

HUMBER LEVELLING UP STUDY CONTEXTUAL REPORT: TRADE CHALLENGES AND POTENTIAL

**A Report for Hull and East Yorkshire
Local Enterprise Partnership
(HEY LEP)**



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1. INTRODUCTION AND CONTEXT

This contextual report is part of a series of reports on international trade as part of a Levelling Up study in the Humber. It reviews the current context for international trade nationally. It also discusses the EU-UK Trade and Cooperation Agreement (December 2020) and new Free Trade Agreements (FTAs). It considers global trade trends and opportunities for Humber businesses and for priority and other sectors. This chapter discusses the potential for export in the Humber in the light of the global economy and national and regional priorities.

1.1 NATIONAL AND REGIONAL PICTURE

The Board of Trade advisory body to the UK Government has recently set out the case for free trade and the potentially positive impact on the UK economy in its recent report, 'Global Britain, Local Jobs'. It restates the case for supporting exporting and calls for a number of new measures to underpin an export-led recovery, including ambitious new targets through to 2030.¹

There is much work to do. A recent study by Aston University's Lloyds Banking Group Centre for Business Prosperity has shown that the UK has actually lost ground in trade relative to competitors in recent years in a number of key markets including the US, Germany and China.² EU exit, COVID-19 and poor productivity were identified as major reasons for the decline.

In 2019, 58% (£9.9bn out of a total of £17.1 bn) of the exports of goods from Yorkshire and the Humber went to the EU, which is the third highest in the UK. 52% (£16.7bn out of £32.1bn) of imports to the region came from the EU.³ It is estimated that the region exports between 40% and 50% of its services to the EU.⁴

The amount of trade the region does with the EU through a complex web of supply chains illustrates the size of the challenge that EU exit poses for Humber businesses.

Disruptions to supply chains in particular have been a major problem for the region's exporters in early 2021, caused by a number of factors including: EU exit – border controls, customs, documentation, Rules of Origin, new VAT rules, health and safety certification requirements; a shortage of containers meaning in-bound

¹ https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/968340/Board-of-Trade-report-Gloabl-Britain-local-jobs.pdf

² <https://www.lbpresearch.ac.uk/wp-content/uploads/2021/03/COVID-and-UK-Trade-March-2021.pdf>

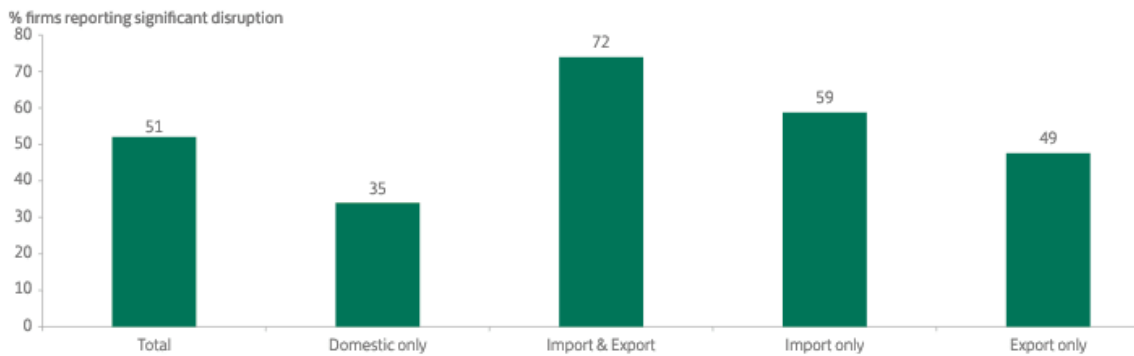
³ House of Commons Library Briefing Paper, 10th November 2020: Statistics on UK-EU trade

⁴ ONS International Trade in Services Data for 2018

maritime freight from Asia has been dislocated; and COVID-19-related working practices impeding port handling capacity and productivity.

The Lloyds Bank Business Barometer reported 72% of firms nationally that import and export had experienced significant disruption, whilst almost half of exporting-only firms reported the same. Although there are signs that things are improving, almost half of companies surveyed reported that they would have to raise prices to offset the increased costs of disruption, which will impact on the wider economy.⁵

Firms reporting significant supply chain disruption



Lloyds Banking Business Barometer (Feb 2021), BVA BDRC

These disruptions were reflected in the UK export data for January 2021, which showed exports to the EU falling by 42%. Imports also fell meaning the impact on the UK's balance of trade was less than expected. This is likely to be a temporary fall due some of the reasons outlined above and stockpiling at the end of 2020. Exports of goods to the EU partially rebounded in February 2021, increasing by £3.7bn (47%) after a record fall of £5.7bn (-42%) in January. Much of this growth was driven by transport machinery and chemicals according to ONS data.⁶ Beyond this early volatility, it will be important to assess what the trend is longer-term for the Humber.

MDS Transmodal estimated that, in 2018, the Humber represented 12% of Yorkshire and Humber's regional goods' exports, worth £2,256m out of a total of £18,174m. This was split between East Riding £1,138m, North East Lincolnshire £325m, Kingston upon Hull £374m and North Lincolnshire £419m. The Humber's trade mainly relates to the activities of the petro-chemical, food & agricultural sectors. There is a degree of concentration of trading activity, with the top 10 exports amounting to 66% of the total. Organic chemicals, petroleum products and machinery were the top three export categories.⁷

In terms of the growth in goods for the Humber, between 2014 and 2018, China and the US featured prominently as the largest global import markets relative to the Humber's top three export categories, whilst

⁵ <https://www.poundsterlinglive.com/economics/15126-51-of-firms-experience-supply-chain-disruption-as-eu-trade-rules-bite>

⁶ <https://www.ons.gov.uk/economy/nationalaccounts/balanceofpayments/bulletins/uktrade/february2021>

⁷ Yorkshire and Humber Trading Relationships, Final Report, MDS Transmodal, March 2020

Japan was one of the fastest growing (and relatively large) import markets for the same top tier category group.⁸

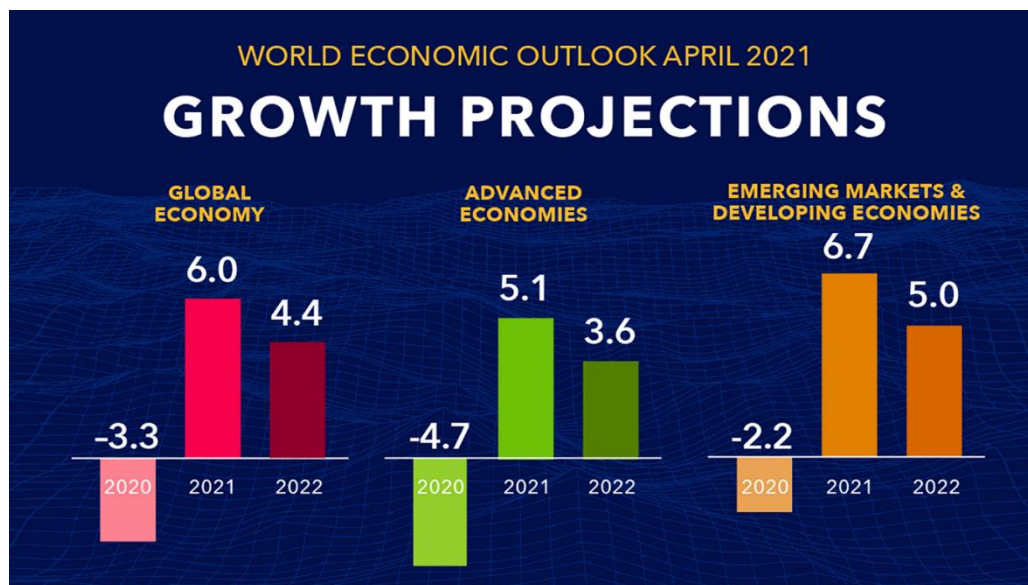
1.2 GLOBAL ECONOMY OVERVIEW

There are opportunities for the region to grow its supply base of both new and serial exporters in key sectors, as well as capturing growing demand from higher growth, vertical and geographic markets outside the EU.

Global market growth will continue to shift eastwards and much of this will be outside the EU. A Board of Trade paper by HMG in March 2021 reported that *“Almost 90% of world growth is expected to be outside the EU over the next 5 years. The future of the global economy lies to the East in the Indo-Pacific – 65% of the world’s 5.4 billion middle class consumers are expected to be in Asia by 2030.”*⁹

It further stated that *“growth in digital trade, services trade, and green trade are all expected to accelerate this decade. The export market opportunity for the UK’s green sector is estimated to be worth up to £170 billion a year by 2030.”*

The IMF reports that emerging markets and developing economies are forecast to show the most growth through to the end of 2022.



IMF World Economic Outlook Growth predictions, April 2021

An emerging and developing Asia will likely be the quickest global market area to return to growth in the near and medium term.¹⁰ This is partially because of the renewed demand from China, which is focusing predominantly on supporting domestic demand and partially because of the way countries in this region

⁸ Ibid

⁹ <https://www.gov.uk/government/publications/board-of-trade-report-global-britain-local-jobs/global-britain-local-jobs-html-version>

¹⁰ <https://www.imf.org/en/Publications/WEO/Issues/2021/03/23/world-economic-outlook-april-2021>

have been able to recover to-date from COVID-19, having learned from the experiences of previous pandemics, such as SARS.

Growth in more advanced economies, including Europe, remains sluggish in comparison. In the US, some of these predictions will be revised upwards in the light of the US\$1.9trn stimulus package which has recently been agreed.¹¹

Latest World Economic Outlook Growth Projections

(real GDP, annual percent change)	PROJECTIONS		
	2020	2021	2022
World Output	-3.3	6.0	4.4
Advanced Economies	-4.7	5.1	3.6
United States	-3.5	6.4	3.5
Euro Area	-6.6	4.4	3.8
Germany	-4.9	3.6	3.4
France	-8.2	5.8	4.2
Italy	-8.9	4.2	3.6
Spain	-11.0	6.4	4.7
Japan	-4.8	3.3	2.5
United Kingdom	-9.9	5.3	5.1
Canada	-5.4	5.0	4.7
Other Advanced Economies	-2.1	4.4	3.4
Emerging Market and Developing Economies	-2.2	6.7	5.0
Emerging and Developing Asia	-1.0	8.6	6.0
China	2.3	8.4	5.6
India	-8.0	12.5	6.9
ASEAN-5	-3.4	4.9	6.1
Emerging and Developing Europe	-2.0	4.4	3.9
Russia	-3.1	3.8	3.8
Latin America and the Caribbean	-7.0	4.6	3.1
Brazil	-4.1	3.7	2.6
Mexico	-8.2	5.0	3.0
Middle East and Central Asia	-2.9	3.7	3.8
Saudi Arabia	-4.1	2.9	4.0
Sub-Saharan Africa	-1.9	3.4	4.0
Nigeria	-1.8	2.5	2.3
South Africa	-7.0	3.1	2.0
Memorandum			
Emerging Market and Middle-Income Economies	-2.4	6.9	5.0
Low-Income Developing Countries	0.0	4.3	5.2

Source: IMF, *World Economic Outlook*, April 2021

Note: For India, data and forecasts are presented on a fiscal year basis, with FY 2020/2021 starting in April 2020. India's growth projections are -7.1 percent in 2020 and 11.3 percent in 2021 based on calendar year.

Latest World Economic Outlook Growth projections – IMF, April 2021

¹¹ <https://www.wsj.com/articles/stimulus-update-biden-covid-19-relief-package-11614095748>

By the end of 2022, China is not forecast to have actually experienced negative growth, despite the pandemic. Given its huge stockpiles of cash (dollar reserves), we are likely to see an even more assertive China in terms of investment in overseas markets that need help to finance their post-Covid recovery. Although it coped less well with COVID-19, growth in India is predicted to be even stronger, with its forecast representing a bounce-back factor.¹²

Asean markets, like Singapore, Vietnam, Thailand and Indonesia, are forecast to perform well, as they are recovering strongly from the first COVID-19 outbreak and have controlled the spread of the virus, as have both Australia and New Zealand. Likewise, Japan, South Korea and Taiwan are also growing, but much more modestly.

Global risk remains an important consideration for firms looking to internationalise. In its 'Global Risks Report 2021', the World Economic Forum highlighted the following:

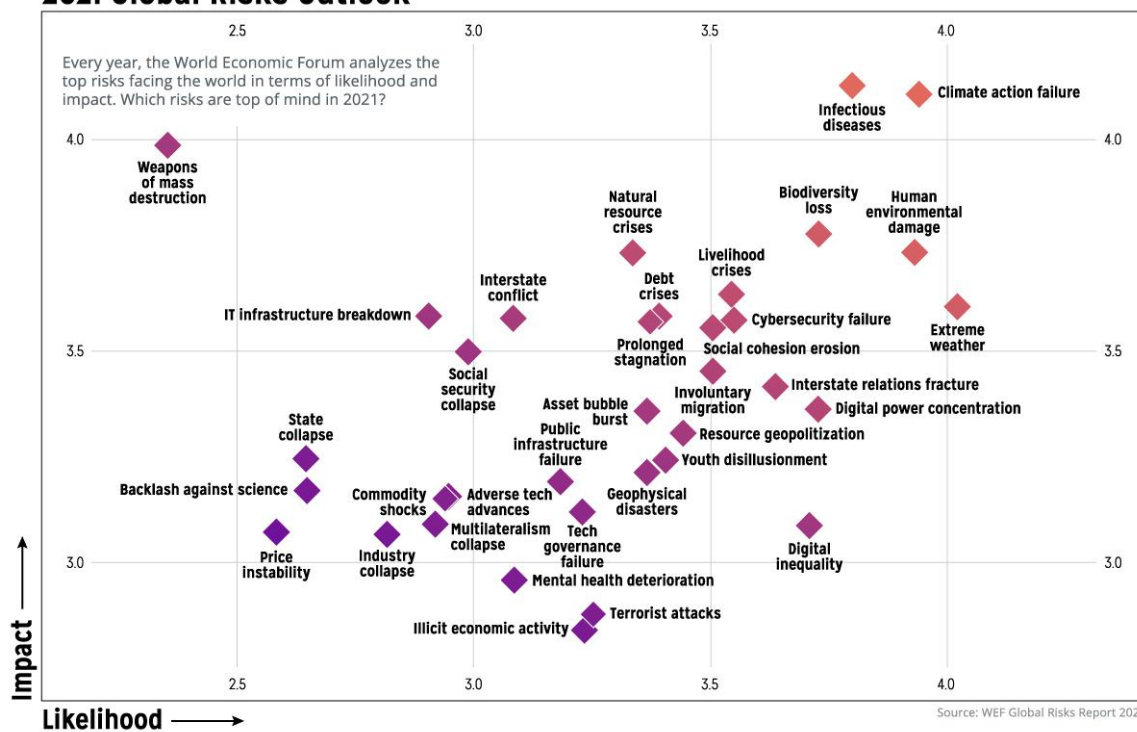
"Among the highest likelihood risks of the next ten years are extreme weather, climate action failure and human-led environmental damage; as well as digital power concentration, digital inequality and cybersecurity failure. Among the highest impact risks of the next decade, infectious diseases are in the top spot, followed by climate action failure and other environmental risks; as well as weapons of mass destruction, livelihood crises, debt crises and IT infrastructure breakdown."¹³

The implications for the Humber are that exporters will need to be much more aware of these risks, and the quickly changing market dynamics that arise as a result. Agile businesses that are both innovative-minded and digitally-enabled are the ones that have been best able to survive and thrive over the last year of turbulence. Many of these risks present the region's businesses with new, long-term opportunities, particularly around climate change, disease and the environment.

¹² <https://www.imf.org/en/Publications/WEO/Issues/2020/09/30/world-economic-outlook-october-2020>

¹³ http://www3.weforum.org/docs/WEF_The_Global_Risks_Report_2021.pdf

2021 Global Risks Outlook



The Global Risks Report 2021 – World Economic Forum, January 2021

1.3 FREE TRADE AGREEMENTS (FTAs)

New FTAs - albeit mainly 'roll-over' deals broadly replicating EU arrangements - have been signed by the UK with key markets representing an increasing proportion of UK trade. The list is growing and markets like Switzerland, South Korea, Japan, Singapore¹⁴ and the EU-UK Trade and Cooperation Agreement have added to the growing credibility of the UK to negotiate these.

EU-UK Trade and Cooperation Agreement (TCA) has avoided the worse-case scenario (no deal and harsher WTO terms), has brought some certainty in important trade-related areas, and indeed goes further than any other agreement the EU has negotiated (e.g. around elements of digital trade). However, there has been some disruption to trade, movement of goods and supply chains, and business is incurring substantial additional cost adjusting to the new requirements, particularly around Rules of Origin.

Santander's latest 'Trade Barometer' states that "early impressions of the UK-EU trade deal are mixed, with 38% of companies saying the deal will make trading with the EU more time consuming, 35% saying they now have to pay higher charges, tariffs or local taxes as a result and 16% saying their supply chain will no longer be profitable."¹⁵

¹⁴ <https://www.aseanbriefing.com/news/uk-exporters-use-of-singapore-as-aseans-supply-chain-gateway-boosted-by-new-bilateral-trade-agreement/>

¹⁵ <https://www.santandercb.co.uk/factsheet/trade-barometer-spring-2021.pdf>

UK goods exports to the EU slumped in early 2021 as a result, though volumes have been reduced by suppliers themselves given the anticipated transition and on-going COVID-19-related problems.¹⁶

The UK's competitive advantage in international trade is in services and this sector was left out of the deal, with new restrictions brought in on the movement of people and the mutual recognition of qualifications.

UK-Japan Comprehensive Economic Partnership Agreement (CEPA) - Whilst there are contrasting views on the benefits of the Japan deal, food and drink (increased scope on Geographical Indications (GIs) and improvement in Rules of Origin), digital (ban on data localisation and enforced disclosure on algorithms) and some elements of manufacturing (Mutual Recognition Agreement – reducing safety compliance costs with market access) are among the sectors set to benefit from the UK-Japan trade deal.

Comprehensive and Progressive Agreement for Trans-Pacific Partnership (CPTPP) – The UK has registered its application to the CPTPP. This links to the wider UK Government agenda of working towards a so-called 'Indo-Pacific tilt' to increase the UK's strategic influence in this fast-growing part of the world. *"CPTPP can open doors, in particular to the future of the digital economy where the 'drag of distance' is reduced so the UK can be a genuine player in the region."*¹⁷

Accession to this trading bloc, which includes fast-growth Asian markets and large markets like Canada and which represented £110bn of trade in 2019, would help the UK realise its ambition to have 80 per cent of UK trade covered by FTAs in the next three years, as well as signalling the UK Government's stated aim to favour open markets and rules-based free trade.¹⁸ However, there is some conjecture about the actual impact for business given that the UK already has trade deals with seven of the 11 nations (Vietnam the latest to be signed at the end of December 2020) and is pursuing two more. In total, CPTPP nations currently account for less than 10% of UK exports, a fraction of what goes to the EU.¹⁹

UK-Canada Trade Continuity Agreement - This deal avoids tariffs on key areas which would have been levied if the UK had not managed to get a deal, but does not represent any significant new gains for the UK compared to the arrangement under the EU.

Australia and New Zealand - Along with the US, the UK already has mutual recognition agreements with Australia and New Zealand. There will likely be a digital trade chapter, discussions on financial services and investment, and some anticipated challenges to be overcome around food safety and health market access.

US, India, China, Russia, Brazil - Some large global markets will remain elusive. FTA's with large markets like the US (Biden responding to United Steelworkers questions in May 2020 - *"I won't enter into any new trade*

¹⁶ <https://www.theguardian.com/politics/2021/feb/06/fury-at-gove-as-exports-to-eu-slashed-by-68-since-brexite>

¹⁷ <https://www.chathamhouse.org/2020/11/china-and-brexite-drive-uks-tilt-indo-pacific>

¹⁸ The Comprehensive and Progressive Agreement for Trans-Pacific Partnership, also known as TPP11 or TPP-11, is a trade agreement between Australia, Brunei, Canada, Chile, Japan, Malaysia, Mexico, New Zealand, Peru, Singapore, and Vietnam. For further details, please see:

https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/892675/UK_position_on_joining_CPTPP.pdf

¹⁹ <https://www.bbc.co.uk/news/business-55871373>

agreements until we've made major investments here at home") and China (with on-going geo-political tensions this seems implausible²⁰) still seem a long way off, as do Brazil and Russia. India is perhaps the largest market where there could be some progress on the back of an enhanced economic partnership, but this will take considerable time to come to fruition, given differences in level-playing field, data and market access perspectives plus the prospect of Indian elections on the horizon.²¹

1.4 EU EXIT IMPACT - BUSINESS AND SECTORAL ASSESSMENT

There is a high degree of variability in the impact of EU exit across the Humber region depending on the existing nature and depth of trade integration with the EU. Cities, towns, sectors and businesses of all shapes and sizes will be impacted. Each of these categories will be sensitive to the degree to which trade links can be maintained in spite of the changing trade dynamics. These include changes in terms of business and supply chain inputs costs, additional administrative burdens around new customs regulations, and taxes.

Business impact at firm level is also highly variable depending on firm size, sector and the nature of trade relationships. Sectors like **agri-food and creative & digital** have a far greater proportion of smaller firms which, where exposed to EU exit changes, will be more impacted. They tend to have less resource available for EU exit preparation and to access professional advice, and they face a potentially more precarious position within current supply chains. Certain sub-sectors, such as live shellfish/seafood, may not easily recover.

The **digital sector** might be able to offset some of the effects due to the nature of its digital or software-based business model, though sectors like **e-commerce**, particularly those companies using e-commerce to service clients in the EU (especially business-to-consumer (B2C) businesses) have been severely impacted by VAT, tariff and customs changes. The EU has not yet granted an adequacy decision to the UK on cross-border data transfer, and there is currently a bridging mechanism in place until the end of June. The **creative sector**, especially artists and musicians, will also be negatively-impacted due to restrictions on movement and the supply of services when operating overseas.

Sectors like **advanced manufacturing, food and drink** comprise more medium-sized and larger firms. Whilst these are potentially better resourced internally to cope with EU exit in terms of due diligence, those trading in goods are more exposed in terms of new trade frictions, especially around customs, border delays, VAT and administrative burden.²² Companies have reported many issues around understanding new Rules of Origin, especially where goods are brought from outside the EU and where there is insufficient processing. Companies moving fresh produce or live animals have encountered loss of stock or clients due to issues around perishability.

²⁰ Australia and China negotiated an FTA in 2015 under the then PM Tony Abbott who is now acting as an advisor to the UK Government

²¹ <https://www.gov.uk/government/news/uk-and-india-agree-to-deeper-trading-relationship> and <https://www.gov.uk/guidance/uk-trade-agreements-with-non-eu-countries>. UKIBC audience poll on 02/12/20 webinar on UK relations with India post EU Exit: 74% believe FTA will be over two years away of which 37% over three years away

²² <https://www.makeuk.org/news-and-events/news/manufacturers-still-struggling-to-cope-with-crippling-delays-moving-goods-in-and-out-of-eu>

The three major areas of friction, which **manufacturing and agri-food** businesses have reported as adding significant time and costs are:

- **Customs declarations**, which include export health certificates and tariff requirements. Given many consignments are often 'grouped', this causes knock-on problems if one item in a load does not have the correct paperwork
- **Sanitary and phytosanitary (SPS) controls**, often requiring physical checks with additional delays and costs
- **Rules of Origin regulations**. These are complex for companies with integrated supply chains, especially involving goods from outside the EU or those from deemed third countries, and instances of mixing goods with insufficient transformation (thus potentially subject to tariffs)

In addition, labour shortages will impact sectors such as **manufacturing and food production**, as well as **agriculture and healthcare**, as they tend to have a greater dependency on lower-skilled workers coming in from the Eastern parts of the EU. These are now restricted due to the new immigration policy. One impact of this will be to drive up wage inflation in sectors that are over-exposed, especially those in some parts of **agriculture or horticulture** where labour makes up an important part of the final cost.

Key sectors such as **healthcare and life sciences** have been significantly impacted by some of the changes outlined above though, in the case of healthcare, firms which are in more regulated sectors have tended to be better prepared.

Ports and logistics will benefit from greater trade flows with Asia once volumes pick up and supply issues smoothed, though the sector has been particularly badly hit from COVID-19 restrictions on working practices, which has constrained capacity to operate. This has coincided with EU exit putting additional pressures on business working in this sector. Hull and Immingham rely on trade with the EU, and also on smaller vessels coming in from Asia via Rotterdam.

It is important to recognise the contribution the Humber ports make to the local economy from EU trade, not just as a conduit for exports like automobiles (Toyotas from Derby), but also in providing a large number of jobs connected to the import of seafood in places like Grimsby. It is estimated that 70% of all seafood eaten in UK is processed in Grimsby, and 90% of what is processed is imported, especially cod and haddock from Norway and Iceland. This trade employs 5,000 people directly, and probably around 10,000 once the multiplier effect is taken into account.

The current shortage of containers has also added to further problems and delays in supply chains and has driven-up freight costs for all sectors involved in shipping long distances. According to local firm, Relay Ports Agency, capacity issues have been identified with customs clearance agents, as there are not enough to support the volume of new enquiries from local businesses and it has been difficult to get answers to specific questions from HMRC. Much of the specialist knowledge in this field disappeared when the UK became more integrated into the EU single market.

Chemicals will benefit from the move to greater levels of sustainability, although the sector itself has initially been hit by increased costs incurred in adapting to the new REACH regulations, as well as the challenges around the movement of goods. Stakeholders such as CATCH report that EU exit has not impacted members too much.

The over-riding implication for Humber firms is one of an initial competitiveness ‘shock’. In particular increased costs, and reduced access to EU markets are now inevitable for most firms in the short- to medium-term. There is evidence that some of the logistics issues are improving slowly, but there remain concerns that some trade will not recover. Whilst digital tools and technologies may offset some of the administrative pain in due course, for many local firms it will mean a fundamental re-alignment of business models and supply chains. These are significantly harder and more costly to unpick and re-configure as they are tied in with commercial contracts.

Imports into the UK have so far been spared the worst of these issues as the UK Government has extended the introduction of the new Border Operating Model. Pre-notification requirements and export health certificates will not now be required until 1 October 2021, while customs declarations may be deferred until 1 January 2022. Full safety and security declarations, as well as physical SPS checks on agri-food imports, will also not be required until 1 January 2022. Checks on live animals and certain plants at border control posts will not now take place until 1 March 2022.

Adopting a pragmatic position, the UK has postponed the introduction of many of the new regulations for supplies from the EU until early 2022 to give more time for adjustment. Once these come into effect, import substitution may start to increase as trade frictions start to bite. This may well lead to new FDI and investment by EU firms as a mitigation strategy, especially in those sectors affected by the greatest friction (in effect mirroring what has happened for UK firms supplying the EU). UK and local supply chains may also be given a boost for the same reasons, as the costs of importing from the EU become too high for some businesses to maintain competitiveness.

Whilst they present a clear platform for market diversification opportunities for the Humber, the benefit of FTAs is difficult and complex to assess in terms of what they mean for the region’s individual sectors and businesses and should not be overstated. Much of the upside remains connected to any longer-term EU exit deal outcomes and the broader competitiveness agenda around trade and investment.

There is evidence that FTAs do not benefit smaller firms as much as larger ones, and given the prevalence of SME businesses in the Humber, this is a concern for those sectors with a lower proportion of larger firms.²³ Even the UK Government’s own assessment of the FTA benefit to UK GDP was a relatively meagre economic gain over 15 years.²⁴ Whilst the US will be an important future market, especially if there is a trade deal, it has been estimated that the UK would need four US-UK trade deals to fully offset the trade downside and

²³ <https://committees.parliament.uk/publications/3195/documents/29615/default/>

²⁴ HMG, EU Exit: Long term economic analysis, Nov 2018

https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/760484/28_November_EU_Exit_-_Long-term_economic_analysis__1_.pdf

negative economic impact from EU exit. Thus, FTAs alone are unlikely to fully replace the trade lost with the EU.²⁵

The Office for Budget Responsibility (OBR) has recently stated that the UK has already lost 2% of output since 2016 due to the decision to leave the EU and has forecast that higher trade barriers could mean imports and exports could be 15% lower after ten years. The Government argues that this does not account for the benefits of new regulatory autonomy.²⁶ Sectors such as healthcare and pharmaceutical, as well as agri-food, may well benefit from future regulatory divergence (e.g. GM regulation), though they may also be exposed to more competition from FTAs depending on the contents.

It is highly likely that further negotiations covering all the intricacies of future trading arrangements with the EU and other global markets, and the level of detail needed for UK and international businesses to operate with certainty, will take several years to play out at best. At worst, it could be a decade.

Whilst the EU remains an important and historic trading partner, new geographic markets outside the EU need to be urgently tapped. Earlier research has shown the extent to which trade in goods (deficit) and services (surplus) with the EU is significant for the regional economy. Looking forward, the speed and agility with which regional businesses can start to tap into new and diverse geographic markets beyond the EU, develop new product innovations and drive productivity improvements through the adoption of digital technologies will determine the extent to which EU exit acts as a future catalyst for growth, or a continued drag on the economy.

A renewed emphasis on trade growth with traditional partners like the US, which should become slightly less protective with a Biden administration, is critical for the region to spread its risk. More importantly, through the framework provided by newly-negotiated and future FTAs, there is a real opportunity to continue to build on current momentum and explore new markets like the Middle East, Asia Pacific, India, Africa and Latin America.

Digital transformation and the applications of new technologies, like AI, IoT, 5G and robotics, as well as additive manufacturing, novel coatings and materials will continue to underpin the future growth in productivity and ensure sustainability and competitiveness. Investment in these digital technologies and networks is urgently needed across the Humber region to support greater export-led growth and inward investment.

Doing so will minimise the downsides of non-tariff and market access barriers, which may still be an increasing feature of the global trading environment. Although the FTAs will help to minimise the downside from these and provide upsides for sectors such as advanced manufacturing, food and drink and digital, a more protectionist trade policy landscape will continue to weigh on trade and investment ambitions.

²⁵ <https://ukandeu.ac.uk/video-audio/brexits-economic-impact-early-evidence-and-future-prospects/>

²⁶ <https://www.ft.com/content/72938c66-638f-11ea-a6cd-df28cc3c6a68>

(Post) COVID-19-related technologies and solutions will continue to offer a market growth pathway for the most innovative regional firms to diversify quickly into new international markets and create jobs. COVID Security and 'COVID Etiquette' is likely to be important in all global markets. Ensuring regional firms have in place up-to-date health protocols, safe and secure working practices, and relevant testing certificates will be important.

Demonstrating country/market compliance and contingency plans for employees travelling and working overseas and overseas operations will become an important feature of future international travel and doing business responsibly overseas.

2. HUMBER SECTORS' EXPORT POTENTIAL

This chapter reviews the export potential of specific Humber priority sectors in the light of national and regional developments.

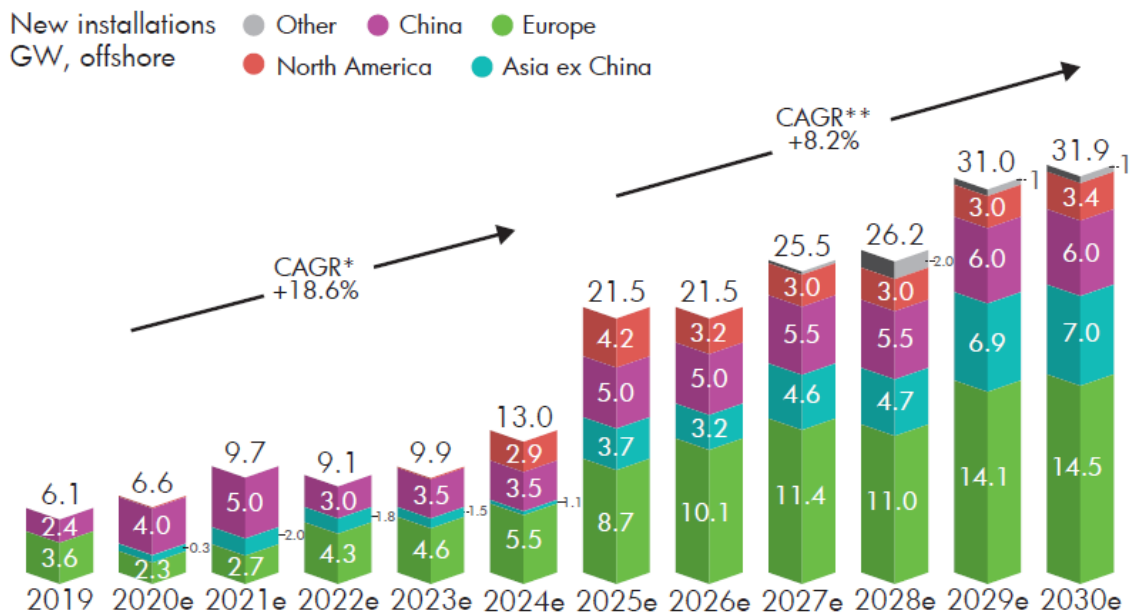
2.1 ENERGY AND RENEWABLES

Constraints on global resources will increasingly play into the **global expansion of the renewable and circular economy**. Regulation and demand for low carbon solutions is set to increase due to greater realisation of the benefits of renewable energies, augmented natural ingredients and synthetic biology technologies that reduce our carbon footprint, and increasing consumer awareness of more sustainable behaviour. Wind, hydrogen, solar and enhanced use of electric vehicles will feature strongly in this shift.

WIND

The growth in the key global markets is shown below with Europe, wider Asia and China representing the biggest growth areas.

Global offshore wind growth to 2030



* CAGR = Compound Annual Growth Rate
Source: GWEC Market Intelligence, June 2020

Global Offshore Wind Growth to 2030, Global Wind Energy Council, June 2020

In the EU, the German Government committed to ending all coal-powered generation by 2038 with the adoption of the Coal Phase-Out Act on 14 August 2020. From this date, no new coal-fired plants can start

operating unless they were granted a licence before 29 January 2020. The commitment also amends the German Renewable Energy Sources Act, to raise the renewable generation goal to 65% by 2030.²⁷

Japan has recently launched its offshore wind industry vision.²⁸ It aims to boost development of the offshore wind sector, with a target of 10GW by 2030. The sector will face challenges though, because Japan's deep waters make floaters the only practical solution for utility-scale offshore wind. The forecast extends to 35-40GW by 2040.²⁹

South Korea represents a significant growth opportunity as the industry is fledgling, but the new target of 12GW of offshore wind by 2030 means the country will potentially be on par with Europe by the end of the decade. A further 1.2GW has been targeted for other marine technologies such as wind and tidal energy. Specialised engineering and consulting services will be in demand.³⁰

India represents a market of huge potential with the Indian Power Ministry setting a target of reaching 60% renewables generation i.e. 510GW by 2030. The Indian Energy and Resources Institute has argued that India can integrate more than 30% wind and solar generation before security of supply and electricity system costs are affected.³¹

Offshore wind is a real strength for the Humber and the opportunity to continue to attract more FDI in this field. It has a strong track record already with the manufacture of turbine blades on the north bank at Green Port Hull complex, including the new 'mega' blades from Siemens Gamesa³². This is complemented with the south bank's Able Humber Port (Able Marine Energy Port) at Killingholme (N.Lincs) with the specialist Operations and Maintenance strengths centred on Grimsby (NE Lincs), which is the closest centre to the offshore windfarms in the North Sea.

The offshore wind O&M capability in the region can service global projects over a lifespan of 25 years plus, well beyond the initial implementation. According to stakeholders, the region's O&M sector is forecast to grow fourfold in the next 20 years as offshore wind becomes an increasing part of the UK's energy mix.³³ Swedish company Orsted is a key player in this field and has developed new immersive technology at its training centre in Immingham to help train workers in hazardous environments.³⁴

CYBER SECURITY

Cyber security is a growing threat in the energy and renewables sector. As the proportion of renewables in the energy mix is set to grow in many global markets, attacks on Critical National Infrastructure will

²⁷ https://assets.ey.com/content/dam/ey-sites/ey-com/en_gl/topics/power-and-utilities/ey-recal-56-edition.pdf

²⁸ http://jwpa.jp/page_301_englishsite/jwpa/detail_e.html

²⁹ <https://www.pinsentmasons.com/out-law/news/japan-plans-45gw-offshore-wind-power-by-2040>

³⁰ <https://www.intralinkgroup.com/en-GB/Media/News/April-2021/South-Korea-Marine-Industry-Market-Report>

³¹ https://www.ey.com/en_uk/power-utilities/if-green-energy-is-the-future-how-can-technology-lead-the-way

³² <https://www.offshorewind.biz/2021/02/19/siemens-gamesa-plans-to-make-mega-turbine-blades-in-uk/>

³³ <https://www.business-live.co.uk/ports-logistics/huge-offshore-wind-pledge-prime-19058047>

³⁴ <https://orsted.co.uk/media/newsroom/news/2020/08/orsted-launches-immersive-safety-programme-in-a-first-for-the-humber>

increasingly target sub-sectors such as offshore wind. Estimates equate one day of downtime for a 500MW wind farm to a loss of approximately £336,000.³⁵

Given the remoteness of wind turbines and their increasing reliance on smart and inter-connected systems, the risk of attack by state or non-state actors wanting to penetrate wider infrastructure networks is relatively high. The US Department of Energy recently published its Roadmap for Wind Cyber Security emphasising that as wind becomes an ever-increasing part of the 'smart grid' landscape, the bi-directional communication upon which wind energy equipment is reliant upon also introduces significant cybersecurity concerns.³⁶

Global supply chains also represent a target for cyber security attacks. In particular, access points from many continents represent an increased attack surface area for hackers. In the US *"remote access to wind turbine equipment from foreign companies is permitted; while this could provide critical patches to software systems, it also expands the power system attack surface. Wind turbine manufacturers could establish cyber supply chain risk management (C-SCRM) programs as frontlines for supply chain security."*³⁷

The EU, North America and Asia, excluding China, all represent opportunity markets for Humber firms specialising in this growing sub-sector.

HYDROGEN

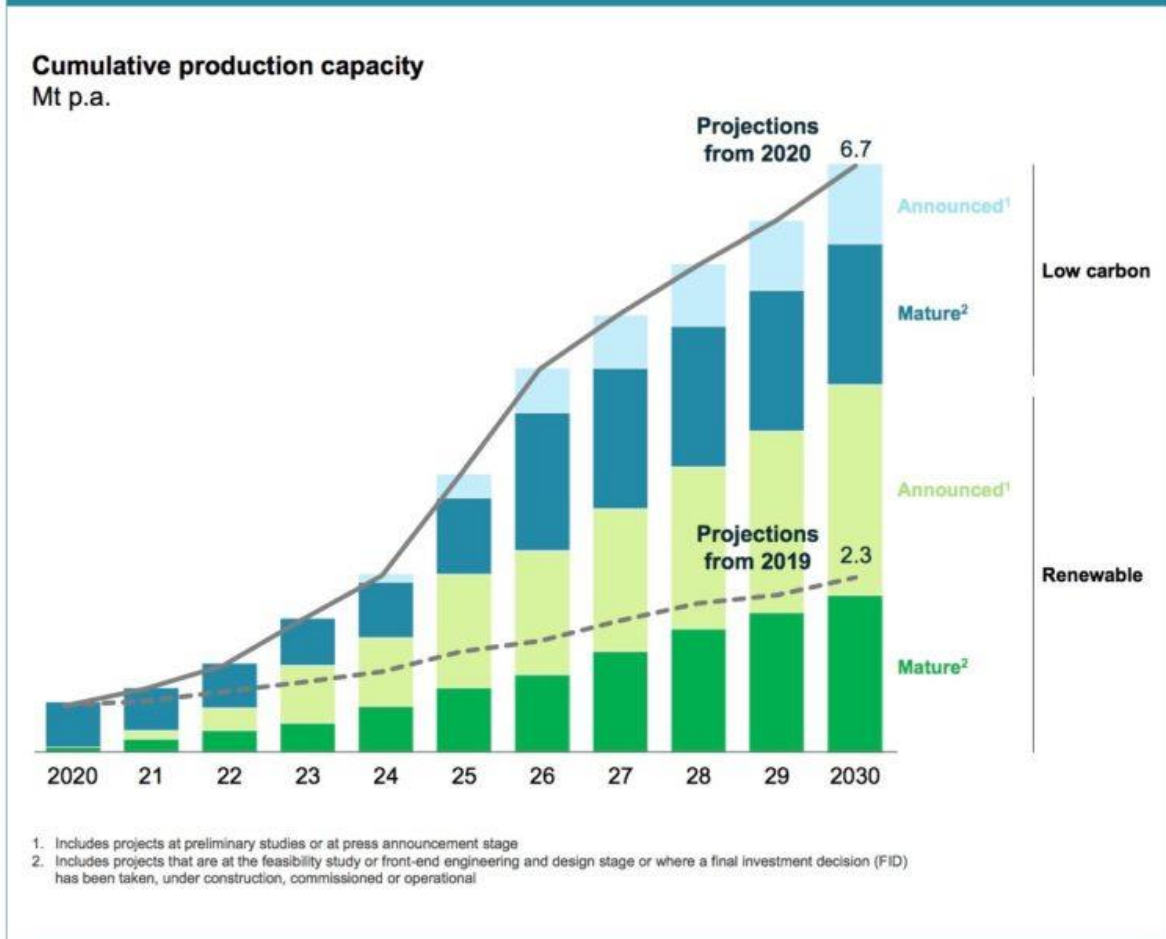
A recent Hydrogen Council report estimates that the total investment in hydrogen projects will surpass US\$300bn by 2030, including US\$80bn in mature projects. This is made up of 228 large-scale projects announced in the value chain, of which 85% are in Europe, Asia and Australia.

³⁵ <https://technative.io/stepping-up-cybersecurity-in-offshore-wind-how-to-protect-against-an-unseen-enemy/>

³⁶ <https://www.energy.gov/sites/prod/files/2020/07/f76/wind-energy-cybersecurity-roadmap-2020v2.pdf>

³⁷ <https://www.energy.gov/sites/prod/files/2020/07/f76/wind-energy-cybersecurity-roadmap-2020v2.pdf>

Exhibit 5: Announced clean hydrogen capacity through 2030



Hydrogen Council and McKinsey: Hydrogen Insights 2021: A Perspective on Hydrogen Investment, Deployment and Cost Competitiveness

Markets across Asia, such as South Korea, are betting big on becoming a global leader in pioneering a hydrogen-based economy, with significant capital investment going in across the region. The Government in Seoul has committed to net zero carbon emissions by 2050 and recently announced its Green New Deal, pledging to invest £13bn by 2025 in environmentally-friendly mobility. One of the core targets is hydrogen fuel-cell vehicles and the country aims to produce 500,000 for export and domestic use by 2030. This will spur its hydrogen sector to almost double to £17.3bn, with growth driven by Hyundai and Doosan.³⁸

Closer to home, Germany is investing in green hydrogen using electrolysis powered by renewables, and produced a National Hydrogen Strategy in 2020.³⁹ It discusses connecting German electrolyser capacity to other EU states, to use North Sea or Baltic state offshore wind capacity to produce green hydrogen for German consumption. The German Ministry of Economic Affairs and Energy awarded the Westküste100

³⁸ <https://www.intralinkgroup.com/en-GB/Media/News/January-2021/South-Korea%E2%80%99s-hydrogen-economy-report>

³⁹ <https://www.bmw.de/Redaktion/EN/Publikationen/Energie/the-national-hydrogen-strategy.html>

green-hydrogen project an initial €30m (US\$35m). The five-year project aims to build a 30MW electrolyser connected to offshore wind. It includes a consortium comprising EDF and Orsted.⁴⁰

The Humber region is known as the 'Energy Estuary' and has a leading position in the UK in the wind, biofuels and renewable energy sectors. This will be boosted by new funding for the UK's first clean hydrogen plant: £75m has been granted for the project after the Government backed the Zero Carbon Humber bid. Proposals for H2H Saltend would bring the world's largest hydrogen production plant to the Humber, initially reducing carbon emissions by 900,000 tonnes a year at the chemicals park, currently East Yorkshire's largest emitter.⁴¹

ELECTRIC VEHICLES

Large markets like US and China have committed to reduce carbon emissions and are making great strides, for example, in the electrification of private and public vehicles.⁴²

*In the US, "The transition toward electric powered vehicles will continue to accelerate. General Motors, for example, plans to spend US\$2.5 billion retrofitting its plant in Tennessee for electric vehicle production. In the long term, projects like this will require more batteries, fuel cells and other technology and will increase demand for energy transition metals including lithium, cobalt, graphite, nickel, aluminium and others. Electric vehicles are projected to require at least four times as much copper content as conventional automobiles."*⁴³

Electric-car sales in China are projected to rise at a 25% compound annual growth rate (CAGR) through 2030. By that date, 12% of all cars running in China would be electric vehicles (EVs), and the country would account for more than half of worldwide electric-car sales.⁴⁴ In its five-year plan for 2021-25, the Chinese Government targeted 7% annual growth for R&D and projected that sales of new energy vehicles (including electric, hybrid and hydrogen powered) would constitute 20% of the whole car market by 2025. China has a lead in EV battery production with players like CATL leading the way and new partnerships like Geely/Baidu emerging.⁴⁵

Demand for, and developments in, batteries and battery technology will drive the mineral and mining sectors, as well as **providing opportunities for Humber companies that have digital and materials' technologies** that can provide solutions to monitoring EV battery usage and range extension.

[Pensana](#) is based at PX Group's Saltend Chemicals Park and has recently received funding to support the development of the world's first major rare earth separation facility to be established in over a decade, supplying critical magnet metals into advanced manufacturing industries, including for the manufacture of EVs and offshore wind turbines. Funding came from the UK Government's Automotive Transformation Fund and the

⁴⁰ https://assets.ey.com/content/dam/ey-sites/ey-com/en_gl/topics/power-and-utilities/ey-recal-56-edition.pdf

⁴¹ <https://www.itv.com/news/calendar/2021-03-17/uks-first-clean-hydrogen-plant-set-for-saltend>

⁴² <https://news.cgtn.com/news/2020-08-29/Shenzhen-vows-to-embrace-green-development--TlguEzoFqw/index.html>

⁴³ *ibid*

⁴⁴ <https://www.mckinsey.com/industries/chemicals/our-insights/chinas-chemical-industry-new-strategies-for-a-new-era>

⁴⁵ <https://www.fdiintelligence.com/article/79655>

project entails the development of a 4,500 t/y rare-earth oxide separation facility, which will produce neodymium and praseodymium.⁴⁶

SOLAR

Off-grid solar power continues to grow in remote areas across the globe like Africa, Asia and Latin America. Connecting isolated and remote communities to the grid digitally and providing them with the power to improve their lifestyles and earning power has significant global potential.

In Africa the commercial opportunity from off-grid solar panels could generate about \$24bn (£18bn) a year.⁴⁷ There are examples of innovative UK technology and low carbon companies like BBoxx (London) and Steamax (Manchester) successfully exploiting the commercial opportunities in this market.

SUSTAINABLE FUELS

Velocys, a Cambridge-based sustainable fuels technology company, is looking to develop a **new waste-to-jet-fuel plant in the Humber** by 2025, converting 300KT waste, which would have gone to landfill, into 30KT of jet fuel. This will be a first in Europe.⁴⁸ Sustainable jet fuel produces 70% fewer carbon emissions than normal fossil fuel. Velocys is partnering with International Airlines Group which has committed to powering 10% of its flights with sustainable fuel by 2030.⁴⁹

2.2 MANUFACTURING AND ENGINEERING

The Humber region has a strong pedigree in advanced manufacturing and engineering, including major inward investors and fast-growth SMEs. Knowledge-based institutions, like the University of Hull, the Grimsby Institute and UTC, play a key role in supporting innovation and skills development across the sector.

Offshore wind has been highlighted as a key growth area. Traditional sectors such as aerospace and automotive are currently struggling due to the restrictions on travel and consumer spending. These are likely to take off again, once the pandemic is over.

Manufacturers in the UK continue to demonstrate the agility required to navigate the uncertain trade environment. They are pro-actively seeking out new markets, diversifying away from the EU and towards the US and Asia. According to a recent MakeUK report, almost a third of companies (30%) are planning to enter new markets in 2021. This will see the UK's trade patterns shift: while exports to the EU are predicted to fall, almost 40% of companies are looking to expand sales into non-EU markets. Increases to Asia (27%) and the United States (28%) were reported as the biggest targets.⁵⁰

⁴⁶ <https://www.miningweekly.com/article/pensana-receives-uk-government-support-for-saltend-rare-earths-facility-2021-03-29>

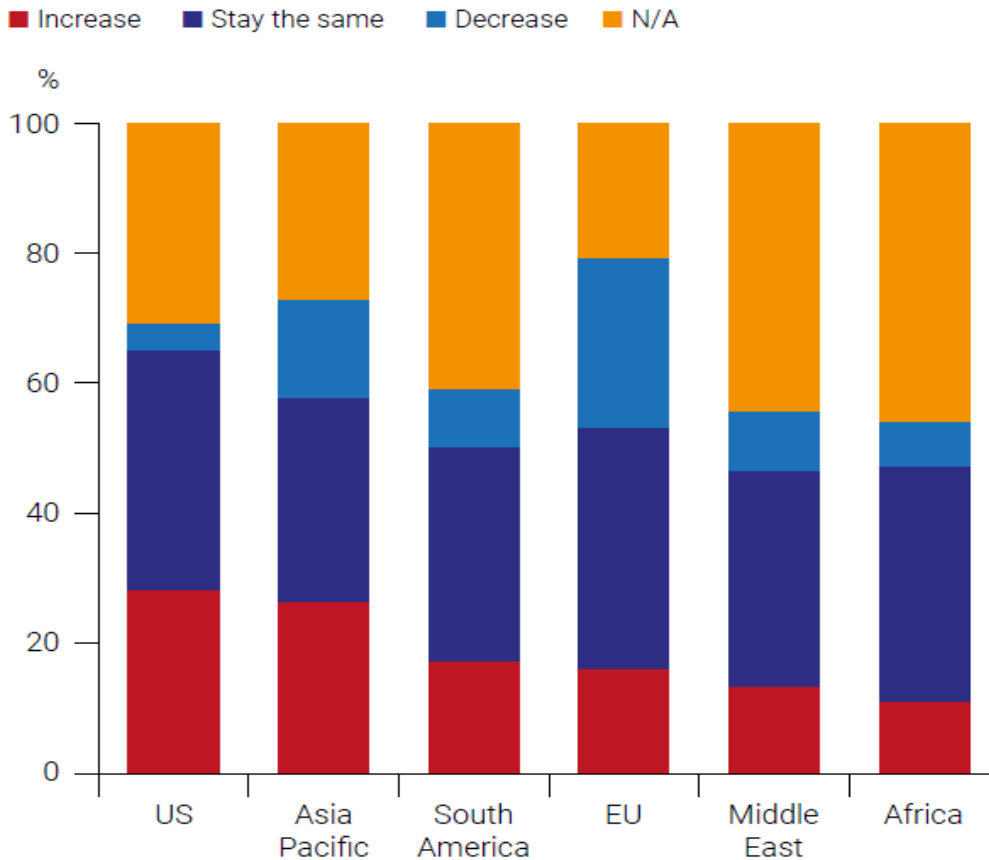
⁴⁷ <https://www.theguardian.com/environment/2020/jan/21/uk-africa-off-grid-solar-power>

⁴⁸ <https://www.velocys.com/2020/01/10/velocys-meets-with-drax-to-discuss-negative-emissions-ambitions/>

⁴⁹ <https://www.iairgroup.com/en/newsroom/press-releases/newsroom-listing/2021/sustainable-aviation-fuel>

⁵⁰ <https://www.makeuk.org/insights/reports/executive-survey-2021>

Chart 3: Expected change in exports in the following markets in 2021



Expected changes in exports, MakeUK/PWC Survey, Nov 2020

More broadly, advanced manufacturing and engineering sub-sectors are undergoing a digital revolution globally. Future investment in manufacturing will lead to growth in digital transformation to support the productivity agenda, which is likely to drive improved competitiveness.⁵¹ A recent survey of leading manufacturers across markets such as **US, Brazil, UK, Germany** and others found that over 50% confirmed that Industry 4.0 technologies had helped them reach higher levels of profitability.⁵²

Countries like **China** are seeking to progress up the manufacturing value chain to become higher-tech players. This will enable them to both compete with, and reduce dependence on, the US, especially in high-tech areas like semi-conductor and silicon intellectual property (IP).

However, global supply chains are being re-evaluated to hedge against over-reliance on one market or source of supply. Large markets like **India and Brazil** and smaller, nimble ones like **Vietnam and the Philippines** are set to benefit from new investment from global companies diversifying supply chains and secondly from increased digital investment to support operational efficiency and future resilience. **'Made in**

⁵¹ <https://www.themanufacturer.com/articles/digitisation-manufacturing-easy-changing-mindset/>

⁵² MPI Industry 4.0 2020 study for SAP, <https://www.sap.com/cmp/dg/industry4-mpi/index.html>

US' will also continue act as a driver of manufacturing investment in domestic sectors in the States, especially on the back of the new Biden administration stimulus package.

Stimulating investment is also important in the advanced manufacturing sector in India, which is looking to increase its own domestic capability, especially in the electronics field. This is benefitting from new investment from countries like China and Japan, trying to make the most of the new 'India First' ('Atma Nirbhar Bharat') and 'Made in India' policy regulations.⁵³

New manufacturing expertise and techniques, like additive, and using new, 2-D materials, like graphene, will be increasingly sought, as will specific productivity-enhancing solutions, like AI and IoT-driven predictive maintenance and analytics, AR/VR to support remote worker interventions, and training and digital twinning.

The target sub-sectors and pace of traction will vary depending on recovery from COVID-19, though **Asian and Asean** markets appear to be attractive. Although the automotive and aerospace sectors are badly-impacted at present, food and drink manufacturing could bounce back relatively quickly once the initial recovery phase is embedded.

Long-term demand for healthcare continues to rise, driven by ageing populations and chronic disease in the West, as well as increasing demand resulting from higher incomes in the East. The boom in COVID-19-related solutions has supported growth in the global healthcare and pharmaceutical industries and may well help to offset some of the EU exit related downsides, especially in Humber where the sector is important.⁵⁴

Demand for companies in the manufacturing supply chains connected to medical supplies and equipment, such as PPE-related and ventilators, as well as testing and vaccination-related products has grown. Consumer demand for health and wellness supplements has also increased and this has pulled the supply chain along with it from raw materials and ingredients, manufacturing and testing through to packaging and logistics.

Marine engineering is going through a radical transformation at present, particularly with the growth in marine vessels of all shapes and sizes, especially those which are providing low carbon solutions, using lightweight yet strong materials at the same time. A good example of this is the company, Artemis Technologies, based in Belfast, which recently won a significant grant to develop and test its electric propulsion and zero emissions technology.⁵⁵

South Korea is trying to catch up with rivals Japan and China in marine technologies and is investing significant amounts in smart ships and smart ports. There are more than 70 small and mid-sized shipbuilders, including STX Offshore and Shipbuilding, Daehan and HSG Sungdong. Domestic shipbuilders rely on 500 system integrators and component suppliers such as Sejin Heavy, Hankuk Carbon, Dongsung FineTec and

⁵³ <https://www.businesstoday.in/magazine/cover-story/moving-from-assembly-to-manufacturing-base/story/428578.html>

⁵⁴ <https://www.europeanpharmaceuticalreview.com/article/143187/boom-times-for-pharma-ma/>

⁵⁵ <https://www.bbc.co.uk/news/uk-northern-ireland-53184775>

Samyoung M-Tek. Korean shipbuilders are looking to make major advances in autonomous shipbuilding capability, having already developed level 2 autonomous ships.⁵⁶

This illustrates a broader trend across the manufacturing industry globally, driven by regulations on carbon emissions and new technologies towards electric and zero-emission propulsion systems more broadly – boats, aircraft, cars, autonomous vehicles are all moving in this direction.

Markets that are able to invest early-on in these new low carbon technologies, like the US, Japan, South Korea and China, will be of interest. **This plays into the Humber's excellence in manufacturing, digital, offshore (O&M) and low carbon strengths**, including companies which are part of the local networks, like Team Humber Marine Alliance, **and can provide solutions across the supply chain.**⁵⁷

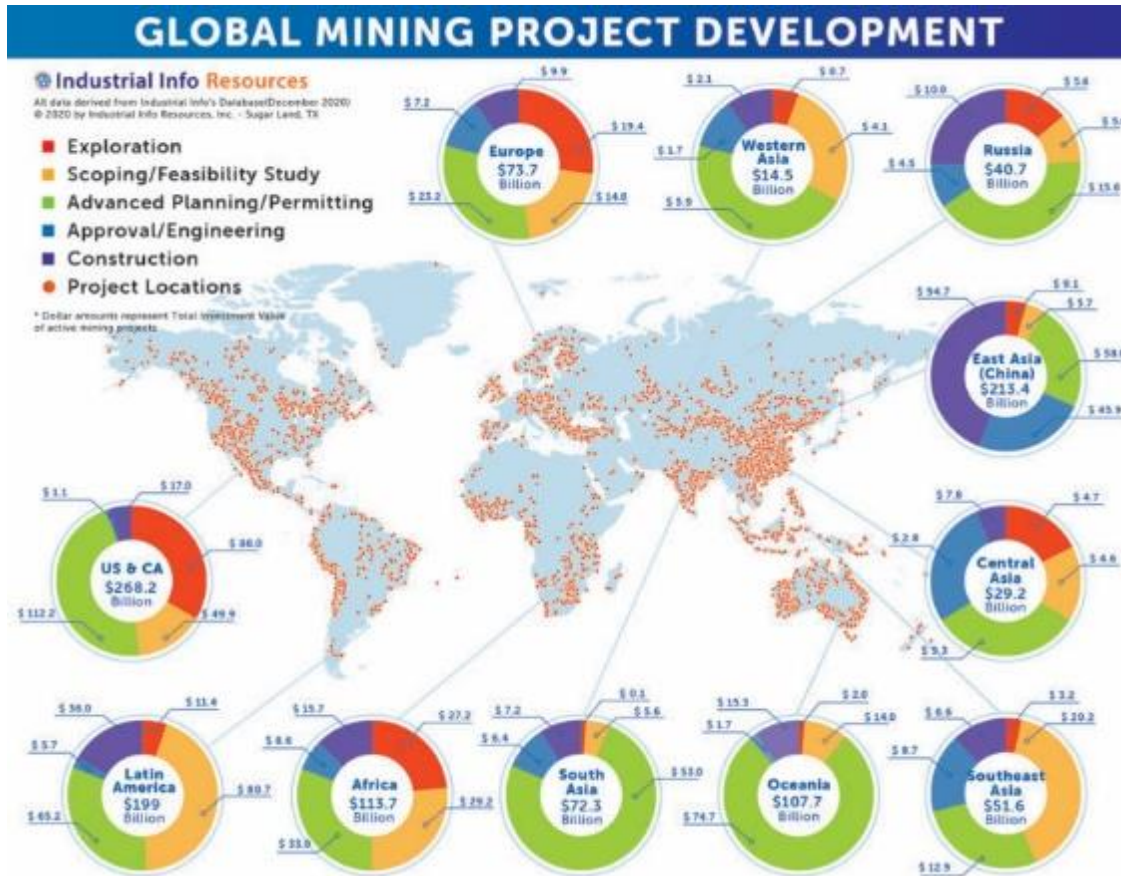
2.3 NEW OPPORTUNITIES FOR THE HUMBER IN GLOBAL MINING

Mining is an example of a global industry which is going through a radical transformation, throwing up new opportunities for firms in the Humber. Globally, there are more than 13,000 active capital projects in the mining industry, representing US\$1.18tn in total investment value, according to Industrial Info's Business Intelligence.⁵⁸ The spread of global projects can be seen from the chart below, with East Asia, Latin America, North America and Africa representing the largest investment, though in very different stages of development.

⁵⁶ <https://www.intralinkgroup.com/en-GB/Media/News/April-2021/South-Korea-Marine-Industry-Market-Report>

⁵⁷ <https://www.thma.co.uk/>

⁵⁸ <https://www.e-mj.com/features/2021-global-mining-investment-outlook/>



Source: Engineering and Mining Journal, Jan 21⁵⁹

Why does it make sense for the Humber to consider targeting the mining vertical? The table below summarises the demand- and supply-side reasons why the Humber might be a good fit for the global mining sector.

Demand Side	Supply Side
<ul style="list-style-type: none"> ✓ Mining is at the source of a number of future growth industries such as batteries for EVs, and low carbon like wind and solar. Rare metals processing will support this growth. ✓ Mines tend to be 30–50-year projects, thus providing opportunity for long-term revenues, especially in the development and production phases. Key areas include drilling and blasting, vibration, noise and dust, geotechnics, ore process and metallurgy. ✓ Mining needs to become more competitive by embracing new digital technologies to support enhanced productivity and improved operational performance like AI, IoT and data analytics. ✓ The development of 5G technologies and private networks offers great potential to support new robotics technology underground. Other use cases 	<ul style="list-style-type: none"> ✓ Humber has a strong offer in offshore wind and renewable energies, as well as advanced manufacturing and engineering, heavy industrial, digital (inc. cyber) and low carbon expertise ✓ Expertise in working in harsh/remote/hazardous environments and conditions ✓ Humber already has in-roads and supply chain connections with large mining and minerals multinational companies like Fenner Dunlop (mining conveyor belts) in Hesse, Pensana Rare Earth plc⁶³ and Anglo-American PLC (new low carbon, nutrient rich fertiliser) in North Yorkshire – all with global market in-roads in places like Latin America, Africa, Russia, and Asia

⁵⁹ <https://www.e-mj.com/features/2021-global-mining-investment-outlook/>

⁶³ <https://www.miningweekly.com/article/pensana-receives-uk-government-support-for-saltend-rare-earths-facility-2021-03-29>

<p>include predictive maintenance using AI and sensor data to keep mines up and running, and on-site worker safety, support and training for hazardous environments using creative new AR/VR technologies.</p> <ul style="list-style-type: none"> ✓ Cyber security opportunities are growing, as mines are increasingly targeted parts of critical national infrastructure and seen as softer, but lucrative targets by state and private threat actors.⁶⁰ ✓ Extractive industries such as mining are typically resource-intensive but there is increasing pressure on them to diversify and become more sustainable and lower carbon intensive. Supply chain sustainability in extractive industries is growing in importance.⁶¹ ✓ The strategic direction of mining and minerals companies is thus changing, driven by institutional investors looking at more sustainable means of production to ensure that share performance remains strong over time.⁶² 	<ul style="list-style-type: none"> ✓ The Saltend chemicals park has attracted mining FDI interest and investment⁶⁴ ✓ UK's largest tech company, industrial software company Aveva (owned by Schneider Electric) launched a digital transformation mining business unit by buying US OSI Soft to support global growth in this sector.⁶⁵ ✓ Mining is increasingly gaining traction with the Department for International Trade (DIT) as an untapped sector for UK exports and also FDI ✓ Cyber developments in offshore (CD4I) could extend into the mining sector as similar principles will apply ✓ Strong creative and digital sectors in AI, IoT, AR/VR which can be applied to mining domains ✓ Strong expertise in communications technologies
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China leads the way for mining project development in 2021, followed by Australia, India and Canada. In addition to Canada, the Americas are represented by Brazil, the U.S., Chile and Argentina. Peru and Mexico have been severely impacted by the pandemic and other social issues causing mining firms to delay some projects beyond 2021.



Engineering and Mining Journal, Jan 21⁶⁶

⁶⁰ <https://www.pwc.com/gx/en/industries/energy-utilities-resources/publications/mine.html>
⁶¹ <https://www.supplychainquarterly.com/articles/4467-the-future-of-supply-chain-sustainability>
⁶² <https://www.mckinsey.com/industries/metals-and-mining/our-insights/the-mine-to-market-value-chain-a-hidden-gem>
⁶⁴ <https://www.business-live.co.uk/economic-development/saltend-aveva-buying-mining-real-time-data-major-osisoft/>
⁶⁵ <https://im-mining.com/2020/08/25/schneider-electric-controlled-aveva-buying-mining-real-time-data-major-osisoft/>
⁶⁶ <https://www.e-mj.com/features/2021-global-mining-investment-outlook/>

Africa continues to be a continent of growing mining exploration and development activity by many countries, including China and India, looking to secure long-term resource supply. African countries including South Africa, Guinea, Mozambique, Congo, Ghana and Namibia, will lead the continent in spending for 2021.⁶⁷ Saltend Chemical's Park company, Pensana, is also developing the Longonjo rare earths mine in Angola.

One of the main challenges that mines face is the amount of time needed to integrate new digital systems. To support the immediate needs of the industry, new and established routes-to-market through technology suppliers, system integrators and service providers are instrumental in enhancing digital transformation in mining by speeding up readiness and transferring skills and learnings.⁶⁸

Strong innovation and growth feature in such Latin American markets as Brazil and Chile. For example, Mining Hub is an open innovation and knowledge exchange initiative in Brazil connecting start-ups and corporates based in Belo Horizonte.⁶⁹ Chile launched a digital mining roadmap in 2020, 'Technological Innovation for Mining 4.0', led by technology transfer organisation, Fundacion Chile, and the country's mining council to make greater use of Industry 4.0 technologies over the next 15 years.⁷⁰

Mining companies are going through a period of radical transformation to become more competitive by using more digital technologies and also to become more low carbon as part of investor-led initiatives around sustainability and corporate governance. A list of the world's biggest mining companies can be found [here](#).⁷¹

Potential Humber activities could include:

- Helping companies understand the key trends, market drivers and global opportunities in the mining sector
- Introduction to supply chain opportunities and discussion with (e.g) Anglo-American around how SMEs in Y&H can collaborate
- Spotlighting certain markets e.g. mining in Latin America, Australia and Africa

2.4 CREATIVE AND DIGITAL

The Humber has a thriving digital economy worth an estimated £7bn. TV, film, communications and a broad range of digital technologies support this sector, along with assets such as the Centre for Digital Innovation (C4DI) in Hull.⁷²

⁶⁷ <https://www.e-mj.com/features/2021-global-mining-investment-outlook/>

⁶⁸ <https://www.miningglobal.com/supply-chain-and-operations/griffin-mining-receives-mining-license-caijiyang-mine>

⁶⁹ www.mininghub.com.br

⁷⁰ <https://www.miningmagazine.com/innovation/news/1391581/chile-launches-mining-digitalisation-roadmap> and <https://digitalizacionmineria.fch.cl/>

⁷¹ <https://www.mining.com/top-50-biggest-mining-companies/>

⁷² <https://investhumber.com/growth-sectors/creative-digital-1>

SMART, RESILIENT AND EFFICIENT CITIES

Government departments and city infrastructure globally will need to be strengthened with more agile decision-making capabilities based on data and insights, with growth in AI-driven 'resilience tech' (including real-time intelligence, monitoring and data analytics relating to various sectors of the economy, including health, mobility, transport, cities and towns), as part of more robust resilience and future-proofing plans.

Whilst many countries will want to develop and deploy their own exportable solutions, countries which have an affinity for the UK and those that have similar values and world views around data privacy, ethics, governance (like the **Commonwealth, EU, US, Australia/NZ and Singapore**, and potentially some markets in the **Middle East**) will be open to hearing about new IP and solutions to help support more effective and faster Government decision-making. The UK's new independent membership of the Government Procurement Agreement will continue to ensure UK companies can benefit from this type of public sector opportunity.⁷³

The development of Smart Cities and infrastructure (transport and energy) projects in **Asean markets (Vietnam, Thailand), India, Africa and Latin America** all need expertise in engineering consulting, project management and project finance. Within the EU, **Eastern Europe** is one market area especially interested in a broad range of UK Smart City technology and expertise.

Process automation software and solutions are expected to show strong growth in global markets. It has been suggested that the Robotics Process Automation (RPA) market will grow quickly in **India** (20% year-in-year 2019-2025), which is playing catch-up with Europe and the US. Customer service functions provided by global and Indian multinationals have been impacted by the dislocation caused by COVID-19 and Indian industry believes there is a need to hedge against this risk in the future by driving more automation of customer service and back-end functions.⁷⁴

E-COMMERCE

New levels of aggregate demand in online purchasing have accelerated the growth in **e-commerce and logistics**, with the demand for new technology supporting end-to-end purchasing.

E-commerce sales in the **US** rose by 450% between 2007 and 2019 and, although online was given a boost by the pandemic, 80% of retail sales are still in-store, which gives a lot of headroom for the region's e-commerce and advanced retail suppliers to progress even further.⁷⁵

A recent demand surge in e-commerce has been observed in both **China and European** markets according to McKinsey.⁷⁶ Asia's e-commerce market revenue was projected to reach US\$1.4tn in 2020, nearly triple the market revenue in the United States.⁷⁷ E-commerce sales in China are forecast to continue to grow with

⁷³ <https://www.gov.uk/government/news/government-secures-access-for-british-business-to-13-trillion-of-global-procurement-contracts>

⁷⁴ <https://www.businesswire.com/news/home/20190904005415/en/Indian-Robotic-Process-Automation-RPA-Market-2019-2025>

⁷⁵ <https://www.forbes.com/sites/stephenmcbride1/2020/05/11/coronavirus-will-wipe-out-these-three-industries-for-good/#55aec1b586b7>

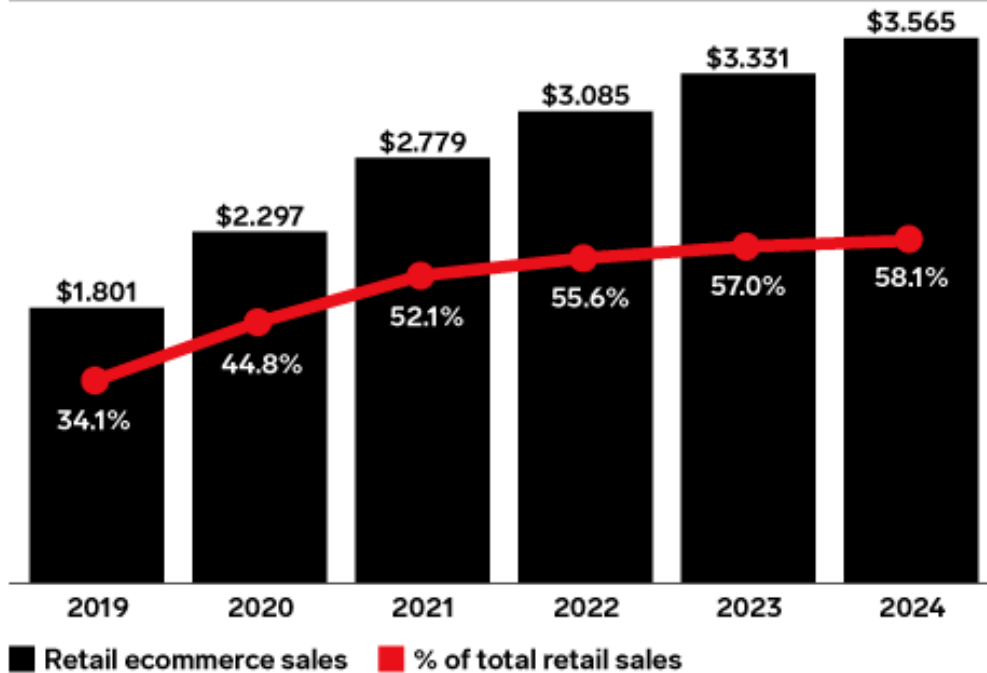
⁷⁶ <https://www.mckinsey.com/business-functions/mckinsey-digital/our-insights/building-an-e-commerce-business-lessons-on-moving-fast>

⁷⁷ <https://www.mckinsey.com/featured-insights/asia-pacific/how-asia-can-boost-growth-through-technological-leapfrogging>

e-commerce's share of total retail rising to 58% in 2024, from 45% in 2020, as can be seen from the chart below.

Retail Ecommerce Sales in China, 2019-2024

trillions and % of total retail sales



Note: includes products or services ordered using the internet via any device, regardless of the method of payment or fulfillment; excludes travel and event tickets, payments such as bill pay, taxes or money transfers, food services and drinking place sales, gambling and other vice good sales; excludes Hong Kong
 Source: eMarketer, Dec 2020

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eMarketer | InsiderIntelligence.com

Retail E-commerce Sales in China 2019-2024, eMarketer

South Korea is the fifth largest e-commerce market globally - seeing 6% annual growth and forecast to be worth £70bn by 2024. The country has the world's highest average internet connection speed and mobile commerce is exceptionally strong, with 93% of the population owning a smartphone and 70% of online consumer sales made via mobile. Purchases from the UK and Germany are set to see substantial growth. British goods enjoy a particularly strong reputation among Koreans – especially in fashion, beauty, accessories, confectionery and home décor.⁷⁸

With excellent pedigree across a broad range of e-commerce and digital solutions, the Humber region has the potential to tap into the opportunities in both the US and Asia, both in terms of end products (food & drink and other products via market places) and selling supply side e-commerce solutions (supply chain

⁷⁸ <https://www.intralinkgroup.com/getmedia/9923877c-1994-45b3-8fa1-7fb849441321/Korean-Market-Intelligence-Report-e-commerce-FEB2021>

automation, packaging, optimisation, logistics, and returns software). This should provide opportunities for significant future growth.

MEDIA AND ENTERTAINMENT

The pandemic has brought a huge shift in the way that global media, sports and entertainment companies are engaging with audiences. This is driving opportunities for spectator and player safety technology, creative digital for remote audience engagement, as well as new technologies for on-demand content related to OTT streaming platforms. **India** has seen a substantial increase in demand in this field, with sports streaming contributing to a 13% growth in OTT in India in 2020.⁷⁹

Major consumer brands and creative media agencies are also looking carefully at monitoring the return-on-investment (ROI) across their social media and consumer engagement platforms, and are on the look-out for new digital technologies, powered by AI and data analytics, that can help them to better-engage and target genuine customers more effectively and to evaluate campaign ROI.

ED-TECH

The pandemic has accelerated the **adoption of digital technology in education**, with global ed-tech investment on-track to grow by 15% in 2020, a predicted €6.4bn. At its peak in mid-April 2020, the virus caused nationwide school closures in 190 countries, impacting 90% of total enrolled students – almost 1.6bn people globally.⁸⁰ For example, **India** is seeing a huge growth in ed-tech, with online education offerings for Classes 1 to 12 projected to increase 6.3 times by 2022, creating a US\$1.7bn market.⁸¹

FINTECH AND PAYMENTS

UK fintech solutions and regulatory expertise and innovation in sandbox environments is needed in emerging markets like **Vietnam and Indonesia**, where the Governments are looking to cautiously open up domestic markets to stimulate new demand and innovation. Professional expertise and digital solutions across a wide variety of domain areas are in demand.⁸²

China leads the world in digital mobile payments, but neighbouring countries are increasingly concerned about the implications of over-relying on Chinese technology, which presents an opportunity for the UK. **Africa** also presents a real opportunity for payment-related technologies given the growth in mobile and e-commerce platforms.⁸³

⁷⁹ <https://brandequity.economicstimes.indiatimes.com/news/digital/sports-streaming-tops-as-ott-consumption-grows-13-in-india-in-2020/80787468>

⁸⁰ <https://www.eu-startups.com/2020/09/how-has-the-pandemic-changed-the-face-of-edtech/#:~:text=The%20pandemic%20has%20accelerated%20the,a%20predicted%20%E2%82%AC6.4%20billion.>

⁸¹ <https://yourstory.com/2020/07/india-edtech-market-17b-2022-redseer-omidyar-network>

⁸² <https://www.businessleader.co.uk/uk-and-vietnam-commit-to-further-strengthen-trade-ties/74264/?cmpredirect> and <https://www.ukabc.org.uk/wp-content/uploads/2020/08/Overview-of-SE-Asia-Fintech-Ecosystem.pdf>

⁸³ <https://www.finextra.com/the-long-read/44/there-is-more-to-digital-payments-in-africa-than-m-pesa>

COVID-19 has been a shot in the arm for the **healthcare and pharmaceutical** industries and, ironically, may help to offset some of the EU exit-related downsides in global markets. Demand for digital health and mobile-related solutions has grown significantly as face-to-face consultations have been constrained and clinical capacity stretched. In **China**, growth in online health services is set to grow rapidly.⁸⁴

AI-driven solutions to connect patients to doctors to more quickly visualise and identify anomalies in medical images have boomed. UK digital health companies have expanded into Asia on the back of growth in AI-powered applications⁸⁵

New medicines and drugs for the prevention, treatment and aftercare of COVID-19 are increasingly sought globally, as well as continued innovation and capacity in life-saving ventilators. Demand for these and similar solutions in countries with densely-populated cities, as well as remote and potentially vulnerable populations – **India, China, Africa, Indonesia and wider ASEAN** – will continue to grow.

Global demand for bio-related disease testing and identification is likely to be sustained. Genome sequencing (genotype assay testing) is a UK global strength and could provide a boom in development for local companies offering relevant testing, supply chain and digital solutions.

Post-COVID digital solutions to support the opening up of economies, in particular those that facilitate authentication of identity, enable track and trace, and determine COVID-19 vaccine status will be in demand.

The region's strong IP, manufacturing and chemicals base in this field can best be commercially-exploited with local partners on the ground and provides a strong base from which to look at new markets outside the EU, where a balance between regulation and innovation favours speed-to-market.

2.5 FOOD & DRINK

Demand for food is growing exponentially as the global population is forecast to increase to 9.7bn by 2050. At the same time, constraints on land and the supply of food are challenging supply chains, and more protective trade policies and tariff regimes are increasing in some markets.⁸⁶

India is forecast to overtake China in terms of its population by 2027 and both countries are capturing a larger share of global demand. Population growth rates and income are key drivers of food demand and, in developing countries, this tends to shift towards an increase in demand for animal foods like meat. According to McKinsey, half of the increase in global meat consumption in the past ten years can be attributed to **China**.⁸⁷

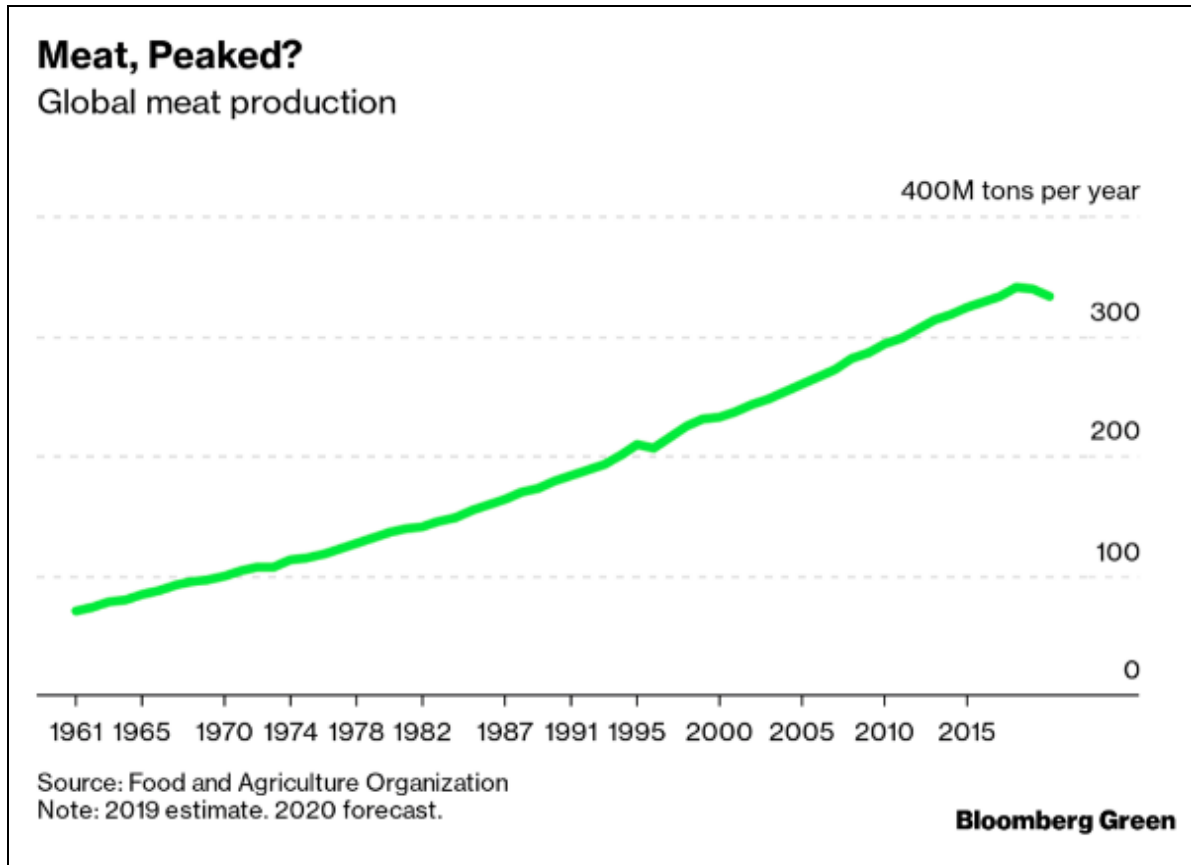
⁸⁴ <https://www.bain.com/insights/how-the-coronavirus-will-transform-healthcare-in-china/>

⁸⁵ <https://www.prudentialplc.com/news/all-news/news-releases/2018/02-08-2018>

⁸⁶ <https://www.un.org/development/desa/en/news/population/world-population-prospects-2019.html>

⁸⁷ McKinsey, How the global supply for meat protein will evolve, October 2018

In contrast, in the most **developed countries**, alternatives to meat and dairy are increasingly being sought for both health, environmental and sustainability reasons. Consumer awareness of food safety and animal welfare, as well as the wider pressures on global resources is also growing. As can be seen below, Bloomberg Green forecasted a 3% drop in per-capita meat consumption in 2020, which was the biggest decline since 2000.⁸⁸

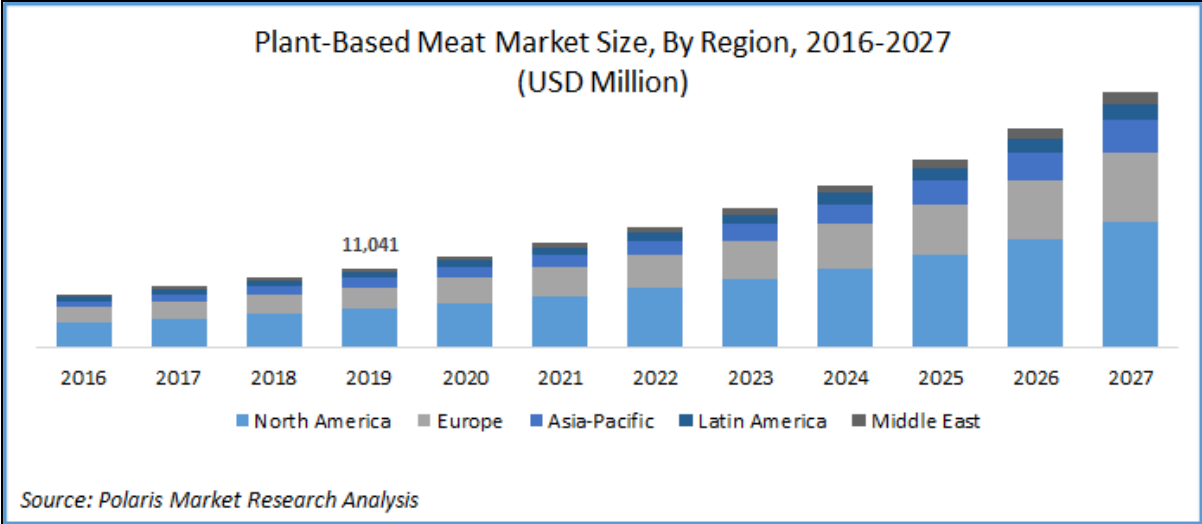


Global Meat Production, Bloomberg Green

These trends have led to the growth in plant-based alternatives to meat, which is set to continue in Western markets. The global plant-based meat market was valued at US\$11.1bn in 2019 and is expected to grow at a CAGR of 16% during 2020-2027. The **US and Europe** are likely to be the main growth markets initially, as can be seen from the chart below.⁸⁹

⁸⁸ <https://www.tappcoalition.eu/nieuws/14456/fao--global-meat-production-decline-in-2019-and-2020>

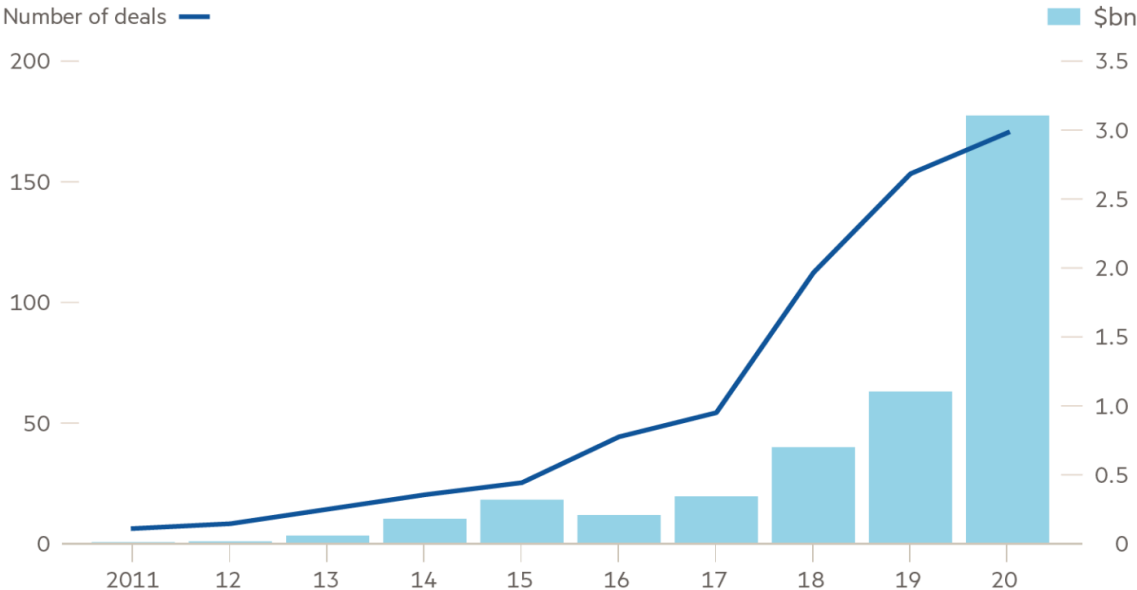
⁸⁹ <https://www.polarismarketresearch.com/industry-analysis/plant-based-meat-market>



Plant based meat market size by region, 2016-27, Polaris

More widely, the alternative proteins market is booming. VC, angels and corporate investors backed 170 alternative protein start-ups in 2020, with funding totalling US\$3.1bn, up from US\$1bn in 2019. In Europe, the sector raised a record US\$527m, more than quadrupling its 2019 tally. The growth in alternative proteins outperformed the rise in investment in the broader agri and food tech space, which is estimated to have reached US\$30bn last year, up 35% from the year before. This is giving rise to new opportunities in manufacturing to serve the growing consumer demand.⁹⁰

Investment in alternative proteins soar



Source: Good Food Institute © FT

Investment in alternative proteins, FT, 18th March, 2021

⁹⁰ <https://www.ft.com/content/a9916e57-1b1c-4484-a5e0-576a5ecd3182>

Three categories are growing quickly:

- **Plant-based** meat, egg and dairy start-ups received US\$2.1bn in funding last year, more than three times the US\$667m raised the previous year (Impossible Foods, Oatly)
- **Cultivated meat** companies raised more than US\$360m, six times the amount raised in 2019 (Mosa Meat, Memphis Meat)
- **Fermentation start-ups** attracted US\$590m in investments, more than double the amount raised in 2019, including Perfect Day's US\$300m and Nature's Fynd's US\$45m

The cell-based meat market is also set to be worth US\$140bn in the next decade.⁹¹ Countries like **Israel** are developing real expertise in this field.

The development of new digital technologies, including AI, precision robotics, computer vision, sensors, autonomous systems and geospatial, are set to revolutionise the agri-food sector. McKinsey has estimated that enhanced connectivity in markets like agri-food, food and drink will add US\$500bn to the global economy by 2030.⁹² Right across the supply chain from farm to fork, there is an increasing consumer and industry demand for knowledge on provenance and traceability. In particular, distributed ledger or blockchain is becoming more prevalent via smart contracts in order to drive market and supply chain efficiencies.⁹³

Consumption profiles for food, drink and calorie intake across the world depend on many things, including geography, climate, culture, stage of societal development. Higher consumption of meat and sugar in developed countries has led to chronic levels of obesity, which risks spreading to developing markets as they consume more meat and sugar-related products. Health-conscious choices will thus become more important.

New consumer trends and tastes are becoming more refined, driving an increase in demand for high quality, niche products with interesting ingredients, to create novel and original flavours and taste. This is reflected in imaginative flavours for snacks like crisps, and novel additives (including seaweed) to alcohols like gin and rum. Craft beer continues to have a world-wide appeal.

The increased focus on sustainable production will lead to less waste (plastic packaging) and less resource intensive production methods, with a shift to novel production methods and more natural ingredients.

The **US** is the UK's largest food and drink export market and is forecast to grow to US\$26.6bn by 2025.⁹⁴ The table below shows UK exports doubled from £1.2 bn in 2010 to US\$2.4bn in 2019. Spirits, fish and

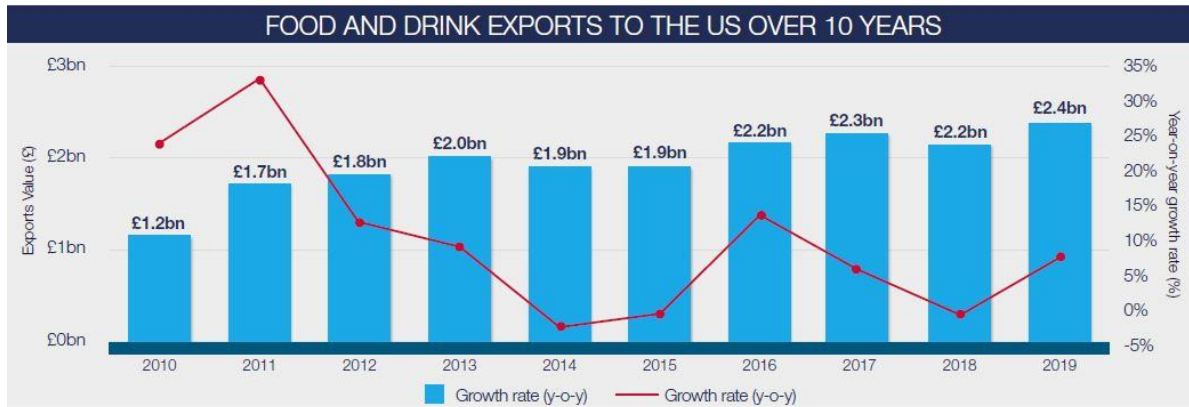
⁹¹ <https://www.bloomberg.com/news/articles/2020-12-10/lab-meat-is-getting-closer-to-supermarket-shelves?>

⁹² <https://www.mckinsey.com/industries/agriculture/our-insights/agricultures-connected-future-how-technology-can-lead-new-growth>

⁹³ <https://www.newfoodmagazine.com/article/110116/blockchain/>

⁹⁴ <https://www.statista.com/outlook/253/109/food-beverages/united-states>

seafood, followed by beer, are the UK's top exports along with speciality products. Given its size, the US will remain a key priority for the region's producers of high value and differentiated products.



UK Food and Drink Exports to US⁹⁵

However, there are barriers to further growth to be overcome. Tariffs of 25% had recently applied to a range of valuable UK food and drink exports, including single-malt whisky, biscuits, pork and dairy products. These have now been lifted, which should boost food and drink exports to the US.

Japan has a large and wealthy middle class and a thirst for high-quality and differentiated products, which the region can provide. With UK exports to Japan growing in the last few years, there is room for further growth on the back of the recent FTA⁹⁶ and the postponed Tokyo Olympics (2021).

China is a huge market and the UK has a relatively small share. Industry bodies are looking to support exporters by facilitating access to 'consolidators' that know the market and networks and can navigate the complex regulatory and regional landscapes.

In **India**, the adoption of new digital technologies could potentially help to solve a plethora of major challenges across the agriculture and food value chains – for example, post-harvest supply chain (rotting food wastages were estimated at 40% in 2014 and this remains a major problem⁹⁷), crop harvesting inefficiencies, poor quality testing and traceability, and (lack of) innovative finance - with opportunities estimated to be worth up to US\$24bn by 2025.⁹⁸

Markets like the **Gulf States** have the financial clout to procure the latest technology to help them become more independent in terms of food supply.⁹⁹ The **UAE** has a large and wealthy foreign population with Dubai

⁹⁵ <https://www.fdf.org.uk/exports-2019-q4.aspx>

⁹⁶ https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/929065/UK-Japan-Trade-Agreement-sectoral-benefits.pdf

⁹⁷ <https://www.ft.com/content/c1f2856e-a518-11e3-8988-00144feab7de>

⁹⁸ https://www.ey.com/en_in/start-ups/how-agritech-start-ups-are-changing-the-face-of-indian-agriculture

⁹⁹ <https://gulfnews.com/business/skyscraper-farming-in-the-uae-less-water-more-food-1.1597592762548?slide=5>

catering to a high end, affluent clientele that seeks speciality food and drink offers. Health and wellness are increasingly important to the population under 35 years of age.¹⁰⁰

Latin America has potential, but complex market regulations and tariff barriers prevent UK exporters maximising the opportunity.

Food and drink and the food processing industry is a key strength for the Humber with over 2,500 businesses employing more than 35,000 people in 'Britain's Kitchen' from agriculture to manufacturing, processing, packaging, retail distribution, education and training. In the seafood sector, there are strong links with Europe which need to be developed and extended, in particular with Northern Europe, such as Scandinavia and the Baltics. There are direct links via the ports and good connections through the likes of Hull's twinning with Reykjavik and the Grimbsy fishing community. The import and processing of cod and haddock has created thousands of jobs in the local fish processing industry. But it's not just about fish. Scandinavia represents an important source of wealthy markets, innovation, knowledge and investment capital. If some of these very strong links can be further leveraged for the benefit of the Humber's businesses, so much the better.

There are also plenty of opportunities outside the EU to be explored.

2.6 CHEMICALS

This section highlights some of the key trends affecting trade in the chemicals industry and looks at supply chain opportunities arising from these.

The chemicals trade outlook is linked to the shape of the manufacturing recovery, trade policy, and the course of COVID-19. Potential changes in global supply chains could affect international trade levels longer-term. Like many sectors, the chemicals industry has been hit by major changes in demand due to the COVID-19 crisis. It was already under significant pressure due to a global slowdown in manufacturing in the run-up to the pandemic.

EU exit has caused problems for UK-based chemical companies and for suppliers from and into the chemicals industry, as EU Reach rules have been replaced with UK Reach regulations, leading to an increase in costs for companies serving both the UK and EU markets.

Looking forward, companies and regulators will focus on environmental issues such as climate change, persistent pollutants, plastics recycling, and clean energy. More firms will be looking to reach net zero by 2050, with climate risk increasingly associated with financial risk. This will promote interest in new technologies, products and services that can support this change. Increasing chemical output without releasing more carbon requires new, top-of-the-line equipment and upgrades to existing facilities. Efficiency and renewable power are the most popular strategies for reducing GHG emissions. There will be an

¹⁰⁰ <https://bolstglobal.com/portfolio-items/the-health-and-wellness-market-of-the-gulf/>

increased emphasis on R&D and digitisation to gain market share in fast-growing areas like low carbon and sustainable solutions.¹⁰¹

According to the American Chemicals Council, sectors that maintained demand in 2020 included materials used in electronics, appliances, home improvement, PPE, and cleaning products. In contrast, companies serving the automotive and aerospace industries were hit hard. Total chemicals trade was projected to shrink by 7% to US\$221bn in 2020, and then recover to US\$240bn in 2021.¹⁰² Petrochemical and plastics for packaging sectors are expected to grow strongly in 2021.

China is continuing to promote its high-tech industries in an attempt to reduce its reliance on suppliers from countries like the US, and this will drive demand in the medium-term. China's Government will release the country's 14th Five-Year Plan, an economic roadmap covering 2021–25. Though the plan is not yet public, official statements, other planning documents, and industry insight into the process suggest specialty chemicals will enjoy favoured status.¹⁰³

According to McKinsey, **Asia**, and specifically China, will become the centre of the chemical industry.¹⁰⁴ The Chinese Government's 'Made in China 2025' policy could stimulate certain end markets, such as aerospace, electronics, EVs and batteries. This could, in turn, create opportunities for expanding production in China to a range of more sophisticated chemical products.¹⁰⁵ Other examples include coatings and new materials for high-speed trains, and advanced composites for use by the country's expanding aerospace industry.¹⁰⁶

The transition of the automotive industry globally to EVs will provide a continued opportunity for automotive to play an important part in the chemical sectors' end user industries. Lightweight and more robust materials that can be recycled and reused will increasingly be demanded, as well as the materials and technologies to support EV battery technology and the search for greater range, reliability and faster, more efficient charging.

Competitiveness for the sector depends a lot on feedstock prices, hence the developments in hydrogen are potentially transformative for the industry.

The way customers buy chemicals is changing rapidly with many moving to digital platforms through necessity during the pandemic. A recent survey of the European chemical industry showed that 55% of buyers of petrochemical products would be willing to adopt digital channels if efficient and value-adding platforms were available. For specialty chemicals, this share is even higher, with 82% of customers willing to adopt digital platforms.¹⁰⁷

¹⁰¹ <https://cen.acs.org/business/CENs-World-Chemical-Outlook-2021/99/i2#:~:text=Consequently%2C%20the%20ACC%20expects%20chemical,make%20up%20their%202020%20deficits.>

¹⁰² <https://www.americanchemistry.com/Media/PressReleasesTranscripts/ACC-news-releases/Chemical-Industry-Outlook-Recovery-from-the-COVID-19-Global-Recession.html>

¹⁰³ *ibid*

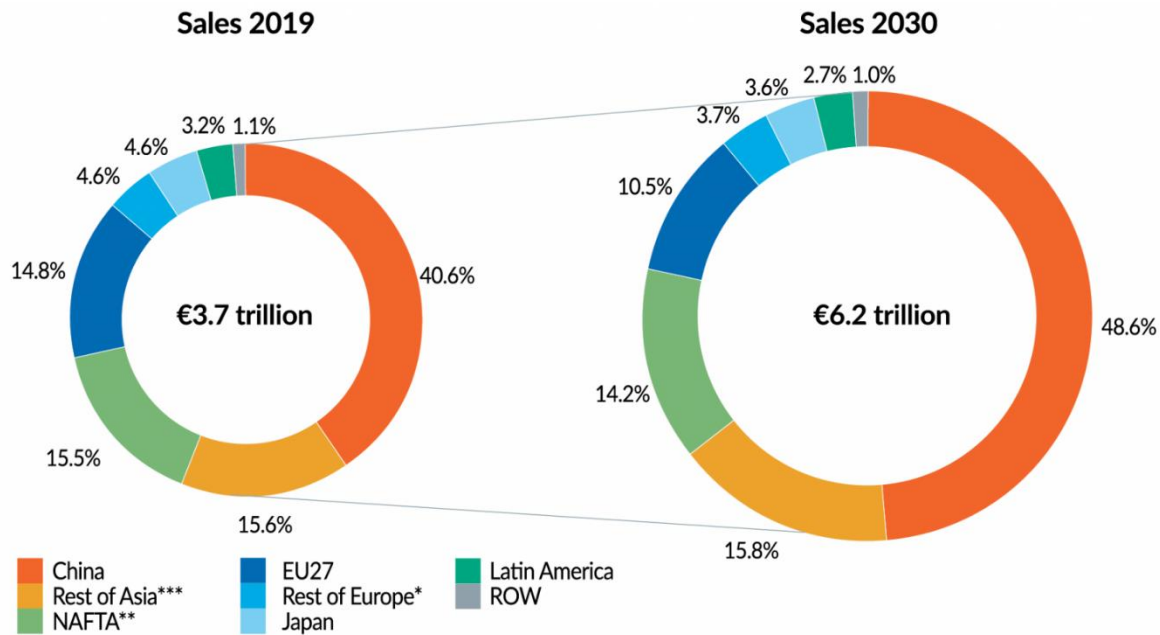
¹⁰⁴ <https://www.mckinsey.com/industries/chemicals/our-insights/the-state-of-the-chemical-industry-it-is-getting-more-complex>

¹⁰⁵ <https://www.china-briefing.com/news/china-still-a-tier-3-manufacturer-in-global-rankings/>

¹⁰⁶ <https://www.mckinsey.com/industries/chemicals/our-insights/chinas-chemical-industry-new-strategies-for-a-new-era>

¹⁰⁷ <https://www.mckinsey.com/industries/chemicals/our-insights/how-chemical-players-can-win-in-the-transition-to-digital-platforms>

“Consolidated platforms will be especially effective in situations where chemicals are combined to fulfil application needs, as is the case in specialty-chemical segments such as advanced paints and coatings, food, or engineering plastics. Traditionally, buyers of these applications relied on their supplier’s advice or received mediocre solutions. Yet the limited number and volume of products sold to smaller customers is usually not enough to justify the time chemical-application experts spend fulfilling customer needs.”¹⁰⁸



Source: Cefic Chemdata International 2020
 * Rest of Europe covers UK, Switzerland, Norway, Turkey, Russia and Ukraine
 ** North American Free Trade Agreement
 *** Asia excluding China, India, Japan and South Korea
 Unless specified, chemical industry excludes pharmaceuticals

European Chemistry Industry Council (CEPIC), Growth in world chemical sales, 2019-30¹⁰⁹

The Humber’s chemicals sector is of European-scale, worth an estimated £6bn to the economy and supported by the Humber Ports. The region is home to one of the UK’s four main petrochemical clusters, with two oil refineries, Phillips 66 and Total Lindsey Oil Refinery, providing 27% of the UK’s refinery capacity – both located on the South Humber Bank. The area’s chemicals clusters encompass expertise in petrochemical refining, personal care, pigments and colours, agrochemicals, fine chemicals, paint and coatings, surface treatments, speciality chemicals and inorganic and organic commodities. Saltend Chemicals Park in Hedon, Hull, has seen investment totalling over £500m by eight multi-nationals. Companies active locally include Croda, Air Products, BP Chemicals, Nippon Gohsei, BASF, Phillips 66, Cristal, Knauf, Tricoya, Total and Synthomer.¹¹⁰

¹⁰⁸ <https://www.mckinsey.com/industries/chemicals/our-insights/how-chemical-players-can-win-in-the-transition-to-digital-platforms>

¹⁰⁹ <https://cefic.org/our-industry/a-pillar-of-the-european-economy/facts-and-figures-of-the-european-chemical-industry/growth-and-competitiveness/>

¹¹⁰ <https://investhumber.com/growth-sectors/chemicals>

Croda International is a specialty chemicals business based in Goole and, according to its website, operates in at least 22 different product and market sectors.¹¹¹ From agro-chemicals, to food ingredients, lubricants, polymer additives, skin health and water treatment, the diversity is impressive. Illustrating the growth in new specialist chemicals, it has recently acquired a French company specialising in innovative botanical extracts, natural formulation ingredients and natural organic cosmetics. This will also give it access to 'zeodration' technology for drying plant ingredients.

The Humber region will be boosted by new funding for the UK's first clean hydrogen plant which could cut CO₂ emissions by nearly 900,000 tonnes a year. As part of the plans, it will offer low carbon chemicals manufacture for future export, including potential for ammonia to decarbonise maritime transport.¹¹²

2.10 PORTS

The Humber region is already home to the UK's busiest port complex including the four major ports of Hull, Goole, Immingham and Grimsby which, combined, handle around 17% of the nation's trade. The Humber Ports play a vital role as strategic assets in the fabric of the nation, handling the materials that supply 10% of the nation's energy, 25% of the UK's fuel for our vehicles, and almost a third of the UK's national timber supply as well as underpinning the farming, food, retail, construction, automotive and pharmaceutical sectors across the UK, especially the Midlands and the North of England.¹¹³

The business of ports is changing rapidly as trade volumes shift and become more erratic. The size of container ships will also evolve in the future as agility becomes more important than volume. Underlying trade is shifting Eastwards as economic growth is faster in and between the **Asian markets**.

To manage this change, European and US ports are focusing on investing in smart technologies like AI, IoT, computer vision and 5G to help drive increasing automation and improve productivity. Worldwide ports like Shanghai, Singapore, Rotterdam, Los Angeles and Hamburg are cited as heavy users of smart technology.¹¹⁴

An example of the growing demand in Asia is a recent request from DIT in Vietnam for UK companies that have integrated 'smart gate' solutions at Cat Lai terminal in Ho Chi Minh. The port operators at Cat Lai also have problems reading the numbers of dirty containers so it is difficult for them to assign to the correct workflow.

India has an aggressive port expansion plan with US\$31bn lined up in over 400 projects along 7,500km of coastline.¹¹⁵

In **South Korea**, the Government has committed US\$30bn to the roll-out of automation and connectivity technologies with a view to ensuring the ports remain competitive. In order to increase the speed and quality

¹¹¹ <https://www.croda.com/en-gb>

¹¹² <https://www.itv.com/news/calendar/2021-03-17/uks-first-clean-hydrogen-plant-set-for-saltend>

¹¹³ <https://www.abports.co.uk/news-and-media/latest-news/2021/humber-freeport-bid-launched/>

¹¹⁴ <https://enterpriseinsights.com/20190104/channels/fundamentals/five-smartest-ports-in-the-world>

¹¹⁵ https://www.business-standard.com/article/economy-policy/india-to-invest-31-bn-in-400-projects-across-7-500-km-coastline-pm-modi-121030200860_1.html

of port logistics while also reducing carbon emissions through clean energy solutions, the plan is to develop 12 smart ports by 2040. The Government will introduce automation and 5G connectivity into the country's five largest ports, starting with Busan in the south, before expanding to seven other ports in the coming years.¹¹⁶

Recent capacity issues caused by COVID-19 have been a wake-up call to port operators and investors worldwide and thinking is shifting towards new operating models. Ports are increasingly specialising in certain core activities and bolstering their inland supply chains to better cope with potential future economic shocks and volatility in supply and demand. The reshoring of supply chains will potentially accelerate the development of smaller ports handling more frequent sailings and shorter routes.¹¹⁷

Regulations around lower carbon operating are also driving changes across the industry. **The successful Freeport bid by the Humber** will lead to extensive new developments of the infrastructure in the local area. As such, using renewable energy sources in their operations and alternative sources of energy, such as hydrogen and LNG, will be critical to future sustainability.

Associated British Ports is the UK's leading port operator, handling around one-quarter of the nation's seaborne trade and contributing £7.5bn annually to the UK economy. **The Humber ports of Grimsby, Immingham, Hull and Goole are part of the UK's busiest trading estuary, supporting over 33,000 jobs in the region and contributing £2.5bn to the UK economy.**¹¹⁸

2.11 FREEPORTS

The Humber has made a successful bid for Freeport status around the four key ports areas of Hull, Goole, Immingham and Grimsby. This will include customs zones across the four main ports and new sites that will incentivise growth in manufacturing, R&D and green energy.¹¹⁹

There are various benefits from Freeports, including new job creation, growth through various financial incentives and tariff inversion opportunities (avoiding higher tariffs on intermediate goods).¹²⁰ Certain sectors involved in large scale manufacturing, R&D and linked to the decarbonisation agenda will be interested. Automotive component-related manufacturing, particularly those connected to the production of new battery technology for EVs, could well benefit from the incentives on offer. Given the access to EU and global markets via the region's ports, which could pick up business from overcrowded southern UK ports and given tariff allowances in the UK-EU, this could produce a potential dividend.

Although the Freeport scheme is promoted as supporting the export of high-value goods, it remains unclear what the overall, additional economic impact will be. Whilst inward investment will be stimulated and local jobs created, the benefit for exports remains subject to some conjecture. A lot will depend on the types of companies setting up in the Freeport. According to the UK Trade Policy Observatory at the University of

¹¹⁶ <https://www.intralinkgroup.com/en-GB/Media/News/April-2021/South-Korea-Marine-Industry-Market-Report>

¹¹⁷ <https://www2.deloitte.com/content/dam/Deloitte/nl/Documents/consumer-business/deloitte-nl-cb-global-port-trends-2030.pdf>

¹¹⁸ <https://investhumber.com/growth-sectors/ports-logistics-1>

¹¹⁹ <https://www.abports.co.uk/news-and-media/latest-news/2021/humber-freeport-bid-launched/>

¹²⁰ <https://ukandeu.ac.uk/wp-content/uploads/2021/03/Freeports.pdf>

Sussex ".....if Freeports are outside the UK's customs territory would their products be able to benefit from UK trade agreements? The answer to this question is likely to lie in the importers' own rules."¹²¹

Other issues include the fact that Freeports do not eliminate tariffs for exporters as Rules of Origin will still apply, as well as uncertainty around IP. "...Freeports don't eliminate many non-tariff trade barriers. Exports would still face checks and tariffs. Rules of origin principles would still need satisfying and because a Freeport wouldn't be seen as being within the customs territory of the U.K. it could fall foul of the principle of territoriality – where intellectual property rights are limited to the territory of the country where they have been granted - complicating future trade negotiations."¹²²

Despite various concerns and a lack of understanding of what the Freeport concept means for the wider region, stakeholders see the arrival of Freeport status as a success. It is seen as largely beneficial with plans to deliver an additional 7,000 jobs and make a significant contribution to the UK's low carbon agenda.

¹²¹ <https://blogs.sussex.ac.uk/uktpo/2021/02/25/two-key-things-to-know-about-freeports/>

¹²² <https://www.lexology.com/library/detail.aspx?g=40714453-64ca-43f3-9eeb-60ac57ba0287>

3. FUTURE DIT PRIORITIES IN THE HUMBER

This chapter reviews the future DIT priorities in the Humber, which consist of 1. Driving the new strategic direction for the UK as part of the 'Indo-Pacific Tilt' agenda, 2. Securing commercial benefits from FTAs through enhanced market access, and 3. Delivering on the Government's 'Levelling Up' agenda.

3.1 FUTURE DIT PRIORITIES IN THE HUMBER

Future DIT priorities include a greater focus on three key areas, namely 1. Driving the new strategic direction for the UK as part of the 'Indo-Pacific Tilt' agenda 2. Securing commercial benefits from FTAs through enhanced market access 3. Delivering on the government's 'Levelling Up' agenda.

1. Driving the new strategic direction for the UK as part of the 'Indo-Pacific Tilt' agenda: Following the UK Government's integrated review of security, defence, development and foreign policy, strategic priorities are shifting towards a so-called 'Indo-Pacific tilt'. The UK is looking to grow its influence in the Indo-Pacific region, which is seen as the fastest-growing part of the global economy. DIT policies and activities will start to more closely and explicitly align with this broader UK Government priority.¹²³ Given the importance of trade, and as part of this re-alignment, greater co-ordination between activities of DIT and the Foreign, Commonwealth & Development Office (FCDO) has been recommended by recent parliamentary reports.¹²⁴ DIT will play a full part in the national security agenda, for example, around the telecoms diversification strategy and DIT paving the way for UK communicating leadership in emerging technologies like quantum, semi-conductor IP, and artificial intelligence.

2. Securing commercial benefits from FTAs through enhanced market access: DIT will put increasing emphasis on market access and trade policy (including FTAs), and new mechanisms in the UK and internationally, to deliver support on the ground, including giving substance to a new Trade Remedies Authority. Building on the continuity type deals with Japan and Canada, the UK is looking to improve the positions it has on digital trade when negotiating with partners, including data privacy and data transfer. There will be an emphasis on more cross-government work, with DIT supporting initiatives from the Department for Business, Energy & Industrial Strategy (BEIS), the Department for Culture, Media and Sport (DCMS), FCDO, DEFRA and others, especially in regions like Asia Pacific where the UK wants to access new trade blocks like the Comprehensive and Progressive Agreement for Trans-Pacific Partnership (CPTPP).¹²⁵ Commercial priorities will include ensuring DIT delivers tangible results in trade and FDI wins as a result of

¹²³ <https://www.gov.uk/government/publications/global-britain-in-a-competitive-age-the-integrated-review-of-security-defence-development-and-foreign-policy>

¹²⁴ <https://publications.parliament.uk/pa/cm5801/cmselect/cmfaff/380/38005.htm>

¹²⁵ <https://www.gov.uk/government/publications/uk-approach-to-joining-the-cptpp-trade-agreement/an-update-on-the-uks-position-on-accession-to-the-comprehensive-and-progressive-agreement-for-trans-pacific-partnership-cptpp>

the new FTAs. An enhanced role for the new Trade and Agriculture Commission will place concerns and market opportunities relating to agriculture and farmers at the centre of new trade deals.¹²⁶

3. Delivering on the government's 'Levelling Up' agenda: The 'levelling up' agenda will continue to be a focus and this is manifested in extra support for more specialist sectoral resource in the regions, four new trade hubs¹²⁷ and EU transition support monies. Since 2018, the UK's national ambition on export performance has been to increase exports as a proportion of GDP from 30% to 35%¹²⁸. Moving forward, there will need to be a more explicit link in the UK regions to this target as per the recent House of Commons report on Government support for exporters. DIT itself is reported to be in the early stage of planning to expand out of London and the South East in the next 10 years. Cabinet Office is leading on this. New funding for SMEs will be available via DIT's new Internationalisation Fund using European Regional Development Funding (ERDF). A new Office for Investment (OfI) will target high-value strategic investments, and a move towards a greater focus around R&D-intensive companies both on trade and FDI.¹²⁹ The introduction of the National Security Investment (NSI) Bill is also aimed at giving the Government power to screen investment for national security in 17 sectors.¹³⁰

¹²⁶ <https://www.gov.uk/government/news/trade-and-agriculture-commission-put-on-statutory-footing>

¹²⁷ <https://www.gov.uk/government/news/liz-truss-announces-creation-of-four-major-new-trade-and-investment-hubs-across-the-uk>

¹²⁸ HMG Export Strategy 2018:

https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/737201/HMG_Export_Strategy.pdf and <https://committees.parliament.uk/publications/3195/documents/29615/default/>

¹²⁹ <https://www.gov.uk/government/news/new-office-for-investment-to-drive-foreign-investment-into-the-uk>

¹³⁰ <https://www.gov.uk/government/publications/national-security-and-investment-bill-2020>

4. EU-UK TCA: IMPLICATIONS FOR BUSINESS SUPPORT AND PRIORITY SECTORS

This chapter reviews the implications of the EU-UK TCA for business support and export.

4.1 KEY CHALLENGES FACED BY BUSINESSES AFTER BREXIT

On 31 December 2020, the UK left the EU – exiting the single market and the customs union. This was the biggest single change any of us will see in our commercial lifetimes and took place in the middle of the worst pandemic the world has seen for a century. While businesses were struggling to cope with lockdowns, the laying-off of staff and the disappearance of customers, it is fair to say that many businesses were not fully prepared for the impact of Brexit.

As the reality hit people of what was meant by leaving the customs union – with customs declarations, extra documentation and extra procedures – a very steep learning curve started which involved all parties to the supply chain. It transpired that further education and training were required for the staff at courier companies, at docksides and at overseas customs posts. As a result, there have been delays, products returned and plenty of confusion.

However, almost all the problems experienced so far can be classed as “teething troubles” which have been caused by all people in the supply chain getting used to the new way of working. As traders send their second and third shipments, they are not repeating the mistakes they made with the first load. Whilst businesses may not like some of the extra tasks and costs, they are at least getting used to them.

Demand is still depressed but, as we get towards the end of the COVID-19 pandemic (whenever that is), businesses need to be fit and ready to face the key challenges which exist after Brexit – so they can capitalise on the expected resurgence in demand. So, what exactly are those key challenges?

IMPORTERS

Businesses which buy goods from the EU have had to consider issues which they did not need to think about before 2021, including Incoterms, Rules of Origin and import VAT. Businesses need to get their heads around these issues without delay.

Incoterms are internationally-recognised terms of sale which clarify exactly which party pays for what. Many importers previously bought on Ex Works terms, but to continue would result in the buyer being responsible for the export customs declaration in the seller’s country. From now on, importers need to discuss, agree and confirm the Incoterms used at the same time they discuss prices. Customs declarations are now required when goods travel from the EU to the UK, and it is the Incoterms which determine who is going to do what. Importers must not make assumptions: all details should be confirmed with their suppliers.

All FTAs include a section on Rules of Origin, to ensure that only goods which originate in the two territories covered by the Agreement benefit from low or zero import duties. The Agreement signed by the UK and the EU is no different and it spells out quite clearly when goods 'originate' in the supplying country. The Rules of Origin vary according to the commodity code of the item being sold and some of the calculations can be complex. Importers need to understand which Rules of Origin apply to any items they import as this may impact upon any re-exporting they do. A Chinese product imported from France does not become British by sitting on a British shelf for three months, so duty will be applied if the product is subsequently sold to another EU member state.

Importers who buy non-EU products from the EU now have to pay non-recoverable import duty on those products and this must be recognised when building up product costs. They are also liable for UK import VAT, but this does not have to be paid at the point of import. Importers should take time to fully understand the postponed import VAT accounting scheme, which effectively enables the importer to pay and reclaim import VAT at the same time.

Early confusion led to some long delays, especially within the courier network. Whilst this situation is likely to improve, importers should learn from the experience and allow for longer lead times, especially where delivery promises are made to the importer's UK customers. Further changes will be made over the coming months as the UK moves towards the introduction of full border controls.

Importers should therefore re-visit the fundamental question of buying from the EU or buying from the UK: is the total cost of importing still favourable when compared with buying domestically?

EXPORTERS

Whilst many British exporters expected some disruption and probably some additional documentation after Brexit, some have been surprised at the changes. All UK exporters are now responsible for the completion of export customs declarations and most exporters will get someone else to complete them on their behalf (often the carrier). And in many cases, that is all there is to it.

However, there are many sector-specific anomalies whereby other procedures and documents are required, e.g. Export Health Certificates, Phytosanitary Certificates, and Export Licences. While some of these procedures will no doubt be sped up in due course using online methods, for the time being, exporters need to embrace the new procedures and ensure that their staff are fully trained to use them.

Incoterms have become much more important since the UK left the EU. Any exporter supplying the EU on 'delivered duty paid' (DDP) terms is responsible for the completion of import customs declarations in the buyer's country. The exporter is also responsible for import VAT in the buyer's country, so has to register locally for VAT in order to reclaim it. Supplying under DDP terms has become far more onerous and exporters need to negotiate hard with business-to-business (B2B) customers in the EU to supply under DAP terms where possible. Insisting upon DAP terms when supplying B2C is more difficult, as the customer's buying experience comes into play, as mentioned below.

When exporting products to the EU that are very obviously of British origin, there will be no import duty. But exporters who sell products from within their range which are, for example, made in the USA, will find that their EU customers now have to pay import duty. It is important therefore that exporters get to grips with Rules of Origin to understand what their customers are feeling.

Not all member states in the EU are as well-prepared after Brexit as the UK is, so exporters should work closely with their customers to guide them on Incoterms, customs declarations, Rules of Origin and import VAT.

With increased documentation, additional procedures, new duties and delivery delays, it is very possible that British exporters' customers in the EU now find it more confusing and difficult to trade with the UK. This is the biggest challenge facing British exporters and they must meet it proactively and positively by:

- Talking to customers on a regular basis to understand how they are being impacted
- Re-assuring them and sympathising with them
- And, crucially, taking whatever short-term margin hits might be necessary to hold on to the customer

Finding new customers is always difficult, but nothing like as difficult as trying to win back customers that have been lost. Exporters should bend over backwards to retain customers, so they are in place for when demand does pick up.

As well as working very hard to retain existing EU customers, exporters should start thinking now about the non-EU opportunities which are opening up. The UK has signed trade agreements with over 60 non-EU countries and more should follow in the coming months. Simultaneously, DIT has made more support, advice and funding available in the 'levelling up' areas of the country. The trick for UK exporters therefore is to strike a balance between retaining their EU customers while pursuing opportunities outside the EU.

WORKFORCE

Businesses which employ people must check urgently that any EU nationals have 'settled status', which enables them to work here, use the NHS, enrol in education and travel freely. EU nationals who were in the UK before 2021 have until 30 June 2021 to obtain settled status. Any other EU nationals wishing to work in the UK are subject to the new UK immigration laws and UK businesses wishing to employ such people must register with the Home Office to be a visa sponsor.

It cannot be assumed that business people can travel just as freely to and from the EU any more. Normal, short, business trips to the EU are still possible but travellers must have a passport with at least six months to run. And UK travellers to the EU must not work in the EU for more than 90 days within a 180-day period – beyond that they will need visas and/or work permits.

It needs to be confirmed before travelling that British workers are not prevented from carrying out certain tasks, like building exhibition stands, installing electrical equipment, etc. Professionals need to check that their vocational qualifications are still recognised in the EU.

Travelling to and from the EU is not as easy as it was and business travellers should remember that any commercial items in their possession now require customs declarations.

LEGAL AND REGULATORY MATTERS

IP saw probably the smoothest handover of all areas at the time of Brexit. GB trademarks and registered designs were automatically created for holders of EU marks and designs, and European patents are not subject to any EU authority, and so still cover the UK. Nevertheless, businesses need to stay close to their patent attorneys to keep abreast of any changes to IP.

Data Protection was effectively put on hold until 30 June 2021, giving the UK the chance to satisfy the EU's 'adequacy' checks. Whilst it is expected that there will be freedom in transmitting data to and from the EU, it is vital that businesses regularly visit the Information Commissioner's Office website for updates and/or obtain advice from local GDPR consultants.

Businesses cannot assume that all British approvals, certifications and regulations will cover goods sold to the EU in future. The situation will vary by product sector and it is imperative that businesses regularly liaise with their own sector-specific regulatory authorities to see what else they may have to do, in order to comply with EU standards.

A new regulation came into being at the start of 2021 covering wooden packaging materials. Businesses must check now that all wooden pallets, crates, etc in their supply chain have been heat treated, so they comply with regulation ISPM15.

A new conformity labelling scheme is being introduced in the UK, so UKCA labels will replace CE labels. Businesses must waste no time in discussing the transition with their local Trading Standards people to avoid being caught out. CE marking still applies to goods sold in the EU.

4.2 BUSINESS SUPPORT

To help businesses face up to the post-Brexit challenges, business support professionals must become more familiar with issues they have previously not delved into. They need to understand more about those areas which are confusing their clients – Incoterms, Rules of Origin, import VAT, settled status, UKCA labelling, etc. There are many webinars and guides available from such organisations as HMRC, the Institute of Export, DIT, BEIS and local Chambers of Commerce. One of the most useful places to visit when looking for post-Brexit answers is the GOV.UK website.

One of the problems for businesses during the Brexit transition is that there is no single point of reference/no single location where all the answers are kept. Business support professionals therefore need to maintain their own group of experts, probably consisting of locally-based employees of:

- HMRC
- DIT
- Chamber of Commerce
- Carriers, Hauliers or Freight Forwarders
- Trading Standards
- Specialist advisers or consultants in IP, GDPR and Packaging

A number of the post-Brexit procedural changes have been sector-specific. General business advisers cannot be expected to know about these, so it is important they keep close to sector specialists, particularly specialists who cover the key sectors in the adviser's local region. Many sectors have run post-Brexit events to educate businesses about changes in their sectors.

The whole business support sector can play a vital role going forward. Businesses have to understand what changes have taken place, evaluate what the changes mean – and then move on. Businesses cope with change and the business support sector now has to help to motivate and re-energise people going forward.

4.3 SUMMARY

Many businesses are still reeling from Brexit information overload and they are still working hard as we start to relax COVID-19 lockdown restrictions. But by meeting these post-Brexit challenges, they can emerge from this landscape feeling organised, fit and positive:

- Importers must get their heads around the key issues of Incoterms, Rules of Origin and import VAT
- Importers should re-visit the fundamental issue of 'total cost of importing versus buying from the UK'
- Exporters must understand the impact on customers – and ensure they retain those customers
- Exporters should look at non-EU opportunities in the light of trade deals recently agreed
- Employers must ensure eligible employees have 'settled status' by the end of June 2021
- Employers should assume nothing, but double-check details before employees travel to the EU
- Businesses must keep abreast of ongoing changes to IP, Data, Regulation, Packaging and Labelling
- Business Advisers must take the chance to improve their knowledge and build a team of experts
- Business Advisers must play a key role in the post-Brexit motivation and re-energisation of businesses



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