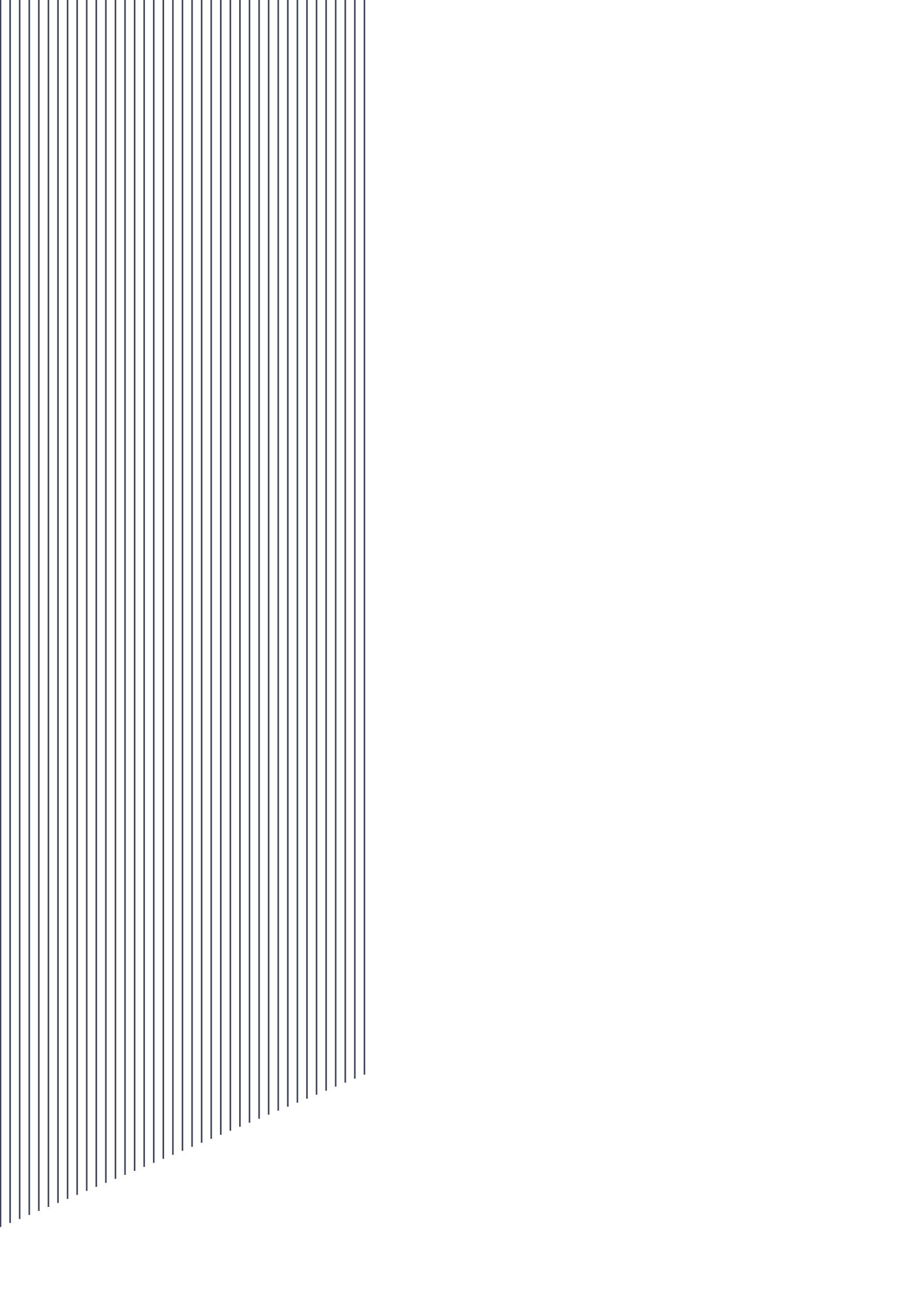




UK  
Board  
of Trade

# DIGITAL TRADE

# A BOARD OF TRADE REPORT NOVEMBER 2021



# Foreword

Digital trade presents huge opportunities for the UK. Just as Great Britain led the world in the first industrial revolution in the 1700s, we now have the chance to play a leading role in the digital revolution.

Digital technologies have already revolutionised the way companies do business - enabling them to reach a wider consumer base, trade more efficiently and cost-effectively, and to connect and grow their workforce across different regions of the world, sharing the benefits of prosperity. They have also been at the heart of how many of us have accessed services, purchased goods, kept in touch with loved ones or entertained ourselves over the last year, as the pandemic has illustrated just how important access to digital trade has become.

Digital trade is rapidly becoming the dominant form of trade. It has allowed British businesses selling goods or providing services to take what were previously local markets to a global scale. British companies providing innovative, high-quality digital services are continuing to expand around the world, from music streaming, video games and our award-winning creative industries to our strong legal and professional services sector. This is fundamental to our prosperity - in 2019, the digital sector alone contributed approximately £151 billion to the British economy, employing almost 5% of the national workforce.

Yet we cannot be complacent and simply wait for these opportunities to come to us. The road to our digital future is littered with potential barriers, whether in the form of poor digital infrastructure, the rising tide of digital protectionism, or the persistence of paper-based systems from the past. The international order has so far struggled to keep up with the pace of change, with the global rulebook on digital trade still largely unwritten. Digital trade needs champions who will make the case for a free, open and competitive international digital economy underpinned by common rules on digital trade that promote growth and the free flow of data, while also protecting businesses and individuals.

My vision is for the UK to be one of those champions and a global leader in digital trade, building a global network of next-generation trade deals that drive productivity, jobs, and growth in all areas of the

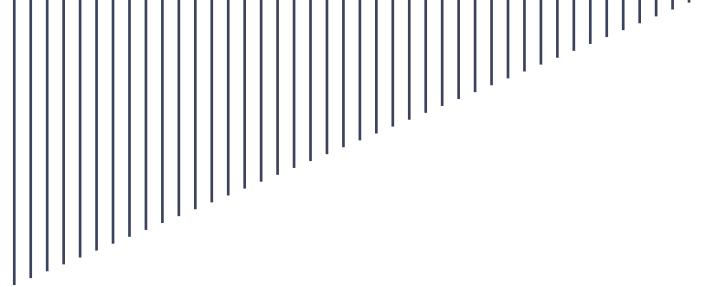
country, and across all sectors of the economy. We are already the second-largest services exporter in the world, meaning that we are ideally positioned to take advantage of this new way of doing business. We have highly competitive, world-leading digital and services sectors, the third highest rate of technology investment globally, exceptional talent, and a wide range of innovative businesses and start-ups using digital technologies to develop new products and sell them to worldwide markets. Digitalisation of global trade can also help turbocharge our goods exports, worth £372 billion in 2019. Our leadership can help ensure that digital trade enhances prosperity, uplifts communities, and empowers women not only in the UK but globally, including in developing countries.

Embracing the opportunities that digital trade offers will keep us at the forefront of the technological revolution, ensuring we lead the way in digital trade and capitalising on the benefits this can provide for Britain, for our trading partners, and for the world.

## **The Rt Hon Anne-Marie Trevelyan MP**

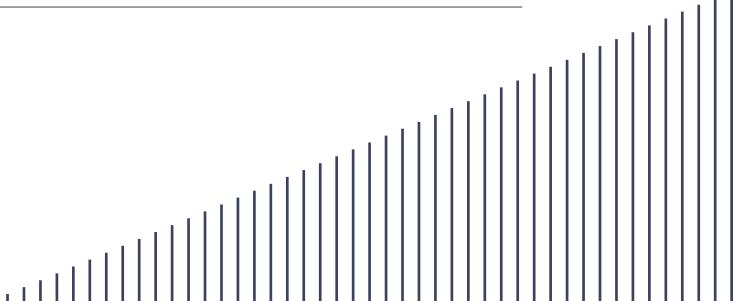
President of the Board of Trade and  
Secretary of State for International Trade





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## Executive summary

*This third report by the Board of Trade sets out the importance of digital trade. It shows the potential for Britain to be a leading global voice in helping realise the enormous opportunities digital trade offers for businesses and individuals.<sup>1</sup>*

The world has changed. Whether streaming TV and music, sending money to friends, or buying morning coffee with a smartphone, digital technology is now part of our daily lives.

- Individuals and businesses now engage with the world digitally. We use contactless payments, buy train tickets online, order products directly to our door, and catch up with colleagues or friends virtually.

Digital trade is the new normal. Growing rapidly, digital trade now underpins much of the global trading system, and contributes trillions of pounds in value to the global economy.

- The digital economy is increasingly central to the global economy, representing as much as \$11 trillion or 15.5% of global GDP in 2019. And even this figure is likely to underestimate the value of digital trade, which generates benefits across the whole economy.
- Trillions of pounds are being invested in digital transformation worldwide. That transformation has been accelerated by the coronavirus (COVID-19) pandemic, when digital tools have played a vital role in keeping the economy and society functioning.
- Digital trade increases the available market for goods and services, enabling ever greater interconnectivity and trade.

The UK, with its strong service sectors, thriving online marketplace, and booming tech investment, is ideally placed to take advantage of the new digital economy.

- The UK is already a world leader in services trade, which is becoming increasingly digital. In 2019, the UK exported £207 billion worth of digitally-delivered services, almost two thirds of our total services exports.
- Cross-border e-commerce sales of goods and services in the same year were worth £118.2 billion.
- The UK also attracts more venture capital investment into tech companies than any other country except the US and China.

**15.5%**

digital economy share  
of global GDP in  
2019



**\$6.8tn**

investment in global  
digital transformation  
worldwide



**£207bn**

Value of UK exports  
that are digitally  
delivered annually



**150%**

Average earnings of  
employees in the  
digital sector  
compared to the UK  
average



**84%**

Share of UK financial  
services trade that is  
digitally delivered



<sup>1</sup> Data sources for all figures provided in the Executive Summary are included in the main body of the report

**Drawing on our strengths, the government's vision is for the UK to be a global leader in digital trade.**

- The Secretary of State for International Trade has set out a vision for the UK to be a leader in digital trade. A network of international agreements will drive productivity, jobs, and growth across the UK.

**Digital trade presents opportunities for growth and jobs across the whole of the UK economy.**

- Digital trade offers unprecedented opportunities to revolutionise how goods and services are delivered across almost every sector of the economy. It can deliver growth and jobs in the UK's world leading finance and professional business services sectors. Retail, health, education, engineering, agriculture, manufacturing, creative industries, and many more can also benefit.

**These economy-wide opportunities from digital trade should benefit businesses, workers, and consumers across every part of the United Kingdom.**

- Digital trade creates opportunities for businesses across all parts of the UK to benefit from fairer, more open access to new markets. At the same time, cities across the UK including London, Belfast, Edinburgh, Cardiff, Manchester, Cambridge, and Bristol are growing hubs for innovation and digital technology.
- Workers benefit from the digital economy as digital trade grows. Investment in digitisation brings new job opportunities and develops new skills. Workers also benefit from higher wages, with weekly earnings of employees in the digital sector around 50% higher than the UK average in 2020.
- Consumers use digital technology to purchase goods from around the UK and abroad, including from smaller suppliers, and to benefit from new and innovative services. This means access to a wider range of products and services more easily and cheaply than ever before, making it easier to shop, travel, learn and connect with others.

**Although digital trade drives jobs and prosperity, a range of barriers threaten the growth of digital trade globally, both now and in the future.**

- Restrictions on digital market access to overseas markets can reduce the growth of UK exports.
- Unjustified restrictions on data prevent free and trusted global data flows. That limits opportunities for UK businesses to operate and sell their services in overseas markets, increasing business costs and stifling innovation.
- Insufficient safeguards for individuals and businesses inhibit the confidence they have in digital trade. People should be able to feel safe buying goods and services online, and be assured that their personal data is protected. Businesses need to be able to protect themselves from threats such as cyberattacks and intellectual property theft.
- Lack of digital trading systems and digital documents increase the time and cost of doing business across borders. This includes underdeveloped digital customs and logistics processes and the limited cross-border availability of certain digital services such as e-payments.

- The rapid pace of digital transformation means that global trade rules have simply not kept up. Without modern norms, rules and standards, regulations could become more fragmented, more protectionist and less effective at safeguarding individuals and businesses.
- Imperfect information, particularly for small and medium-sized enterprises (SMEs), can mean that businesses are unable to take full advantage of the opportunities digital trade offers.

**To achieve its vision, the UK will need to address the barriers to digital trade by delivering on 5 important goals.**

- The UK should secure British businesses' access to overseas digital markets, so that firms can invest and operate across borders freely, in fair competition.
- The UK should facilitate international data flows that are open and trusted. The UK can lead in developing a balanced approach, maximising the benefits of cross-border data flows while maintaining high standards of personal data protection.
- The UK should champion measures to protect consumer rights when purchasing goods and services online in other countries. Businesses need confidence that their intellectual property will be protected.
- The UK should prioritise developing digital trading systems based around common standards agreed with trading partners. Those systems can cut red tape and make trade cheaper, faster, and more secure for businesses.
- The UK should collaborate with international partners to shape the rules, norms and standards of digital trade to make it free, fair, and inclusive.

**The government should prioritise modern free trade agreements (FTAs) with dynamic, high-growth countries in the Indo-Pacific, and large strategic partners like the US and EU. The UK should also collaborate with less developed countries to ensure that digital trade is inclusive and benefits all.**

- The Indo-Pacific is a dynamic, fast-growing region for trade and a centre for digital innovation. The UK should prioritise modern Indo-Pacific trade relationships focused on digital, data and services, building on FTAs with Japan, Australia, and New Zealand.
- The UK should also prioritise modern trade agreements with large, strategically important partners such as the US where established markets are becoming increasingly digital.
- If digital trade is to be the 'new normal', digital rules will need to be developed. These must enable all countries, including developed, developing and least developed countries, to benefit from the opportunities digital trade can provide. The UK must play its part in bilateral, plurilateral and multilateral fora in shaping a global digital economy that is inclusive and benefits all.

**Delivering on the UK's goals will need concerted action across all aspects of our trade policy. This includes negotiating modern, digital FTAs, shaping new WTO agreements, driving thought leadership in fora like the G7, and promoting UK digital exports and investment.**

- Given its competitive strength, the UK should make digital trade a focus of its modern FTAs and bilateral trade committees.
- The UK should play a leading role in the World Trade Organization (WTO) to help build international consensus. We should work with other nations towards a framework of global rules for digital trade through the WTO's E-Commerce Joint Initiative.
- The UK should use its thought leadership in other international fora such as the G7 and OECD to support progress in the WTO. This will create momentum towards digital trade norms and standards that support international trade and wider goals including data policies, labour standards and climate action.
- The UK government should continue to promote UK exporters in the digital economy, particularly SMEs. Similarly, continued investment promotion by the government will highlight the attractiveness of the UK to foreign investors.

**The Board of Trade recommends 8 priorities for UK digital trade policy:**

1. **The UK government should centre its digital trade policy around achieving 5 goals:**
  - open digital markets
  - free and trusted data flows
  - consumer and business safeguards
  - digital trading systems
  - partnerships to shape global rules, norms, and standards
2. **The UK should conclude accession to the Comprehensive and Progressive Agreement for Trans-Pacific Partnership (CPTPP). We should build a pipeline of other modern digital FTAs with dynamic Indo-Pacific partners, and negotiate new FTAs with large economies like the US.**
3. **The UK should pursue a ground-breaking Digital Economy Agreement with Singapore which establishes a new gold standard for digital trade.**
4. **The UK should use its bilateral trade committees to increase digital market access for British businesses around the world.**
5. **The UK should seek to build on its successful G7 Presidency and the adoption of the G7 Digital Trade Principles to help shape global rules.**
6. **The UK should continue to play a significant role in the negotiations on the WTO E-Commerce Joint Initiative. We should work together with developed, developing and least developed countries, and push for substantial progress at the 12<sup>th</sup> WTO Ministerial Conference.**
7. **The UK should use its thought leadership in digital trade in collaboration with the OECD and like-minded partners. Together we can shape an inclusive digital economy that benefits workers, consumers and businesses. We should ensure that developing countries are able to benefit and that women are empowered to fully participate in digital trade.**
8. **The government should continue to promote UK exports globally and showcase the UK as a strong, competitive place to invest and do digital business.**





# The Board of Trade

## The Board's role

The Board of Trade is a government body that has existed in various forms for almost 400 years – even before the days of Adam Smith and David Ricardo. Its purpose is to raise awareness of the benefits of international trade, campaign globally for free and fair trade and work with international counterparts to build a consensus for open markets and fight protectionism. It works alongside, but is separate from, the Department for International Trade.

The President of the Board of Trade is the Secretary of State for International Trade, the Rt Hon Anne-Marie Trevelyan MP. The Board is supported by advisers to the Board of Trade, who are drawn from academia, business, and government. They are independent and are appointed on one-year non-remunerated terms.

The Board meets quarterly at locations across the UK's regions. It produces reports on important trade issues, the publication of which is timed to coincide with Board meetings. This is the third quarterly report under the new Board of Trade.

## Scope of this report

The Board's reports are intended to bring new thinking to, and inform debate on, matters of UK trade policy. HM Government will consider the recommendations of Board of Trade reports but is under no obligation to pursue them and this report does not reflect government policy. Board of Trade reports regularly include reflections from the Board's advisers which may differ from existing HMG policy. Where these are included, they are attributed to the adviser directly.

## Board members and advisers

The President of the Board of Trade is the Secretary of State for the Department for International Trade.

### The 15 advisers are:

- Secretary of State for Scotland
- Secretary of State for Wales
- Minister for Investment
- Minister for International Trade
- Karen Betts
- Emma Howard Boyd
- Rt Hon Patricia Hewitt
- Secretary of State for Northern Ireland
- Minister for Trade Policy
- Minister for Exports
- The Hon Tony Abbott
- Lord Hannan of Kingsclere
- Michael Liebreich
- Dr Linda Yueh
- Rt Hon the Lord Mayor of the City of London, Vincent Keaveny

# Chapter 1:

## The global rise of digital trade

### The digital economy is redefining trade

“... it’s highly likely that we won’t talk of e-commerce in 2030. Perhaps not even by 2025. That’s to say, we won’t talk of digital trade – just trade.”

**International Chamber of Commerce Secretary General John WH Denton, June 2021**

Almost 27 years ago, on 1 January 1995, the World Trade Organization (WTO) Agreement entered into force, formally creating the WTO, and establishing for the first time a truly global system of rules for international trade.

A few months earlier, in October 1994, a now largely forgotten web browser called ‘Netscape Navigator’ launched for the first time, allowing its users access to another nascent global system: the ‘World Wide Web’.<sup>2</sup> Before this release, access to the web required users to have better-than-average technical proficiency and special types of connections.

Today the web, the internet that underpins it, and other digital technologies have transformed virtually every aspect of people’s lives globally. We can communicate, educate, entertain, share, and trade across borders in ways that would have been unimaginable in 1995.

The digital transformation has affected almost every sector of the economy. It has changed the way businesses interact with consumers and each other. It has reduced the costs of engaging in international trade, reshaped supply chains, and connected consumers and businesses to a much greater set of products and opportunities globally.

According to the International Monetary Fund (IMF), we are seeing a new phase of globalisation underpinned by the cross-border movement of data. New digital technologies are creating unprecedented levels of transformation in industries and production processes, and changing the actors and patterns of international trade.<sup>3</sup>

In effect, digital trade is fast becoming the dominant form of trade. But its dominance is not yet adequately reflected in the WTO’s rules, which have changed relatively little since their inception.

<sup>2</sup> Slate (2014) [Netscape Navigator, Everyone’s First Browser, Turns 20 Today](#)

<sup>3</sup> International Monetary Fund (2018) [‘Toward a Handbook on Measuring Digital Trade: status update’](#)

This means that we lack a global rulebook for digital trade. That increases the risk of more fragmented regulation, rising protectionism and the proliferation of barriers to trade, all of which hamper efforts to realise digital trade's full potential.

To understand how to address the emerging barriers to digital trade and seize the opportunities it offers, we must first understand what we mean by 'digital trade', and how it is reshaping the global economy.

## Digital trade is reshaping the global economy

"A vast and growing amount of digital trade goes uncounted - and is perhaps uncountable given the different ways in which countries define it.

Most trade is now digital, but governments persist in treating it as a discrete category. Countries continue to define their trade balance in an analogue way - exports minus imports - even though we will soon be in a world where much is delivered online, and almost everything is ordered online."

**Lord Hannan of Kingsclere**  
Board of Trade Adviser

**Digital technologies contribute towards almost all modern trade.** 'Digital trade' does not simply mean the tech sector. It is the modern way of doing trade for all sectors across the economy.

**Individuals and businesses now engage with the world digitally.** We use contactless payment for morning coffees, buy train tickets online, book restaurants, shop online, stream TV and music, and catch up with colleagues or friends virtually. It is rare for most people, particularly in developed economies, to go through a day without using some form of digital technology.

**Digitalisation has only accelerated during the coronavirus (COVID-19) pandemic** as businesses and consumers have become increasingly digital. According to research by McKinsey, since the onset of the pandemic 'companies have accelerated the digitisation of their customer and supply-chain interactions and of their internal operations by 3 to 4 years. And the share of digital or digitally enabled products in their portfolios has accelerated by a shocking 7 years.'<sup>4</sup>

**Digital trade enables truly global value chains,** allowing ever greater global connectivity and coordination. It allows supply chains to be diversified, creating new opportunities for participation in international trade that did not exist before.<sup>5</sup> This global interconnectedness would not be possible without digital tools; according to Branstetter, by 2016, nearly all industries already relied on digitally delivered services and data flows.<sup>6</sup>

**The cost of digitalisation, both of technologies and infrastructure, continues to fall.** The growing gap between digital and physical operating costs increases the comparative advantage of businesses that operate digitally. This drives further adoption across a wide range of sectors and generates further reductions in cost due to scale, accelerating the trend towards digitalisation.

**The Organisation for Economic Co-operation and Development (OECD), WTO and IMF have recently defined digital trade as 'all trade that is digitally ordered and/or digitally delivered'.<sup>7</sup>**

Effectively, this encompasses the full range of services and goods crossing borders around the world every day. It includes:

- **modern services**, from music streaming for consumers to financial data for businesses.
- **online goods**, increasingly ordered through online platforms, markets and websites and delivered door to door.
- **embedded tech**, where digital services and data are supplied alongside goods such as aircraft engines, high-tech ships and self-driving cars.

At the core of all digital trade are:

- **digital trading systems**, from e-payment systems to digital customs processes, which facilitate even physically delivered trade.
- **data flows**, the lifeblood of the new global economy, worth trillions of dollars.

4 McKinsey & Company (2020) '[How COVID-19 has pushed companies over the technology tipping point—and transformed business forever](#)'

5 J Meltzer (2019) '[Governing Digital Trade](#)'

6 Branstetter (2016) '[Assessing the Trans-Pacific Partnership](#)'

7 OECD, WTO, and IMF (2020) '[Handbook on Measuring Digital Trade, Version 1](#)'

## Modern services

**Many services are now underpinned by digital trade.** This includes services that are digitally delivered, and the digital facilitation of services delivered in person.

**Digital platforms allow businesses to provide their services remotely, and digitally delivered services now play a role in every sector of the economy.** Lawyers conduct research online, consultants use cloud-based data analytics platforms, and both deliver advice to their clients through video or teleconferencing and email. Engineers use internet-connected sensors to diagnose problems and remotely advise on repairs to equipment located in another country. Architects produce digital drawings or use software to build models that their clients can tour in virtual reality.

Businesses in every sector can also use digital technology to facilitate ‘business process outsourcing’ for non-core functions, from research and data analysis to HR and customer service. These processes can be bought and sold across borders as digitally delivered services, achieving cost savings and productivity improvements.

**A huge variety of consumer-facing services are now delivered directly through digital platforms or apps.** We can now stream music and television through applications such as Spotify, Netflix, or BBC iPlayer and watch video content through YouTube or Twitch. We can access online gaming through platforms like Steam, read or listen to books through Kindle or Audible, or learn languages through apps such as Duolingo.

Many of these services could not be provided at the same scale without digital technologies. The lower cost of digital delivery means that monthly access to online streaming services with huge libraries of content is now priced similarly to renting a single DVD 20 years ago.

Providers are also able to personalise content, presenting opportunities for creators to engage with fans directly through digital platforms. Digitalisation has also made some smaller-value transactions economically viable, such as streaming one song rather than buying a whole album.

**Digital technologies also allow a wide range of physically delivered services to be delivered more effectively and efficiently.** For example, applications which aggregate and personalise transport information in real time (such as CityMapper) allow individuals to better plan their use of transport services. Other platforms allow them to book a train ticket or check in for a flight remotely.

**The growth of digital trade has also given rise to entirely new kinds of services.** These include infrastructure provision such as server/database and cloud computing services or mobile connectivity and 5G, enabling innovative new British service providers.

## Online goods

**Digital technologies have had a huge impact on the trade of physical goods.** The rapid growth of platforms such as Amazon and eBay and the expansion of ‘bricks and mortar’ retailers into online selling lets consumers purchase a wide range of products for delivery to their doors.

**The emergence of online marketplaces has increased choice and reduced prices for consumers.** It has also had a significant impact on the logistics of goods trade, with smaller and more varied shipments now crossing international borders more frequently than in the past. According to some estimates, in the last decade the volume of cross-border parcel trade has grown over 3 times faster than the volume of global merchandise trade.<sup>8</sup>

## Embedded tech

Historically, the global trade framework has treated trade in goods and trade in services as separate disciplines, each with its own rulebook. However, digital technologies increasingly blur the distinction between the two.

**Goods from household appliances to cars increasingly incorporate advanced digital technology and data, which make up a significant part of their value.**

Modern cars, for example, are not just mechanical systems – they contain powerful processors and complex software for everything from safety, to navigation, to entertainment. In the 1980s, electronic components and software accounted for only 5% of the value of a car, but by 2010 they made up as much as 40%.<sup>9</sup>

<sup>8</sup> Organisation for Economic Cooperation and Development (2021) ‘Trade in the time of parcels’

<sup>9</sup> Alessandro Antimiani and Lucian Cernat (2017) ‘Liberalizing Global Trade in Mode 5 Services: How Much Is It Worth?’

The complexity and value of these embedded digital systems continues to grow. Cars of today include tens or even hundreds of millions of lines of code, and some industry insiders estimate that future fully autonomous cars may have as many as 1 billion.<sup>10</sup>

**Manufacturers now offer integrated, digitally enabled ‘product-service systems’ instead of goods with separate service or maintenance arrangements.**

For example, instead of selling jet engines to its customers, Rolls-Royce can instead contract to provide an end-to-end *engine service* (from installation through maintenance to replacement) for a flat rate per hour of flight. This is underpinned by digital technologies. The company uses sensors to collect data from its jet engines to better tailor maintenance and minimise downtime, and charges clients based on the hours the aircraft actually spends in the air.

**Digital twins combine physical products with digital copies.** Digital twins are real-time digital copies of physical systems which can predict maintenance issues or potential failures.

This support is particularly beneficial in complex or large-scale engineering projects where the cost and potential consequences of failure can be significant.

A modern bridge may now be packaged with an identical digital bridge and associated diagnostic software. The digital twin is updated with real-time data – like weather conditions, the humidity or salinity of the air, or the traffic crossing the bridge. That allows the digital model to predict future maintenance issues and reduces the need for physical inspections. This innovation also benefits citizens – as the bridge is likely to be closed less frequently.

## Digital trading systems

As well as giving rise to innovative new products, digital trade allows for the ordering and delivery of traditional goods and services in more efficient and effective ways.

**Digital technology facilitates trade at the border,** with many modern free trade agreements containing digital customs or trade facilitation provisions. Increases in the speed and ease of products crossing international borders have also led to the development of new business models, such as ‘just-in-time’ supply chains. This reduces costs for businesses significantly (for example, through a reduced need for storage space), and allows them to pass on those savings to consumers.

**Digital technology underpins the way in which goods make their way across the world.** Digital technology is at the heart of goods supply chains. Databases and QR codes enable improved warehousing, storage, and logistics functions. Smarter shipping is enabled by digital technology and data flows (see **Box 1: How digital and data systems are now central to goods shipping**). Smartphone applications allow consumers to track delivery drivers all the way to their doors.

**New and emerging technologies such as blockchain and 3D printing present opportunities to digitalise trade further.** Blockchain, or other forms of distributed ledger technology, can facilitate trade in a number of ways. It enables so-called ‘smart contracts’ (providing payment for the delivery of goods automatically on receipt and scanning in of the product at a warehouse). In supply chain assurance, it helps companies to verify that their supply chains are free from abuses such as forced labour. It can also streamline supply chain management and improve logistics throughput.<sup>11</sup>

3D printing also represents a potential revolution in global goods trade. The technology is still relatively new and, in many cases, not yet economically viable. However, it could impact global trade in goods in a big way – reducing the need to import intermediate goods and changing the shape of global trade flows.<sup>12,13</sup> The relative infancy of these technologies makes their long-term impact uncertain, but it is important that the UK’s digital trade policy remains alive to these and other technological developments.

10 Arm (2019) ‘[How to Make Autonomous Vehicles a Reality with Arm](#)’

11 The Department for Business, Energy and Industrial Strategy/Office for Product Safety and Standard (2020) ‘[The use of distributed ledger technologies to verify the provenance of goods](#)’ Research Paper

12 ING Group (2017) ‘[3D Printing: A threat to global trade](#)’ Economic and Financial Analysis

13 World Economic Forum (2020) ‘[3D Printing, a guide for decision makers](#)’ White Paper

## Data flows – the lifeblood of the new global economy

**All the digital technologies transforming global trade have one thing in common – data.** A simple email exchange with a customer, colleague or friend in another country requires data to cross national borders. Similarly, when ships full of remotely monitored containers cross oceans (see **Box 1: How digital and data systems are now central to goods shipping**), data must flow alongside them.

**Data underpins modern trade.** The electronic payment systems which let customers place online orders from anywhere in the world, the electronic customs portals that let exporters and importers submit product information digitally, a catch-up video call with a family member living abroad, and the ability to stream a favourite video from another country all rely on data flows.

**Data flows have increased exponentially over the last decade.** Global cross-border data flows are estimated to have exceeded 700 terabytes per second in 2017, increasing by a factor of 64 since 2007.<sup>14</sup> Today, a single jet engine being digitally monitored can generate as much as 20 terabytes of data in an hour of flight<sup>15</sup> – equivalent to streaming over a thousand ultra-high-definition films.

**Data is a core part of global value chains.** Research has shown that a data value chain may require data to be transferred across borders multiple times, or even on an on-going (real-time) basis.<sup>16</sup>

**Data flows can cut costs in international production processes.** For example, multinational enterprises that own plants in various countries can use data flows to integrate the production process more effectively by monitoring their production volumes constantly, leading to substantial cost savings.<sup>17</sup>

**International data flows are now worth trillions of dollars.** Because data flows are so widespread, their full impact is hard to measure. But even in 2014, data flows contributed an estimated \$2.8 trillion to gross domestic product (GDP) growth, a larger contribution than goods trade.<sup>18</sup> A study from 2016 found that the global digital economy was worth \$11.5 trillion, equivalent to 15.5% of global GDP.<sup>19</sup>

### Box 1. How digital and data systems are now central to goods shipping

Digital trading systems and the flow of data are essential to modern goods trade – almost regardless of the product being traded.

For agricultural produce, digital technologies allow exporters and buyers to ensure products shipped internationally arrive in the best possible condition. Remote container management lets shipping companies use digital technology to monitor the conditions inside their containers remotely – protecting delicate products from unwanted changes in temperature, CO<sub>2</sub> level or humidity. It also allows businesses to maintain more flexible supply chains by redirecting cargo to another destination while in transit if their plans change.

For manufactured goods, digital trading systems allow more diverse and faster-flowing supply chains, enabling businesses to source a wider variety of inputs, and reducing the need to pay for expensive storage.

Although still experimental, companies such as IBM and Maersk are beginning to apply blockchain and other distributed ledger technologies to global supply chains. They have established ‘TradeLens’ – a supply chain and logistics network which connects and allows information sharing between owners, carriers, ports and national authorities.

14 Nguyen, D and M Paczos (2020), ‘Measuring the economic value of data and cross-border data flows: A business perspective’

15 Pepper, Garrity and LaSalle (2016), ‘Cross-Border Data Flows, Digital Innovation, and Economic Growth’

16 Nguyen, D and M Paczos (2020), ‘Measuring the economic value of data and cross-border data flows: A business perspective’

17 Nguyen, D and M Paczos (2020), ‘Measuring the economic value of data and cross-border data flows: A business perspective’

18 McKinsey Global Institute (2016) ‘Digital Globalization: The New Era of Global Flows’

19 UNCTAD (2019) ‘Digital Economy Report’

```
ASM_VMX_VMREAD_RDX_RAX ".byte 0x0F, 0x44, 0x0B  
@ always_inline unsigned long vmcx_read(void) {  
    unsigned long val;  
    asm volatile (_ex_clear(ASM_VMX_VMREAD_RDX_RAX,  
                           : "=r"(val) : "d"(0));  
    return val;
```

```
#include <stdint.h>
main(int argc, char *argv) {
    int64_t src = argv[1];
    int64_t dst;
    volatile int64_t sum;
```

# Chapter 2:

## The UK's vision for harnessing the benefits of digital trade

"The UK has so much to offer the global marketplace. We are the second largest services exporter in the world. We are one of the most innovative economies, exporting most of our services digitally..."

By embracing new opportunities on the global marketplace, we will level up the country through trade and investment."

**Anne-Marie Trevelyan MP**  
Secretary of State for International Trade

### The UK's vision for digital trade

In his foreword to the recent Integrated Review of Security, Defence, Development and Foreign Policy, the Prime Minister set out how the government will lay the foundations for long term prosperity. The government will establish the UK as a global services, digital and data hub by drawing on its great strengths in digital technologies, and attracting inward investment.<sup>20</sup>

In support of this goal, the Secretary of State for International Trade has set out her vision for digital trade. **The UK's vision is to be a global leader in digital trade, with a network of international agreements that drive productivity, jobs, and growth across the UK.**<sup>21</sup>

### The UK's strengths in digital trade

The UK, with its strong and well-developed service sectors, advanced online ecosystem, and cutting-edge innovation in embedded tech, is ideally placed to take advantage of the new digital economy.

**The UK is a services superpower.** Service industries contribute about 79% of total UK economic output,<sup>22</sup> and 82% of UK employment<sup>23</sup> – 7 to 10 times higher than the contribution made by manufacturing. This strength in services is unusual even among comparably developed economies, with OECD members averaging around 70% for both output and employment.<sup>24</sup>

<sup>20</sup> Her Majesty's Government (2021) *Global Britain in a Competitive Age: the Integrated Review of Security, Defence, Development and Foreign Policy*

<sup>21</sup> Trevelyan (2021): *Break down digital trade barriers to help British businesses thrive*

<sup>22</sup> ONS (2021) 'GDP output approach – low-level aggregates'

<sup>23</sup> ONS (2021) '[EMP13: Employment by industry](#)'

<sup>24</sup> OECD (Forthcoming) 'Services Trade in the United Kingdom and the Global Economy'

## Figure 1. UK services industries – export value



**Business Services**  
[£114.2 billion]

A wide range of services including audit, consultancy, tax advice, with benefits to the wider economy.



**Financial and Insurance Services**  
[£81.9 billion]

A key UK strength, covering key services in Banking & Insurance as well as growing services in FinTech, InsureTech and Green Finance.



**Transport**  
[£26.3 billion]

A key facilitator of trade, influencing trade more than simply its export value.



**Intellectual Property**  
[£20.6 billion]

These intangible exports are likely to increase in value as global trade becomes more and more digitised.



**Communications**  
[£7.2 billion]

A significant enabler of cross-border trade and digitally enabled industries. High strategic importance with links to national security.



**Legal Services**  
[£7.0 billion]

A globally respected industry, facilitating trade and providing a stable and secure basis for deal-making.



**Audiovisual**  
[£2.7 billion]

World renowned industry, with cultural significance beyond its value in pounds and pence.

We have a very strong financial services hub in the City of London, numerous globally respected professional service suppliers including lawyers, consultants, architects, engineers, and insurers, and vibrant and world-leading creative industries (see **Figure 1: UK services industries – export value**). Much of this is digital, and becoming increasingly so.

**The UK has a thriving online marketplace.** Around 87% of UK adults report shopping online,<sup>25</sup> and between 2015 and 2019, e-commerce sales in the UK rose from £496 billion to £693 billion.<sup>26</sup>

This is giving rise to clusters of digitally advanced companies. Manchester hosts a thriving ecosystem of more than 3000 e-commerce and related companies, with Worldpay, Klarna, Adyen and Clearpay all having a base there, alongside fast-growing e-commerce start-ups and platform providers such as The Hut Group.

**The UK is already an international hub for tech innovation.** UK-founded companies are at the forefront of developing cutting-edge technologies – like globally renowned artificial intelligence specialists DeepMind, acquired by Google in 2014 for £400 million. UK firms also pioneer tech-driven business innovations – like food delivery company Deliveroo, which listed on the London Stock Exchange in March 2021 with a £7.6 billion valuation. Cities across the UK, including London, Belfast, Edinburgh, Cardiff, Manchester, Cambridge, and Bristol are increasingly becoming hubs for innovation and digital technology alongside the UK's world-class universities and research institutes.

This transformation brings investment, increased productivity, growth, and jobs. This creates benefits that extend beyond the digital sector to the wider UK economy, creating new specialisations and business models.

<sup>25</sup> ONS (2020) '[Opinions and Lifestyle survey - Internet Access survey](#)'

<sup>26</sup> Sales of goods and services, including business-to-consumer and business-to-business, in all sectors except agriculture, mining and quarrying, financial services and public services. Office for National Statistics (2021) '[E-commerce and Information and Communication Technology Activity, UK: 2019](#)'

**The UK is a world leader for digital investment,** attracting more venture capital investment into tech companies than any other country except the US and China.<sup>27</sup>

During 2020, the UK maintained its position as the third largest destination globally for tech venture capital investment. We also achieved 17% year-on-year growth – the highest growth rate globally – in investment into so-called ‘deep tech’ – R&D intensive, innovative tech development.<sup>28</sup>

According to recent research, the UK is creating new tech ‘unicorns’ (companies valued at over \$1 billion) at almost the rate of one a week, with 20 new unicorns in the first half of 2021. The UK is now home to 105 unicorns, more than Germany and France combined.<sup>29</sup>

## The opportunities from modern services

**The global market for digitally delivered services is worth trillions – and it is growing.** Between 2005 and 2017, digitally delivered services accounted for two thirds of global growth in the trade in services.<sup>30</sup> By 2017, this market was already worth \$3.7 trillion globally.<sup>31</sup>

This growth offers huge opportunities for the UK’s world leading services sectors, which can use digital trade to target new markets with flexibility and scalability.

Digital technology allows more services to be traded over greater distances, reducing the impact of geography. Services ranging from legal advice to architectural and engineering designs can be delivered digitally, instantly, and more cheaply across borders. A Manchester-based architect can serve clients in Asia in the morning, Europe at noon and in North America in the afternoon, all from their home office.

**Digitally delivered services can benefit the environment.** The emissions associated with transport are avoided when services are delivered digitally rather than in person. One study found that a typical meeting over teleconferencing software has at most 7% of the carbon impact of an equivalent in-person meeting.<sup>32</sup>

An effective trade policy that enables UK service providers to sell their services remotely expands opportunities, reduces business costs, and reduces the need for skilled UK professionals to travel abroad. This allows the UK to leverage its comparative advantage in services to access fast-growing overseas markets, wherever they are located – for example in the Indo-Pacific.

This provides opportunities for innovative and competitive sectors like the UK gaming industry (see **Box 2: The UK gaming industry**).

This is hugely beneficial to the UK. Digital trade allows consumers around the world to access the output of our world-leading creative industries. Businesses and government can export the UK as a brand in a way that was not possible previously.

## Box 2. Growth of the UK gaming industry

The UK has the largest gaming industry in Europe,<sup>33</sup> and the industry is growing rapidly.

It generated £2.9 billion of gross value added for the UK economy in 2019, up from £0.4 billion in 2010 – an increase of over 600% in a decade. PwC predict that by 2025 PC gaming will be 98.8% digitally delivered.

This cutting-edge industry provides high-quality jobs across the country. Over half of UK games companies are based outside London and the South East, with Scotland, Wales and Northern Ireland all home to internationally successful games and interactive entertainment companies. In the year ending June 2021, there were 33,000 jobs within the video games sector in the UK.<sup>34</sup>

The huge growth potential of the UK gaming industry rests increasingly on international markets, with more people in more countries playing online games than ever before. Unsurprisingly, an estimated 95% of UK games development studios already export their products (TIGA).

27 Tech Nation Report (2021) '[The future UK Tech Built](#)'

28 Tech Nation Report (2021) '[The future UK Tech Built](#)'

29 Tech Nation (2021) [Data Commons for UK Tech](#)

30 Excluding mode 3.

31 WTO Trade in Services data by mode of supply (TISMOS), 2017

32 Ong, Moors and Sivaraman '[Comparison of the energy, carbon and time costs of videoconferencing and in-person meetings](#)'

33 Statista Digital Market Outlook, July 2021; Statista; ID 461229

34 DCMS Sector Economic Estimates: Employment 2019 to June 2021

The transformative potential of digital trade and data is also apparent in other major UK sectors such as finance, insurance (see **Box 3: How digital trade is transforming the financial & insurance industry**) and telecoms. In 2019, 90% of the UK's exports in insurance services, 86% of financial services, and 84% of telecoms, computer and information services were digitally delivered.<sup>35</sup>

This is reflected in our trade balance. In 2019, the UK exported over £207 billion of digitally-delivered services – almost two thirds of our total services exports,<sup>36</sup> and a major contribution to our trade in services surplus of £118 billion.<sup>37</sup>

### **Box 3. How data & digital trade is transforming the financial & insurance industry**

Data and digital technologies have transformed the financial, banking, and insurance sectors.

Cloud computing allows all payment, banking, and insurance firms to handle high-volume, complex computations at sometimes irregular intervals, while maintaining stringent cybersecurity protections and helping to combat fraud, money-laundering, and terrorism financing.

Data helps insurers understand their clients, assess risk, and price and tailor products. For example, real-time data analytics allow firms to predict and react to severe weather and natural disasters, in addition to better predicting how likely someone is to have their car stolen or face a particular health issue.

Data can also dramatically reduce administration, acquisition and settlement costs for insurance and reinsurance firms – costs which can take up about 33 pence out of every pound a policyholder pays to an insurer. For instance, data analytics and access to large pools of data aid insurers in identifying whether a claim is genuine or fraudulent.

Reinsurance contracts often involve a firm in one of only a few global hubs, of which the UK is one. Trusted data flows are therefore needed between these hubs and the multiple parties involved in a transaction – wherever in the world they are based.

Data is also central to the role payment services play in global trade. Trusted data flows let firms bring to bear globally distributed data analytics platforms for fraud and money-laundering prevention, cybersecurity, and other data-driven services which are an important part of their competitive offering.

**Digital delivery services are an area with huge growth potential.** The UK's digitally delivered service exports increased by 39% between 2005 and 2017, accounting for the majority of the increase in total UK service exports (excluding mode 3).<sup>38</sup> And estimates from the UN Conference on Trade and Development (UNCTAD) suggest that the UK is second only to the US among global exporters of services that have the potential to be digitally delivered.<sup>39</sup>

**Digital technology is changing what is traded, and where.** For example, the emergence of e-books, music streaming and downloadable games means that digitally delivered services now cross borders in place of physical goods. Emerging technologies like 3D printing could also reduce the cross-border flow of physical goods, with high value intellectual property taking its place.

**This displacement of trade in goods by trade in services and intellectual property creates opportunities for the UK's strong services, technology, and creative sectors.**

<sup>35</sup> Excluding Mode 3. Office for National Statistics (2020) '[Trade in services by modes of supply, UK: 2019](#)'

<sup>36</sup> Office for National Statistics (2020) '[Trade in services by modes of supply, UK: 2019](#)'

<sup>37</sup> Office for National Statistics '[UK total trade: all countries, non-seasonally adjusted](#)', July 2021

<sup>38</sup> WTO Trade in Services data by mode of supply (TISMOS), 2017

<sup>39</sup> United Nations Conference on Trade and Development '[International Trade in Digitally Deliverable Services Database](#)'

It also has the potential to support decarbonisation. When physical goods can be delivered as digital services instead, the requirement for transport is eliminated. In 2016, transport was responsible for 16.2% of global greenhouse gas emissions, with freight making up a considerable proportion of this.<sup>40</sup>

**Innovative UK companies can also thrive as service suppliers supporting digital trade.** To run effectively, digital trade requires technical expertise in fields such as cybersecurity and cryptography, as well as adequate technology infrastructure. The UK's position as a world leading services exporter, along with its growing specialism and investment in technology, provides opportunities for UK businesses to provide these high value inputs into the global digital trade system.

## The growth of the global online marketplace

**The global market for online sales is expanding rapidly.** The global number of internet users is steadily rising,<sup>41</sup> and a large middle class is emerging in lower income countries. That means both unprecedented demand for British goods and services and more ways to reach consumers in overseas markets than ever before.

**The emergence of a global, open online marketplace offers immense opportunities for UK exporters of goods and services.** Cross-border e-commerce sales of goods and services by UK businesses in 2019 were worth £118.2 billion.<sup>42</sup>

**Digital trade increases the number of markets a business can access, especially for smaller businesses.** This provides more opportunities for a business to export its products or services across the world. Whether through their own website, or making use of global e-commerce platforms such as Amazon and eBay, it is easier than ever for UK companies to sell goods to overseas customers.

A study of companies in developing countries found that while offline sellers mainly exported to one market, over 60% of sellers online were selling to two or more markets.<sup>43</sup> And evidence from the US suggests that e-commerce supports SMEs to sustain their exports over time.<sup>44</sup>

Being able to reach a greater number of customers digitally allows UK suppliers to take advantage of growing markets in more agile and directly targeted ways. It provides access to new markets without having to set up a physical presence. It also allows businesses to offer a more diverse product range, including lower-value or more bespoke products which would otherwise not be economically viable.

**Digitalisation also supports business operations,** allowing easier access to trade finance and new ways of ensuring settlement – reducing the risk of participating in international trade and making it easier to get paid for work done.

**These crucial factors can reduce the cost of expansion and make it viable to enter a new market** for the first time, particularly benefiting smaller businesses. Between 2014 and 2018, e-commerce sales by businesses with less than 10 employees more than doubled in value, increasing from £19 billion to £38.2 billion<sup>45</sup>. There is significant scope for the UK to use its newly independent trade policy to further support such growth.

<sup>40</sup> Our World in Data (2020) '[Sector by Sector: where do global greenhouse gas emissions come from?](#)'

<sup>41</sup> 51% of the world population used the internet in 2019, up from 29% in 2010 and 17% in 2005. Source: [International Telecommunication Union \(ITU\)](#)

<sup>42</sup> Office for National Statistics (2021) '[E-commerce and ICT activity, UK: 2019](#)'

<sup>43</sup> World Economic Forum (2017) '[Making Deals in Cyberspace: What's the Problem?](#)'

<sup>44</sup> eBay (2015) '[2015 US Small Business Global Growth Report](#)'. 95% of US SMEs on eBay were engaged in exporting to customers on more than 4 continents and 74% of these SMEs were still exporting after 3 years, compared with 15% of offline exporters.

<sup>45</sup> However, e-commerce sales by firms with less than 10 employees decreased in 2019, compared to 2018. Source: ONS 'E-commerce and ICT activity'

## The emergence of embedded tech

**The emergence of entirely new forms of digital trade means that innovative UK companies can thrive, leveraging our strength in services and cutting-edge tech to disrupt existing patterns of trade and seize new opportunities.**

It also means that giants of the UK economy can find new and better ways to deliver their products and services. Many of Rolls-Royce's aircraft engines are now offered on a 'hardware-as-a-service' basis (see **Chapter 1, Embedded digital services**). And under the BAE Systems 'Global Combat Ship' programme, the Royal Navy's new Type 26 Frigates will be supported through their working life by a digital twin.

## The gains from digital trading systems

"Given the UK's comparative advantage in the intangible economy, the UK could strengthen not only its own competitiveness but also become attractive as a hub for digital trade facilitation by upgrading its digital capabilities. It would position the UK well with respect to this "invisible" trade which tends to be determined by non-tariff measures such as rules and standards.

By playing a global role in helping to ensure that digital trade is fair as well as free, the UK can do a lot more in this area for its economy and its people to make the most of this fast-growing area of the 21st century world economy."

**Dr Linda Yueh  
Board of Trade Adviser, Economist at Oxford University, London Business School and LSE IDEAS**

**The digital revolution is making more traditional forms of trade easier and cheaper than ever before.** Advances in technology, from single window systems to distributed ledger technologies, mean we are facing a future which is increasingly paperless. The documents and information required to navigate customs procedures and other formalities can be transmitted instantly from one side of the world to another. Contracts and signatures are increasingly recognised in electronic form.

There is evidence that digitalisation can make border processes up to 90% faster and 60% cheaper in some circumstances, and lead to a significant increase in exports and a substantial return on investment.<sup>46</sup>

No matter how low-tech the good or how long it has been subject to international trade, digital technologies can make it easier and cheaper to move across borders (see **Figure 2, page 28 – Denby Pottery**). UK industries both old and new will benefit from lower costs and greater efficiency.

**Global co-operation on the digital economy makes it easier for UK businesses and consumers to use innovative technologies that work across borders.** Digital technologies enable making electronic payments on a phone, verifying your identity on an app and transferring important legal documents from one party to another. They can make life quicker, easier, and cheaper for both businesses and consumers (see **Figure 2, page 28 – Yoti**).

Ensuring the compatibility of technologies is vital. UK goods exporters should be able to submit information seamlessly into multiple global customs systems without changing the way they do things each time. Equally, in the services sector it is valuable for a UK tour operator to be able to take payments from American, Chinese, and European banks through one payment platform rather than having to deal with many.

However, in our increasingly global and digital world, if innovative new technologies only work in one country, or if they are not interoperable, then many of the potential benefits are lost. Like-minded countries are increasingly working together, both through government-led and industry-led co-operation, so that technologies evolve in ways that are compatible across borders.

## The benefits of data flows in the UK economy

"The free and trusted flow of data between various jurisdictions is vital for UK financial and professional services.

Restrictions on data flows and localisation requirements lead to increased operational costs for firms and less choice for consumers. UK firms become less resilient when it comes to tackling financial crime due to inconsistencies across jurisdictions, and less competitive in foreign markets due to the requirements for local computing infrastructure supporting every jurisdiction they operate in.

The UK should seek to develop the technical and regulatory security mechanisms which can reduce and remove these barriers. Free and trusted data flows must be a priority for our digital trade policy."

**Vincent Keaveny, Lord Mayor of the City of London Board of Trade Adviser**

**Cross-border data flows are the lifeblood of the digital economy.** Data is both a crucial enabler of wider business activity, and something that can be traded across borders as a product in its own right, for example to aid research and development. The ability for data to flow easily across borders greatly reduces costs for UK businesses and by extension supports greater consumer choice and cheaper goods and services.

Cloud computing services, or investing in a single physical data storage facility to service multiple markets, can greatly reduce a company's costs of operating across borders. This could make the difference between a UK company successfully expanding into a new market or not.

The UK's manufacturing sector is a good example. Manufacturers across the UK with a global client base can increasingly harness the power of data to manage existing customer relationships. That is supported by measures to cut down on unjustified regulatory practices that restrict the ability of trusted data flows to cross borders.

## Consumer benefits

**Digital trade vastly expands consumer choice.** UK consumers have access to a hugely expanded choice of goods and services, in large part thanks to the expansion of the internet, e-commerce and the digital economy. In just a few clicks consumers can source new products from the other side of the world, book a hotel or excursion for an overseas holiday or book a consultation with a healthcare professional.

At the same time, it is important that consumers can have confidence in the digital economy, and that they feel they will be protected when things go wrong, or when companies abuse or misuse their data.

The protection of personal information, wider consumer protection measures and measures to tackle unsolicited commercial electronic messages (spam) are all essential to maintaining this confidence.

## Digital jobs across the UK

**The UK's digital sector supports jobs and lifts wages.** In the most recent available data, the digital sector was responsible for employing 4.6% of the UK-wide workforce,<sup>47</sup> contributing £151 billion to the economy and representing 7.6% of UK gross value added.<sup>48</sup> Median weekly earnings for employees in the digital sector were 50% higher than the UK median in 2020.<sup>49</sup>

**In England, numerous cities and regions are growing technology hubs.** London and the South East of England are home to thousands of innovative and successful digital and tech companies, but there are many more success stories across all parts of the UK.

NHS Digital's headquarters in Leeds have stimulated the city's development as a leading centre for digital health innovation, with several medtech and healthtech companies established in the city and in the surrounding region.

The South West and the North West of England had more than 17 thousand digital tech firms each in 2019.<sup>50</sup> Bristol is a boomtown for tech investment with £270 million invested there in 2020,<sup>51</sup> and Greater Manchester is now home to 5 'unicorns' valued at over \$1 billion, including e-commerce success stories like Boohoo and AO.com.

47 Department for Digital Culture Media and Sport (2020) '[Economic Estimates 2019: Gross Value Added](#)'

48 Department for Digital Culture Media and Sport (2020) '[Sectors Economic Estimates 2019: Employment](#)'

49 Department for Digital Culture Media and Sport (2020) '[Sectors Economic Estimates 2020: Earnings](#)'

50 Tech Nation Report (2021) '[The Future UK Tech Built](#)'

51 Tech Nation Report (2021) '[The Future UK Tech Built](#)'

### **Northern Ireland is a thriving hub for cybersecurity.**

This includes homegrown Northern Irish companies as well as global companies who have chosen to invest in Northern Ireland – like Microsoft, which last year opened a cybersecurity centre there.<sup>52</sup>

The continued growth in digital trade and e-commerce will mean increased demand for cybersecurity services. Combined with the UK's growing network of trade agreements that include provisions promoting co-operation on cybersecurity issues, this means Northern Ireland is well placed to continue building its global reputation as a centre of excellence in this sector. In turn, this means more investment and more high-skilled, high-paid jobs.

### **Scotland is home to over 140 Financial Technology (fintech) companies.**

<sup>53</sup> Fintech companies are at the forefront of the digital economy, and benefit greatly from domestic and international environments that support innovation, collaboration and the use of data. The increasing importance of digital trade presents huge opportunities for this important Scottish sector to continue its expansion, through both increasing demand for innovative fintech products and the growing need for fintech solutions to support the rapid growth in global demand for other goods and services.

**Wales has a strong and growing tech sector worth an estimated £8.2 billion.** There is a growing tech hub centred around Cardiff with over 5,000 digital tech firms in Wales that employ more than 20,000 people.<sup>1</sup> Wales has a vibrant innovation community and entrepreneurial universities that allows start-ups, investors and large corporations to innovate and thrive. These include market disrupting online banks like Starling and Monzo and global leaders CGI, Backbase, Target Group, Equiniti, Dell EMC and Sapiens.

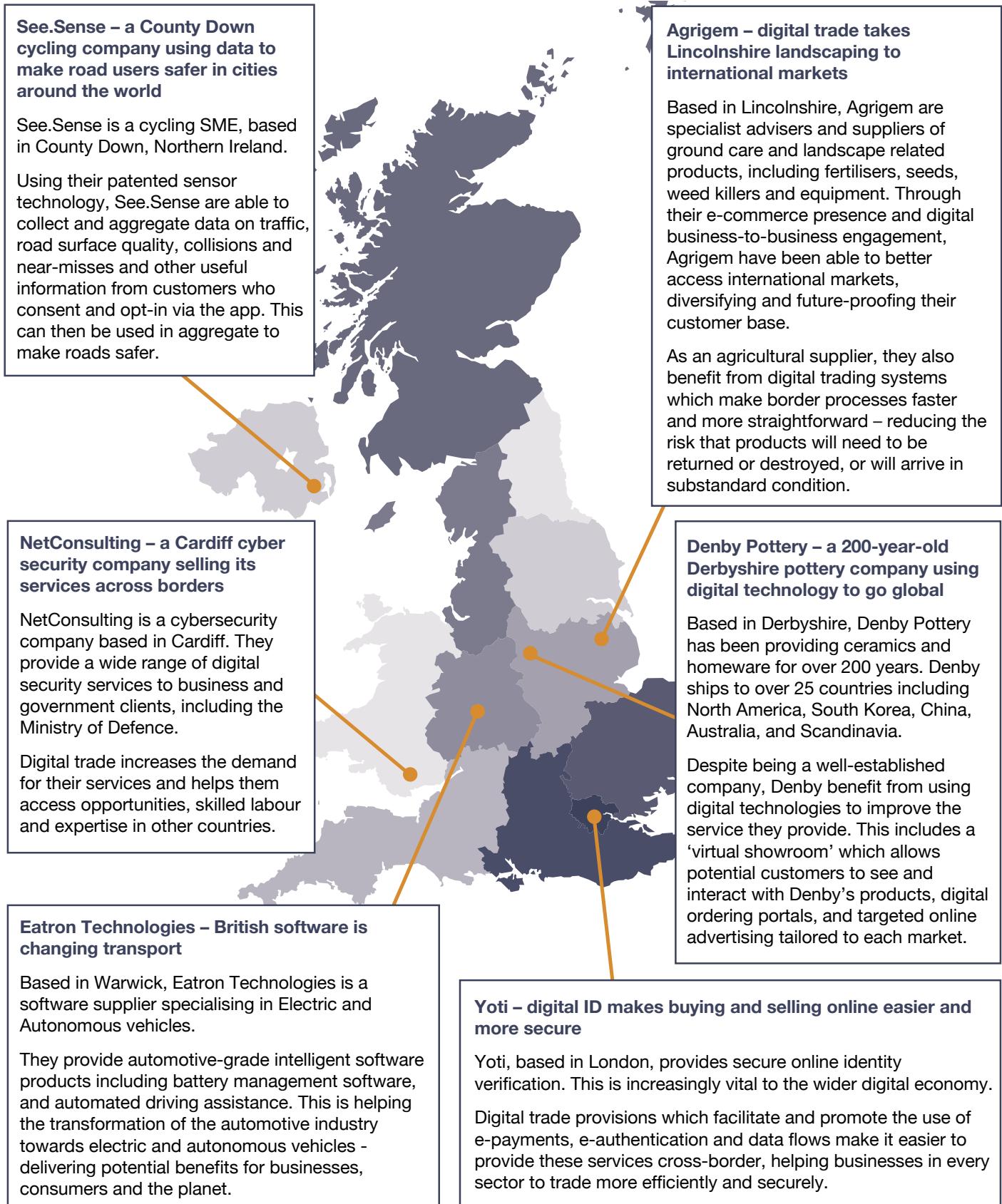
Wales is also Europe's centre for online insurance aggregators with insurance tech companies like Admiral who established the UK's first price comparison website, Confused.com, as well as Moneysupermarket and GoCompare. Wales's innovative homegrown companies and international tech operations are ripe for the investment and expansion that digital trade can unlock.

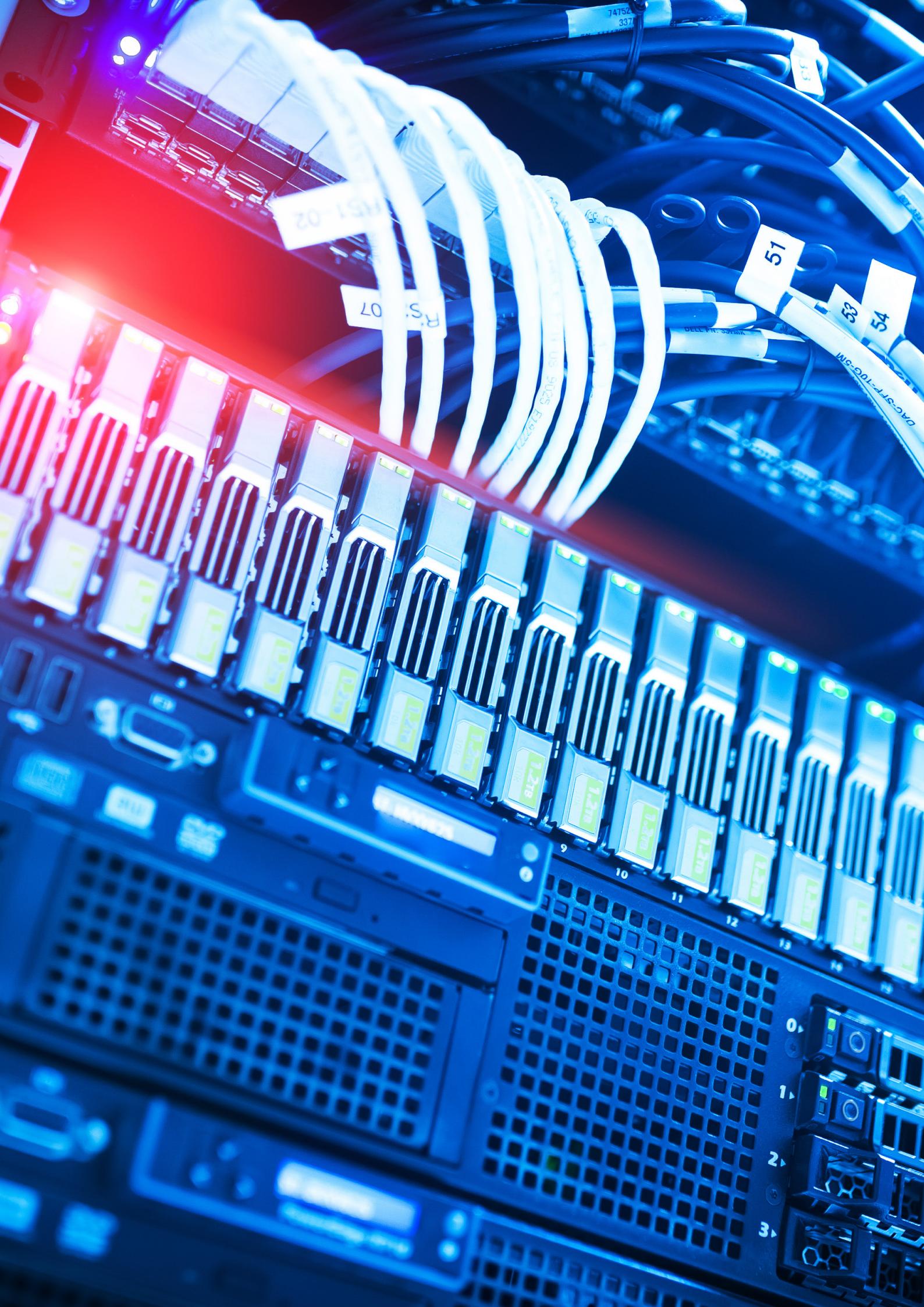
**Digital trade can help create job opportunities across all sectors of the economy.** Outside of the digital sector itself, digitisation now touches virtually every corner of the economy, which means that goods and services providers across every sector can benefit from digital trade (see **Figure 2, page 28**), enabling them to provide job opportunities across the UK.

**Digital trade is not geographically bound.** It can help unleash the full potential of employment wherever businesses are based, and contribute to the government's levelling-up objectives.

<sup>52</sup> InvestNI.com (2020) '[Northern Ireland- A World Leading Cyber Hub](#)'  
<sup>53</sup> Fintech Scotland (2020) '[Scotland, A Global Fintech Hub- Why Scotland](#)'

**Figure 2: Digital trade benefits businesses around the UK**





# Chapter 3:

## The barriers to digital trade

“Digitalisation provides new opportunities for countries to benefit from trade, including tackling some of the consequences of COVID-19. However, the benefits of digitalisation for trade – and of trade for digitalisation – are not automatic. They require a regulatory environment that enables cross-border digital transactions while allowing governments to respond to new challenges raised by digitalisation.”

### OECD

Though the potential benefits of digital trade are significant, both globally and for the UK, the existing and emerging barriers are considerable.

These barriers can be broadly grouped into 6 categories.

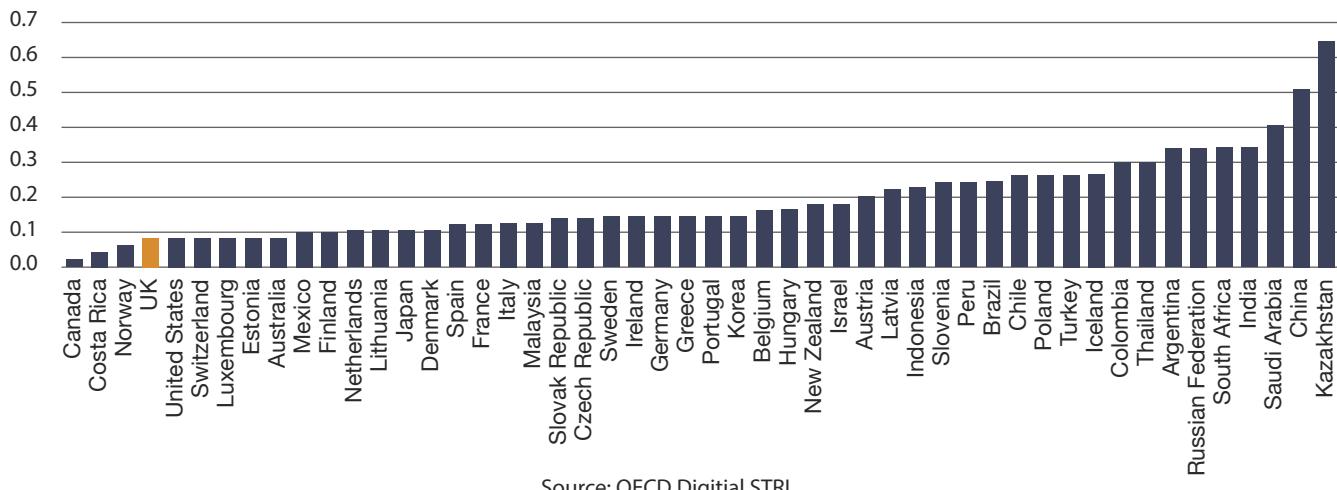
- **restrictions on market access** for digital products and companies
- **restrictions on trusted data flows** that are vital for digital trade
- **insufficient safeguards for consumers and businesses** engaged in digital trade – leading to risks both real and perceived
- **insufficiently digitised trading systems**, resulting from inadequate digital infrastructure and out-of-date regulation
- **a lack of global leadership, multilateral consensus, and effective cooperation** on the governance of digital trade
- **imperfect information**, particularly for SMEs, meaning that they are unable to take advantage of available opportunities.

### Restrictions on digital market access

**Free, fair, and open digital markets are essential** for businesses participating in digital trade to thrive, and for consumers to benefit from increased choice and lower prices. However, given the relatively recent emergence of digital trade and the digital economy, regulatory frameworks and approaches vary.

Regulation of the digital economy and digital trade is important to ensure that consumers are protected. However, regulation can also present a barrier to trade, especially if poorly designed, implemented and communicated, or established on a discriminatory or arbitrary basis.

**Figure 3: OECD D-STR Digital Trade Restrictions by Country, 2020**



While some countries are open to digital trade and are ready to embrace the huge economic and societal benefits of free and open digital markets, others have instead chosen to pursue more restrictive regulatory approaches.

In some cases, this is designed to shelter favoured domestic companies from competition. In others, strict domestic regulation is designed to support political aims, for example by allowing authorities to clamp down on online political dissent or exert pressure on businesses deemed to yield too much influence.

According to the OECD's Digital Services Trade Restrictiveness Index (D-STR), which tracks barriers affecting trade in digitally-enabled services across 50 countries (see **Figure 3**), the number of trade restrictive measures increased between 2014 and 2018. Of the G20 countries measured, 7 became more restrictive, and only 3 less restrictive.<sup>54</sup> The effect is that UK businesses face a host of barriers to digital trade and cross-border electronic transactions, including discriminatory conditions for issuing licences for e-commerce activities, online tax registration and declarations for non-resident firms.

The trend towards increased restrictiveness is bad for business, bad for global prosperity, and bad for consumers. More restrictive regulatory measures can reduce or restrict the growth of global trade, reduce productivity, increase prices, and limit the variety of goods and services.

## Restrictions on trusted data flows

"In the manufacturing industry, the value of data, software and connectivity now exceeds the economic value of labour or electricity. Data localising measures easily double or triple these costs, which means governments now determine whether companies are commercially viable or not in their markets."

As data can be disrupted in more ways than traditional trade, and barriers are far more disruptive, all the market access achieved in the past 40 years can be rolled back as vehicles, household items, machinery, and other equipment can be turned into expensive bricks through governments disabling the data."

**Hosuk Lee-Makiyama**  
Director of the European Centre for International Political Economy

**Perhaps above all else, digital trade and a thriving digital economy depend on trusted data flows freely crossing borders** (see, 'The benefits of data flows' in Chapter 2, above). By extension, restrictions on data flows pose some of the most significant barriers to digital trade.

Recent studies suggest that global rules on data flows are becoming more restrictive. 144 barriers to the free flow of data are now imposed by 62 countries – compared to 67 barriers in 35 countries in 2017, an increase of 114% and 77% respectively.<sup>55</sup>

54 J Ferencz and F Gonzalez (2019) '[Barriers to trade in digitally enabled services in the G20](#)'

55 N Cory and L Dascoli (2021) '[How Barriers to Cross-Border Data Flows Are Spreading Globally, What They Cost, and How to Address Them](#)'

**Data localisation requirements are among the most economically significant restrictions on data flows.** Many countries have restrictions requiring data to be stored or processed within specific national or regional borders.

There are different types of data localisation requirements (see **Box 4: Types of data localisation**).<sup>56</sup> Countries impose data localisation for various reasons. These range from legitimate public policy objectives such as effective law enforcement, through to unjustified rules which support government censorship or surveillance, or prop up protectionism by shielding domestic suppliers from competition.

Even when localisation requirements are ostensibly put in place on the premise of achieving legitimate public policy objectives – like protecting the privacy of individuals – they are often not the best tool for achieving these objectives. What is more, they can have negative consequences for international prosperity.

Data localisation can result in additional costs for businesses, as it requires them to use local data storage facilities within the country or territory in question. Paying for data storage in multiple data centres in different jurisdictions can be prohibitively expensive for smaller firms. That disadvantages them compared to domestic suppliers or big corporates that can bear the cost, and potentially shuts them out of certain markets entirely.

The economic harm can be significant and widespread: research suggests that imposing data localisation requirements can negatively impact GDP, domestic investment, and the economic well-being of citizens.<sup>57</sup>

Data localisation requirements also have non-economic impacts – restricting the ability of companies to innovate in their use of data and aggregate data internationally to deliver new products.

#### Box 4 – Types of data localisation

- ***Local data mirroring.*** Firms must first store a copy of data locally before transferring a copy out of the country. This may also involve keeping the most updated version of the data locally.
- ***Explicit local data storage.*** Firms must physically locate data in the country where it originates. Some cases allow foreign processing of data (after which data must be stored locally).
- ***De facto local storage and processing.*** Firms store data locally as stringent data transfer requirements (such as getting pre-approval for transfers and explicit consent) and legal uncertainty about data transfers, which, when combined with hefty fines and arbitrary enforcement, create unacceptable risk for firms.
- ***Explicit local data storage and processing.*** Countries prohibit transfer of data to other countries.
- ***Explicit local—and discriminatory—data processing, routing, and storage.*** Some countries use discriminatory licensing, certification, and other regulatory restrictions to require local data storage and exclude foreign firms entirely from managing and processing local data.

#### Incompatible rules on personal data protection are another widespread barrier to the free flow of data.

Conditions on the international transfer of personal data are an important public policy tool. They help to ensure that personal data remains protected as it moves across borders.

However, governments across the world have pursued a variety of different approaches to personal data protection. These approaches are not always complementary or compatible. This results in complex or unduly restrictive conditions on the movement of personal data from one country to another, even when both countries have effective domestic data protection rules in place. This presents a significant barrier to firms accessing international markets and operating globally.<sup>58</sup>

56 N Cory and L Dascoli (2021) '[How Barriers to Cross-Border Data Flows Are Spreading Globally, What They Cost, and How to Address Them](#)'

57 Bauer (2014) '[The Costs of Data Localisation: Friendly Fire on Economic Recovery](#)'

58 Organisation for Economic Co-operation and Development (2021) '[Mapping commonalities in regulatory approaches to cross-border data transfers](#)'

The solution is not convergence or harmonisation on a single global data protection framework. Sovereign states must be able to pursue regulatory approaches that are appropriate for their own societies, economies, and legal systems. But international cooperation can help ensure that these approaches are interoperable, enabling free and trusted data flows.

## **Box 5. How free trade agreements can help to protect personal data**

The UK's new FTAs ensure the free and trusted flow of data which underpins modern trade. They also commit to high standards of protection for personal data.

Our FTAs require us and our trading partners not to restrict cross-border data flows any more than is necessary to achieve legitimate public policy objectives.

They also commit us and our trading partners to maintain domestic data protection regimes.

Under our own domestic regime, transfers of personal data beyond the UK's borders must satisfy the data protection rules enshrined in the Data Protection Act 2018.

Taken together, this framework ensures that the UK and its trading partners can benefit from free and trusted data flows, while providing a strong, legally enforceable guarantee that personal data will be protected when it crosses borders.

### **Consumer confidence is essential to digital trade.**

If consumers and businesses do not feel safe buying and selling online, then they are less likely to engage in online activity.

According to research conducted by Ipsos MORI in 24 countries including the UK, as many as 22% of internet users never shop online, with 49% of those citing lack of trust.<sup>59</sup> The issue is particularly relevant to cross-border transactions: consumers are likely to feel higher confidence in their rights when purchasing from a domestic supplier online than when purchasing from abroad.

### **Business confidence is also critical to digital trade.**

Just like individual consumers, if businesses do not feel able to adequately manage risks, they are less likely to participate in international digital trade.

Issues in this area include the growing risk of cybersecurity attacks, whether from private operators or hostile state actors, and the forced transfer of intellectual property (including source code) as a condition of market access.

Efforts to tackle the threat of cybersecurity need to involve both governments and industry. International co-operation between governments on cybersecurity matters must go hand in hand with industry-led development of robust international standards for cybersecurity to help create a safer online environment for businesses.

Cybersecurity is an important sub-sector of the digital economy, with many innovative new companies springing up to offer new services that help businesses manage threats and trade globally with increased confidence. Many of these companies are in the UK, with Northern Ireland a centre for this work as part of the Northern Ireland Cyber Security Cluster.

Whatever approach is ultimately taken, a lack of confidence and trust on the part of consumers and businesses – in response to threats real and perceived – must be overcome to maximise the benefits of digital trade.

## **Insufficient safeguards for individuals and businesses**

While digital trade unquestionably promises significant benefits for businesses and individuals alike, it also brings new risks.

**Digital tools and technologies create new ways in which long-standing issues such as inadequate consumer protection, misuse of personal information, and fraud can manifest.** They also present novel challenges, such as the advent of mass unsolicited commercial marketing communications ('spam'). It is vital that governments and companies can manage and, just as importantly, be seen to manage these risks.

<sup>59</sup> CfGI-Ipsos Global Survey (2019)

## Lack of digital trading systems

**Digital trade depends both on digitally enabled systems and processes, and on widespread digital infrastructure and reliable connectivity.** But both of those things take time to develop, and regulation can sometimes lag behind the pace of technological change.

A particular regulatory hurdle for all forms of digital trade is the continued legal requirement in many countries, including in some cases the UK, for paper documentation and ‘wet’ signatures. Requirements in law to exchange physical contracts, for example, make deal-making slower and more expensive. And one transaction involving moving goods across borders can require between 10 and 20 paper documents, totalling over 100 pages. Global container shipping is estimated to generate 28.5 billion paper documents a year.<sup>60</sup>

In many cases, laws may not expressly prohibit the use of electronic contracts or electronic signatures – particularly where legislation pre-dates the rise of digital trade. But they can often be ambiguous, with knock on implications for business confidence. The result can therefore be similar to an outright prohibition.

Digitisation is particularly challenging for certain documents used in international trade – such as Bills of Lading. To fulfil their legal function, Bills of Lading can only exist in one place and be held by one party at any given time – which means they have traditionally been a piece of paper handed between parties. Changing regulations to permit such documents to be shared in electronic format is therefore a complex task.

At present, UK law does not facilitate the use of electronic Bills of Lading, although the Law Commission has brought forward proposals to address this, and new technologies (such as blockchain) offer potential solutions to this technical and legal challenge.

Commitments in trade agreements between two or more partners can be a valuable tool to internationalise these innovations and allow businesses to harness modern technologies to make trading easier, faster, cheaper and more secure.

## Fragmented rules and regulation

**Regulation of the digital economy can serve important public policy objectives. But it also risks creating barriers to trade.**

Such barriers can arise when a given domestic regulation is unnecessarily trade restrictive (see ‘**Restrictions on digital market access**’ above). But divergence in regulatory approaches between countries can also result in significant trade barriers, even if each regulation is proportionate and effective when considered solely in a domestic context.

This does not mean that all rules need to be harmonised. Countries will, and should, take different approaches to regulation which reflect their specific circumstances. However, regulations should be interoperable and coherent internationally.

Bilateral or plurilateral engagement between countries can go some way towards addressing this challenge, whether through agreeing a set of baseline rules or principles, or through co-operation to factor interoperability into the design of regulations. But tackling this challenge meaningfully requires a concerted, global effort.

There are ongoing initiatives to tackle the fragmentation of global rules governing digital trade. Most notably, negotiations are underway at the WTO to agree a set of rules for e-commerce under a Joint Initiative (JI). Additionally, significant work has taken place at the United Nations Commission on International Trade Law (UNCITRAL) to create model laws on issues such as electronic commerce and electronic transferrable records. The UK actively participates in these fora and should continue to do so.

**However, despite these initiatives, the global rulebook on digital trade remains outdated and efforts to rectify this are patchy.** For example, while the WTO JI negotiations are a positive step, it is concerning that many countries have declined to take part and will not be bound by the outcome. This will represent a significant missed opportunity to create a genuine global rulebook for digital trade. It means that even when the JI process concludes, businesses will need to continue grappling with a patchwork of rules to operate truly globally.

The growing gap between the existing global trade rulebook and the realities of the modern digital trade are a crucial test for the WTO. They underline how important it is to reform the WTO so that it can rise to the challenges of the 21st century economy.

Outside of the realm of regulation, standards (which unlike regulations are in many cases industry-led and voluntary in nature) are also crucial to digital trade.

Global adoption of international standards can support interoperability between different digital systems and mean new goods and services can be brought to multiple markets more easily.

International standardisation activities also present opportunities for the UK. Influencing the content of such standards in line with UK industry needs and interests will help British companies cement their position at the heart of the global economy.

This is a field where the UK has longstanding strengths. To take the International Organization for Standardization (ISO) as an example, the UK has representatives on 744 ISO technical committees – the fourth highest number of any country.<sup>61</sup>

However, one of the countries which participate in the most ISO committees is China – this reflects a concerted effort by China to exert increasing global influence in the field of standardisation. That is true in the digital and technology field and beyond as part of its China Standards 2035 plan. The EU has also recently set out its ambition to consolidate its ‘first-mover’ advantage in standard setting.<sup>62</sup>

International standard setting relies on global co-operation, so the UK will continue to need to work collaboratively with a range of partners in this field. It is important for the UK (whether the government or industry) to continue playing a proactive role in this space to ensure its interests, needs and values continue to be reflected.

## Imperfect information

“Up to 375,000 UK SMEs have exportable goods but are not currently exporting. Taking action to facilitate further international trade from the UK’s small businesses could unlock an annual £290 billion for the UK economy. This presents a huge untapped economic prize.

Digital chapters and provisions on international data flows can help the UK’s small businesses tap into some of the world’s most exciting and high-growth economies.”

**Adam Prince,  
VP Product Management, Sage**

**Despite the opportunities digital trade offers to access new markets more easily, cheaply and efficiently, many UK firms who could export do not currently do so.** The gap is particularly acute among SMEs.

Part of this gap between potential and reality can be attributed to a lack of understanding by businesses of digital technologies and digital trade provisions can support them to export.

Understanding is of course important for all forms of international trade, which small businesses in particular might otherwise see as complex and administratively burdensome. But because the digital marketplace and the opportunities it offers are relatively new, many businesses could likely benefit from embracing digital trade but lack knowledge of how to do so. That includes some large businesses and existing exporters with long-standing business models and established ways of navigating customs procedures and other administrative formalities.

61 International Organisation for Standardisation – [Members](#) (accessed 26 October 2021).

62 European Commission (2021) [Strategic Foresight Report](#)

# Chapter 4:

## Achieving the UK's vision for digital trade

"The UK's vision is to be a global leader in digital trade, with a network of international agreements that drive productivity, jobs, and growth across the UK."

**Anne-Marie Trevelyan MP**  
Secretary of State for International Trade

### Delivering the UK's 5 goals for digital trade

As outlined in Chapter 2, the UK's vision is to be a global leader in digital trade. However, to achieve its vision, the UK government will need to address the barriers to digital trade set out in Chapter 3. This will mean delivering on its 5 goals: open digital markets, free and trusted data flows, consumer and business safeguards, digital trading systems, and international cooperation to shape global rules, norms, and standards. We set out the government's objectives here.

The first is to **secure access for British businesses to overseas digital markets**, so that firms can invest and operate across borders freely and in fair competition. This involves working to address existing barriers to open digital markets, preventing new barriers emerging, promoting greater openness, and reducing or removing unfair restrictions or conditions on British businesses.

Alongside this, the government will **champion data flows internationally**, preventing unjustified barriers to data crossing borders, while maintaining the UK's high standards for personal data protection. This approach aligns with government's wider National Data Strategy, which sets out that the UK will work with international partners to champion the safe, secure and trustworthy exchange of data across borders and remove unjustified barriers to the flow of data. The government intends to make the UK a world leader in developing a balanced approach that maximises the benefits of cross-border data flows to consumers and businesses, while maintaining and promoting high standards of protection for personal data (see **Box 5: How free trade agreements can help to protect personal data**).

Thirdly, the government will **champion consumer benefits and necessary business safeguards in digital trade**. This involves ensuring that effective measures are in place to protect consumer rights when purchasing goods and services online, and businesses have confidence that engaging in digital trade will not be detrimental to their business interests.

Fourthly, the government aims to **develop digital trading systems based around common standards agreed with trading partners**, cutting red tape and making trade cheaper, faster, and more secure for businesses.

Finally, the government seeks to **collaborate with international partners to shape global rules, norms and standards** to ensure that digital trade is free, fair, and inclusive.

## Figure 4: 5 goals for digital trade



**Delivering the government's 5 goals and achieving its vision will require a strategic approach to prioritising the UK's digital trade partnerships.** The UK will need to explore the potential for agreements with dynamic, fast-growing economies, large and strategic markets and through the multilateral negotiations in which the UK plays a role.

## Prioritising digital trade with high-growth economies in the Indo-Pacific

**The Indo-Pacific contains some of the world's fastest growing economies.** According to DIT's recently published Global Trade Outlook, between 2000 and 2019 the Indo-Pacific accounted for 50% of global economic growth in real terms. This trend is expected to continue. Between 2019 and 2050, 56% of global growth is predicted to come from the Indo Pacific, compared with a quarter from the EU and North America combined (see **Figure 5: Indo-Pacific share of global growth**).<sup>63</sup>

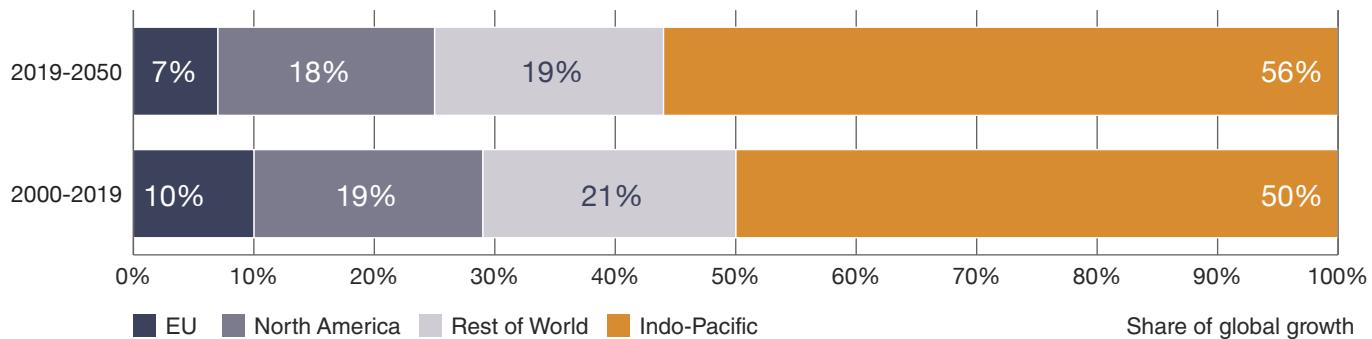
This will be reflected in patterns of trade and consumption – with 65% of the world's 5.4 billion middle class consumers expected to be in Asia by 2030.<sup>64</sup>

Tech adoption across the Indo-Pacific is high, with 391 million internet users across Comprehensive and Progressive Agreement for Trans-Pacific Partnership (CPTPP) members alone in 2019.<sup>65</sup> According to some estimates, the Indo-Pacific will be among the fastest regions to recover from the COVID-19 pandemic due to strong investment in digital transformation, with spending on digitalisation set to reach \$1.2 trillion by 2022.<sup>66</sup>

The region is also a leader in digital trade, with some of the world's most advanced digital trade provisions and initiatives. Among them is the world's first digital trade agreement – the Digital Economy Partnership Agreement (DEPA) between Singapore, Chile, and New Zealand.

A 2017 study of regional trade agreements in the Indo-Pacific found that more than half included provisions on paperless trading, with the Trans-Pacific Partnership (the predecessor to CPTPP) containing the greatest number.<sup>67</sup>

**Figure 5: Indo-Pacific share of global growth**



**Sources:** IMF World Economic Outlook April 2021 and DIT calculations

**Notes:** Figures show the contribution of different regions to global GDP growth in real terms (expressed in constant 2019 prices and exchange rates). The Indo-Pacific region is defined as three DIT HM Trade Commissioner regions: South Asia, Asia Pacific and China & Hong Kong. 'Rest of world' includes the UK, non-EU Europe, Eastern Europe & Central Asia, Latin America, Middle East and Africa.

**This economic growth, high rate of tech adoption, and forward-looking approach to digital trade creates huge opportunities for British businesses.**

The Integrated Review highlights the particular importance of the Indo-Pacific to the UK's economic and security interests. As global economic power shifts eastwards, the UK's goal is to be the European partner with the broadest and most integrated presence in the

Indo-Pacific: committed for the long term, with closer and deeper partnerships, bilaterally and multilaterally.

It is therefore vital that the UK's digital trade policy is, in large part, centred on the Indo-Pacific region.

That must include negotiating FTAs and digital agreements containing strong and ambitious provisions on digital trade with Indo-Pacific partners. The UK's FTA

63 Department for International Trade (2021) ['Global Trade Outlook'](#)

64 UK Board of Trade (2021) ['Global Britain, Local Jobs'](#)

65 International Telecommunication Union (ITU) World Telecommunication/ICT Indicators Database; United Nations, Department of Economic and Social Affairs, Population Division (2019). World Population Prospects 2019, Online Edition. Rev. 1.

66 International Data Corporation (2020), [IDC Predicts 65% of APAC\\* GDP will be Digitalized Reaching US\\$ 1.2 Trillion in Spending by 2022](#)

67 Duval Y and K Mengjing (2017) ['Digital Trade Facilitation: Paperless Trade in Regional Trade Agreements'](#) ADBI Working Paper, No 747, Asian Development Bank Institute, Tokyo

with Japan sets a high standard for digital trade, reflecting the status of the UK and Japan as digital leaders.

The UK has also recently secured a trade deal with Australia that sets out an ambitious future for digital trade, increasing opportunities for both countries across all sectors of the economy.

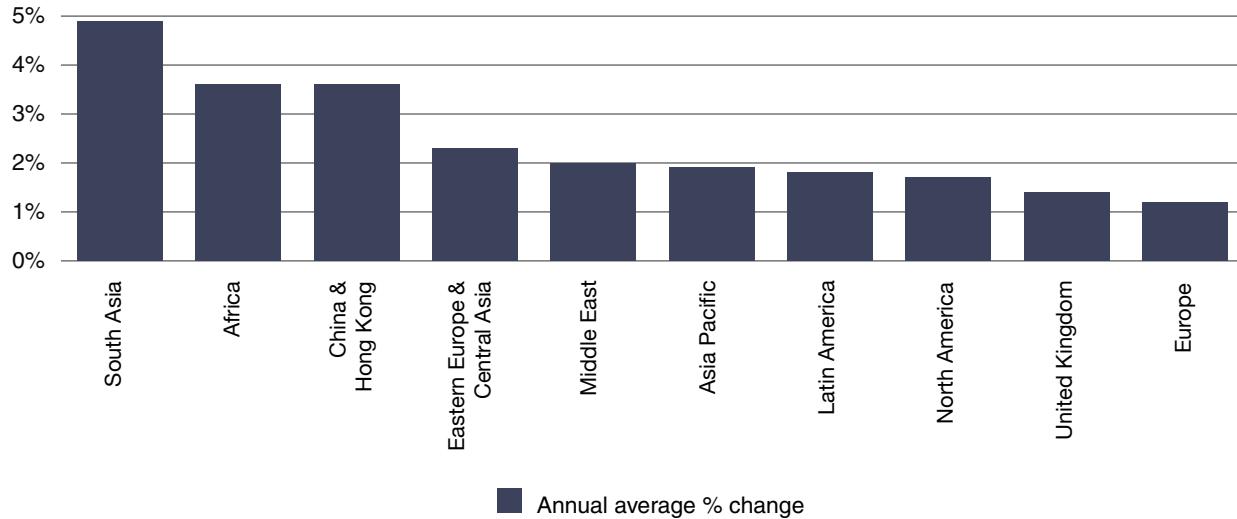
In June, the UK launched negotiations on a cutting-edge Digital Economy Agreement (DEA) with Singapore, with the aim of pushing the frontiers of digital trade further.

Trade negotiations with the 11 members of CPTPP are also underway, which will build the UK's digital trade connections even further across the Indo-Pacific, and make the UK part of the region's most significant trading bloc.

This is alongside negotiations with India on a new FTA, providing potential opportunities in another rapidly growing market. Indeed, growth in the wider Indo-Pacific is expected to rebalance further towards South Asia – primarily driven by India – with South Asia expected to deliver the fastest GDP growth in the world between now and 2050<sup>68</sup> (**Figure 6: Global GDP Growth Rates**).

## Figure 6: Global GDP Growth Rates

Projected Annualised Real GDP Growth (2019-2050)



Source: Global Trade Outlook, September 2021

**The UK should make the conclusion of these agreements a key focus of its trade policy**, aiming to do so quickly without compromising on ambition. In all these negotiations, the UK's position should be informed by the government's five goals for digital trade.

<sup>68</sup> Department for International Trade (2021) '[Global Trade Outlook](#)'

## Partnerships with large and strategic markets

**In addition to high-growth partners in the Indo-Pacific, the UK should explore digital trade agreements with large and strategic markets around the world.**

Though global growth is shifting towards emerging economies in the Indo-Pacific, the UK's relationships with large, developed economies in other regions remain essential to our strategic and economic interests.

These economies still account for a huge proportion of the global middle class, with 220 million North Americans and 160 million Europeans (excluding the UK) earning above \$40,000 per year in 2019.<sup>69</sup> They also have very high rates of tech adoption: in 2019, there were 287 million internet users in the US alone, alongside 34 million in Canada and 373 million in the EU.<sup>70</sup> That means that these markets offer significant opportunities for British businesses to trade digitally.

The United States in particular is highlighted in the Integrated Review as the UK's most important strategic ally and partner. That fact is reflected in the government's trade policy, where an FTA with the United States remains an important strategic goal. That FTA should include comprehensive, cutting-edge digital trade provisions, informed by the government's 5 goals for digital trade. Alongside the renegotiation of the UK's existing deal with Canada, an important partner in the G7, this will ensure that the UK's trading relationships with our North American partners remain strong and fit for the modern era.

Our trading relationship with the EU is also of great importance. The UK-EU Trade and Cooperation Agreement provides a strong foundation for that relationship and includes a chapter on digital trade. The UK should continue to cooperate with the EU and European partners to build on this foundation.

## Shaping a digital economy that benefits all

**It is important that the benefits of digital trade are not limited to developed countries, or a small number of likeminded, digitally advanced nations.**

If digital trade is to be the 'new normal', digital rules will need to be developed that can enable all countries, including developed, developing and least developed countries (LDCs), to benefit from the opportunities that digital trade can provide.

The highly technological nature of digital trade is emphasising the digital divide between developed and developing countries, and especially LDCs. According to the UN, almost half of the world's population (3.7 billion), mostly from developing countries, is still not connected to the internet, and thereby unable to meaningfully participate in much of digital trade.<sup>71</sup>

Perhaps the most important discussions on this issue are taking place at the WTO.

The E-Commerce JI is a plurilateral negotiation open to all WTO Members willing to participate. The objective of this negotiation is to deliver the first set of global rules on digital trade that is open, transparent, inclusive, and commercially meaningful.

To deliver on this objective, it is vital that the E-Commerce JI is implemented by a broad and inclusive group of WTO Members – including developed countries, developing countries, and LDCs.

Specifically, it will be important that the E-Commerce JI addresses the challenges developing countries, in particular LDCs, face with respect to e-commerce to enable these countries to participate in, and benefit from, the JI outcome.

This could be done through a carefully targeted approach to special and differential treatment (SDT) – an umbrella term for provisions in WTO agreements that give developing countries and LDCs special rights and treatment. SDT should be supplemented with capacity building and technical assistance.

The UK already has a strong portfolio of targeted programmes which aim to support developing countries in digitalising their economies. These include:

- **The Digital Access Programme**, an FCDO-DCMS partnership addressing the constraints to responsible and sustainable digital inclusion and transformation

<sup>69</sup> Department for International Trade (2021) '[Global Trade Outlook](#)'

<sup>70</sup> International Telecommunication Union (ITU) World Telecommunication/ICT Indicators Database; United Nations, Department of Economic and Social Affairs, Population Division (2019). World Population Prospects 2019, Online Edition. Rev. 1.

<sup>71</sup> United Nations (2021), DSG/SM/1579, [Digital Divide Risks Becoming 'New Face of Inequality'](#)

- The FCDO **Unlocking Digital Impact for Development** programme – trialling innovative tools to support digital development, as well as institutionalising good practices and common standards,
- Support for the World Bank's **Identity for Development (ID4D) Programme**, which produces evidence and guidance on the best approaches for building trusted, secure, and inclusive digital identification systems. The programme also brings implementers together to share lessons and experiences of what works and why; and provides direct technical support to countries to roll-out digital identity systems.
- The UK funded **Trade and Investment Advocacy Fund (TAF2+)** programme – supporting developing countries' participation in the WTO E-Commerce JI discussions since January 2020 through its Umbrella Grant.

## Free trade agreements

As an independent trading nation, the UK can now negotiate free trade agreements which better reflect the needs of the UK economy. This means FTAs with strong and world leading services and digital provisions. The UK has made a strong start on this programme, delivering FTAs with 70 countries and the EU that account for £766 billion of UK bilateral trade in 2020.<sup>72</sup>

Many of the barriers identified in Chapter 3 can be addressed on a bilateral basis with trading partners. With like-minded and liberal partners, FTAs provide a way to lock in market access for the long term, minimising the risk of changes which could disadvantage the UK.

For other partners, FTAs are a powerful tool to address existing barriers, promote greater openness, and reduce or remove unfair restrictions or conditions on British businesses.

For example, removing global barriers to the free flow of data would benefit service sectors and could deliver a boost to the UK economy. Department for International Trade modelling based on the OECD's Services Trade Restrictiveness Index suggests removing restrictions to the free flow of data could increase world trade in Telecommunication, Computer, and Information services by 2.2%, with UK exports increasing by £260 million. In Commercial Banking and Insurance, the removal of

restrictions could increase world trade by 0.2% and 0.6% respectively, boosting UK exports in those sectors by £14 million and £51 million respectively.<sup>73</sup>

FTAs can also be a useful tool to promote confidence in e-commerce internationally.

This includes addressing risks that undermine consumer confidence in shopping online through strong domestic legislation – like that in the UK – which protects personal information and offers strong rights and protections for online consumers.

As part of its agreements, the UK seeks commitments from all its trading partners to maintain similar measures. This means UK consumers can feel more confidence in purchasing goods and services online from outside of the UK.

This also includes protecting intellectual property, where the UK champions provisions restricting unjustified requirements for businesses to provide access to source code, for example, and has consistently sought commitments from its trading partners to this effect.

The UK is right to focus on breaking new ground and putting digital trade at the heart of a growing network of ambitious FTAs. But the UK must also focus on the successful implementation of its expanding portfolio to ensure they deliver real-world benefits.

In practice, unlocking the value of provisions within FTAs requires significant bilateral engagement between the UK, its FTA partners, and businesses at home and abroad to ensure businesses are aware of these benefits and how they are accessed.

The UK will need to maintain ongoing dialogues through the structures established by its FTAs. These should be used strategically to target areas of UK interest – whether that is monitoring or addressing compliance, or identifying opportunities to build on the agreements further.

Digital trade agreements can build on existing FTAs to provide further opportunities for British businesses to deliver their services and goods through digital trade. For example, negotiations on the DEA between the UK and Singapore reflect the ambitions of both countries to push the boundaries of digital trade.

<sup>72</sup> Office for National Statistics '[UK trade, all countries, non-seasonally adjusted, Q4 2020](#)'

<sup>73</sup> Department for International Trade (2021) – '[Department for International Trade Analysis Working Paper, Services Trade Modelling](#)'

## Shaping global rules, norms, and standards

**Divergent approaches are emerging around the world for the regulation of digital trade.** The risk is that incompatible, protectionist and discriminatory regulations emerge in different countries and regions. But there is also an opportunity for the UK, with its newly independent trade policy, to step up and play a global leadership role. Ongoing initiatives and recent successes suggest that a much-needed consensus can still be built among global partners.

**Common rules, norms and standards would benefit all countries.** Through multilateral and plurilateral negotiations, and through global thought leadership, the UK should show how updating the global rulebook and advocating for free and fair digital trade can benefit everyone.

**The UK Presidency of the G7 successfully led to trade ministers adopting, for the first time, a set of G7 Digital Trade Principles for guiding the development of rules and norms for digital trade.** This suggests that major economies share common goals and values for digital trade. The Principles could be a foundation for building a wider consensus, or for deepening cooperation among the G7. This in turn could reduce the risk of fragmented, incompatible regulations and build momentum towards a compatible and interoperable regulatory approach.

**Similarly, progress in the WTO Joint Initiative on E-Commerce shows an appetite among many WTO members for developing common rules that make digital trade work for all.** The UK should continue to engage constructively in those negotiations, and as a champion of free and fair trade should seek to play a leadership role in driving them towards a positive outcome – including substantial progress at MC12.

**As a developed country with a highly advanced digital economy, the UK also has the potential to be a thought leader on digital trade,** modelling an open, cooperative, and progressive approach. This thought leadership is already reflected in the UK's trade negotiations work and initiatives like the G7 Digital Trade Principles, but there is more that can be done. The UK should work with likeminded partners and through global fora like the OECD to pioneer coherent and

interoperable regulatory approaches that do not depend on harmonisation or convergence, and do not undermine regulatory sovereignty.

**The UK should also use its growing network of bilateral trade agreements to help shape global rules from the bottom up.** The UK can set a gold standard for digital trade that other forward-looking nations can follow. That requires negotiating modern FTAs which include comprehensive digital provisions like those we have agreed with Japan, Australia and New Zealand, and digital-focused agreements like the Singapore DEA.

## Promoting UK exports and investment

As set out in a previous Board of Trade Report, exports already support millions of UK jobs – jobs which tend to pay higher wages than the national median. And UK goods-exporting businesses are on average more productive than those which do not export.<sup>74</sup>

**Digital trade can play a huge role in helping firms to export,** especially SMEs (see page 24, **The growth of the global online marketplace**). But many UK firms, especially SMEs, still have unrealised export potential (see page 35, **Imperfect information**).

Consequently, export and trade promotion have an important role to play in showcasing the opportunities of digital trade for businesses large and small.

**The UK government is already taking significant steps to support exporters to trade digitally.** The government is embedding specialist e-commerce advisors within the international trade advisers' network, offering specific e-commerce advice as part of its 'Export Academy', and running a dedicated digital exporting programme.

This support must continue, and the government should ensure that digital trade is fully integrated into its export strategy.

In 2020 the government also launched a pilot initiative called the Digital Trade Network (DTN): a network of UK officials dedicated to promoting UK digital trade in the Asia-Pacific region. During 2021, the DTN has worked to promote investment in the UK's tech sector and supported over 120 UK tech scaleups to expand in the Asia-Pacific region. Over half of the companies supported have been from outside London and the South East.

Alongside exporting, **foreign direct investment (FDI) also provides a significant contribution to business turnover and job creation across the UK.** It is essential to the delivery of the government's wider objectives including levelling-up, clean growth, innovation, and job creation.

As well as direct jobs, FDI creates indirect jobs through backward and forward linkages with small and medium-sized domestic companies. FDI also has wider economic benefits, improving productivity by increasing competition and speeding adoption of new technologies. And it can enhance human capital through the dissemination of new skills and better managerial practices. All of this can benefit both multinational enterprise (MNE) workers and local firms that act as suppliers and competitors to MNEs.

Digital technology and the tech sector play a significant role in attracting foreign investment to the UK. As set out in Chapter 2 of this report, the UK is one of the largest destinations globally for tech investment. We are far ahead of many comparably sized economies for the amount of venture capital investment our tech sector attracts, with more such investment than Germany and France combined. And in 2020, 63% of this investment was attracted from outside the UK.<sup>75</sup>

Continued support for, and promotion of, digital trade can help to ensure that the UK maintains its comparative advantage in this area, and remains a highly attractive destination for foreign investors.

## The way forward

The progress that the UK has already made in all the areas above clearly demonstrates that digital trade is a priority for the government.

However, to achieve its vision over the longer term, the government must build on that progress and continue to use all the levers of its trade policy to address the barriers to digital trade. This includes through its free trade agreements, bilateral trade committees, multilateral and plurilateral negotiations, and export and trade promotion activities.

# Chapter 5: Recommendations

**The UK government should take advantage of the UK's strengths to become a world leader in modern services, online goods and embedded tech.** This will require the government to lead the charge. It must strike digital trade deals with partners, help to shape global trade rules and norms that are suitable for the modern world, and promote UK exports and inward investment.

**The Board of Trade view is that:**

**1. The UK government should centre its digital trade policy around achieving 5 goals:**

- open digital markets
- free and trusted data flows
- consumer and business safeguards
- digital trading systems
- partnerships to shape global rules, norms and standards.

The government's 5 published goals for digital trade create a robust framework for addressing the barriers digital trade faces and for maximising its benefits. They should play a central role in the UK's future policymaking on digital trade, which should prioritise achieving these goals, including in bilateral and multilateral negotiations with trading partners.

**2. The UK should conclude accession to CPTPP. We should build a pipeline of other modern digital FTAs with dynamic Indo-Pacific partners, and negotiate new FTAs with large economies like the US.**

Given the shape of the UK economy, the government is in a strong position to negotiate far-reaching digital trade deals that reflect the UK's strong digital and services sector.

Building on the successes to date with Japan, Australia and New Zealand, the government should prioritise the delivery of the next phase of FTAs, focusing particularly on the fast-growing Indo-Pacific market and large, service-based economies.

In the Board's view, this means rapidly progressing the UK's accession to CPTPP, and concluding new FTAs with the US, Canada, Mexico and India.

**3. The UK should pursue a ground-breaking Digital Economy Agreement with Singapore which establishes a new gold standard for digital trade.**

The UK has an opportunity to push the boundaries of digital trade with a similarly forward-looking digital nation like Singapore. Together, they can establish a new gold standard that demonstrates the potential for digital trade rules to others in the WTO.

Reaching an agreement with Singapore on the DEA would also be a significant step towards realising the UK's ambitions to be an important digital partner for the Indo-Pacific region.

**4. The UK should use its bilateral trade committees to increase digital market access for British businesses around the world.**

As an independent trading nation, the UK has now established a range of trade committees with partners around the world. The UK should use these committees to continue making digital markets more open and accessible to British businesses in line with the UK's 5 goals for digital trade.

**5. The UK should build on its successful G7 Presidency and the adoption of the G7 Digital Trade Principles to help shape global rules.**

Following its successful G7 Presidency, the UK should work with partners to build on the G7 Digital Trade Principles and drive forward a wider international consensus on digital rules, norms and standards.

The UK should build on its success in securing G7 agreement to the Digital Trade Principles. That will require engaging strategically with other countries, and organisations such as the OECD, to help create a common shared vision for the future of digital trade. This should include engaging with all countries to champion the benefits of free and fair digital trade for everyone.

**6. The UK should continue to play a significant role in the negotiations on the WTO E-Commerce Joint Initiative. We should work together with developed, developing and least developed countries, and push for substantial progress at the 12th WTO Ministerial Conference.**

The UK should use its position in the WTO and its strong voice in the JI negotiations to build bridges between developed and developing countries, paving the way for an ambitious and inclusive agreement.

The UK should work closely with likeminded partners on issues such as making the current moratorium on customs duties on electronic transmissions permanent.

**7. The UK should use its thought leadership in digital trade in collaboration with the OECD and like-minded partners. Together we can shape an inclusive digital economy that benefits workers, consumers, and businesses. We should ensure that developing countries are able to benefit and that women are empowered to fully participate in digital trade.**

The UK should continue to use its Presidency of the G7, and its membership of the G20, OECD and WTO to advocate for an approach that maximises the opportunities of digital trade while continuing to protect individuals and consumers.

This should include working with international partners, on a government-to-government and industry-to-industry basis, to influence the development of international standards relating to digital trade and the digital economy and promote their global adoption.

Maximising the opportunities of digital trade includes ensuring that women are able to fully participate in and benefit from digital trade, particularly in developing countries. The UK is already showing leadership on this issue, for example in the Digital Trade Principles agreed under our G7 Presidency, which make specific reference to the importance of empowering women entrepreneurs.

## **8. The government should continue to promote UK exports globally and showcase the UK as a strong, competitive place to invest and do digital business.**

The UK should ensure that the support it offers to exporters reflects the full range of opportunities that digital trade provides, and that digital trade forms an essential component of the government's export strategy.

This means continuing to integrate digital trade opportunities into the full range of the government's export support. It should build on the success of the digital exporting programme and the UK's export academy. It should also include identifying initiatives to increase digital adoption in industries or sectors with lower digitalisation – supporting those businesses to make the transition.

The UK should continue to consider other, innovative ways it can work to support UK exporters. That could build on existing initiatives. One such is the Asia-Pacific Digital Trade Network, which offers prospective exporters access to digital trade advisers in the region and market entry support. Another is the Digital Exporting Programme, which gives the UK's e-commerce sector access to 50+ global marketplaces and a network of expert advisers.

The UK government should also consider where it can do more to embed digital into its investment programme. This could include ensuring freeports, as new initiatives for enhancing trade and attracting world-leading innovative investments, feature digital as a central part of their plans.

This would involve planning effectively for telecommunications connectivity, data flows and database management, satellite-based visualisation and modelling of freight traffic.

The UK government should also consider how digitally led FDI can support the government's levelling-up agenda, taking account of the full range of policy and funding mechanisms to do so, including the use of investment incentives.



# The Board of Trade



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