DMCC

THE FUTURE OF TRADE

2020

A PERSPECTIVE ON THE DECADE AHEAD

DMCC is the world's leading Free Zone and Government of Dubai Authority for commodities trade and enterprise.

The Future of Trade 2020 is the third edition of DMCC's flagship report exploring the changing nature of global trade following reports in 2016 and 2018. The report examines the impact of geopolitics, technology, and global economic trends on the future of trade, with a focus on trade growth, supply chains, trade finance, infrastructure and sustainability.

The report is a synthesis of quantitative research, global viewpoints on what the future holds based on research, data, and interviews with business leaders and trade experts across eight key trade hubs – Dubai, London, Houston, Johannesburg, Shenzhen, Silicon Valley, Singapore, and Zurich.

The Future of Trade 2020 maps out the scenarios for how trade will develop in the 2020s and is relevant for any reader involved in trade, trade policy, international investment, and the operation of businesses with global value chains.

INTRODUCTION

In the 2018 edition of the Future of Trade report, DMCC found that 'trade will seek the path of least resistance'. Now, in 2020, global trade faces an increasingly complex geopolitical environment on top of a global economy that has been severely damaged by the COVID-19 pandemic.

The 2020 edition of the Future of Trade report explores the scenarios ahead across geopolitics, technology, trade finance, trade infrastructure and sustainability and asks how global trade operators and governments can best harness the opportunities available.

The trade landscape in the 2020s will be defined by the US-China trade war and the recovery from the economic impact of the global COVID-19 pandemic. International trade has a significant role to play

in global economic recovery, yet the geopolitical situation presents a challenging environment for the factors that could enable trade to deliver economic growth. These factors span technology, finance, and infrastructure, but are all held together by policy. The future of trade will be determined by the potential for cooperation between governments and with the private sector to develop innovative policy solutions.

For the past several months, DMCC has consulted businesses and trade experts on the state of trade today and the future of trade in the 2020s. The 2020 edition of the Future of Trade synthesises these insights and shares three key indices on commodity trade centres, digitalisation, and for the first time, on trade and sustainability, to lay out the state of trade over the coming years.

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EXECUTIVE SUMMARY

Geopolitical tensions and the economic recovery from the COVID-19 pandemic will define the trade landscape in the 2020s. In this challenging environment, businesses will recalibrate their supply chains to balance efficiency, risk and resilience. Governments will need to become more innovative in their approach to trade policy. Overall, international cooperation is the key to unlocking trade growth and enabling post-pandemic economic recovery.

In 2020, the global economy finds itself in dire straits. The COVID-19 pandemic caused the fastest and deepest economic shock in history. The impact on both goods and services trade has been unprecedented. But the pandemic hit at a time of already weak global trade, largely driven by trade tensions between the US and China but also by long-term structural changes.

The economic recovery from the pandemic and the on-going strategic rivalry between the US and China will define the trade landscape in the 2020s. COVID-19 has already significantly shaped the future of trade by accelerating trends such as digitalisation, the recalibration of global supply chains, and a reconsideration of the role of national security in trade policy.

US-China trade tensions are likely to get worse before they get better and the specific nature of the pandemic's economic shock may mean that recovery is slow. Given the weak trade outlook there are several areas that can drive trade growth in the 2020s – the application of technology to trade, the growth of cross-border services, innovation in trade policy, and trade-related infrastructure development. Together, these could drive trade by US$18 trillion up to 2030.

Technologies such as artificial intelligence, blockchain, and digital platforms have the potential to drive trade by increasing efficiency, driving down costs, and opening new business and trade opportunities. Technology will play a significant role in enabling the growth of cross-border services trade. However, the relationship between technology and trade growth is becoming more ambiguous,

and technology may enable the shortening of global value chains as well as having a set of wider structural implications for the global economy.

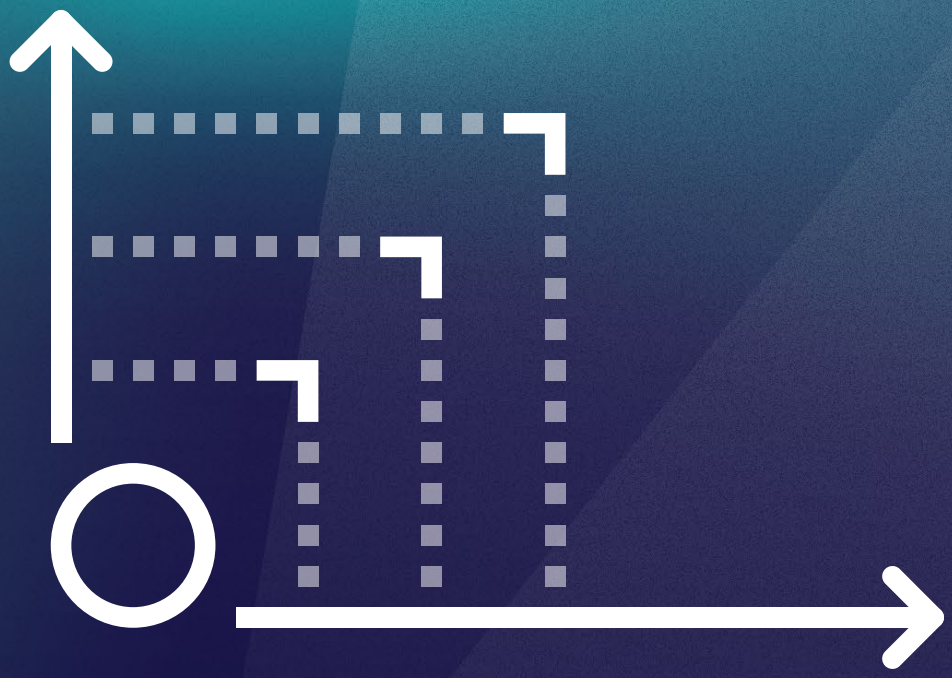
Global trade tensions have stalled progress in trade liberalisation at the multilateral level and have inspired a new wave of protectionism. However, there is still scope for trade policy to drive trade growth in the 2020s through greater innovation in trade policy which will see the emergence of a new and more complex trade order comprised of a network of bilateral, regional and plurilateral agreements. Forums such as the G20 will become more important for driving policy on key issues such as trade in data.

The evolution of trade-related infrastructure will be critical for trade growth. Significant attention is being paid to infrastructure development, yet it is projected that by 2040 there will be a US$15 trillion financing gap. A similar gap exists in trade finance which will see a US$2.5 trillion gap emerge by 2025. Both gaps require innovative solutions to mobilise private sector capital if trade growth is to be supported.

Sustainability will play an increasingly significant role in trade discussions moving forward given the potential for emissions savings and the improvement of other aspects of environmental and social governance along supply chains. However, despite consumer, investor, and government pressure, the economic imperative for sustainability is not yet critical. The COVID-19 pandemic may have dampened progress towards sustainability as businesses focus on core operations and financial survival.

In order to harness the drivers of trade growth, close the finance gaps, and make trade more sustainable, global cooperation is essential. Where the Future of Trade report in 2018 found that ‘trade will seek the path of least resistance’, increasingly the path towards trade growth is blocked and the way ahead is unclear. Given the role that trade has in enabling economic recovery, a path ahead must be found.

With the strategic rivalry between the US and China likely to continue, willing partners must find ways to cooperate. This can take multiple forms – regional trade agreements, the setting of global interoperability standards for new technologies, or the agreement between governments and the private sector to endorse new technology and financing models for trade finance and infrastructure. The future of trade, and the future of global economic recovery, relies on global and regional cooperation despite a challenging geopolitical context.



CHAPTER I

THE FUTURE OF TRADE GROWTH

The global economy in 2020 finds itself in a state of shock due to the havoc wrought by the COVID-19 pandemic. The pandemic hit at a time when the outlook for the global economy and global trade specifically was already one of weakness, primarily due to global trade tensions. The World Bank's mid-year 2020 economic outlook forecasts a 5.2% contraction in global GDP.[1] The World Trade Organisation (WTO) projects a fall in world merchandise trade of between 13 and 32% in 2020.

In its most optimistic scenario, the World Bank sees global economic growth recovering to 4.2% in 2021,[2] meaning that the immediate future of trade may take place in an environment of economic recovery. But there is much uncertainty and it may take several years before trade reaches pre-pandemic levels. What is certain is that the COVID-19 pandemic will be one of the defining influences on global trade in the 2020s, the other being the strategic rivalry between the US and China, which is set to continue through the 2020s.

But geopolitics and the pandemic obscure a longer-term shift in the landscape for trade that has been driven by structural factors including the end of the integration of China into the global economy and the end of a period of rapid trade liberalisation. A new pattern is emerging that sees trade growth track output growth. This is a significantly more modest outlook, especially in comparison to the high trade growth experienced in the last decades of the 20th century. The emergence of this 'new normal' may require a realignment of expectations.

This combination of factors may limit the potential for trade to drive economic recovery. However, there are several areas which, with the right support, can act as antidotes to trade weakness through the 2020s. This includes the implementation of technology in trade, cross-border services trade, innovation in trade policy, and trade-related infrastructure development. The economies that most effectively leverage these factors will be best-placed to recover and thrive in the 2020s. Governments and private sector actors must cooperate, invest and develop the right policy frameworks to allow these factors to support economic recovery.

Established global trading hubs such as London and Dubai will continue to play a major role in driving trade in the 2020s, but a new generation of trade hubs, such as Vietnam and Mexico, will continue to rise through the 2020s. For these new players, new technologies, the recalibration of global value chains and the geographic shift of economic growth offers opportunities.

The first section of this chapter explores the current state of trade and the overall trade outlook. The second section identifies the factors that may provide the antidote to a weak global trade outlook and draws a set of conclusions and actions for governments and business to ensure that trade can be a key driver of post-pandemic economic recovery.

[1] "The Global Economic Outlook During the COVID-19 Pandemic: A Changed World", World Bank, June 8, 2020: https://www.worldbank.org/en/news/feature/2020/06/08/the-global-economic-outlook-during-the-covid-19-pandemic-a-changed-world
[2] "The Global Economic Outlook During the COVID-19 Pandemic: A Changed World", World Bank, June 8, 2020: https://www.worldbank.org/en/news/feature/2020/06/08/the-global-economic-outlook-during-the-covid-19-pandemic-a-changed-world

SECTION ONE

THE OUTLOOK FOR GLOBAL TRADE IN THE 2020s

A snapshot of trade at the beginning of the 2020s

Prior to the COVID-19 pandemic world goods trade was valued at around US$19 trillion, with trade in services at around US$6 trillion. World goods trade primarily consists of trade flows of manufactured goods between advanced economies and the economies of East Asia.[3] Goods trade among other regions – primarily composed of developing economies – is much lower, with the exception of trade in commodities – energy exports from the Middle East; raw materials and agricultural exports from Africa and Latin America.[4] Around two-thirds of international services trade originates in advanced economies.

Almost half of global goods trade is in intermediate goods, with a quarter in consumer products. The remaining quarter is split between primary goods and capital. At almost US$15 trillion, trade in manufactured goods far outweighs trade in agricultural goods (around US$2 trillion) and natural resources (around US$2.5 trillion).[5]

Global trade flows are highly uneven, with imbalances caused by a range of factors including geography, demographics and policy choices. China, Germany and Russia maintain large trade surpluses; large even relative to their GDP. The US, the UK, France, India, Saudi Arabia and several others maintain large trade deficits.[6] The number of partners an economy trades with also varies significantly. Most countries have greater diversity in their range of exports than in their range of export destinations. This is particularly true of emerging markets, leaving them exposed to potential shocks.[7]

There are a range of factors that determine an economy's success in engaging in international trade. DMCC's Commodity Trade Index assesses the role of 10 key trading hubs within global trade in 2020 and looks ahead at which global locations can expect to maintain their status as a trading hub in the future.

The status of trade before COVID-19

World goods trade:
US$19 trillion

Trade in services:
US$6 trillion

[3] Key Statistics and Trends in International Trade 2019, UNCTAD
[4] Key Statistics and Trends in International Trade 2019, UNCTAD
[5] Key Statistics and Trends in International Trade 2019, UNCTAD
[6] Key Statistics and Trends in International Trade 2019, UNCTAD
[7] Key Statistics and Trends in International Trade 2019, UNCTAD

DMCC'S COMMODITY TRADE INDEX

The DMCC Commodity Trade Index (CTI) incorporates 10 indicators to produce an index score for 10 markets: the US, Netherlands, Singapore, the UK, the UAE, Switzerland, Hong Kong, China, South Africa and Nigeria. This is the second iteration of the CTI, after it was first introduced in the 2018 Future of Trade report. The data behind the indicators are taken from renowned sources such as The World Bank, ensuring the robustness of the findings.

Analysis is based on 10 indicators, across three key areas:

Locational and trading partner factors

1. Headquarter locations of major commodities trading houses
2. Proximity to markets (based on commodity export data)
3. Commodity trade partner tariffs on primary goods

Commodity endowment factors

4. Tons of oil exported annually
5. Hub's share of global commodity trade for coffee, grains, sugar, gold, diamonds, soya bean, tea, cotton, silver, animals and animal products and plastic
6. Natural resource rents as a share of GDP

Institutional factors

7. Financial services infrastructure
8. Attractiveness of the tax regime
9. Strength of contract enforcement
10. Ease of trading across boarders

Commodity Trade Index results 2020

The 2020 Index sees the US marginally overtake the UAE for the top spot, scoring high on institutional factors and commodity endowments, as well as hosting the headquarters of key trading firms. Having led the index in 2018, the UAE remained one percentage point behind the US in 2020 despite having increased its overall score from 57% in 2018 to 60% in 2020.

Since 2018, the Netherlands saw the biggest fall on the table, going from fourth place to seventh place, after recording a large fall in its relative performance for locational and trading partner factors. The Netherlands was replaced in the top five in 2020 by Singapore, whose institutional and locational factors managed to outweigh its low commodity endowment factors.

Country	Locational and trading partner factors	Commodity endowment factors	Institutional factors	Average	Rank	Rank change from 2018 report
United States	38%	60%	86%	61%	1	-1
United Arab Emirates	35%	74%	70%	60%	2	1
United Kingdom	38%	23%	75%	46%	3	0
Switzerland	57%	10%	65%	44%	4	-1
Singapore	39%	2%	85%	42%	5	-1
Hong Kong	30%	12%	81%	41%	6	-1
Netherlands	61%	7%	52%	40%	7	3
China	15%	38%	55%	36%	8	0
Nigeria	14%	45%	30%	30%	9	0
South Africa	15%	15%	28%	19%	10	0

#1. United States takes over from UAE in 2020 Index

As shown on the table, the US overtook the UAE to become the top trading hub in the 2020 index. The US recorded the highest rank out of all locations for institutional factors (86%), and the second highest rank for commodity endowment factors (60%). Key cities for trading commodities in the US include Houston, New York and Chicago, although there are many other important cities for commodities trade around the US, highlighted by the number of different locations of headquarters of large commodity companies in the US.

the UAE is 1% behind the US

On locational and trading partner factors, the US does not perform as well, coming fifth out of eight. Although many global commodity companies are based in the US, the country is weakened in its performance by its location in relation to its main trading partners and also due to the high tariffs that its trading partners place on goods exported from the US.

The US performs well on the commodity endowment factors due to it being a large producer of oil and gas, an industry that has seen significant growth as a result of fracking. The US also produces significant amounts of soft commodities including grains and agricultural products. The US scores top for institutional factors as it has some of the most competitive contract enforcement systems, financial services infrastructure and tax regimes in the world.

#2. UAE close on heels of US

The UAE is only one percentage point below the USA on the CTI. The Middle Eastern nation received the top score for commodity endowment factors due to its large amount of oil exports and natural resource rents as a share of GDP. The UAE had the sixth highest score for locational and trading partner factors. The country came fifth for institutional factors, with a strength in contract enforcement but with flexibility to improve in the ability of companies to trade across borders.

#3. UK strong on trading and institutional factors

The UK comes third on the CTI for 2020, with an overall score of 46%. The UK has some natural resource endowments on the form of North Sea oil and some other soft commodities, meaning the country comes fifth on the index for commodity endowment factors. The UK also comes fourth for both locational and trading partner factors and institutional factors.

#4. Switzerland draws in commodities headquarters

Switzerland scores 44% on the CTI overall. It has the second-highest score for locational and trading partner factors, driven in particular by the number of commodities companies which choose to locate their headquarters there, including Vitol and Glencore. Switzerland has one of the most attractive tax regimes in the world, drawing in businesses to the country. Switzerland still only scores 65% for institutional factors despite

this attractive tax regime due to weaker scores for enforcing contracts and financial services infrastructure.

#5. Singapore's institutional factors outweigh limited natural resources
Singapore comes in the top half of the table for the 10 countries measured on the CTI. This is despite the fact that it has the lowest score for commodity endowment factors as the small Southeast-Asian nation has very limited natural resources. Singapore received the second-highest score for institutional factors, after the US, and the third highest score for locational and trading partner factors.

Other contenders
Hong Kong also performed well in terms of institutional factors, coming third out of the ten countries measured due to its attractive tax regime and ability to trade across borders. However, Hong Kong performs less well for commodity endowment factors and locational and trading partner factors, meaning it comes sixth overall on the CTI table.

The Netherlands comes seventh on the table for its overall CTI score. The European nation comes top for locational and trading partner factors due to being very close in location to its main markets for exports. However, the Netherlands performs relatively poorly in terms of commodity endowments and institutional factors.

China, Nigeria and South Africa take the bottom three positions out of the 10 countries analysed for their CTI scores. China's score is weakened by its locational and trading partner factors. South Africa and Nigeria take the bottom two positions for both locational and trading partner scores and institutional factors.

The next generation of trade hubs

As the 2020 CTI has shown, the fortunes of incumbent trading hubs can rise and fall over time. As we look to the future the next generation of trade hubs is emerging across finance, manufacturing and technology. They will not replace the established markets mentioned above, but they will gain importance over the next 10 years.

The changing role of China in world trade
Changes in the Chinese economy are driving the emergence of hubs across all three sectors. As China becomes less competitive, a new generation of manufacturing hubs will compete for business. Meanwhile, Chinese finance and technology hubs are challenging global incumbents in Silicon Valley and the traditional New York-Hong Kong-London-Tokyo axis.

Shenzhen and Hangzhou will challenge Sillicon Valley

Demographic and structural changes in the maturing Chinese economy have several implications. First, China will increasingly import finished consumer goods alongside resources and components for the manufacture of finished goods for domestic consumption. This is in contrast to the last several decades where the Chinese economy was focused on exports. Second, China is becoming increasingly self-reliant. For example, the Chinese electronics industry is now 80% self-sufficient in its supply chains. Finally, as wealth increases the labour market in China has become less competitive. This last implication is particularly important for the next generation of manufacturing centres.

However, China is becoming more competitive in other areas – China is now home to globally-competitive technology companies such as Alibaba, Tencent, Huawei, and JD.com. These companies cut their teeth in the booming domestic e-commerce and social media markets in China and have developed into tech empires that are challenging the likes of Amazon, Facebook, Google, Apple, and Microsoft in e-commerce, web services, and payments systems. As the tech cities of Shenzhen and Hangzhou develop, the pre-eminence of Silicon Valley is being challenged.

THE FUTURE OF FINANCE HUBS

THE TRADE AND FINANCE HUBS CHALLENGING THE NY-LONDON-TOKYO AXIS

The emerging finance hubs of China

A set of Chinese economic hubs are emerging as key finance centres, specialising in specific areas. Guangzhou, the largest city in the Greater Bay Area is a key centre for innovation with a focus on fintech, P2P finance, and green finance. Qingdao, on China's northern east coast is positioning itself as a new centre for international wealth management and has played a significant role in Belt and Road infrastructure financing. Chengdu is a key centre for financing China's 'Go West' strategy and is a hub for rail links with Europe. The Dalian Commodities Exchange in Dalian aims to make northeast China a global agricultural commodities hub. Meanwhile, Tianjin, with its close proximity to Beijing, is a key financing centre of trade with Mongolia and Russia.

New ASEAN tech and finance hubs

ASEAN also has a set of hubs emerging as key finance centres even as Singapore dominates the region. Jakarta aims to develop as a financial centre in a bid to keep hold of its new generation of start-ups including Go-Jek and Tokopedia. Fintech and Islamic finance are major focuses for both Jakarta and Kuala Lumpur. Meanwhile, Bangkok is well positioned as the finance centre for the surrounding sub-region.

GIFT – the smart city for offshore trading in India

India's financial capital has long been Mumbai, but one much newer hub is building a reputation as India's international finance hub. Gujarat International Finance Tec-city (GIFT), near Ahmedabad, is one of India's new 'smart cities'. GIFT aims to focus on offshore trading in Indian markets, offering low taxes, low real estate and staffing costs and minimal paperwork compared to Mumbai. GIFT is making a bid for off-shore rupee trading, currently dominated by Singapore.[8]

THE FUTURE OF MANUFACTURING

THE MANUFACTURING CENTRES BIDDING FOR CHINA'S EXPORT BUSINESS

Mexico – near-shoring hub for the US

Mexico has a long history of manufacturing but has been widely hailed as the new manufacturing hub for the US. It benefits from a land border with the US, good trade relations – first under NAFTA and now the USMCA, a large working-age population, and high levels of education in key areas such as engineering. According to research by Kearney, Mexico gained US$13 billion in business with the US from China during 2019. As early as 2016 more than half of US companies with manufacturing operations in Mexico moved some production there from elsewhere in the world to serve the US market.[9] A 2020 survey of 160 executives by Foley & Lardner LLP found that companies in manufacturing, automotive and technology sectors planned to move business to Mexico from elsewhere within the next 1-5 years.[10] This could increase FDI by US$12-19 billion per year, and boost Mexico's GDP growth to 4.7%.[11] Mexico also has trade agreements with many other countries, making it a potential hub for international export.

Vietnam – heir to China's export business

Vietnam has also emerged as a strong contender for inheriting some of China's manufacturing business. According to research by Kearney, Vietnam absorbed more than US$14 billion in manufacturing business with the US from China during 2019. An

[8] "India takes on Asia's foreign exchange hubs for rupee trade with GIFT city", Business Standard, August 19, 2020
[9] US Reshoring Index 2019, Kearney
[10] "US executive enthusiastic about expanding business in Mexico", Foley & Lardner LLP, February 25, 2020
[11] Kenneth Rapoza, "Coronavirus could be the end of China as a global manufacturing hub", Forbes, March 1, 2020

US$ 38 billion

FDI into Vietnam in 2019

export boom helped the economy to grow by 8% in 2019.[12] Vietnam has managed the COVID-19 pandemic well and may manage 1.5% growth in 2020. International firms such as Ricoh (Japan), Samsung (Korea), and HL Corporation (China) have been major investors over the past few years; FDI into Vietnam in 2019 reached US$38 billion.

India – Make in India

While Vietnam and Mexico are front of the queue for China's manufacturing business, India is one of the only countries who could possibly challenge China on scale. One of Prime Minister Narendra Modi's flagship policies when he came into office in 2014 was 'Make in India', a policy intended to build labour-intensive manufacturing industries to absorb the more than 10 million people entering the Indian workforce every year. While India has struggled to embed itself in many global value chains it has made headway in mobile phones – it is now the world second largest manufacturer, although only 12% of components for assembly are made domestically. India has a long way to go, but the size of its domestic market and its labour supply will play in its favour in the long-term.

THE FUTURE OF TECHNOLOGY

THE TECH CENTRES CHALLENGING THE PRE-EMINENCE OF SILICON VALLEY

China's new tech hubs

China has been the second largest R&D spender for some time and while it remains responsible for 23% of global spend compared to the US' 25%, it is expected to overtake the US during the 2020s.[13] According to KPMG's Technology Industry Innovation Survey, four Chinese hubs make the top 20 – Beijing, Shanghai, Hong Kong and Shenzhen. The hubs differentiate – Beijing focuses on software and platforms; Shanghai on biotech, semiconductors, and AI; Shenzhen leads in hardware and 5G; and Hong Kong on fintech and smart cities.[14] The rise of the hubs is underpinned by national and local innovation strategies, which critics say the US lacks.

[12] US Reshoring Index 2019, Kearney
[13] Paul Heney, "Global R&D investment unabated in spending growth", R&D World, March 19, 2020
[14] Technology Industry Innovation Survey 2020, KPMG, March 2020

The next generation of US tech hubs

Silicon Valley is not only facing competition from foreign centres, but other tech centres in the US. The list of US tech hubs is growing, from established centres such as Austin, Boston, and Seattle, to new entrants such as Wilmington, Delaware; Columbus, Ohio; and Portland, Oregon. The main driver for this is the cost of living and commercial real estate in the San Francisco area, though there are other concerns including corporate culture and infrastructure. Added to questions about the future of the office and US tech innovation and investment is becoming more evenly spread across the country. However, KPMG's Technology Industry Innovation Survey did see a positive shift in confidence in Silicon Valley's future as the global leader in 2020, likely due to US government efforts to protect emerging technologies and innovation.[15]

Singapore – Asia's new tech leader

Singapore came first in KPMG's Technology Industry Innovation Survey due to its advanced IT infrastructure, government support, IP protection laws and talent pool. The city-state has guided itself into the future with national strategies such as the Smart Nation programme and a national AI strategy.[16] The country provides a hub for global tech firms to operate across ASEAN and Asia more broadly, while also hosting ASEAN homegrown firms such as Grab, which originated in Malaysia.

The trade outlook for 2020 was already weak before COVID-19

The COVID-19 pandemic has had a significant impact on international trade and global output in 2020. But the outlook for trade in 2020 was already one of weakness before the pandemic hit.

The WTO reported that global goods trade "stalled" in 2019 and worsened towards the end of the year. Trade in the fourth quarter of 2019 was down by 1% year-on-year and 1.2% compared to the third quarter.[17] In total, goods trade in 2019 fell by 3% to US$18.89 trillion. Following a general trend of resilience, global services trade grew by 2% in 2019 to US$6.03 trillion, though this growth was lower than the 9% growth in 2018.[18]

The weakness in goods trade was spread across economies. South America, Africa, and the Middle East saw large declines in exports.

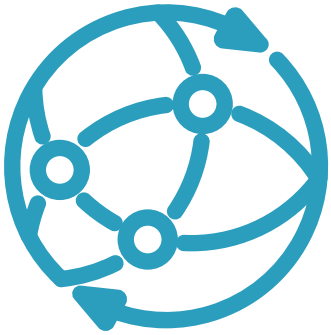
[15] Technology Industry Innovation Survey 2020, KPMG, March 2020
[16] Technology Industry Innovation Survey 2020, KPMG, March 2020
[17] "Trade set to plunge as COVID-19 pandemic upends global economy", WTO press release, April 8, 2020
[18] Eddy Bekkers, Alexander Keck, Robert Koopman, Coleman Nee, "Trade and COVID-19: the WTO's 2020 and 2021 trade forecast", VOX EU, April 24, 2020

Europe, North America and Asia experienced minimal growth or mild declines. Import volumes experienced similar trends. UNCTAD reported that "poor trade performance is a broad-based phenomenon and concerns both intraregional and interregional trade".[19]

At the end of 2019, the outlook for 2020 was grim. Several global multilateral institutions predicted that unlike trade rebounds following the global financial crisis in 2008 and the global trade downturn in 2015-2016, there would not be a swift recovery in 2020 from the weak trade figures posted in 2019.[20]

The main cause of the weak trade figures and outlook was global trade tensions driven by an increasingly antagonistic relationship between the US and China. A tariff war, starting in 2018, had an immediate impact on trade figures between the two economic superpowers, as well as having a significant spill-over effect into the global economy. A 'phase one' trade deal in January 2020 brought a tentative conclusion to this bout, but the situation remains precarious.

In addition to the tariff war, the global economy moving into 2020 lacked the driving factors that had fuelled previous rebounds such as a commodity price boom and growth in volumes, output, and investment, all of which were expected to remain stable.[21] But the dampening impact of trade tensions goes beyond trade figures and tariffs. The tensions have further weakened the geopolitical order and the multilateral institutions holding it up, reducing the possibility of real reconciliation to avoid further clashes and the potential for cooperation in the face of global crisis. This has a significant impact on global business confidence.



The impact of trade tensions goes beyond trade figures and tariffs. The tensions have weakened the geopolitical order.

[19] Key Statistics and Trends in International Trade 2019, UNCTAD
[20] Key Statistics and Trends in International Trade 2019, UNCTAD
[21] Key Statistics and Trends in International Trade 2019, UNCTAD

FIGURE 1

World merchandise exports and imports 2015-2019 (WTO and UNCTAD)

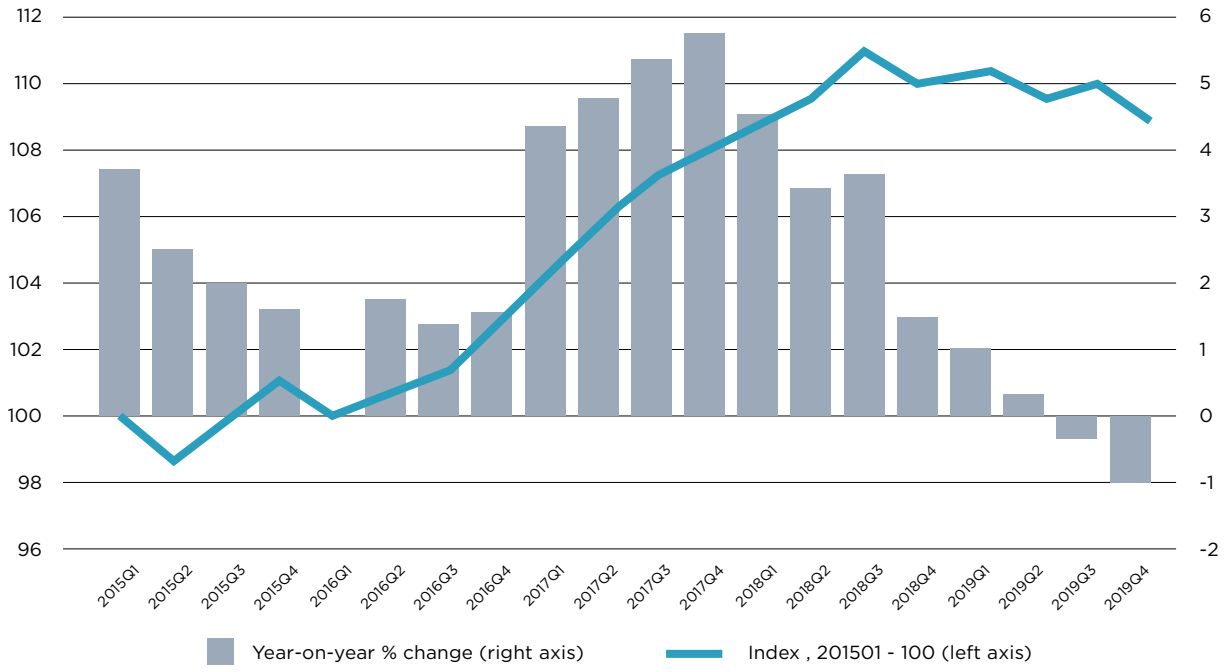


FIGURE 2

Growth in the value of commercial services exports by category, 2015-2019

The impact of COVID-19 on trade

The COVID-19 pandemic which began in December 2019 and intensified through the first half of 2020 has been an unprecedented health crisis, with severe economic consequences. The World Bank's mid-year economic outlook forecast a 5.2% contraction in global GDP in 2020.[22]

The pandemic has had a particularly negative impact on trade, on top of the already grim outlook described on page 27. In early April 2020, the WTO projected global trade to fall by between 13 and 32%.[23] The wide range of projections reflects the uncertainty about how the pandemic will play out economically. Even if the outcome is in the middle of that range experts believe "it will be the worst year for globalization since the early 1930s."[24]

It is natural to draw parallels between the economic impact of the pandemic with the global financial crisis of 2008. But the 2008 financial crisis was primarily a banking crisis in 11 advanced economies. Emerging market growth carried the global economy through.[25] In comparison to the COVID-19 pandemic, no other crisis has had as broad an impact across both sectors and geographies, and by extension, on international trade.

The global public health response to the pandemic – including border closures, national and localised lockdowns and on-going social distancing measures – have had a heavy impact on labour, transport, travel, hospitality, and exports. The impact on sectors with complex value chains such as electronics and automotive has amplified the impact on trade.[26] Trade volumes are down, and so are prices – in particular oil prices which collapsed through lack of demand.

The impact on services, which unlike goods cannot be drawn down and restocked later, has been unprecedented. The WTO reported that the "decline in services trade during the pandemic may be lost forever".[27] It is for these reasons that the pandemic's impact on trade will be much worse than any previous crisis.

-5.2%

global GDP forecast for 2020

[22] "The Global Economic Outlook During the COVID-19 Pandemic: A Changed World", World Bank, June 8, 2020
[23] "Trade set to plunge as COVID-19 pandemic upends global economy", WTO press release, April 8, 2020
[24] Carmen Reinhart and Vincent Reinhart, "The Pandemic Depression: The global economy will never be the same", September/October 2020
[25] Carmen Reinhart and Vincent Reinhart, "The Pandemic Depression: The global economy will never be the same", September/October 2020
[26] Wolfgang Munchau, "A truly ugly transatlantic trade war is looming", FT, June 21, 2020
[27] "Trade set to plunge as COVID-19 pandemic upends global economy", WTO press release, April 8, 2020

COVID-19 – ACCELERATING THE TRENDS SHAPING THE FUTURE OF TRADE

The pandemic has had a significant impact on trade volumes, but it has also accelerated key existing trends that were already shaping the future of trade.

1. Recalibration of supply chains towards risk and resilience
Over the past several decades global value chains have grown in length and complexity as incremental efficiency savings outweighed transport and other trade costs. In many cases this also saw the concentration of value chains in one country. Both expansion and concentration have left value chains open to specific shocks such as environmental events. Research by the Mckinsey Global Institute projects that firms can expect an event causing supply chain disruption lasting a month or longer to happen every 3.7 years.[28]

The COVID-19 pandemic was a widespread shock that brought several supply chains issues together, revealing an over-reliance on certain countries, supply chain sprawl, and the complexity of operating across multiple jurisdictions. While many industries had already began reviewing their supply chains in light of global trade tensions, the pandemic has caused a mass rethink of global value chains. Aided by technology such as automation, targeted trade policies, and domestic policies such as tax incentives, production may be on-shored or near-shored to markets of consumption. The future of supply chains will be recalibrated for greater resilience in an environment of risk.

2. National security considerations permeate trade
Several countries were caught out by the sudden increased demand for personal protective equipment (PPE) and other key medical supplies. The pandemic has put into focus the risk of dependence in a crisis. While in fact the globally distributed production of PPE was able to meet demand, governments are reconsidering the breadth of sectors as concerns for national security. This is especially important as climate events affecting the global south will likely have an impact on global food commodities in the future. The geopolitical environment is also a consideration,

[28] "Risk, resilience, and rebalancing in global value chains", Mckinsey Global Institute, August 6, 2020

129%

YoY e-commerce growth in the US and Canada

the US, Australia and the EU are working on bolstering supply chains for rare earth materials of which China currently accounts for 80% of the globally mined supply chain and an even higher share of the manufacturing of powerful rare earth magnets used in high-end engineering.[29]

3. Digitalisation of the economy

The pandemic has catapulted a range of industries that were lagging behind in their integration of digital technologies into the 21st century. The adoption of telemedicine and online education through necessity in 2020 lays the foundations for growth in health and education as cross-border services. Across most white-collar industries, remote work online has been generally proven to be at least as effective as office-based work. Meanwhile, consumption has been rapidly digitised in the form of entertainment, e-commerce, and food delivery. US and Canadian e-commerce saw a 129% year-over-year growth from January to April 2020 and a 146% growth of all online retail orders.[30] These trends make digital infrastructure and digital education, especially in emerging economies, more important than ever.

4. Data increases in value

The economic value of the trade in data flows will overtake the value of trade in goods within the next decade. This was predicted before the pandemic and is likely to have been accelerated with the digitalisation of the economy. A more digital economy drives trends in the use of AI, decision intelligence, analytics and data exchange for applications such as customer intelligence and the remote monitoring of operations.[33] The pandemic has also shown that the value of data is not just economic, but existential. Epidemiological models and contact tracing apps have played a major role in governments' fight against the pandemic. Both rely on the collection and processing of large amounts of data. Data and analytics combined with AI technologies will be a key part of the on-going crisis response including crunching the data of more than 500 clinical trials underway for a potential COVID-19 vaccine.[32]

[29] Jamie Smyth, "Industry needs a rare earths supply chain outside China", FT, July 28, 2020
[30] Louis Columbus, "How COVID-19 is transforming e-commerce", Forbes, April 28, 2020
[31] Gartner top 10 trends in data and analytics for 2020, June 9, 2020
[32] Gartner top 10 trends in data and analytics for 2020, June 9, 2020

5. Automation – robots don't get sick

Over the last decade, the number of industrial robots has increased by a factor of three, from one million units in 2010 to over three million in 2020. Automation has increasingly substituted labour rather than just facilitating production. This trend is likely to be accelerated because the COVID-19 pandemic – and the prospect of future pandemics – incentivises the substitution of labour for robots.[33] Fundamentally, robots don't get sick – although cybersecurity from digital viruses will become even more important. The rise of automation can help to manage supply chain risk, as it enables self-reliant systems, which may be particularly important for the production of medical supplies or components for key industries.[34] This presents new challenges for governments to manage job displacement and increases the need for reskilling workforces.

6. Inequality exacerbated

While global inequality has been declining, inequality within G7 and other advanced economies has been rising since the 1980s.[35] The pandemic has the potential to reverse the first trend and exacerbate the second. As well as disproportionately affecting emerging economies and disadvantaged socio-economic groups, the World Bank estimates that as many as 60 million people will be pushed into extreme poverty by the COVID-19 pandemic. In the immediate, the economic crisis caused by the pandemic has caused mass lay-offs. Sectors such as tourism and hospitality will be slow to recover, and manufacturing will be slowed by limited demand. In the longer-term, the recalibration of supply chains, automation, and digitalisation all have the potential to leave developing economies and workers behind. This has significant implications for global growth – a rising middle class is at the root of demand growth, and political stability.

7. Debt – the next global financial crisis

Speculation of a global debt crisis has been circulating for several years. A decade of low interest rates has caused global debt levels – both household and corporate – to rise, particularly in emerging markets.[36] The pandemic has progressed this risk as non-performing corporate loans, bankruptcies, and sovereign debt defaults exacerbate the economic crisis. The IMF predicts that the deficit-to-GDP ratio in advanced economies will swell from 3.3% in 2019 to 16.6% in 2020, and from 4.9% to 10.6% in emerging markets. As governments worldwide increase spending, public balance sheets will become increasingly

[33] David Bloom, Klaus Prettner, "The macroeconomic effects of automation and the role of COVID-19 in reinforcing their dynamics", VOX EU, June 25, 2020
[34] David Bloom, Klaus Prettner, "The macroeconomic effects of automation and the role of COVID-19 in reinforcing their dynamics", VOX EU, June 25, 2020
[35] Inequality: A persisting challenge and its implications, Mckinsey Global Institute, June 26, 2019
[36] Top five risks to the global economy in 2020, The Economist, February 27, 2020

US$ 10 trillion

in economic stimulus for COVID-19. 10 x higher than 2008 crisis

overextended.[37] Servicing the debt will hinder recovery and may become unsustainable. One solution, proposed by former World Bank Chief Economist Joseph Stiglitz is a multilateral buyback facility managed by the IMF.[38]

8. A more multipolar world

While the pandemic may not be the root cause of greater multipolarity, which has been developing over the past several years, it has put it in the spotlight and may accelerate the fragmentation of the global order. China has responded to the global crisis with 'facemask diplomacy', supporting countries with medical supplies and expertise. Meanwhile the US has continued to be less present, even in regions it used to dominate. At the same time, other power centres exist in Russia, the EU, Japan, and ASEAN, and it is yet unclear what economic and political balance of power will emerge from the crisis.

9. A shift towards ESG integration

It is often difficult to provoke organisations to take decisive action on major risks that are anything other than short-term. Many hope that an outlying risk such as a global pandemic becoming reality may help organisations to take risks such as climate change more seriously. The pandemic therefore provides an opportunity to rethink the future and direct economic recovery towards more sustainable practices.[39] In the environmental sphere this means reconsidering energy use and sources, in the social sphere it means reconsidering working arrangements within companies and along their supply chains. Major asset managers such as BlackRock were already resetting the investment agenda on climate change before the pandemic.[40] There is also evidence that environmental and social governance (ESG) supports crisis-resilience.[41] While the economic incentive for sustainability has some way to go, pressure from investors, consumers, and governments is increasing, and will only be accelerated by the recent global crisis.

[37] Carmen Reinhart and Vincent Reinhart, "The Pandemic Depression: The global economy will never be the same", September/October 2020
[38] Hamid Rashid, Joseph E. Stiglitz, "Averting catastrophic debt crises in developing countries", CEPR Policy Insight No 104
[39] Matthew Bell, "Why COVID-19 could boost ESG performance and stakeholder capitalism", EY, June 17, 2020
[40] Larry Fink, "A fundamental reshaping of finance", BlackRock, 2020
[41] Alex Birkin, "Three Ways ESG factors can make portfolios more resilient post COVID-19", EY, August 11, 2020

10. Big government and a Green New Deal
As companies reassess their models, governments are struggling to keep their economies running. Governments allocated more than US$10 trillion in economic stimulus in the first two months of the pandemic, a response nearly ten times that of the 2008 financial crisis.[42] Discussion of a 'Green New Deal' in the US and a 'European Green Deal' in the EU pre-exist the pandemic, but are key to informing calls for the economic recovery from the pandemic to be sustainable. Advocates for a green recovery are many, including the IMF andWorld Bank.[43] Recovery from the pandemic presents an opportunity for investment into renewable energy, public transport, and other sustainable infrastructure projects to simultaneously fight unemployment and climate change.

The outlook for recovery is uncertain

The prospect of economic recovery is dependent on second or third waves, the effectiveness of the public health and economic response by governments, and the eventual development and mass roll-out of a vaccine. The most optimistic scenario from the World Bank is that economic growth will hit 4.2% in 2021.[44]

The WTO outlines two scenarios for the immediate future of trade. The optimistic scenario sees goods trade drop by 13% in 2020 but recover by 24% during 2021 to reach pre-pandemic levels by 2022. This projection, developed in April 2020, seems increasingly unlikely. The pessimistic scenario sees trade drop by almost 32% in 2020, with trade growth reaching 24% in 2021 and the start of a more prolonged and incomplete recovery. The determining factor between these two scenarios is business and consumer confidence, largely based on the length of the pandemic.[45]

The business and trade experts interviewed for this report did not believe that global trade will be irreparably damaged by the pandemic, and that given time and the right support, trade will reach pre-pandemic levels. However, there was acknowledgment that the global economy will look different exiting the crisis – businesses, even entire sectors may collapse or be significantly reduced.

The key question therefore is how long recovery will take. On average, it takes eight years for per capita GDP to recover to pre-crisis levels,[46] meaning that economic recovery from the COVID-19 pandemic will

[42] Ziyad Cassim, Borko Handjiski, Jörg Schubert, and Yassir Zouaoui, "The $10 trillion rescue: how governments can deliver impact", Mckinsey, June 5, 2020
[43] Catherine Early, "Reset your economy: the power of green stimulus packages", Global Government Forum, July 17, 2020
[44] "The Global Economic Outlook During the COVID-19 Pandemic: A Changed World", World Bank, June 8, 2020
[45] "Trade set to plunge as COVID-19 pandemic upends global economy", WTO press release, April 8, 2020
[46] Carmen Reinhart and Vincent Reinhart, "The Pandemic Depression: The global economy will never be the same", September/October 2020 Carmen Reinhart and Vincent Reinhart, "The Pandemic Depression: The global economy will never be the same", September/October 2020

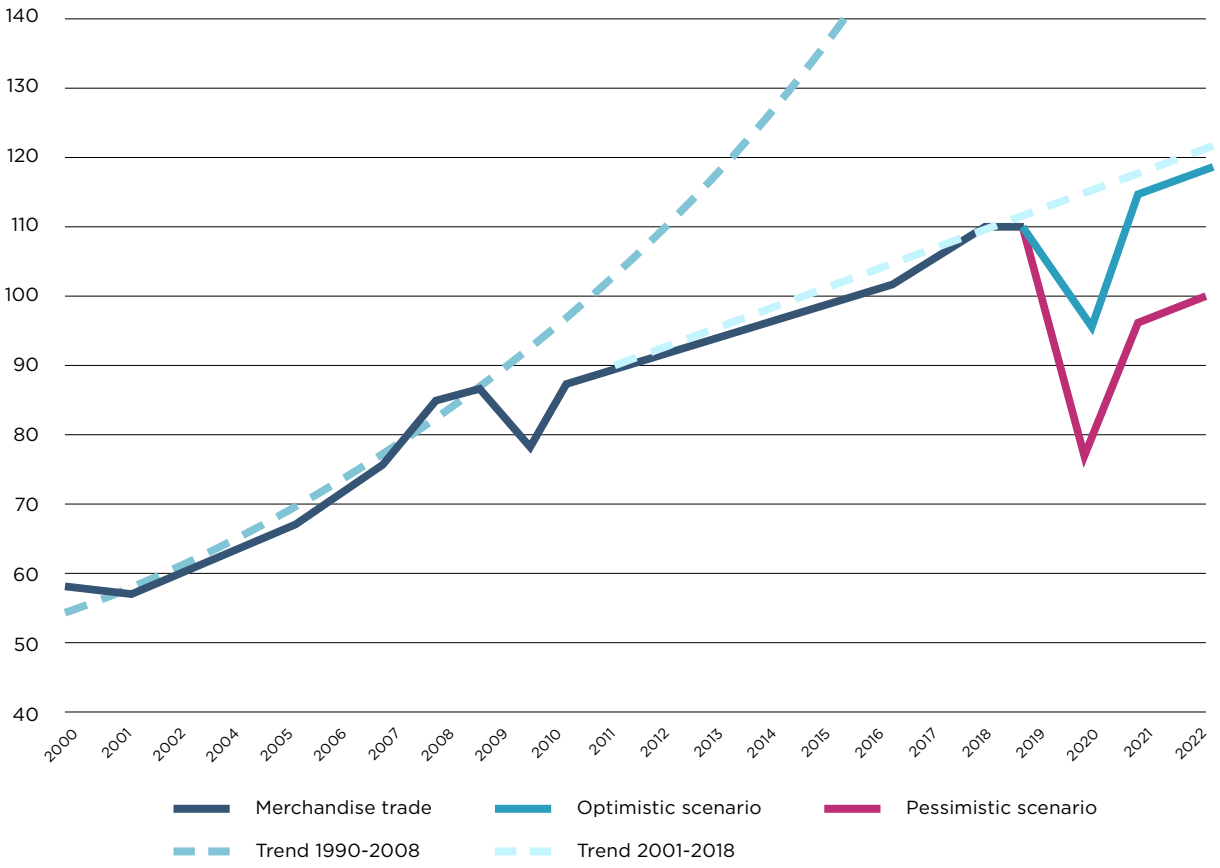
likely define the trade environment for the duration of the 2020s.

Given the precise nature of the pandemic and the global trade environment, there are no guarantees as to what shape the recovery will take. While international trade did recover from the global financial crisis in 2008, it stalled again in 2015-2016, recovered slightly in 2017-2018 before weakening during 2019. This indicates a pattern of weakness over more than a decade. In fact, between 2008 and 2018, global trade growth decreased by half compared with the previous 10 years.[47]

The 2008 financial crisis was a major economic event, but it was also a milestone for global trade, a definitive bookend to a decades-long period of high trade growth, and perhaps globalisation overall. With the long decade between the 2008 crisis and the COVID-19 pandemic as a transitional time of rebalancing, 2020 will be the beginning of a new phase for international trade. One with a much more modest pattern of trade growth.

FIGURE 3

World merchandise trade volume 2000-2022 (WTO)



[47] xxxxxxxxx

Trade in the 2020s – a 'new normal' for trade growth

The global financial crisis, the pandemic, and the global trade tensions obscure the impact of much longer-term trends which have generated a new phase in international trade, a 'new normal' where trade growth will broadly remain in line with output growth.[48] This downshift in growth expectations may in fact be a 'return to normal' after an unusual set of structural factors drove trade growth to exceed global output growth for several decades.

Global trade increased 27-fold between 1950 and 2008. The two decades from the mid-1980s to the early 2000s were particularly strong. The strength of those decades in particular can be largely explained by structural factors – a specific policy environment and geopolitical situation – including the integration of Eastern Europe and China into the global economy and an unprecedented wave of trade liberalisation from the inception of the WTO in 1995 to the accession of China to the WTO in 2001 and the eastern enlargement of the EU in 2004.[49]

The WTO outlines two scenarios for the immediate future of trade. The optimistic scenario sees goods trade drop by 13% in 2020 but recover by 24% during 2021. The pessimistic scenario sees trade drop by almost 32% in 2020, with trade growth reaching 24% in 2021

[48] Przemyslaw Wozniak and Malgorzata Galar, "Understanding the weakness in global trade", European Commission Economic Brief 033, January 2018
[49] Przemyslaw Wozniak and Malgorzata Galar, "Understanding the weakness in global trade", European Commission Economic Brief 033, January 2018

Driving trade growth in this environment were global value chains, a useful indicator of globalisation. Their expansion was fuelled by lower communication and transportation costs in an encouraging global trade policy environment, as well as connectivity with low-cost labour markets including China. This trend has been in reverse since the global financial crisis. From 2012 to 2016 the share of intermediate goods (e.g. components) in total imports decreased from 57% to 52%.[50] This trend reversal is driven by the exhaustion of the same factors that drove its expansion. Without the addition of new territory to the global economy and major trade liberalisation, global value chains on their own cannot drive trade growth. In fact, the current global trade climate is causing them to shrink.

The structural factors that drove trade cannot be recreated. There is very limited new territory to be added to the global economy. There is also comparatively limited scope and evidently limited political will to further liberalise trade. Tariffs have remained flat since 2005,[51] meanwhile, non-tariff barriers have boomed; the WTO reported a fivefold increase between 2010 and 2016.[52]

At the same time, global investment has stalled, undermining the potential for emerging markets to balance the weakness in advanced markets, and increase the trade intensity of their growth. Global FDI fell from 3.5% of global GDP in 2007[53] to less than 1% in 2019.[54]

If this is the new normal, the key question is what new factors can be harnessed during the 2020s to ensure that trade growth can at least meet, if not exceed this modest projection?

Current global trade climate is causing trade value chains to shrink

[50] Przemyslaw Wozniak and Malgorzata Galar, "Understanding the weakness in global trade", European Commission Economic Brief 033, January 2018
[51] Przemyslaw Wozniak and Malgorzata Galar, "Understanding the weakness in global trade", European Commission Economic Brief 033, January 2018
[52] Przemyslaw Wozniak and Malgorzata Galar, "Understanding the weakness in global trade", European Commission Economic Brief 033, January 2018
[53] FDI in figures, OECD, April 2019
[54] Investment Trends Monitor, UNCTAD, January 20, 2020

SECTION TWO

THE FUTURE DRIVERS OF TRADE

Introduction

This section identifies four antidotes to trade weakness in the 2020s – the application of technology to trade, the growth of cross-border services, innovation in trade policy, and trade-related infrastructure development.

Together these antidotes could boost trade by US$18 trillion through to 2030.

- The reduction of trade costs by technology could drive goods trade by up to US$4.7 trillion[55]
- Digital technology and policy progress could drive services trade by at least US$4.5 trillion[56]
- Developments in trade policy have the scope to drive trade by US$6.5 trillion[57]
- A one% increase in annual global infrastructure investment above trend could drive goods trade by US$2.5 trillion[58]

1. The application of technology to trade
Technological development has been a key driver of trade both in terms of reducing trade costs, unlocking new opportunities and creating new products that drive global value chains. These factors remain important, though the impact of technology on trade is becoming more complicated as technologies such as automation, additive manufacturing and AI undermine trade and global value chains. The relationship between technology and trade is explored in detail in Chapter III.

2. Cross-border services
The overall share of services in global trade is rising, from 18% of global trade in 1995, to a projected 25% by 2030,[59] and potentially 30% by 2040.[60] Trade costs for services are on average double that of goods,[61] meaning the reduction in trade costs driven by technology will play a crucial role in enabling services to drive trade growth. Demographic progress towards a population of 'digital natives' will also reinforce the uptake of services that are delivered online through digital platforms.[62] However, the policy environment for services is relatively immature and trade barriers remain high. Progress in bilateral negotiations has been limited. Given the political environment the combination of market-opening, international cooperation and

[55] Susan Lund and Jacques Bughin, "Next generation technologies and the future of trade", Mckinsey Global Institute, April 18, 2019
[56] Technology and policy will enable services growth at 5.4% per year
[57] Based on 2% growth per year, the potential growth that could have been enabled by the Doha Development Round
[58] Based on investment of 4% p.a. which would drive trade by an increased 1%
[59] World Trade Report 2018: The future of world trade: how digital technologies are transforming global commerce, WTO Secretariat, 2018
[60] World Trade Report 2019: The future of services trade, WTO, 2019
[61] World Trade Report 2019: The future of services trade, WTO, 2019
[62] World Trade Report 2019: The future of services trade, WTO, 2019

domestic reforms needed to harness the potential of services trade may challenge the scope for growth.[63]

3. Trade policy

There is still significant scope in trade policy to drive trade growth. The completion of the WTO's Doha Development Round of trade talks, would have increased world exports by US$359 billion annually; boosting global trade by 2%.[64] However, after almost two decades since talks began, the Doha Development Round is widely accepted to have failed, and with it the prospects of large-scale multilateral trade liberalisation.

The current geopolitical environment makes any chance of progress at the multilateral level highly unlikely. Governments and other economic actors must be more innovative in their approach to trade policy. Channels for a reinvigorated trade policy agenda include plurilateral agreement on specific sectors, regional trade agreements, and deep bilateral agreements. These are explored in greater detail in Chapter II.

4. Infrastructure

There are clear links between infrastructure development and trade growth. Infrastructure investment is particularly important for development in terms of bringing less developed economies, and less-developed areas of countries specifically, into the global economy. The greatest impediment to infrastructure driving trade growth is a growing US$15 trillion financing gap up to 2040.[65] The strain that the pandemic has put on public finances will not help efforts to close this gap. Furthermore, global infrastructure development has been complicated by the strategic rivalry between the US and China. The role that infrastructure can play in the future of trade will be explored in greater depth in Chapter IV.

US$ 15 trillion
infrastructure financing gap

[63] World Trade Report 2019: The future of services trade, WTO, 2019
[64] WTO trade negotiations: Doha Development Agenda, EU Press Corner, October 31, 2011
[65] "Forecasting infrastructure investment needs and gaps", Global Infrastructure Outlook, June 13, 2018

SECTION THREE

CONCLUSIONS

Key takeaways

The COVID-19 pandemic, global trade tensions, and longer-term structural factors lay the context for a weak trade outlook in the short-term and modest trade outlook in the long-term.

Several areas will play an important role in driving trade growth in the 2020s, potentially driving trade growth by up to US$18 trillion. These include technology, services, trade policy and infrastructure development.

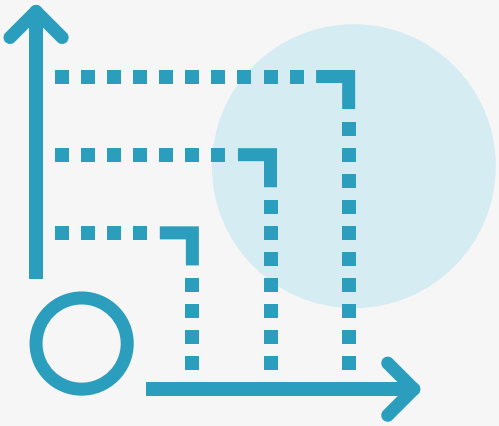
Technology has the potential to continue to reduce trade costs and put new technology products on the market. But the relationships between technology and trade is becoming more complex, and new technologies and digitisation may undermine trade growth.

Services trade has remained resilient through recent crises and is set to increase its share of global trade, enabled by technology. However, services trade policy is highly restrictive and needs to be addressed for cross-border services trade to grow.

While multilateral progress is current stalled, there is potential in regional, bilateral and plurilateral agreements in key sectors.

The development of trade-related infrastructure has a proven impact on trade growth. However, a lack of financing and the potential for infrastructure development to be complicated by geopolitics are risks.

CONCLUSIONS



The disruption caused by the trade tensions and the pandemic pose major challenges that will require governments and businesses to revise and reform their approach to trade. None of the factors identified present the same opportunities as the structural drivers of the last decades of the 20th century, but they have significant potential if they can be supported by the right set of policies and investment.

However, the current global environment is not conducive to cooperation and collaboration. Yet, innovative measures taken by economies based on regional groupings or thematic issues may find a way ahead even if there is a lack of global leadership for the time being.

RECOMMENDATIONS

BUSINESS

- Be ready to adapt to on-going changes in the trade landscape, as well as more modest trade growth overall. On-going changes will require consistent board-level and senior executive attention.
- Increase investment in technology to reduce trade costs and open new markets.
- Advocate for trade policies from government that support technology, cross-border services, and infrastructure investment to open new opportunities for trade.
- Expect to meet resistance – business needs to be a force for open trade like never before; business coalitions should be vocal on the big issues impacting trade.

GOVERNMENT

- Take a leadership role in pushing for global standards around the implementation of technology in trade.
- Support cooperative efforts at the international level which open up opportunities for trade in specific areas, such as services or data.
- Seek input from business about removing barriers to trade and enabling businesses to drive the recovery.
- Increase investment in key trade-related infrastructure for both goods trade (roads, ports, customs facilities) and services trade (digital infrastructure, education).

CHAPTER II

THE POLITICS OF TRADE

At the dawn of the 2020s, geopolitical risk looms large for global business. The global trade tensions stemming from the strategic rivalry between the US and China were front of mind for the business leaders and trade experts interviewed for this report. This strategic rivalry will be one of the defining factors of the trade landscape in the 2020s. Global tensions are mirrored by anti-globalisation sentiments in domestic politics worldwide which undermine the perception of the benefits of international trade. There was a consensus among the businesses interviewed that the global trade order is at a tipping point. The next two to three years will be critical for setting the path for global trade for the rest of the decade, with a range of potential futures ahead, the most likely scenario being that global trade tensions get worse before they get better.

The US-China trade tensions have been a key driver of trade weakness. They have also given licence and cover for other actors to implement protectionist measures, as well as undermining the ability of the global trade institutions to respond effectively. Protectionist measures were at a high in 2019, and have continued through the COVID-19 pandemic, potentially threatening economic recovery.

Given the current state of the trade environment, there is some agreement about the need for the reform of the World Trade Organisation, but political issues have so far blocked progress. This situation is unlikely to change. As a result, there is likely to be a greater focus and need for regional, bilateral, and innovative plurilateral agreements over the coming years.

Changes to the trading environment will take time however, and in the meantime, businesses are changing their approach to trade. Global trade tensions have driven a recalibration of supply chains with companies simplifying and diversifying their global value chains. The COVID-19 pandemic will further drive this trend. Increasingly, production will be relocated to near markets of consumption potentially reducing global trade volumes. In this environment, the strategic objective of supply chains becomes one of risk resilience.

The coming years will see the continuation of a challenging environment for international trade. While businesses should build this into their strategies, they must also advocate for governments to defend international trade. Governments must find common ground for progress at the international level and resist a descent into widespread protectionism.

SECTION ONE

GLOBAL TENSIONS WILL DEFINE THE TRADE LANDSCAPE OF THE 2020s

The political realities of global economic integration

The rules-based international order developed in the mid-20th century worked because it was endorsed by the major powers at the time, led by the US. It is now in danger of being irrelevant in the context of a changing distribution of power, disagreement on the 'rules of the game' by major economies, and a lack of clear global leadership.

The economic integration of China into the global economy and a wave of trade liberalisation drove trade growth and the expansion of global value chains up to around the time of the global financial crisis. This has now triggered a new set of political realities which are at the root of global trade tensions.

For example, China joined the WTO in 2001. Advanced economies welcomed the addition of a billion consumers and workers into the global economy, and expected China to develop in their image. Two decades on, China has grown by all economic measures, but many of the US and other advanced economies remain frustrated with the country's limited market liberalisation. This perception of injustice – that China is gaining the benefits of globalisation without corresponding economic liberalisation – is reflected in current US rhetoric from Republicans and Democrats. It has also informed the attitudes of the EU, Japan, the UK, and other OECD economies.

There are a wide range of trade grievances with China - from other members of the global trading system - including:[66] a lack of transparency; industrial policies and non-tariff measures that discriminate against foreign companies; strong government intervention in the economy resulting in a dominant position for stateowned firms, unequal access to subsidies and cheap financing, and; poor protection and enforcement of intellectual property rights, including forced technology transfer.

In parallel, the past decade has seen anti-globalisation politics go mainstream.

[66] China country page, European Commission website, last accessed October 1, 2020

Globalisation and foreign competition have been blamed for high levels of domestic inequality and job losses in many economies. This issue transcends the domestic and global levels. Populist leaders have scapegoated China, as well as other foreign actors, despite the fact that most unemployment in advanced economies has been driven by technology rather than trade.

The economic and political aspects of global integration, in particular the integration of the US and China, must be reconciled. However, the future is uncertain. There are three scenarios for the future of the geopolitics of trade.

1. The 'continuity' scenario
China reforms its domestic economic structure and undergoes significant trade liberalisation to fit more comfortably into the existing global trade order, which remains largely the same.

2. The 'risk' scenario
Western economies led by the US use interventionist politics to halt, or even reverse the integration of China into the global economy. The outlook for the global trade order is uncertain.

3. The 'opportunity' scenario
The global trade order and the Chinese economy both undergo some level of reform to reconcile major issues and take tensions out of the system, delivering public goods for all stakeholders.

The 'continuity' scenario would resolve the geopolitical tensions the quickest, yet it seems the least likely. While some concessions have been made – most recently in the 'phase one' trade deal with the US, it seems inconceivable that China would capitulate on all of the demands being made.

The 'risk' scenario is unfortunately the most likely option in the short term. It is both regressive and disruptive and will exacerbate the current period of uncertainty. While the tactics between a Republican and a Democrat administration may differ, attitudes on China are bipartisan in the US, and are generally supported by the other advanced economies.

The 'opportunity' scenario may be possible in the longer-term, with political and economic reconciliation brought about through a new multilateralism, perhaps driven by the disruption posed by climate change or a prolonged depression.

Many of the businesses and experts interviewed for this report believed that the geopolitical situation would get worse before it got better – the 'risk' scenario, followed by the 'opportunity' scenario at some later date. Until then, the US-China trade war will dominate the trade landscape.

The US-China trade and tech war will define the 2020s

The systemic rivalry between the US and China is at once political, economic and technological; often these strands are difficult to separate. For example, the recent concerns around Chinese participation in critical telecommunications infrastructure are a combination of national security concerns, allegations of state aid, and anxieties about technological self-sufficiency. The rivalry will define the geopolitical landscape of the 2020s and will shape the future of trade over the next decade.

Before the tariff war

It is important to note that the systemic rivalry between the US and China is not a product of the Trump administration. The Obama administration pushed the WTO's appellate body on its path to failure in protest at the inability of the WTO to address its trade issues with China. The Obama administration also drove the Trans-Pacific Partnership, a US and Japan-led venture that was a loosely concealed tactic in a China containment strategy.[67] The main difference is that the Trump administration has attempted to deal with China bilaterally rather than multilaterally. While the Trump administration has antagonised partners and allies, one area where the US under Trump has continued to show an interest in cooperation is on challenging China.[68]

Tariff war 2018 and onwards

In 2018 and 2019, trade tensions between the US and China escalated. Washington delivered three rounds of tariffs on Chinese exports to the US in 2018, the first of which came about in July 2018. In the period leading up to December 2019, the US imposed tariffs on more than US$360 billion of Chinese goods. China retaliated with tariffs on more than US$110 billion of US products.

The US tariffs resulted in a reduction in imports of the tariffed products of more than 25% during the first half of 2019. The graph on page 48 shows how the value of US imports from China has changed between 2017 and 2019 and highlights the impact that the tariffs have had. Between October 2018 and March 2019, the value of US imports from China fell by 40%. The tariff war has resulted in higher prices for US and Chinese consumers as they turn to more expensive domestic alternatives.[69]

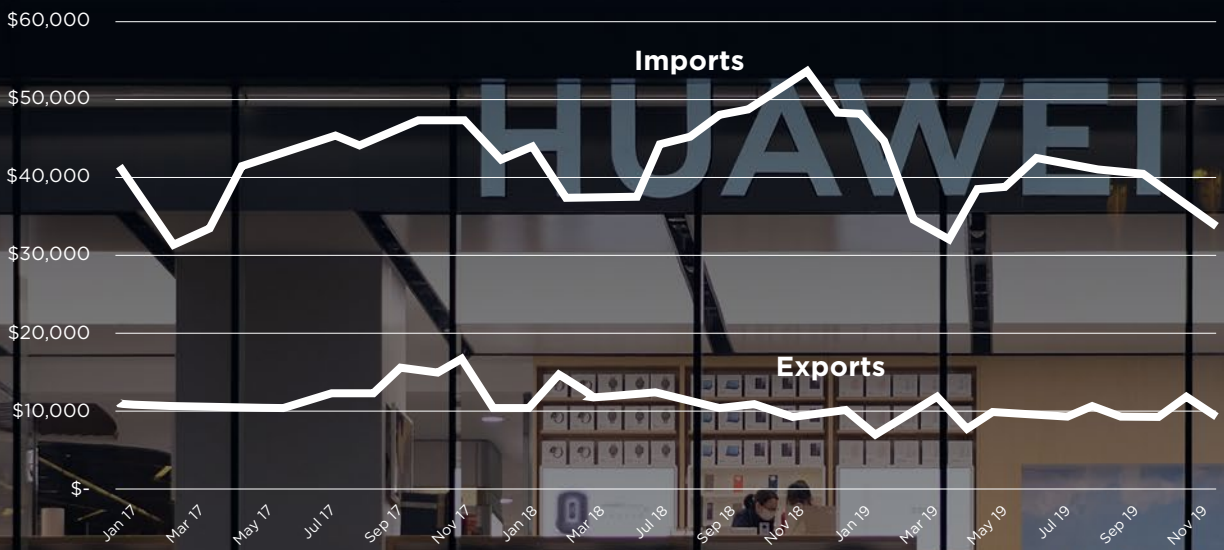
+25%

reduction in tariffed products from China to US during first half of 2019

[67] "The trade war did not start with President Donald Trump", Paul Blustein, The Economist, September 26, 2019
[68] 2019 Report to Congress of the US-China Economic and Security Review Commission, November 2019
[69] Trade and trade diversion effects of United States tariffs on China, UNCTAD Research Paper No. 37

FIGURE 1

US exports to China and imports from China, millions of U.S. dollars on a nominal basis, not seasonally adjusted



In 2020 there were early signs of peace in the form of a "phase one" trade deal was signed in which China pledged to boost US imports by $200 billion above 2017 levels and strengthen intellectual property rules while the US agreed to halve some of the new tariffs it had imposed on China. By the middle of 2020, China had only met 28% of its commitments. There are also many more substantive issues – such as state-owned enterprises – which have yet to be addressed.

Collateral damage

In addition to the drop-off in trade there has been significant collateral damage. Both economies have become less competitive. The annual ranking by the IMD World Competitiveness Centre saw the US slip from third to fourth in 2020, having held the top spot as recently as 2015. China slipped six places to 20th place. Smaller economies including Singapore, Denmark, and Switzerland topped the list.[70] The UAE was placed 9th, the fourth year in a row it has made the top 10.[71]

Corporations have become targets on both sides. The US has continued to add Chinese companies to trade blacklists, a trend that started with Huawei Technologies in an attempt to cut it off from access to US computer chips. The blacklist has expanded, including some of China's top AI companies. The blacklists help maintain the US' current monopoly on the most advanced computer processor chips.

[70] IMD Global Competitiveness Ranking 2019, June 2020
[71] IMD Global Competitiveness Ranking 2019, June 2020

This has forced China to invest in gaining self-sufficiency in the sector, which is already showing signs of happening.[74]

The tariffs and other measures indicate a shift in US strategy from 'containment' under Obama to 'decoupling' under Trump. While true decoupling has so far seemed unrealistic, the COVID-19 pandemic has expanded the scope for it as support for sovereignty over production is strengthened and enthusiasm for free trade is weakened.[75]

An unbalanced trade war

While China saw the initial set of tariffs imposed by the US as the posturing of a populist leader, subsequent rounds caught Chinese officials and businesses off-guard. China's response to the US has been modest – Chinese tariffs were less than one third of the value of US tariffs. There is also a strategic imbalance. Theoretically, there is little that China supplies that the US could not produce domestically. The inverse is not true given, for example, China's reliance on certain types of US computer chips.

US$ 400 million in Chinese goods were trans-shipped through Vietnam, Taiwan and Thailand in Q1 2020

In reality, there is significant interdependence, for now. US consumers need goods produced in China and China's manufacturing base still relies on US demand. Hence, Chinese goods still made their way to the US during the trade war. It is estimated that up to US$400 million in Chinese goods were trans-shipped through Vietnam, Taiwan and Thailand in the first quarter of 2020, avoiding up to US$60 million in duties.[76] Given the interconnected nature of global supply chains and shipping, trade finds a way – though the US is trying to clamp down on this trade.

China still has some room to manoeuvre in terms of policy concessions and its importance to global supply chains. In the current climate, the risk for China is not economic, but one of soft power and trust, that will limit its strategic options in the future. Former US Ambassador Christopher Hill observed that "the Chinese have a well-deserved reputation for thinking ahead, and what they see ahead is a world increasingly sceptical of China."[77]

Sino-skepticism

The sino-scepticism of western democracies is fuelled by a mix of democratic principles, national security concerns, and perceived unfair economic practices. For China's closer neighbours it is the fear of becoming a vassal state, fuelled most recently by allegations of 'debt-trap diplomacy' along the Belt and Road and tensions in the South China Sea.

[74] Yuan Yang, "US tech backlash forces China to be more self-sufficient", FT, January 15, 2020
[75] Christopher R. Hill, "What does Washington want from China?", Majalla, May 15, 2020: https://eng.majalla.com/node/88816/what-does-washington-want-from-china
[76] Tim Fernholz and Dan Kopf, "How much trade is dodging Trump's tariffs?", Quartz, July 13, 2020 https://qz.com/1874110/how-much-trade-is-dodging-trumps-china-tariffs/
[77] Christopher R. Hill, "What does Washington want from China?", Majalla, May 15, 2020: https://eng.majalla.com/node/88816/what-does-washington-want-from-china

The Brookings Institute's Tanvi Madan wrote that "anti-China sentiment has gone mainstream"[78] in the Indian public sphere while the government has tightened investment restrictions to fend off Chinese takeovers.[79] Japan has dedicated US$2.2 billion of its COVID-19 rescue package to support Japanese firms relocating from China. Greg Poling of CSIS has talked of the "outrage" of Southeast Asian countries over Chinese manoeuvres in the South China Sea during the pandemic.[80] Both the EU and the UK have moved to limit the participation of Huawei in their 5G networks. During 2020, China's 'facemask diplomacy' was met with suspicion. Ambassador Hill again observed "That offers to supply hospital equipment should be subject to such scepticism is a testament to the weakening of the international order."[81]

US$ 2.2 billion

Japanese support to reshore firms based in China

China – a global scapegoat?

There is an important question as to whether recent US actions produced the intended results. The phase one deal has boosted US exports as well as supporting policy aims on intellectual property. But a key refrain from the Trump administration has been one of repatriating jobs which has been minimal. The US gained roughly 500,000 manufacturing jobs in 2016-2019, but this growth was in line with gains across the entire economy during the post-financial crisis period. These gains have now been wiped out by the COVID-19 pandemic crisis.[82]

The tariff war has been ineffective because China, and trade more broadly, was not responsible for the majority of job losses. The US lost 5.6 million manufacturing jobs between 2000 and 2010, the first decade after China joined the WTO. However, researchers have attributed 85% of those job losses to technological developments such as automation. Job losses due to robotics and automation are almost always irreversible, meaning that almost any policy change now would be ineffective.[83]

Only 13% of the job losses between 2000 and 2010 were due to trade policy that allowed offshoring to low-cost manufacturing hubs, and a concurrent reduction in consumer prices. Some of these hubs – in particular those in China – now have unchallenged capacity for scale and quality in key areas of manufacturing.

[86] https://www.brookings.edu/blog/order-from-chaos/2020/04/30/how-is-the-coronavirus-outbreak-affecting-chinas-relations-with-india/
[87] https://www.newstatesman.com/world/asia/2020/05/rise-indo-pacific
[88] https://www.newstatesman.com/world/asia/2020/05/rise-indo-pacific
[89] https://www.foreignaffairs.com/articles/china/2020-05-11/what-does-washington-want-china
[90] https://www.epi.org/publication/reshoring-manufacturing-jobs/
[91] https://www.ft.com/content/dec677c0-b7e6-11e6-ba85-95d1533d9a62

China's trade and foreign policy have antagonised its global colleagues. Yet in economic terms China has been scapegoated for the failure of advanced economies to rebalance and reinvest in their economies and address long-term inequalities. In some ways, China's rise and integration into the global economy suffered from poor timing.

In the face of isolation, China is seeking greater self-sufficiency both in economic and technological terms. It is inevitable that China will gain independence in high-end computer chip manufacturing. China is already highly competitive in AI; in some specific areas it is more advanced than the US.[84] Chinese companies are working on new operating systems, freeing them from the dominance of Android, Apple OS and Windows. Economic independence will allow China to compete with the US on all fronts, especially in developing markets. Ironically therefore, the US' approach to China may have made it a more effective competitor.

However, for many international businesses there is no alternative; the growth potential of China is 30% over the next ten years – the same value as the entire OECD combined. China also has unrivalled scale and skill in many areas of manufacturing. Barring a total decoupling, most businesses will therefore continue to engage China, trade war or not.

One of the main obstacles to a global movement towards ending the trade war is the tempting nature of protectionism itself. In the context of a global shift towards populism, and the economic shock of the pandemic, this temptation is proving difficult to resist for many countries.

The outlook

It is difficult to see this strategic rivalry between the US and China resolving any time soon. The continuation of this environment is not conducive to international trade, especially with China. Global uncertainty holds back investments. Volatility makes economic modelling extremely difficult, so each business must run expecting a range of equally possible scenarios, including the outliers. The leader of the EU Chamber of Commerce in China likened the environment to "navigating in the dark".

China has a growth potential of

30%

over the next 10 years

[84] CKGSB Business Condition Index, Xu Chengang, 2018: https://english.ckgsb.edu.cn/worldwide/chinas-ai-index/

SECTION TWO

PROTECTIONISM IS BACK ON THE AGENDA

US-China trade war gives licence to others

The actions of the US and China in an escalating trade war have given licence, or at least cover, to others to pursue protectionist agendas. The economic crisis caused by the COVID-19 pandemic has fuelled this further. Meanwhile the ability of international institutions such as the WTO to provide solutions has been undermined.

China has been publicly criticised for not playing by the rules. But it is the protectionist actions of the US, as the author of the global trade system and the driver of market liberalisation that have done more to push the global trade order to its tipping point. It is not only China that has been on the receiving end of a more aggressive US trade policy. Some aggrieved trade partners have launched formal challenges against the US. For the most part the US business community has been critical of the actions as well, especially as the measures have failed to produce results. They have however been a source of inspiration for others.

In the line of fire: the new US trade policy tools

International trade agreements
Following election campaign promises, the Trump administration withdrew the US from the Trans-Pacific Partnership on 23 January 2017.

The US also renegotiated the North American Free Trade Agreement (NAFTA) with Canada and Mexico, as the USMCA which was signed on October 1, 2018. The renegotiation was driven by the US, and although it contains new provisions on data, automotive and agricultural goods, many analysts concluded that it would have minimal economic impact on growth or jobs.

The US-South Korea FTA, originally signed in 2007, was renegotiated at the request of the US and resigned in September 2018. Again, critics concluded that the renegotiated agreement did little for the US economy.

Blocking of the appointment of members to the WTO Appellate Body
Although the issues of the Appellate Body started under the Obama administration, the Trump administration has been highly critical of the WTO and among other complaints has criticised the dispute settlement function for overstepping its mandate. The US continued to block the appointment of members of the appellate body until the body was unable to function and has refused to engage in serious reform discussion.[85]

National security – Section 232 of the Trade Expansion Act 1962
The Trump administration has blurred the lines between trade policy, foreign policy and national security policy. Section 232 of the Trade Expansion Act 1962 concerns the national security implications of imports. It coincides with what is effectively a loophole in WTO law that allows nations to impose tariffs to defend "essential security interests". This has traditionally had a narrow application to a small number of strategic sectors, though the US has broadened this out to include automotive, steel, semiconductors and other sectors. The US exploited the provision to apply a 25% tariff on steel and a 10% tariff on aluminium from the EU, Mexico, and Canada, as well as 10% tariffs on billions of dollars' worth of goods from China.[86]

Unfair trade practices – Section 301 of the Trade Act 1974
Section 301 of the Trade Act 1974 allows the US President to take retaliatory measures including tariffs and quotas if US rights are denied or the country takes discriminatory measures. The administration has initiated several investigations under Section 301, as well as applying tariffs on US$250 billion of Chinese imports. The Trump administration has also implemented antidumping and countervailing measures.[87]

Protectionist measures at a 'historic high'

The WTO's Trade Monitoring Report in November 2019 showed that trade restrictions among G20 economies remained at "historic highs". Trade covered by import restrictions rose from 0.7% in 2009 to 8.8% in 2018, while the number of import restrictions rose from 68 to 1,328. While there has been a consistent upward trend, there was a significant jump from 2017 where the number of trade restrictive measures almost doubled.[89]

[85] "America First – US trade policy under President Donald Trump", BDI, November 3, 2020: https://english.bdi.eu/article/news/america-first-u-s-trade-policy-under-president-donald-trump/
[86] "America First – US trade policy under President Donald Trump", BDI, November 3, 2020: https://english.bdi.eu/article/news/america-first-u-s-trade-policy-under-president-donald-trump/
[87] "America First – US trade policy under President Donald Trump", BDI, November 3, 2020: https://english.bdi.eu/article/news/america-first-u-s-trade-policy-under-president-donald-trump/
[88] "Trade restriction among G20 economies remain at historic highs", WTO press release, November 21, 2020
[89] Report on G20 Trade Measures (mid-May 2019 to mid-October 2019), WTO, November 21, 2020: https://www.wto.org/english/news_e/news19_e/report_trdev_21nov19_e.pdf

FIGURE 2

Cumulative trade coverage of G20 import-restrictive measures in force since 2009

Note: The cumulative trade coverage estimated by the Secretariat is based on information available in the TMDB on import measure recorded since 2009 and considered to have a trade-restrictive effect. The estimates include import measures for which HS codes were available. The figures do not include trade remedy measures. The import values were sourced from the UNSD Comtrade database.

The COVID-19 pandemic has given an impetus to countries to protect their economies. The early weeks of the pandemic brought into focus concerns around security of supply for key medical supplies and pharmaceuticals. Both the EU[90] and India[91] responded with export restrictions. Meanwhile, a group of other countries – including Singapore, NZ, Canada, Australia, Chile, Brunei, Myanmar made a global call to commit to open markets to solve the problems of access to key materials and personal protective equipment.[92] However, the pandemic has continued to drive restrictive trade measures.

[90] Official Journal of the EU, Commission Implementing Regulation (EU) 2020/402 of 14 March 2020: https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=OJ:L:2020:077I:FULL&from=EN

[91] "India reverses pharmaceutical export restrictions shortly after imposing them", ReedSmith, April 10, 2020: https://www.reedsmith.com/en/perspectives/2020/04/india-reverses-pharmaceutical-export-restrictions-shortly-after-imposing

[92] Hon. David Parker, "Canada, Australia, Chile, Brunei, and Myanmar join NZ and Singapore in committing to keeping supply and trade links open", New Zealand government website, March 25, 2020: https://www.beehive.govt.nz/release/canada-australia-chile-brunei-and-myanmar-join-nz-and-singapore-committing-keeping-supply

The outlook

A survey in May 2020 of multinational CEOs recorded major concerns that protectionism would continue in the wake of COVID-19.[93] The continuation of trade tensions and a weakened multilateralism will continue to provide cover for trade restrictive measures. There is a significant risk that the measures will damage the opportunity for recovery, and the need for the measures will become self-reinforcing. The global trade system is in crisis.

Who will defend global trade? The recent global call for a commitment to open trade during the COVID-19 pandemic gives an indication: Canada, Australia, Chile, Brunei, Myanmar, New Zealand and Singapore were signatories. Middle income countries and smaller advanced economies have the most to lose and are therefore doing their best to keep the doors open. The EU – large in aggregate but comprised of mostly smaller economies – is highly reliant on global value chains, especially in comparison to the US, and therefore shares similar interests. These, and other economies, are also worried about being forced to choose between the US and China.

Major concerns from multinational CEOs that protectionism would continue in the wake of COVID-19

[93] James Politi, "Multinational fear rise in protectionism because of pandemic", FT, May 10, 2020: https://www.ft.com/content/cbc25999-de4f-4d95-9f05-a32ea2d39964

SECTION THREE

A NEW GLOBAL TRADE ORDER EMERGES

The old global trade order stalls

The US-China trade tensions have put the inability of the WTO to act in the spotlight. In reality, the institution and by extension the global trade system has always been dysfunctional. Smart diplomacy and a general environment of peace and economic growth had kept this hidden.

The most acute symptom of the WTO's dysfunction is the inability of the Appellate Body, the key organ for dispute resolution, to operate due to a lack of judges. This has its roots in a festering discontent on the part of the US with the global trading system that it created and held up for more than half a century. China is the main driver for this sentiment in the US. While views on China are bipartisan, there is likely more scope for WTO reform with a Democrat in the White House. However, the path ahead is highly uncertain, and in the meantime the global trading system may see a more innovative, if somewhat ad hoc, trade landscape emerge.

Problems with the WTO

The WTO was created in 1995 as the institutionalisation of the General Agreement on Tariffs and Trade (GATT) and the completion of the Uruguay Round of multilateral trade negotiations. Since 1995 the number of members has risen from 128 to 164. Among the most important additions were China in 2001 and the Russian Federation in 2012. In contrast to the increase in membership, there has been less material progress since 1995 than in the lead up to it.

The Doha Development Round of multilateral trade negotiations started in 2001 but was effectively stalled by 2008. This failure exposed the limits of political support for progress at the multilateral level and disillusionment with the system. Members were unwilling to commit to further liberalisation on the promise of growth when it was clear that globalisation caused significant domestic disruption. The negotiations also exposed the limits of the WTO's consensus decision-making model. Many have concluded that the Uruguay Round in 1995 was a 'one-time trick' and that future trade liberalisation will be incremental.

The failure of the Doha Development Round has meant that global trade policy on services, intellectual property, and the digital economy has lagged behind. More generally the failure of the system to support the mitigation of the downsides of globalisation has undermined trust in the system by populations. Support for international trade,

and the WTO has been falling. Without reform, this situation will continue.

The reform agenda

The impact of WTO reform over the next five to 10 years could range from a rebalancing of trade relations under the 'opportunity' scenario discussed in Chapter I, to the biggest downside risk to the global economy and trade.

The key areas of reform under discussion are:

- reform of the appellate body, including the ability of WTO members to influence substantive outcomes
- plans to enhance the rule-making ability of the WTO to function on issues such as forced technology transfer, sustainability and services
- proposals to update rules on special and differentiated treatment for developing members
- prioritisation of monitoring, compliance and transparency to help solve market access issues
- reform of rules on industrial subsidies and SOEs

WTO reform over the next

5-10 years

could rebalance trade relationships or create more risk

Reaching consensus on reform is not impossible. There is significant overlap between the proposals of the major economies and smaller national groupings. The US, China, the EU, Japan, the BRICS group, and others have all publicly stated their preference for a free and fair rules-based multilateral trading system. The divergence comes over what is deemed 'fair', what the new rules governing trade should look like, and the priorities for reform.

The US has been vocal and active in promoting its aims for WTO reform. First and foremost, the US wants to see the inadequacy of the system addressed. Within a limited range of deviation, the US, the EU and Japan are broadly in line with the reform priorities listed above.

China is aware that it must be at the table, else a WTO reform agenda becomes a China reform agenda. China is likely to prioritise easy wins; this approach was politically expedient for the Trump administration as it negotiated the phase one trade deal in an election year. In addition to non-political issues such as transparency, China may be flexible on other issues such as trade distortions and subsidies, and technology transfer and intellectual property. It is unlikely that major issues such as China's developing market status, SOEs, and competition neutrality will be conceded.[94]

Likelihood of success

The likelihood of significant, meaningful reform of the WTO in the short-term is low. Some of this will depend on who becomes the next Director General of the WTO, as well as who is in the White House. There may be movement on practical institutional issues such as the Appellate Body and transparency,

[94] Antara Ghosal Singh, "China's evolving strategy for WTO reforms", The Diplomat, July 31, 2019: https://thediplomat.com/2019/07/chinas-evolving-strategy-for-wto-reforms/

as well as technology transfer and IP, which featured in the phase one deal between China and the US.

The flexibility of China's approach will develop in parallel with its economic priorities. For example, IP protection is now on the table because China has significant IP and technology to protect. The issue of SOEs may also take a similar path if Chinese SOEs become a significant drag on the economy as they did in Vietnam before it privatised many of them.

It is important to note that the US, the EU, Japan and China are not the only stakeholders. China is aware of this and is forming a range of alliances including a bilateral working group with the EU and joint research with India, Malaysia and others. The Ottawa Group of 10 countries led by Canada, the Shanghai Cooperation Organisation, and the BRICS group may also drive parts of the reform agenda.[95]

The businesses interviewed for this report thought that the most likely scenario for the next five years is one of 'muddling through'. The WTO will continue to play a role in providing a platform for discussions, and with some limited reform, a space for dispute settlement. This leaves significant gaps in the global trading system however, which will need to be filled by innovative means.

A new order emerges

The new order for the trading system will see a diminished role for the WTO and a greater level of innovation in trade policy by state actors. This innovation has already been taking place over the past years but will intensify and the trade linkages it creates will be increasingly important in the absence of a reliable multilateral trade institution.

There are effectively three areas where innovation in trade policy is taking place.

The first is 'variable geometry' whereby groups of economies drive agreements on different topics. The most recent example of this is the Multiparty Interim Appeal-Arbitration Arrangement (MPIA) which serves to provide an interim mechanism for dispute resolution for the 16 signatories while the WTO's Appellate Body is out of action. The MPIA uses Article 25 of the WTO Dispute Settlement Undertaking to enable appeals within the existing WTO framework thus preserving binding WTO dispute settlements between MPIA parties.[96]

There are other historical examples of opt-in agreements including the Information Technology Agreement (concluded in 1996, now with 82 members) and the Agreement on Government Procurement (first concluded in 1991, now with 46 members). The Environmental Goods Agreement and the Trade in Services Agreement are still under negotiation. Regardless of the reform agenda, the WTO may still provide the platform for these discussions, though there are other platforms such as the G20 and its agenda on e-commerce and digital trade.

1/2
world trade
occurred under preferential trade agreement since 2018

[95] Antara Ghosal Singh, "China's evolving strategy for WTO reforms", The Diplomat, July 31, 2019: https://thediplomat.com/2019/07/chinas-evolving-strategy-for-wto-reforms/
[96] Communication from DG Trade, March 27, 2020: https://trade.ec.europa.eu/doclib/docs/2020/march/tradoc_158685.pdf

The second and third areas are variants of 'preferential trade agreements' which are generally negotiated bilaterally or regionally. Since 2018, around half of world trade has occurred under some form of preferential trade agreement.[97] However, in general these agreements are more important for developed economies with the exception of Southeast Asia, Southern Africa and Latin America.

Recent progress by regional agreements include the conclusion of the CPTPP for 11 economies in 2019, the on-going negotiations of Regional Comprehensive Economic Partnership and the African Continental Free Trade Area (AfCTFTA). This is in addition to the large existing blocs of the European Union, ASEAN, and Mercosur. These regional forms of agreement may also align with and reinforce a larger general trend of regionalisation in supply chains.

Major recent bilateral agreements include the EU-Japan FTA and the Indonesia-Australia agreement. There are other formats including trilateral agreements such as the agreement under negotiation between China, Japan and South Korea, and bloc-to-bloc agreements such as EU-Mercosur. Future agreements between China and the EU, Canada, and the UK could be significant both economically and politically.

The proliferation of preferential trade agreements has significant potential for trade growth. Where multilateral negotiations failed due to a plurality of views and needs, more focused agreements allow for needs to be met and concessions to be made in a clearer negotiation between willing partners. They also allow greater scope for non-trade issues such as environmental and labour standards to be addressed, an important trade policy goal for actors such as the EU. However, there is a risk that the proliferation of such agreements undermines the WTO and the possibility of reform.

National security through trade policy

Innovation can also be applied to defensive measures. The COVID-19 pandemic has accelerated thinking around the use of trade policy for national security. Several governments have openly considered ways to reduce reliance on imports for "products that are deemed critical to the wellbeing of the nation"[98] such as PPE and pharmaceuticals.

The EU was already considering bolstering its core supply chains before the pandemic, a process that has now been accelerated,[99] especially in the pharmaceuticals sector.[100] The UK set up 'Project Defend' following the pandemic, in response not only to issues gaining access to key resources, but defensive manoeuvres by economies such as India which halted the export of basic pharmaceutical, many of which are no longer made in advanced economies.

In the case of the pandemic, in fact production distributed across the world and trade between countries enabled protective equipment to be supplied by countries who were recovering, less impacted or not yet hit, to those facing an immediate crisis. However, the experience of the pandemic will provoke the consideration of a wider range of sectors as concerns for national security.

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[97] Key Statistics and Trends in Trade Policy 2019, UNCTAD: https://unctad.org/en/pages/PublicationWebflyer.aspx?publicationid=2693

[98] Sam Roscoe, "Building Supply Chain Resilience: a reflection on 'Project Defend' and the reshoring of manufacturing", UK Trade Policy Observatory, May 28, 2020 : https://blogs.sussex.ac.uk/uktpo/2020/05/28/building-supply-chain-resilience-a-reflection-on-project-defend-and-the-reshoring-of-manufacturing/

[99] Sam Fleming and Michael Peel, "EU industrial supply lines need strengthening, commissioner warns", FT, May 5, 2020: https://www.ft.com/content/5e6e99c2-4faa-4e56-bcd2-88460c8dc41a

[100] Jim Brunsden and Michael Peel, "Covid-19 exposes EU's reliance on drug imports", FT, April 20, 2020: https://www.ft.com/content/c30eb13a-f49e-4d42-b2a8-1c6f70bb4d55

For example, governments may think about how the supply of goods such as food, which is usually left to the market, can be a strategic vulnerability in a time of crisis. Especially a crisis that threatens the productivity of the global south from which a significant portion of basic global food commodities are sourced. In this way, the pandemic may help trade policy prepare for the potential disruption of climate change.

The Outlook

Global trade conflict, especially between the US and China, will become a defining feature of the trade landscape in the 2020s. A worst-case scenario will see economies being increasingly forced to choose between the US and China.

The outlook for the new trade order is one of an increasingly complex network of preferential trade agreements based on geography, trade flows or subject matter. These will help to maintain trade, at least among those who have the capacity to negotiate them. It will leave developing countries even more at the mercy of more advanced economies granting them free access to their economies.

It is highly unlikely that the WTO will undergo significant reform in the near future, in which case it may develop as a platform for plurilateral trade policy discussion as well as some level of dispute resolution. There is a significant risk in the absence of a fully functioning WTO. Preferential trade agreements will not be enough to stave off creeping protectionism, especially in the aftermath of an economic crisis.

The COVID-19 pandemic itself was clear evidence of the need for a coordinated global response to a global challenge. The global economic recovery from the pandemic needs further global coordination, as will the next pandemic and its recovery. Similarly, the root causes of climate change and the multitude of symptoms that will be experienced will require trust, coordination and commitment at the global level.

Companies interviewed for this report consistently put geopolitical risk at the top of their agendas. The combination of multiple sources of risk and the perception that the global political and economic system is unprepared to manage them makes for tough decision-making.

Global trade conflict will define the trade landscape in the 2020s

India's 'Make in India' actually promoting self-reliance?

Discussions around China's growing self-reliance and the US-China trade war, against a backdrop of rising protectionism globally, has remained at the forefront of debate. But it is not just China – India is also moving towards greater protectionism and self-reliance. Despite Indian Prime Minister Narendra Modi's plea for globalisation and open trade at the 2018 Annual Meeting of the World Economic Forum, the country's national budgets since have shown trends towards the opposite. The 2018-2019 Union Budget raised import duties on around 40 items to "provide accurate protection to domestic industry" and "promote creation of more jobs"[101]; Finance Minister Nirmala Sitharaman's first budget in her new role made a clear point for protectionism and introduced more tariff hikes than reductions;[102] and a new task force was set up under the cabinet secretary in 2018 to look into ways of reducing import dependence.[103]

One of Modi's flagship policies when he came into office in 2014 was 'Make in India' and 'minimum government, maximum governance'. But there are clear pillars of protectionism within the Make in India scheme. The government is aiming to create national champions in both the public and private sectors, by providing them with government support against foreign rivals. This has taken the form of implementation of a phased manufacturing programme which uses a combination of import duties and informal political pressure to convince international firms to use domestic vendors for parts of the production process.

Maybe because India has in many ways remained out of global value chains due to historically inward looking policies and high levels of bureaucracy, even the Make in India programme – which was supposed to build labour-intensive industry in the country and help absorb the 10 million people entering the workforce every year[104] – still has hallmarks of protectionist policies. The programme has yet to deliver on its promised due to its lack of focus on key sectors and concrete policies – but the question remains as to whether such a programme, encouraging domestic production through protectionist policies, is a wise move to greater self-reliance, or a return to India's old import-substitution strategies.

[101] Swaminathan S. Anklesaria Aiyar, "India's new protectionism threatens gains from economic reform", Cato Institute Policy Analysis No. 851, October 18, 2018 https://www.cato.org/publications/policy-analysis/indias-new-protectionism-threatens-gains-economic-reform
[102] Swaminathan S. Anklesaria Aiyar, "India's new protectionism threatens gains from economic reform", Cato Institute Policy Analysis No. 851, October 18, 2018 https://www.cato.org/publications/policy-analysis/indias-new-protectionism-threatens-gains-economic-reform
[103] Swaminathan S. Anklesaria Aiyar, "India's new protectionism threatens gains from economic reform", Cato Institute Policy Analysis No. 851, October 18, 2018 https://www.cato.org/publications/policy-analysis/indias-new-protectionism-threatens-gains-economic-reform
[104] Toru Takahashi, "Can India economically decouple itself from China?", Nikkei Asian Review, August 18, 2020: https://asia.nikkei.com/Spotlight/Comment/Can-India-economically-decouple-itself-from-China

SECTION FOUR

IN A WORLD OF RISK, BUSINESSES SEEK TRADE RESILIENCE

The recalibration of global value chains

The landscape for international trade in the 2020s will be one of significant complexity and uncertainty relative to the previous several decades. Yet there are significant opportunities still. The main challenge for businesses engaged in international trade in the coming decade will be balancing risk, resilience and opportunity.

Global value chains have entered a new phase as the reduction in the cost of transport and communications has slowed. Structural changes in China have driven some firms to search for new low-cost manufacturing hubs. Shifts in the trade policy agenda and technology have caused others to consider developing production bases within advanced economies. Overall a major recalibration of supply chains will take place over the next several years.

US reshoring jumps

Kearney's Reshoring Index reported a major rearranging of US supply chains in 2019 in response to trade tensions. While the rising cost of production had meant certain sectors were moving production out of China before trade tensions started, the events of 2018-2019 sped up this process. In 2019, imports from 14 low-cost manufacturing centres dropped by 7.2% from US$816 billion to US$757 billion. US manufacturing output remained steady between 2018 and 2019, but potential gains from the decline in imports were balanced out by a decline in export opportunities.[105]

7.2%

decrease in imports from 14 low-cost manufacturing centres in 2019

[105] US Reshoring Index 2019, Kearney

Supply chain rearrangement within Asia
China's share of manufacturing exports to the US has been declining for six years but was accelerated in 2019. In 2019, US$31 billion of US imports shifted from China to other manufacturing centres in Asia, with 46% being absorbed by Vietnam (though some of this would have been due to trans-shipment from China).[106] The pandemic has "put a spotlight on the extreme vulnerabilities of having the majority of many companies' supply chains rooted in any one country, or otherwise reliant on that economy",[107] and is likely to accelerate the exodus from China.

Mexico wins near-shoring boom
While China has been ceding ground to its neighbours in Asia, 'near-shoring' production in Mexico rose relative to Asian competitors. For every US$100 of US manufacturing imports from an Asian manufacturing centre, there were US$42 worth from Mexico, up from US$37 in 2017.[108] Mexico gained US$13 billion in US business from China alone. As early as 2016 more than half of US companies with manufacturing operations in Mexico moved some production there from elsewhere in the world to serve the US market. This has been accelerated by the US-China trade war and the US-Mexico-Canada Agreement.[109]

Future trends
The trends that are being observed in 2019-2020 are likely to continue. Companies that were recalibrating due to the trade war are likely to double down on that strategy in reaction to the COVID-19 pandemic. In fact, the most exposed companies are the ones who have fared the best during the pandemic. Companies that suffered under the trade war had already begun to re-strategise by the time COVID-19 hit.[110]

Moving forward, the strategic objective for supply chains will become one of resilience.

"Three decades ago, many US producers began manufacturing and sourcing in China for one reason: **costs***. The US–China trade war brought a second dimension more fully into the equation—***risk***—as tariffs and the threat of disrupted China imports prompted companies to weigh surety of supply more fully alongside costs. COVID-19 brings a third dimension more fully into the mix, and arguably to the fore—***resilience***."*[111]

How can this be achieved? Recalibration will mean either diversification, simplification, or both.

US$ 31 billion
of US imports shifted from China to other manufacturing centres in Asia

[106] US Reshoring Index 2019, Kearney
[107] US Reshoring Index 2019, Kearney
[108] US Reshoring Index 2019, Kearney
[109] US Reshoring Index 2019, Kearney
[110] US Reshoring Index 2019, Kearney
[111] US Reshoring Index 2019, Kearney

As mentioned above, businesses have been moving some of their production out of China to Mexico and competitive manufacturing centres in Asia. This is a diversification strategy that hedges primarily against policy or other issues concerning China. For the US market moving production to Mexico is also a strategy of simplification – the US and Mexico share a land border, and 'near-shoring' production for the US market in Mexico is a low-risk move. Shorter supply chains encompass fewer jurisdictions and therefore fewer regulatory and policy risks. For production for markets in Asia, supply chains will become more regionalised.

The new shape of global value chains will differ depending on sector. Some will seek to shorten supply chains; others will diversify with perhaps 20-30% of production outside of the primary country or region. More often than not it will be both, with production located as close as is convenient to consumption markets – a model of 'make where you sell'. Given China is already a major consumer market, a lot of production for multinationals will remain there. This trend bodes well for India with its more than one billion population and growing middle class. Reshoring, near-shoring and 'make where you sell' may have a major impact on trade, with fewer transactions and shorter shipping of components and products.

In addition to the costs of relocation and diversification, there will also be redundancy built into the system to absorb future economic shocks. This will have an impact on the overall costs and may increase prices. However, shareholders may be comfortable with the strategy – resilience implies less efficiency, but it also increases the chances of survival. In the future, competition will be based on who can be the most resilient most efficiently.

Reshoring and near shoring to have major impact on trade in the 2020s

SECTION FIVE
CONCLUSIONS

Key takeaways

The strategic rivalry between the US and China will be the defining dynamic for international relations and global trade in the 2020s. There are three possible scenarios for the future, the most likely being that global trade tensions get worse before they get better.

The US-China trade tensions have given cover for other actors to implement protectionist agendas. Protectionist measures were at a historic high in 2019, a situation which has been exacerbated by the COVID-19 pandemic in 2020.

Wholesale WTO reform is highly unlikely in the current climate. In the interim, economies will need to become more innovative to create a new trade order reliant on plurilateral, regional, and bilateral agreements.

Global trade tensions have driven a recalibration of supply chains that will see greater simplification and diversification. The COVID-19 pandemic will further drive this trend.

In this environment, the strategic objective of supply chains becomes one of risk resilience, in addition to cost efficiency.

CONCLUSIONS

Geopolitics and trade tensions are set to be a defining part of the trade landscape in the 2020s. While major trade policy progress is stalled for now, there are opportunities to move trade policy forward in an uncertain geopolitical environment.

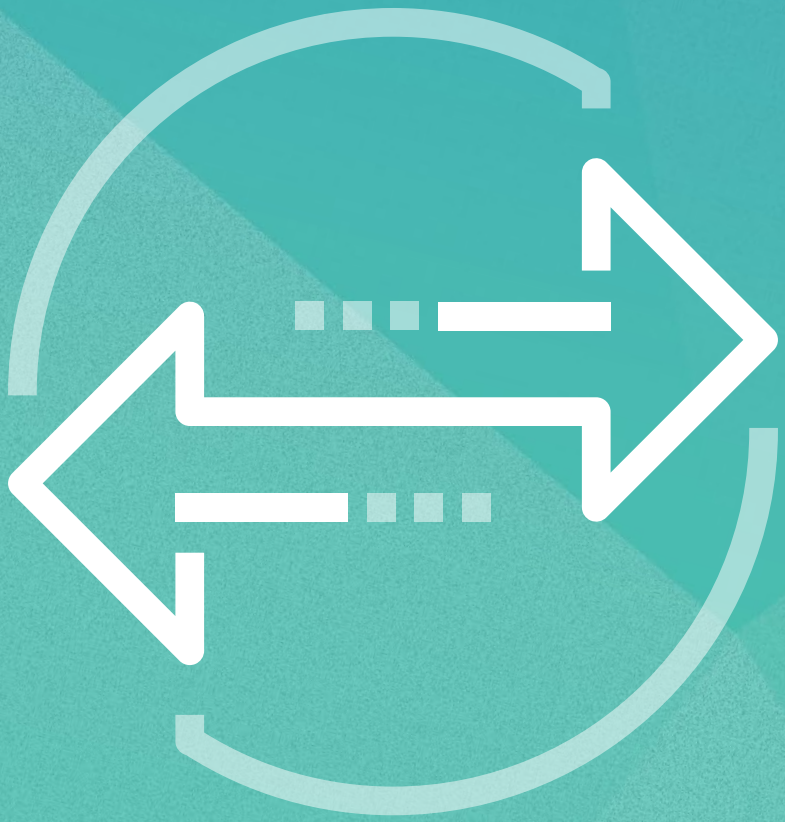
RECOMMENDATIONS

BUSINESS

- Be ready to reorganise your business to enable you to operate in a climate of growing protectionism.
- Consider how your supply chains can be recalibrated in order to balance efficiency, risk and resilience.
- Be vocal in identifying opportunities with key trading partners for governments to act on.
- Make the case for international – if not multilateral – agreement on key issues such as data, e-commerce and services.
- Make the case for a rules-based trading system and WTO reform towards government.

GOVERNMENT

- Like-minded governments must come together and defend global trade. This should include finding common ground for progress on WTO reform.
- Governments must be more innovative with their trade policy in terms of seeking out deeper regional and bilateral deals and pursuing opportunities at the international level on specific sectors.
- Governments and other stakeholders should make the case domestically for international trade rather than allowing it to be scapegoated.
- Building national security into trade should be done in a way that is strategic and, constructive, not as a short-term protectionist measure.



CHAPTER III

TECHNOLOGY AND TRADE

Technology has always been a driver of trade, increasing speed and reach and reducing costs. Enabled by online connectivity and computer processing power digital technologies such as artificial intelligence (AI), the internet of things (IoT), additive manufacturing (or 3D printing) and distributed ledger technology (or blockchain) have the potential to unleash a new wave of efficiency and open new business and trade opportunities.

However, the relationship between technology and trade is changing and the impact of technology on trade growth is becoming more ambiguous. Some technologies will continue to deliver efficiencies, while others have the potential to disrupt current patterns of production and consumption with the effect of undermining trade and sections of the global economy. Technology has wider structural implications for global trade and the global economy and has implications for competitiveness and comparative advantage.

The reaction of governments to the advancements in technology will be critical to trade. The current fragmentation of the policy environment around technology already risks reducing interoperability between markets and increasing compliance costs, which may limit investment and trade. In order to remain competitive, governments will need to create conducive domestic policy environments and encourage affordable digital infrastructure to enable better data flow within and across borders. Businesses should play a key role in advocating for these changes, with specific requests to government to enable technology to drive trade and economic recovery.

SECTION ONE

TECHNOLOGY AND THE FUTURE OF TRADE

Understanding the impact of technology on trade

There are several approaches to looking at the ways in which trade and technologies interact. The OECD and the WTO have led on a conceptual framework for digital trade, identifying three main factors – 'what we trade', 'who trades what', and 'how we trade'.

Technology and goods trade

Technology changes 'what we trade' for example with the introduction of new products such as computers and mobile phones. Trade in ICT goods tripled in the two decades up to 2016 reaching US$1.6 trillion.[112] ICT goods have been a big driver of global value chains over the past several decades given the varied materials and multiple components required in their production.

Some technologies can help increase trade by reducing barriers and trade costs for goods that are time-sensitive, contract-intensive or certification-intensive. AI and IoT will increase the efficiency of complex supply chains and enable location tracking and environmental factors such as temperature and humidity for sensitive goods to verify their quality. Blockchain could minimise or remove the need for legal expertise or third parties to manage transactions, facilitating contracts in low-trust exchange environments. It can also support immutable verification, certification and proof of provenance.[113]

The impact of technology on trade costs is an important factor in driving changes in 'who trades what', as lower trade costs enable more SMEs and businesses in developing markets to engage in international trade in both goods and services.

However, in some cases technology leads to a decline in trade. Trade in digitizable goods such as CDs, book, and newspapers declined by from 2.7% of total goods trade in 2000 to 0.8% in 2016.[114] The trend is likely to continue as internet access increases and these goods continue to shift to service models such as Spotify, Netflix, or e-books.

[112] World Trade Report 2018: The future of world trade: how digital technologies are transforming global commerce, WTO Secretariat, 2018
[113] World Trade Report 2018: The future of world trade: how digital technologies are transforming global commerce, WTO Secretariat, 2018
[114] World Trade Report 2018: The future of world trade: how digital technologies are transforming global commerce, WTO Secretariat, 2018

The digitalisation of goods could expand further with the uptake of additive manufacturing. Designs will be traded but physical goods will be created near to their location of consumption, on-site in factories, or even in consumers' homes. Digitalisation reduces goods trade at the same time that it increases the importance of intellectual property. The last few years have seen an increase in the trade of IP licensing and the ownership of IP rights, as well as an increase in the diversity of IP being traded.[115]

Technology and how we trade

The greatest change to 'how we trade' driven by technology is the emergence of the internet as a marketplace and as a means of services delivery. Cross-border business-to-consumer (B2C) e-commerce was projected to top US$1 trillion in 2020, despite economic difficulties this trend should still be driven by changing consumer behaviour following the COVID-19 pandemic. The market for cross-border business-to-business e-commerce may be up to six times as large.[116]

As with goods, e-commerce enables services to be digitally ordered, but online communications platforms enable services to be digitally delivered as well, such as healthcare consultations and education. Technology may help break down the barriers that have held back cross-border services: the WTO predicts that technology will drive major changes in the composition of global trade, growing the share of services trade from 21% to 25% by 2030.[117]

Will technology drive trade growth?

BCG's Henderson Institute estimates that in total 'digitally enabled' trade is worth between US$800 billion and US$1.5 trillion – a significant amount, but only between 3.5% and 6% of global trade. This is far below the potential for digital technology. The institute estimates that up to 70% of all global trade flows could be meaningfully impacted by digitalisation with around 22% of trade susceptible.[118]

Analysis by the McKinsey Global Institute indicates that technology will reduce costs, driving trade by up to US$4.7 trillion by 2030. However, the relationship between technology and trade is becoming more ambiguous, and the net effect of technology on trade could be only US$400 billion.[119]

Technologies that change production such as AI, automation and additive manufacturing will shorten global value chains as technology enables production to take place nearer to consumers, reducing global goods trade by up to US$4 trillion by 2030.[120]

Furthermore, new products incorporating new technologies will also drive down trade. This includes goods that can be digitalised, and new goods such as electric vehicles that have fewer parts than their traditional equivalents. These changes in the composition and tradability of goods could cause a decrease in trade of up to US$310 billion by 2030.[121] Other areas of goods trade may also be undermined by the rise of the new modes of consumption such as the sharing economy. For example, a third of the expected increase in vehicle sales will likely not happen because of an increase in shared mobility solutions.[122]

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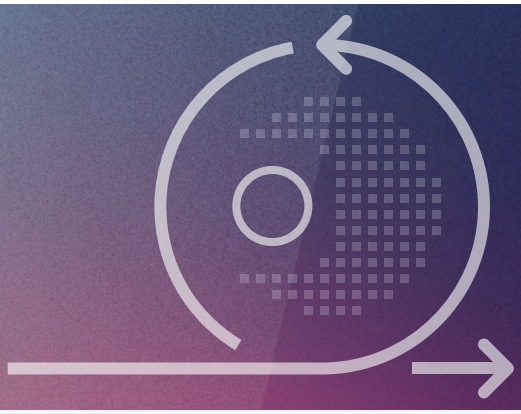
[115] World Trade Report 2018: The future of world trade: how digital technologies are transforming global commerce, WTO Secretariat, 2018
[116] In-depth: B2B e-commerce 2019, ecommerceDB.com: https://www.statista.com/study/44442/statista-report-b2b-e-commerce/
[117] World Trade Report 2018: The future of world trade: how digital technologies are transforming global commerce, WTO Secretariat, 2018
[118] Christian Ketels, Arindam Bhattacharya, and Liyana Satar, "Global Trade Goes Digital", BCG Henderson Institute, August 12, 2019: https://www.bcg.com/publications/2019/global-trade-goes-digital
[119] Susan Lund and Jacques Bughin, "Next generation technologies and the future of trade", Mckinsey Global Institute, April 18, 2019
[120] Susan Lund and Jacques Bughin, "Next generation technologies and the future of trade", Mckinsey Global Institute, April 18, 2019
[121] Susan Lund and Jacques Bughin, "Next generation technologies and the future of trade", Mckinsey Global Institute, April 18, 2019
[122] Anne Grosse-Ophoff, Saskia Hausler, Kersten Heineke, and Timo Möller, "How shared mobility will change the automotive industry", Mckinsey & Company, April 18, 2017: https://www.mckinsey.com/industries/automotive-and-assembly/our-insights/how-shared-mobility-will-change-the-automotive-industry

DMCC INDUSTRY DIGITALISATION INDEX



Introduction

In order for technology to drive trade growth it must be disseminated and adopted. DMCC's Industry Digitalisation Index shows that the absorption of technology is uneven across sectors and there is a long way to go until technological absorption is exhausted. With a view to driving trade growth, technologies that support trade should be incentivised. But this is complex.

The absorption of technology is driven by need and the return on investment. In all cases, technology must be implementable and useful. Based on projections at the time, the Future of Trade report in 2018 heralded the transformative potential for blockchain. This revolution has not come about, at least not yet. Many of the business leaders interviewed for this report were still sceptical about blockchain technology and viewed it as "a solution looking for a problem". In this case, the pain threshold or the risk-reward balance has not been reached. It may take a policy breakthrough, an act of leadership, or indeed a global economic crisis to make the change happen. Similarly, despite the potential for multiple uses, it is not always clear how AI should be incorporated into many existing business models.

The absorption of technology is driven by need and the return on investment.

The index

DMCC's Industry Digitisation Index tracks businesses' digitalisation progress across sectors and spans four separate functions of digitalisation in the processes of trade and general business activities.

The index tracks the following digitalisation factors:

Upstream supply chain

This component studies how much businesses are digitalising their practises when it comes to connecting with external suppliers. Measures such as the share of enterprises purchasing online from suppliers, or the extent to which enterprises use the internet to access external information are included.

Production

This measures the extent to which businesses are digitalising their internal processes. This incorporates the share of businesses using automated exchange systems, the use of cloud computing and big data, or the share of enterprises using open source operating systems.

Downstream supply chain

A measure of how much businesses are digitalising their practises when it comes to connecting with their clients – be it consumers, other businesses, or governments. Examples include the share of enterprises selling online, or the share of enterprises providing the option of online ordering or reservation to their customers.

Digital infrastructure

This final component looks as businesses' progress in setting up a digital infrastructure to support the digitalisation of the production phases covered in the rest of the index. Specifically, measures of connectivity are studied, such as broadband access and the share of employees that are provided with a portable device that allows them to access the internet.

2020 Index results

The 2020 Industry Digitalisation Index results reveal a significant variability between the four components of the index. Digital infrastructure is by far the most digitalised function, scoring 78 out of 100, while downstream supply chain has the lowest score at 22.

The top scoring sector on the Industry Digitalisation Index is information and communication, which was also the top performer in the last report. Accommodation and food services has the second highest score.

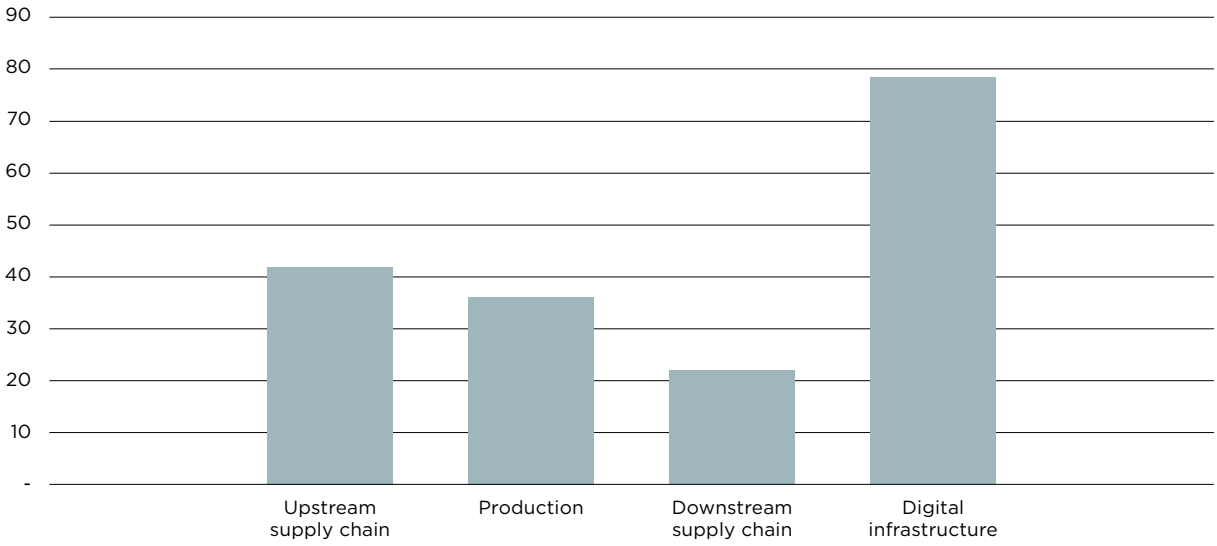
The upstream supply chain function has a score of 42 on the IDI. Upward pressures on the index result for upstream supply chain come from the high share of businesses using the internet to obtain information from public authorities and the share of companies sending or receiving orders via computer networks. Downward pressure on the result comes from the share of businesses purchasing online from abroad, which remains fairly low.

The result for the production business function remains relatively low, at 35, although this is still an improvement on the 2018 IDI result. One factor which raises the index score for production is the share of businesses using mobile connection to the internet for processing. Meanwhile the low share of enterprises using Radio Frequency Identification (RFID) technologies or enterprises using open source operating systems contributed to weakness in the index score.

Downstream supply chain achieved the lowest score on the IDI, at 22. 48% of businesses reported sending e-invoices, which made the biggest positive impact on the index. However, only 6% of enterprises say they have received orders via electronic data interchange (EDI) messages.

FIGURE 1

Score on DMCC Industry Digitalisation Index (IDI), average across all industries, by index component (1-100, where 100 is fully digitalised), 2020 score



Digital infrastructure scored relatively well as a result of a high share of enterprises saying that they have broadband access or enterprises saying they use Digital Subscriber Line (DSL) or other fixed broadband connection (92%).

Results for the IDI vary significantly by sector. The top scoring sector on the index is information and communication, which was also the top performer in the last report. Accommodation and food services has the second highest IDI score. These two sectors both score highly in terms of upstream supply chain functions. Information and communication has the highest score out of all industries for upstream supply chain, production and digital infrastructure, while accommodation and food services has the highest score out of all industries for downstream supply chain.

It is important for businesses in the accommodation and food services to have good digital processes, since online booking systems are very useful for trade. Many businesses

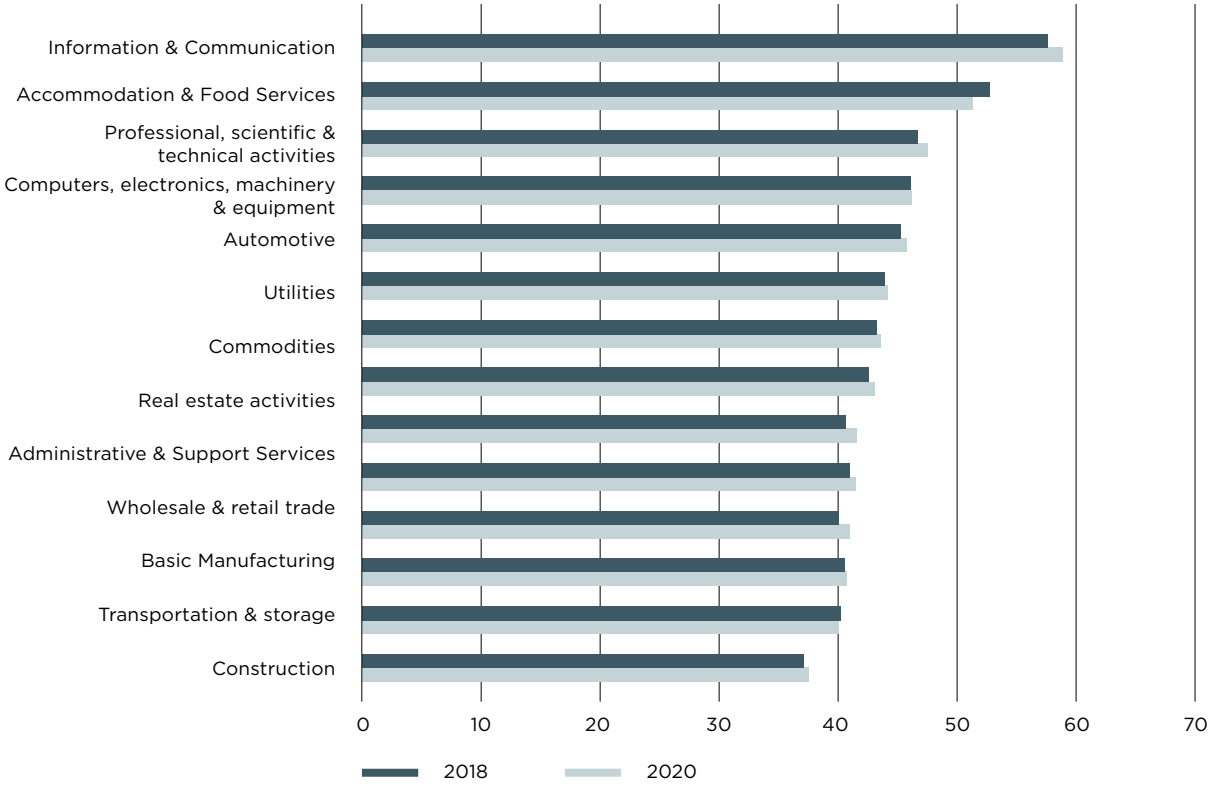
in this industry also use technology to communicate with suppliers. However, the IDI result for this sector actually fell between 2018 and 2020, which is a worrying sign for the industry.

Professional, scientific and technical activities came third on the IDI ranking for industries, and also saw an increase compared to the 2018 result. Businesses in this sector are often among the first to invest in new technologies which can increase productivity. For example, financial services companies, which fall in the sector, tend to invest heavily in digital infrastructure in order to improve their client experience, raise staff productivity and ensure information is secure.

The lowest scoring sector is construction, although it did see an improvement since the 2018 IDI. Construction has the lowest score out of all industries for both production and downstream supply chain business functions.

FIGURE 2

Score on DMCC Industry Digitalisation Index (IDI), by industry group (1-100, where 100 is fully digitalised), 2018 and 2020 scores



94%

of information and communication businesses have a website or homepage

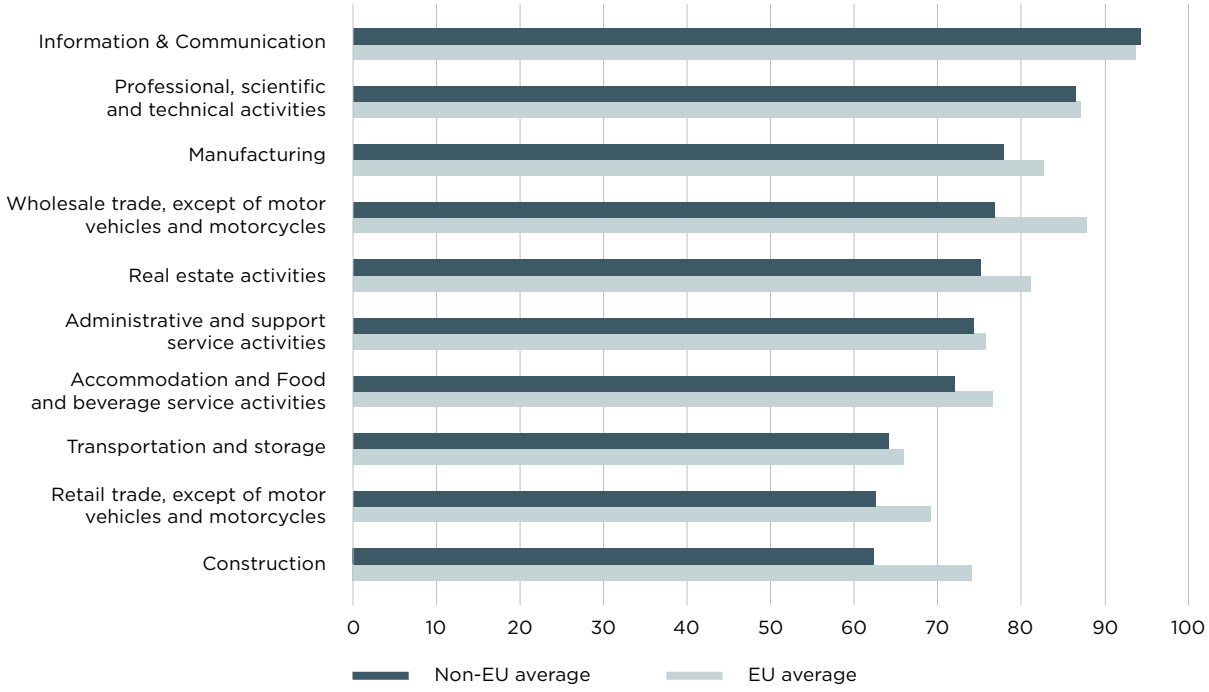
To put the IDI (which relies on European Union data) in a broader global context, OECD data for e-commerce was analysed, which shows that industries that are most digitalised in Europe tend to be the industries that are most digitalised in other parts of the world.

The share of businesses with a website or homepage in the information and communication and professional, scientific and technical activities sectors are very similar for EU and non-EU countries which report data to the OECD. 94% of information and communication businesses have a website or homepage in EU and non-EU countries.

Far more EU wholesale businesses have a website or homepage than non-EU businesses in the same sector, at 88% compared to 77%. There is a similar percentage point difference between EU and non-EU businesses for the construction industry, where 62% of non-EU businesses have a website compared to 74% of EU enterprises.

FIGURE 3

Businesses with a website or home page (%), 2017



Non-EU countries are more likely to report that businesses receive orders over computer networks in every industry except wholesale trade and retail trade, where EU companies are more likely to be able to receive orders over the internet. 37% of EU wholesale businesses take computer network orders, compared to 32% of non-EU wholesale businesses.

In non-EU countries, the top sector for receiving computer network orders is accommodation and food services, where 37% of businesses offer this, compared to only 28% of businesses in this sector in EU countries. In both EU and non-EU countries, construction enterprises are least likely to take orders over computer networks, although they are far more likely to in non-EU countries, at 15% compared to 7%.

Similar shares of businesses use social media across industries in EU and non-EU countries, as shown in Figure 10. The industry with the biggest divergence in social media usage between EU and non-EU countries is real estate activities, where non-EU businesses are far more likely to use social media, at 60% compared to just 45% for EU real estate businesses.

FIGURE 4

Businesses receiving orders over computer networks (%), 2017

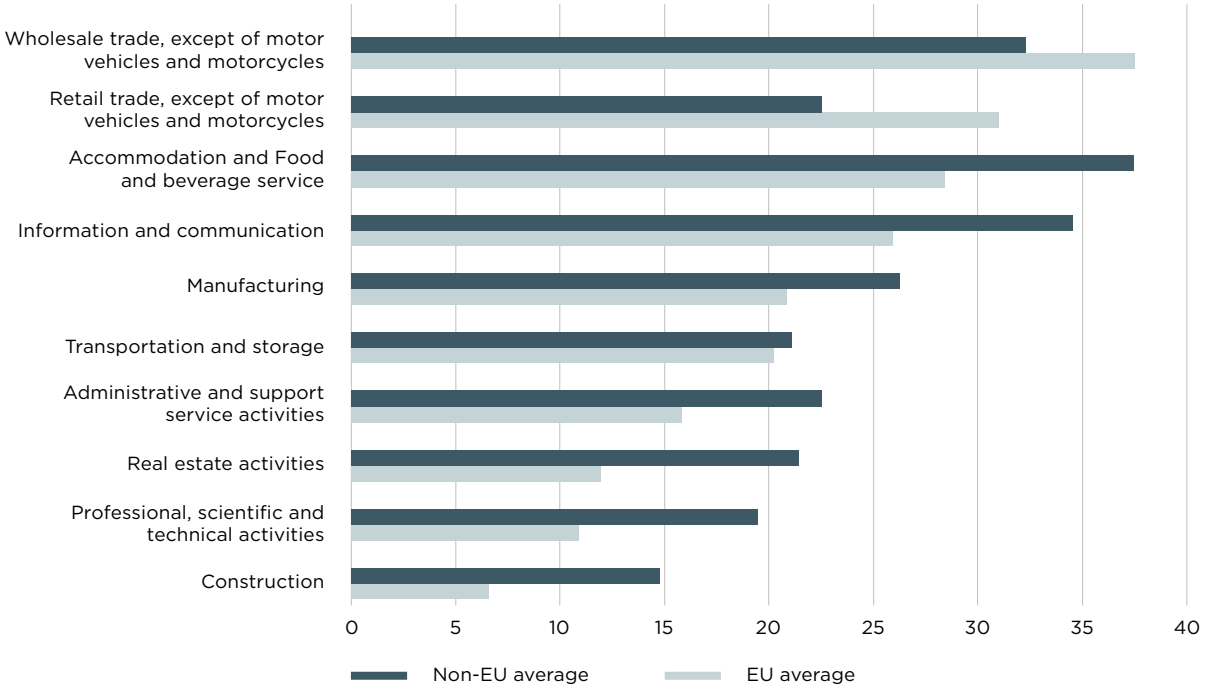
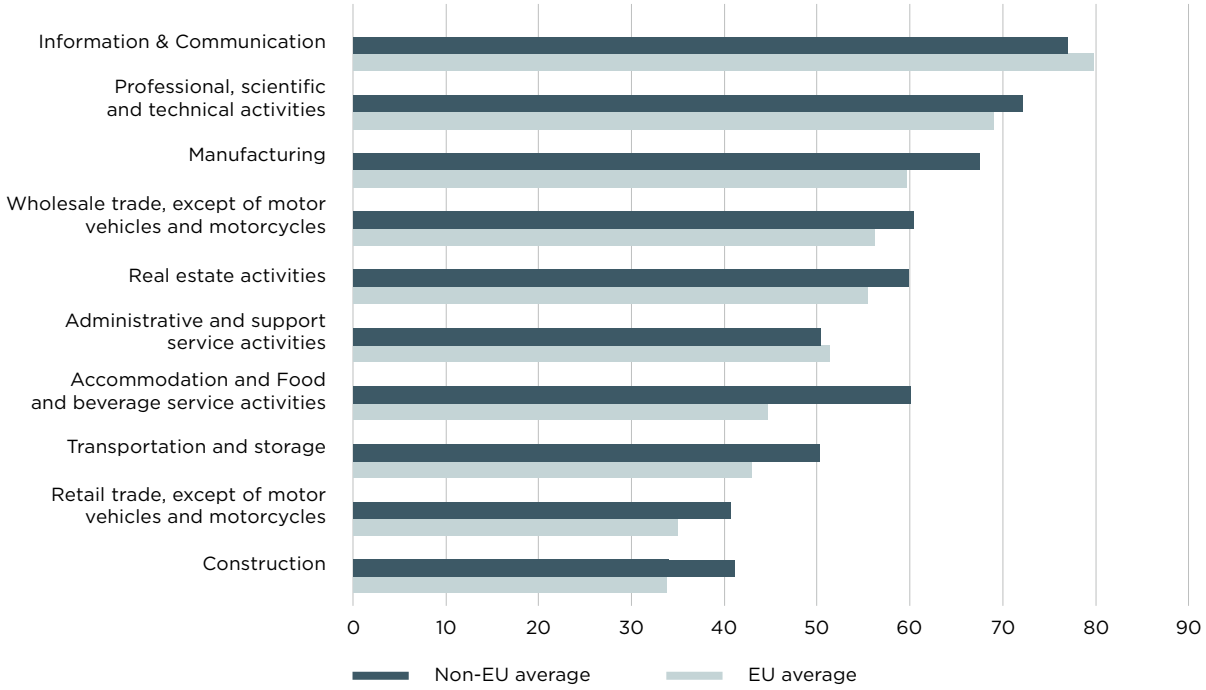


FIGURE 5

Businesses using social media (%), 2017



Implications of technology for the future of trade

Technology has wider structural implications for global trade and the global economy, impacting jobs, infrastructure, legal structures, and the nature of comparative advantage.

The shift in the global composition of trade towards services points to future changes in the global labour market. Value chains in the digital economy are less labour-intensive and so prize skills over labour. At the same time, automation and additive manufacturing undermine the role of labour in goods value chains.

The role of physical transport infrastructure becomes relatively less important in a more digital economy. The importance of other types of infrastructure increases, namely telecommunications infrastructure, undersea cables, satellite systems, servers, and a reliable energy supply to keep them going. In the future, an economy's geography will become less important than its digital connectivity.

There are similar implications for legal frameworks and institutions; laws on intellectual property, data flows, and privacy

protection – which are often underserved and internationally fragmented – will gain in importance over customs and tariffs.

Putting these implications together – skills, digital infrastructure, and legal frameworks – a blueprint for trade competitiveness and comparative advantage in the future digital economy emerges. This is particularly important for less developed countries. Given the other dynamics at play, it does not make sense for a small, landlocked country in the global south to invest in becoming a global manufacturing hub. The digital economy offers a different future. The WTO estimates that under the right circumstances developing countries' share in global trade could grow from 46% in 2015 to 57% in 2030.[123]

Where the digital economy can open the way for emerging markets, it does the same for micro, small, and medium-sized enterprises (MSMEs). Technology has driven down the costs of trade and is likely to continue doing so. E-commerce and online payments systems allows any business of any size to access a global customer base and compete with multinationals. Connectivity and the uptake of cost-reducing technologies will have a disproportionately positive impact on MSMEs, especially those in emerging markets.[124]

The outlook

Looking ahead, technology will continue to reduce the costs of trade and create new opportunities for trade. In particular, digital technology will be the key enabler for the shift in the composition of global trade towards services.

However, the impact of technology on goods trade is ambiguous. A net increase in trade is predicted, but this will depend on the relative absorption of different technologies across the economy. DMCC's Industry Digitalisation Index shows that the absorption of technology across sectors varies greatly.

11%

growth in developing countries share of global trade by 2030 if digitally enabled

[123] World Trade Report 2018: The future of world trade: how digital technologies are transforming global commerce, WTO Secretariat, 2018
[124] World Trade Report 2018: The future of world trade: how digital technologies are transforming global commerce, WTO Secretariat, 2018

SECTION TWO
KEY TRENDS

Three trends in the interaction between trade and technology will shape the future of trade:

Technology will continue to facilitate goods trade by reducing costs and boost the efficiency of logistics and trade processes.

This will be achieved by:
- Leveraging AI to drive down transports and logistics costs
- Revolutionising cross-border trade processes through blockchain
- Reducing waste, loss and fraud with IoT
- Disrupting brokering businesses through digital platforms

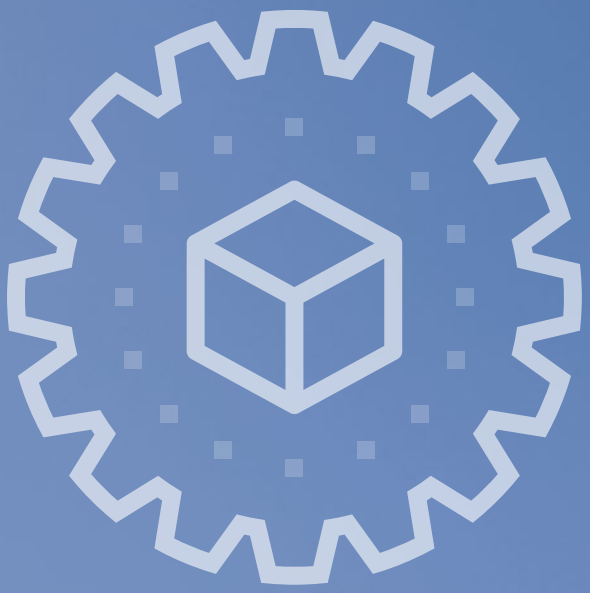
Technology will continue to unlock new markets and new areas of growth for both goods and services.

This will be achieved by:
- A continued boom in innovative e-commerce
- The unlocking of new growth potential in cross border services
- The rise of data as the most-valued commodity

Technology will cause severe disruption to global value chains

This will be brought about by the rise of automation and additive manufacturing

TREND ONE: Boosting efficiency



TECHNOLOGY WILL CONTINUE TO FACILITATE GOODS TRADE BY REDUCING COSTS AND BOOST THE EFFICIENCY OF LOGISTICS AND TRADE PROCESSES.

Trade costs include anything that drives a wedge between the producer price in an exporting country and the consumer prices in an importing country.[125] Costs accrue along the supply chain – shipping, logistics, warehousing, customs, insurance, trade finance, and brokering costs among others. High trade costs dissuade smaller businesses, particularly those in emerging markets, from engaging in international trade. Risk and administrative capacity are also particularly important for smaller firms.

[125] Bernard Hoekman, Ben Shepherd, "Reducing trade costs", International Growth Centre, Blog, March 13, 2015: https://www.theigc.org/blog/reducing-trade-costs/

Below we have identified several technologies and the impact that they will have on different parts of the goods trade process.

AI will play a major role in driving down transport and logistics costs

Artificial intelligence, in combination with other technologies such as autonomous vehicles, robotics, and IoT sensors, will play a major role in driving down costs along the logistics chain. By 2021, half of all manufacturing supply chains will have invested in supply chain AI in some form.[126] As supply chains become 'smarter' they will shift from being cost centres to opportunity centres, gathering and analysing data to provide insights for supply chain management, production, and sales and marketing functions.[127]

In the future, AI will increasingly be integrated into logistics and supply chains in three areas:

- Autonomous vehicles involved in shipping, transport, and last-mile delivery
- AI-controlled robotics in warehouses and ports
- AI, IoT and big data in supply chain management

The integration of AI into these sectors will reduce input costs such as labour as well as increasing efficiencies within the systems such as use of space, turnaround time, and volume capacity. AI may be able to impact the transport and logistics industry's performance by up to 90% and increase annual revenue by up to half a billion dollars.[128] This increase in efficiency and reduction in costs will have a positive impact on trade flows.[129]

1/2

of manufacturing supply chains will have invested in AI by 2021

[126] IDC FutureScape: worldwide supply chain 2020 predictions, October 2019: https://www.idc.com/research/viewtoc.jsp?containerId=US45573518
[127] Dan Gilmore, "Supply Chain Predictions for 2020 Part 2", SupplyChainDigest, February 14, 2020: http://www.scdigest.com/firstthoughts/20-02-14_Supply_Chain_Predictions_2020.php?cid=16347&ctype=content
[128] Baibhav Mishra, "Artificial Intelligence and the era of autonomous shipping", SeaNews, January 23, 2020 https://seanews.co.uk/features/artificial-intelligence-and-the-era-of-autonomous-shipping/
[129] World Trade Report 2018: The future of world trade: how digital technologies are transforming global commerce, WTO Secretariat, 2018

AI and autonomous vehicles

Autonomous ships

On land, companies such as Google's Waymo have put autonomous vehicles on the map. A similar concept has been applied to seafaring vessels, with a view to enabling transportation via unmanned autonomous cargo ships. Norwegian maritime technology company Kongsberg is leading the way with the development of a fully autonomous electric-powered vessel, the *Yara Birkeland*.[130]

In addition to labour cost-savings, unmanned vessels improve the safety and environmental impact of shipping.[131] The 'unmanning' of cargo ships could see a 6% reduction in fuel consumption alone, as well as 5% reduction in construction costs. Over a 25-year period, AI integration could save up to US$7 million per ship in reduced fuel and crew costs.[132] A partnership between Maersk and Sea Machines to integrate the first AI-powered situational awareness system on a container ship could reduce operational costs by 40% and increase vessel productivity by 200%.[133]

As with autonomous cars, the regulatory environment is still nascent, although there are early signs of progress. The US Coastguard and Bureau of Shipping has already approved wireless control for US-flagged tugboats, a first step towards clearance for autonomous vessels.[134] In the near-term, shipping will become more automated, with AI systems enhancing collision avoidance and fuel efficiency, as well as integrating with IoT and cargo management systems. Given the high costs and regulatory obstacles, progress towards greater automation may start to emerge by 2025, with fully autonomous unmanned ships on the oceans by 2035.[135]

Autonomous road vehicles

Autonomous road vehicles have captured the public imagination and are increasingly becoming a reality. Autopilot, Tesla's autonomous driving feature already assists motorists on highways; Waymo has already begun operating minivans on US roads, and Uber is purchasing 24,000 SUVs from Volvo for a fleet of driverless cars. However, there are significant regulatory obstacles given safety concerns for passengers, other road users and pedestrians in urban areas. One area where there may be faster progress is the use of autonomous vehicles for logistics purposes.

The opportunity for autonomous vehicles in trade ranges from autonomous trucks to last-mile delivery services. As with autonomous ships, there are varying degrees of autonomy. There have been significant inroads into the first stages of autonomous trucks driven by big players like Scania, Volvo and Mercedes-Benz. In 2016, a fleet of Scania trucks completed a journey from Sweden to the Netherlands using 'platooning', where a lead driver pilots a small number of autonomous trucks in convoy.[136]

Widely implemented autonomy for road transport is closer than many realise. The McKinsey Centre for Future Mobility estimates

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[130] Autonomous shipping, Kongsberg website: https://www.kongsberg.com/maritime/support/themes/autonomous-shipping/

[131] Varsha Saraogi, "How will autonomy shape the UK shipping industry?", Ship Technology, July 30, 2019: https://www.ship-technology.com/features/how-will-autonomy-shape-the-uk-shipping-industry/

[132] Baibhav Mishra, "Artificial Intelligence and the era of autonomous shipping", SeaNews, January 23, 2020 https://seanews.co.uk/features/artificial-intelligence-and-the-era-of-autonomous-shipping/

[133] "Maersk selects Sea Machine for world's first AI-powered situational awareness system aboard a container ship", Sea-Machines press release, April 25, 2018: https://sea-machines.com/maersk-selects-sea-machines-for-worlds-first-ai-powered-situational-awareness-system-aboard-a-container-ship

[134] Cynthia McCann, "How ocean carriers embrace new wave of emerging technologies", Food Logistics, January/February 2020: https://issuu.com/supplydemandchainfoodlogistics/docs/flog0120/38

[135] Baibhav Mishra, "Artificial Intelligence and the era of autonomous shipping", SeaNews, January 23, 2020 https://seanews.co.uk/features/artificial-intelligence-and-the-era-of-autonomous-shipping/

[136] "The impact of self-driving trucks", DFDS: https://www.dfds.com/en/about/insights/newsletters/self-driving-trucks

that 'platooning' may be common from 2022, with constrained autonomy (with a driver for pick-up and drop-off), on selected highways from 2025 and full autonomy from 2027.[137]

All of these developments present significant commercial opportunities. Platooning alone could create total cost ownership savings of 10%. Constrained autonomy could save a further 9 p%, and full autonomy a further 25%. In total, autonomy has the potential to reduce costs by 45%.[138] To a large extent, the cost savings are driven by the ability for companies to tap into latent capacity and eliminate the downtime of their assets – machines don't take (scheduled) breaks, work at night just as well as in the day, and don't get sick.

It is unclear how cost savings will be distributed between shippers, carriers and consumers.[139] Therefore, while their ability to enhance efficiency is evident, it is unclear exactly how, and by how much, autonomous vehicles will reduce costs and support trade.

There are also broader economic implications. As with all automation, there are concerns about the impact on the workforce. But the US and other advanced economies face a shortage of professional truck drivers. The American Trucking association estimates driver shortages of 63,000, rising to 174,000 by 2026 as truck drivers retire and are not replaced by younger generations.[140]

There are applications for last-mile delivery as well. For example, in early 2020, autonomous delivery start-up Nuro received an approval in the US for the R2, a low-speed electric vehicle that will be used for local delivery services.[141] In early 2020 Global logistics provider UPS outlined steps the company is taking towards an autonomous future including a pilot for commercial package deliveries, the purchase of 10,000 electric delivery vans, and a new drone service – UPS Flight.[142]

Developments in last-mile autonomous delivery are not limited to the US. Neolix, a driverless delivery van manufacturer based in Beijing has seen a jump in demand over the first half of 2020 due to the COVID-19 pandemic. Neolix has attracted customers from all the main Chinese e-commerce platforms including Alibaba, Meituan Duanping, and JD.com.[143] Demand has been accelerated by consumer need during the COVID-19 lockdown. Meituan Duanping launched a 'contactless' delivery service primarily for groceries in January 2020 and JD.com has also been operating a contactless delivery service in Wuhan for medical supplies to hospitals and groceries to homes.[144]

Autonomy has the potential to reduce costs by

45%

[137] "Route 2030 – the fast track to the future of the commercial vehicle industry", Mckinsey Centre for Futurer Mobility, September 2018: LINK
[138] "Route 2030 – the fast track to the future of the commercial vehicle industry", Mckinsey Centre for Futurer Mobility, September 2018: LINK
[139] "Route 2030 – the fast track to the future of the commercial vehicle industry", Mckinsey Centre for Futurer Mobility, September 2018: LINK
[140] "Route 2030 – the fast track to the future of the commercial vehicle industry", Mckinsey Centre for Futurer Mobility, September 2018: LINK
[141] Kirsten Korosec, "Nuro's new delivery R2 bot gets the first driverless vehicle exemption from feds", TechCrunch, February 6, 2020: https://techcrunch.com/2020/02/06/nuros-new-delivery-r2-bot-gets-the-first-driverless-vehicle-exemption-from-feds/
[142] Andrew J Hawkins, "Waymo's self-driving trucks will start delivering freight in Atlanta", The Verge, March 9, 2020: https://www.theverge.com/2018/3/9/17100518/waymo-self-driving-truck-google-atlanta
[143] "Chinese driverless delivery van start-up sees demand surge amid coronavirus outbreak", SCMP, March 9, 2020: https://www.scmp.com/tech/start-ups/article/3074189/chinese-driverless-delivery-van-start-sees-demand-surge-amid
[144] Minghe Hu, "China's e-commerce giants deploy robots to deliver orders amid coronavirus outbreak", SCMP, February 21, 2020: https://www.scmp.com/tech/e-commerce/article/3051597/chinas-e-commerce-giants-deploy-robots-deliver-orders-amid?utm_source=copy_link&utm_medium=share_widget&utm_campaign=3051597

Autonomous drone delivery

In both densely built-up areas and rural areas, last-mile delivery may be more convenient by air than by land. Drone delivery started in locations where land transportation was lengthy or impossible and for emergency situations. Medical and emergency uses of drones have been critical during the COVID-19 pandemic. US start-up Zipline has been using contactless drone delivery to transport COVID-19 test samples in remote locations in five African countries. Local officials in Chile have launched a pilot drone programme to deliver COVID-19 medication to remote areas45

For commercial use, Chinese e-commerce giant JD.com led the way with an autonomous drone delivery programme for rural locations on the outskirts of Beijing and in Jiangsu, Shaanxi and Sichuan in November 2016.[146] In the US partnerships between tech, retail and logistics providers are emerging including partnerships between Alphabet, FedEx, and Walgreens pharmacy; and UPS and CVS pharmacy.

The future of commercial drone use is being driven by consumer demand, with 30 percent of consumers willing to pay extra for more reliable delivery. Drones will enable same-day and instant delivery to reach a combined market share of 20-25% by 2025.[147]

The commercial case for autonomous drones is significant. The costs of global parcel delivery amounts to about US$70 billion and the market is growing by up to 10% per year, driven by e-commerce.[148] Meanwhile, the operation costs of autonomous drones delivering parcels are 70% lower than van delivery.[149] Drone delivery is also fast, reliable and may encourage repeat orders from consumers.[150] However, uptake in many advanced economies has been slow.

AI, smart robotics and automated supply chain management

There are further opportunities for the application of AI technologies along with data analytics in the coordination of the most complex parts of the supply chain. Efficiency gains here speed up logistics but also make better use of space and reduce other overheads such as power and labour. As automation progresses, logistics costs may fall by up to 40%.[151]

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[145] Laurence Goasduff, "Why Flying Drones Could Disrupt Mobility and Transportation Beyond COVID-19", Gartner, May 19, 2020: https://www.gartner.com/smarterwithgartner/why-flying-drones-could-disrupt-mobility-and-transportation-beyond-covid-19/

[146] "JD.com's Drone Delivery Program Takes Flight in Rural China", JD.com, Novemner 11, 2016: https://corporate.jd.com/whatIsNewDetail?contentCode=6IhXLeeSAFLjLLIyuZatDA

[147] Martin Joerss, Florian Neuhaus, and Jürgen Schröder, "How customer demands are reshaping last-mile delivery", Mckinsey & Co., October 19, 2016: https://www.mckinsey.com/industries/travel-logistics-and-transport-infrastructure/our-insights/how-customer-demands-are-reshaping-last-mile-delivery

[148] Martin Joerss, Florian Neuhaus, and Jürgen Schröder, "How customer demands are reshaping last-mile delivery", Mckinsey & Co., October 19, 2016: https://www.mckinsey.com/industries/travel-logistics-and-transport-infrastructure/our-insights/how-customer-demands-are-reshaping-last-mile-delivery

[149] Laurence Goasduff, "Why Flying Drones Could Disrupt Mobility and Transportation Beyond COVID-19", Gartner, May 19, 2020: https://www.gartner.com/smarterwithgartner/why-flying-drones-could-disrupt-mobility-and-transportation-beyond-covid-19/

[150] "Why Amazon, UPS and even Domino's is investing in drone delivery services:, Business Insider, February 12, 2020: https://www.businessinsider.com/drone-delivery-services?r=US&IR=T

[151] Martin Joerss, Florian Neuhaus, and Jürgen Schröder, "How customer demands are reshaping last-mile delivery", Mckinsey & Co., October 19, 2016: https://www.mckinsey.com/industries/travel-logistics-and-transport-infrastructure/our-insights/how-customer-demands-are-reshaping-last-mile-delivery

Autonomous ports

In addition to autonomous control of a ship, the entire process of cargo handling can be made more efficient from before a ship arrives at port to when the cargo leaves the port area. Platforms to predict events as a ship approaches port can reduce waiting times by up to 20%, enabling fuel savings and increasing overall efficiency.[152] Meanwhile, machine learning algorithms can predict the earliest time a ship will be able to leave port as well as improving future strategy decisions on routes and networks for ships and equipment investments at ports.[153]

Several port operators including Dubai's DP World and APM terminals have integrated automated gantry cranes to unload containers from ships. Automated cranes and saddle carriers at the Port of Rotterdam handle 2.35 million containers per year. The Port of Valencia has over 200 vehicles and cranes linked by a smart IoT network.[154]

Autonomous warehouses

Like ports, warehouses are a hive of activity with hundreds of processes being undertaken simultaneously. Some degree of automation is already present in many warehouses but the next generation of autonomous mobile robots have a significantly increased value proposition, as well as being cheaper and easier to deploy.[155] Analysts predict that by 2023, 65% of warehousing activities will use robots and situational data analytics, increasing capacity by over 20% and cutting work order processing time by half.[156]

UK online grocery retailer Ocado has developed one of the most advanced robot-driven warehouses in the world using a swarm of 4G-connected box-shaped robots to pick and collect grocery orders from stacked trays of produce. All the robots are coordinated by a central computer which can instruct groups of robots to fulfil a single order. But the robots cannot yet unpack a wide variety of bulk deliveries or pick items such as fruit from a tray and place it in grocery bags. Ocado is developing a robotic arm for this purpose,[157] while Amazon organises an annual 'picking challenge' where teams create the fastest robot pickers.[158] Other firms are using AI to create robots that learn by watching humans.[159] Meanwhile, Nestlé and XPO Logistics launched a 'warehouse of the future' in June 2020, the most advanced warehouse in the world leveraging automation, robotics and predictive data.[160]

65%
of warehousing activities will use robots by 2023

[152] "Frictionless Trade", PUBLIC, October 2, 2018
[153] "Frictionless Trade", PUBLIC, October 2, 2018
[154] "Frictionless Trade", PUBLIC, October 2, 2018
[155] Dan Gilmore, "Supply Chain Predictions for 2020 Part 1", SupplyChainDigest, February 6, 2020: http://www.scdigest.com/firstthoughts/20-02-06_Supply_Chain_Predictionsz_2020.php?cid=16329
[156] IDC FutureScape: worldwide supply chain 2020 predictions, October 2019: https://www.idc.com/research/viewtoc.jsp?containerId=US45573518
[157] James Vincent, "Welcome to the automated warehouse of the future", The Verge, May 8, 2028: https://www.theverge.com/2018/5/8/17331250/automated-warehouses-jobs-ocado-andover-amazon
[158] Evan Ackerman, "Aussies Win Amazon Robotics Challenge", IEEE, August 2, 2017: spectrum.ieee.org/automaton/robotics/industrial-robots/aussies-win-amazon-robotics-challenge
[159] James Vincent, "This AI startup wants to solve the hard problem of robots picking things up", The Verge, November 10, 2017: https://www.theverge.com/2017/11/10/16627570/robot-ai-grasping-grabbing-embodied-intelligence-startup
[160] James Henderson, "XPO and Nestlé to create 'digital warehouse of the future'", Supply Chain, June 2018: https://www.supplychaindigital.com/warehousing/xpo-and-nestle-create-digital-warehouse-future

AI and data analytics

As parts of the logistics chain are automated, data can be analysed to enable operators to better manage their operations, in particular responding to demand fluctuations and the specific needs of consumers in an era of trade driven by e-commerce. Shippers and carriers are using data and analytics to forecast demand and optimise routes. Some shippers have reduced inventories by up to 75%, cut warehousing by 15-30% and reduced administrative costs by 80%.[161]

As with autonomous vehicles, this will be a phased process. Fully autonomous supply chain planning – automated prediction (create a plan) and prescription (choose a plan), with no human involvement – is a long way off, and perhaps it would never be desirable to reach 100%. However, Gartner reported that 25% of companies have said that within five years they would have some kind of autonomous decision-making in their supply chain.[162]

Blockchain will revolutionise cross-border trade processes for goods

Customs and trade processes are highly complex and one of the least digitised areas of trade. The system is heavily reliant on paperwork, some of which is still required in hard copy. There is significant potential for the implementation of existing technologies to catapult this area of trade into the 21st century.

Key documents for a single shipment include a bill of lading, a commercial invoice (which acts as a customs declaration), a letter of credit (guaranteeing payment from the buyer's bank on receipt of the goods), a hazardous goods declaration, and a packing list (containing more detailed information on the goods being shipped).[163]

Digitalisation of even some of this process would reduce the time spent on compliance and make the processes more accessible for businesses that do not have large compliance resources. It also opens opportunities to make the system more secure, reducing forgery, damage, and loss of documents in transit. The commercial processes involved in shipping goods are one of the most compelling use cases for blockchain that will produce results for both business and government.[164]

25%

companies reporting to have autonomous decision making in their supply chains by 2025

[161] Jitender Lalit, "Need for freight management systems", Industry Outlook, October 29, 2019: https://www.theindustryoutlook.com/industry-experts/need-for-freight-management-systems-nwid-210.html
[162] Kasey Panetta, "Gartner Top 10 Strategic Technology Trends for 2019", Gartner, October 15, 2018: https://www.gartner.com/smarterwithgartner/gartner-top-10-strategic-technology-trends-for-2019/
[163] "Frictionless Trade", PUBLIC, October 2, 2018
[164] "Frictionless Trade", PUBLIC, October 2, 2018

Digitalisation has lagged behind due to resistance from incumbent operators, as well as issues with global coordination. In addition to commercial incentives, it will require leadership by customs authorities to change this situation. This may be on the horizon. It is projected that by 2024, 40% of customs agencies will join private blockchain and API-powered trade platform ecosystems that will enable a 50% increase in cross-border compliance.[165]

Applying blockchain in trade

A bill of lading acts as a receipt that goods have been loaded on to the ship, a contract of carriage for the goods, and a deed of title proving ownership of the goods. In most cases the original bill of lading is required, so if it is lost, damaged, stolen or otherwise compromised the goods can often only be released by court order.

Electronic bills of lading have existed since the late 1990s but have not achieved wide adoption. In recent years blockchain solutions have been developed to create immutable records of ownership in a way that can replicate bills of lading. In 2018 the world's first blockchain-based bill of lading was issued on a public blockchain for a container of textiles shipping from Shanghai to Slovenia. The smart bill of lading costs US$15, a 90% reduction on the average total cost of issuing and couriering physical equivalents.[166]

Alongside a bill of lading a shipment of goods will also be accompanied by a commercial invoice which is required for customs clearance into a country. The commercial invoice documents the details of the financial transactions around the goods and their value. Large amounts of cash become tied up in international trade, meaning small businesses and exporters in developing countries can struggle. In addition to providing a system for the secure recording of documents, it may also be possible for financial transactions to be executed on a blockchain through smart contracts.

The concept has been applied in the insurance sector, which is big business in shipping and logistics. Every year, 1,400 shipping containers are lost at sea, and US$50 billion of cargo are stolen.[167] In 2018, a collaboration between EY, Maersk and Guardtime launched the world's first blockchain-enabled insurance platform, Insurwave. The platform has rapidly decreased waiting times for negotiating premiums and executing pay-outs. In the future, in coordination with IoT tracking technology, smart contracts could allow for instant insurance pay-outs if goods are lost or damaged, even before a ship has reached its destination.

US$ 50 billion of cargo are lost at sea every year

[165] IDC FutureScape: worldwide supply chain 2020 predictions, October 2019: https://www.idc.com/research/viewtoc.jsp?containerId=US45573518
[166] "Frictionless Trade", PUBLIC, October 2, 2018
[167] "Frictionless Trade", PUBLIC, October 2, 2018

Blockchain can play a significant role in fighting fraud in trade, from digitising commodities trading and addressing fraud in the system,[168] to supporting contract-intensive and certificate-intensive goods. Blockchains can issue certificates of origin for food products, diamonds, and professional and scientific equipment. The technology has been combined with DNA technology to track the provenance of cotton, a commodity that has significant environmental and labour rights concerns surrounding it.

Blockchain can play a significant role in fighting fraud in trade, from digitising commodities trading and addressing fraud in the system, to supporting contract-intensive and certificate-intensive goods. Blockchains can issue certificates of origin for food products, diamonds, and professional and scientific equipment. The technology has been combined with DNA technology to track the provenance of cotton, a commodity that has significant environmental and labour rights concerns surrounding it.

Digital platforms will disrupt brokering

Further to the administrative burden of trade-related paperwork, businesses are deterred from engaging in international trade in situations of insecure exchange – weak institutions, corruption, and imperfect contract enforcement – which drive traders towards costly intermediaries. In manufacturing supply chains, these account for around 7% of total trade costs.[169]

For some time, freight forwarders, shipbrokers, and customs brokers have based their operations on an imbalance of information and contacts. These business models are now under threat by a new wave of digital platforms that offer instant quotes, match the appropriate parties, and provide documentation services for up to 90% less of the cost of incumbent operators.[170]

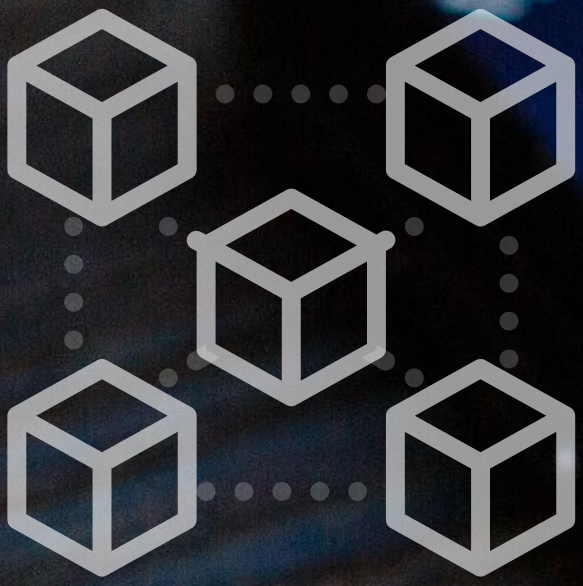
Integrating technology one step further, Israeli maritime innovation centre AiDock has developed an automated customs clearance platform that uses AI to process and analyse documents and generates customs clearance files automatically. The system uses big data and a learning algorithm to adapt to market and regulatory changes.[171]

7%

The cost of paper-work as part of total trade cost

[168] Etienne Amic, "Commodity traders need to embrace a digital future", FT, May 28, 2020: https://www.ft.com/content/32128669-9bbe-4b1c-bd53-d9512af3bcda
[169] World Trade Report 2018: The future of world trade: how digital technologies are transforming global commerce, WTO Secretariat, 2018
[170] "Frictionless Trade", PUBLIC, October 2, 2018
[171] "Frictionless Trade", PUBLIC, October 2, 2018

TREND TWO: Tech will unlock new markets for trade



IN ADDITION TO THE REDUCTION IN TRADE COSTS DRIVEN BY AI, BLOCKCHAIN AND IOT OUTLINED ABOVE, DIGITAL TECHNOLOGIES HAVE A HUGE POTENTIAL TO BOOST TRADE BY CREATING OPPORTUNITIES FOR BOTH THE PURCHASE AND DELIVERY OF GOODS AND SERVICES.

E-commerce will continue to drive trade

The global retail market was worth US$25 trillion in 2019, of which US$3.5 trillion was e-commerce sales. Whereas total global retail had grown 4.5% year-on-year, e-commerce saw growth of 18%. Before the pandemic, e-commerce was expected to nearly double to more than US$6.5 trillion by 2023.

The COVID-19 pandemic will increase e-commerce's share of global retail. While the global retail sector will see a US$2.1 trillion loss in 2020 – declining on average by 9.6%,[172] US and Canadian e-commerce saw a 129% year-over-year growth as of April 2020 and a 146% growth of all online retail orders.[173] Amazon has added more than US$400 billion to its market capitalisation in 2020.[174] Chinese e-commerce site Pinduoduo saw its share price rise by more than 130% in the three months up to the end of June 2020. Many retailers – both online and offline – as well as investors see a permanent shift towards e-commerce in what was already an omnichannel environment.

E-commerce had already been undergoing longer-term shifts driven by demographics. With demographic changes and a growing middle class, the centre of gravity for e-commerce is shifting away from the west and towards Asia. APAC saw 25% e-commerce growth in 2019 reaching US$2.27 trillion – of which US$1.9 trillion was accounted for by China. More than half of the fastest growing e-commerce markets are in APAC, though Latin America is also important with Mexico being the world's fastest growing e-commerce market.[175]

But will e-commerce drive international trade? Consumers are becoming more comfortable with purchasing online from abroad, driven by product availability, offering, price, and trust. Around US$700 billion of the US$3.5 trillion global e-commerce sales occur across borders. Although there is limited data, cross-border business-to-business e-commerce is thought to be up to six times larger than its consumer equivalent at US$23.9 trillion.[176]

In many cases, e-commerce has replicated offline trade, as it increases its share of overall retail spend. Research by the ITC found that in five less-developed countries, apparel, textiles, and agricultural products were the largest export categories both online and offline. However, due to the reduced costs e-commerce drives a greater product diversity.[177]

In 2019 e-commerce sales was worth

US$ 3.5 trillion

[172] "Forrester: Retail Will See A $2.1 Trillion Loss Globally In 2020 Due To Coronavirus Pandemic", Forrester, April 30, 2020: https://go.forrester.com/press-newsroom/forrester-retail-will-see-a-2-1-trillion-loss-globally-in-2020-due-to-coronavirus-pandemic/

[173] Louis Columbus, "How COVID-19 is transforming e-commerce", Forbes, April 28, 2020

[174] https://www.ft.com/content/fc067486-b0d5-41d0-b961-b707d0099536

[175] Louis Columbus, "How COVID-19 is transforming e-commerce", Forbes, April 28, 2020

[176] US International Trade Commission statistics

[177] World Trade Report 2018: The future of world trade: how digital technologies are transforming global commerce, WTO Secretariat, 2018

While acknowledging that many e-commerce transactions substitute for traditional offline trade flows, e-commerce may increase incremental trade by US$1.3 trillion to US$2.1 trillion by 2030, and boost trade in manufactured goods by up to 10%. The e-commerce boom has also been a growth driver for the international logistics sector and is responsible for the tripling of international package delivery volumes since 2000.[178]

One obstacle is the international policy environment. There is a paucity of international rules about cross-border e-commerce. In 2019, 75 WTO members – including China, the US, and the EU – gathered to discuss cross-border e-commerce. Notably, India, Pakistan, South Africa, and some other developing markets opted out due to market access concerns.

Technology will enable services to significantly increase its share of global trade

Trade in services is expanding faster than trade in goods; between 2005 and 2017 it expanded at 5.4% per year on average and was worth US$13.3 trillion. The WTO predicts that the global share of services trade will grow from 21% to 25% by 2030.[179] Much of this will be driven by technology that can drive both the purchase and delivery of services across borders.

In reducing the need for physical proximity, communications technologies help service providers overcome key obstacles to cross-border services delivery – the need for service providers to set up an entity in another country, or for the agents of a service provider to travel to another country. In trade parlance, technology has made it easier to provide services as Mode 1 (cross-border supply trade) as opposed to Mode 3 (commercial presence in the consumer's country) or Mode 4 (presence of natural persons in the consumer's country). For reference, Mode 2 is 'consumption abroad' e.g. tourism where the service provider in the host country 'exports' services to the tourist.

The types of services that are being delivered digitally now include ones that are 'routinely codifiable' such as performing calculations, proofreading, and other types of basic business offshoring. Up to 25% of all US jobs could potentially be provided by workers abroad, primarily in finance, insurance, pensions, information services, telecommunications, sales and marketing, and technical and professional services.[180]

25%

of all US jobs could be provided by workers abroad

[178] Susan Lund et al., "Globalization in transition: The future of trade and value chains", Mckinsey Global Institute, January 16, 2019: https://www.mckinsey.com/featured-insights/innovation-and-growth/globalization-in-transition-the-future-of-trade-and-value-chains
[179] World Trade Report 2018: The future of world trade: how digital technologies are transforming global commerce, WTO Secretariat, 2018
[180] World Trade Report 2018: The future of world trade: how digital technologies are transforming global commerce, WTO Secretariat, 2018

These services are the fastest growing services sectors because they are digitally enabled. They are growing much faster than traditional services such as transport and tourism which cannot be delivered digitally, although the rise of digital platforms such as Airbnb and Trivago for hotels, Skyscanner for flights, and Flexport, Uship and Freighthub for logistics are transforming their respective industries.

Education services too are seeing a boom, driven by a growing young population in developing countries and reduced costs of delivery by credible education professionals in premium institutions. The global online course market is projected to grow from US$3.9 billion in 2018 to US$20.8 billion by 2023, with an annual growth rate of 40.1%.[181]

Professional services such as law and IT consultancy are already being delivered online across borders. In the future, this concept could be taken further. While services such as education might be fairly straightforward over a video-link platform, the combination of telecommunications and robotics expands the services that could be delivered. Telepresence – where the user feels present elsewhere, or telerobotics – where the user operates a robot remotely, can be applied to surgery and other medical procedures, factory inspections, and different types of work collaboration. Both telepresence and telerobotics reduce the costs of moving people as well as reducing the regulatory burden of services trade. Effectively technological advances have the potential to render most services tradeable across borders with revolutionary effects on the international trade system, national economies and labour markets.

However, there are significant obstacles to the cross-border delivery of services – cultural and social differences, language barriers, time zones and other intangible preferences. There is also a much greater threat to services jobs and the future of cross-border services trade; artificial intelligence. Just as AI may replace the truck drivers, port workers, and warehouse staff described above, it has the potential to replace jobs in healthcare diagnostics, professional services, education, and other 'white collar' services jobs as well. Some companies are already automating customer support services, a move that threatens the US$160 billion market for business process outsourcing, one of the most heavily traded service sectors.[182]

40%

annual growth rate for online education services

[181] World Trade Report 2019: The future of services trade, WTO, 2019

[182] Susan Lund and Jacques Bughin, "Next generation technologies and the future of trade", Mckinsey Global Institute, April 18, 2019

TREND THREE: The end of geography? Automation and additive manufacturing will disrupt global value chains

Just as artificial intelligence has the potential to disrupt services, automation technologies have the potential to disrupt production. This has the potential to undermine trade by enabling re-shoring and near-shoring and shrinking global value chains. The McKinsey Global Institute estimates that automation technologies will cause goods trade to fall by as much as US$4 trillion by 2030.

This will happen in two key ways:

- Automation and robotics will shorten supply chains by moving manufacturing closer to centres of consumption
- Additive manufacturing will undermine components supply chains

Automation will bring manufacturing closer to centres of consumption

Automation fundamentally undermines the economic model of countries that rely on low-cost labour as their comparative advantage. According to Oxford Economics, robots could displace 20 million manufacturing jobs by 2030 as the number of operational industrial robot jobs increases by 14% annually.[183]

As the importance of labour costs decline, other factors, including access to consumers, resources, skills and infrastructure, become more important. This means it is more likely that manufacturing will move towards large consumer markets, shrinking supply chains and cutting out at least the cross-border trade of finished products.

This may see manufacturing move to advanced economies. Predictable infrastructure and regulation may cancel out other operating costs. In an environment where consumers are demanding greater transparency and greater labour and environmental stewardship, reshoring supply chains also offers increased value.

Fundamentally the reshoring narrative driven by automation is not a case of 're-manufacturing' Europe or the US, but one of 'de-manufacturing' parts of Asia, especially those further down the supply chain ladder. However, with the on-going shift in demographics and global demand towards countries like China and India, more manufacturing will be based in or near these markets to serve their consumers.

Issues of affordability are important. While labour is a significant fixed cost, so is the capital required to implement automation. It is possible that the trade slump and the COVID-19 crisis may accelerate the uptake of automation, and not just because robots do not get sick (although cybersecurity against computer viruses will become even more important). In a time of crisis and lower revenues, companies tend to invest in capital that increases efficiency while decreasing expenditure on fixed costs (such as labour) which, due to lower revenue, increases its share of the costs to revenue ratio.[184]

[183] International Federation of Robotics press release, "Post-COVID-19 Economy: 'Robots Create Jobs'", May 14, 2020: https://ifr.org/ifr-press-releases/news/post-covid-19-economy-robots-create-jobs

The rise of automation will take time, and there are many processes which cannot yet be done by robots, so labour will continue to play a role in manufacturing. The story of automation replacing jobs outright is also not the full picture. Automation requires a certain number of specifically skilled workers such as engineers and programmers. The existence of these workers in most advanced economies such as the US is relatively low and is nowhere near the numbers required for a full automation revolution to take place yet. This aspect of human capital is often overlooked in debates about automation and trade policy.

Additive manufacturing

Additive manufacturing will have a greater impact on the trade in components than on the trade in finished goods. As intermediate goods accounts for half of all goods trade, the impact on trade over all may be significant. A report by ThyssenKrupp estimated that if economies in ASEAN printed just 5% of the components usually imported, it would reduce import dependence by 2% and generate US$30-50 billion annual economic value for the region.[185]

Manufacturing a complex product usually involves the separate production and import of multiple components which are then assembled into an intermediate or final product. With additive manufacturing the part or product is 3D printed as a complete item. For example, Airbus 3D printed a hydraulic housing tank which would usually have required the assembly of 126 components. This significantly reduces supply chain complexity, trade volumes, and logistics costs.[186] Across a whole aircraft, the number of components traded could be reduced by many thousands. Additive manufacturing can be used to create smaller components for assembly at a factory on-site, or spare parts for industrial or consumer use can be printed locally on-demand from an online inventory. In both situations, the trade in components is wiped out.

The industries where additive manufacturing is being implemented – aerospace, automotive, medical/dental devices, and consumer products – account for 75% of all investment into 3D printing technology, and account for 43% of world trade.[187] 3D printing could produce up to half of all manufacturing goods by 2060 if currently investments continue, resulting in a decrease of 19% of trade in manufactured products. This level would be reached by 2040 if the growth rate of additive manufacturing production doubled every five years, which is not inconceivable, resulting in a decrease of 40% in world trade of manufactured goods by 2040.[188]

Additive manufacturing has the power to democratise manufacturing by reducing the barriers to entry.[189] There are many

[185] "Additive Manufacturing: Adding Up Growth Opportunities for ASEAN", Thyssen Krupp, July 2, 2020: https://lead.thyssenkrupp.com/amsgwp/
[186] "Additive Manufacturing: Adding Up Growth Opportunities for ASEAN", Thyssen Krupp, July 2, 2020: https://lead.thyssenkrupp.com/amsgwp/
[187] World Trade Report 2018: The future of world trade: how digital technologies are transforming global commerce, WTO Secretariat, 2018
[188] World Trade Report 2018: The future of world trade: how digital technologies are transforming global commerce, WTO Secretariat, 2018
[189] World Trade Report 2018: The future of world trade: how digital technologies are transforming global commerce, WTO Secretariat, 2018

examples of specialised and customised goods being developed for farmers in developing countries that a regular design and prototype process would have made inaccessible and unaffordable. For the same reason, it is possible that additive manufacturing will support customisation to go mainstream – by 2024, 75% of all consumer-facing companies will have developed the ability to customise at scale within their supply chains, with a possible 2-3% increase in market share at stake.[190]

While automation or additive manufacturing may reduce trade in goods as production takes place at or near consumption centres, there will be a shift in value chains from materials and components to a value chain centred around designs, blueprints and software – a value chain of data.[191]

Data flows will become more economically valuable than goods trade

Underpinning the ability of technology to drive global trade is data. The World Economic Forum in 2019 discussed the concept of 'Globalisation 4.0', one part of which was the recognition that in the coming decade global data flows will overtake the trade in goods in economic value. This will be driven by the sheer scale of data being communicated. Between 2005 and 2017, the amount of cross-border bandwidth in use grew by 148 times. Between 2005 and 2021, global internet traffic will have increased 127-fold. By 2021, supported by the rollout of 5G networks the number of connected devices will surpass 20 billion, triple the global population.

The exact economic value of data itself is difficult to nail down specifically; usually it is the aggregate of large amounts of data that can be processed for business and operational insights that creates the value. Some forms of data are much easier to quantify, however. With the rise of technologies such as AI, IoT, automation and additive manufacturing, the increasing digitisation of products, and potential difficulties in the global trade policy environment, intellectual property – existing as data – will become increasingly important.

In the future, the value of companies that deal in goods will rest less on their capacity to make a product, but on their ability to design and sell those plans to others to manufacture closer to the location of consumption.[192] With the right connectivity, services that rely on software may be less impacted, although they will rely heavily on cross-border data flows being open.

Given these dynamics, it is no surprise then that across value chains, spending on R&D, brands, software, and IP is growing as a share of revenue, rising from 5.4% of revenue in 2000 to 13.1% in 2016. Companies in machinery and equipment spend 36% of revenue on R&D and intangibles, while companies in the pharmaceutical and medical devices sector average 80%.[193]

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[190] IDC FutureScape: worldwide supply chain 2020 predictions, October 2019: https://www.idc.com/research/viewtoc.jsp?containerId=US45573518
[191] World Trade Report 2018: The future of world trade: how digital technologies are transforming global commerce, WTO Secretariat, 2018
[192] Rob Sinfield, "Globalisation 4.0: Data flows and the future of manufacturing", Connectivity, February 24, 2020: http://www.connectivity4ir.co.uk/article/177021/Globalisation-4-0--Data-flows-and-the-future-of-manufacturing.aspx
[193] Susan Lund et al., "Globalization in transition: The future of trade and value chains", Mckinsey Global Institute, January 16, 2019: https://www.mckinsey.com/featured-insights/innovation-and-growth/globalization-in-transition-the-future-of-trade-and-value-chains

SECTION THREE

GETTING THE POLICY RIGHT

This chapter has explored the great potential for technology to reduce costs, increase efficiency, and create opportunities for cross border trade in both goods and services. It has also indicated that technology will negatively impact trade and jobs. There are further societal concerns around technology including loss of privacy, security threats, and the prospect of market concentration that have been widely debated in media.[194]

The reaction by governments to some of these concerns has the potential to severely disrupt international business and trade. The fragmentation of the global policy environment around technology risks reducing interoperability between markets and significantly increasing compliance costs which may limit trade and investment altogether. Governments have faced calls to protect local market operators in the digital space. On the other hand, a race to the bottom in digital policy is also undesirable. Governments, competition authorities and cybersecurity agencies will also need to address the myriad issues caused by online engagement from consumer protection, data privacy, and national cybersecurity without distorting trade.[195]

In order to remain competitive, governments will need to create the right domestic policy environment and affordable digital infrastructure to enable data flows within and across borders. Getting these policies right, and enabling technology to support economic and trade growth, may help overcome the disruption that technology is likely to cause.

Fragmentation

The adoption and scalability of new technology and services will depend on the development of policy that both facilitates the implementation of the technology and appropriately regulates its use. Furthermore, policy must be coordinated between jurisdictions to allow interoperability, allowing for the goods and services to be internationally traded.

At the heart of digitalisation is the harvesting and processing of personal data, an issue which has already seen a patchwork of regulation and headaches for all types of

[194] World Trade Report 2018: The future of world trade: how digital technologies are transforming global commerce, WTO Secretariat, 2018
[195] World Trade Report 2018: The future of world trade: how digital technologies are transforming global commerce, WTO Secretariat, 2018

business both within and outside of the digital economy. Similar fragmentation has been seen in other areas of the digital economy across payments, taxation, customs, and cybersecurity.

Data localisation is one of the most well-documented digital trade barriers. Since 2000, data localisation measures have increased fourfold with 33% being classed as 'most restrictive', such as a ban on the cross-border transfer of data.[196] In 2019 several emerging economies including India, Vietnam and Indonesia introduced measures to control their data. A generous reading of the governments' motives is of a push-back against foreign multinational exploitation and to provide clarity for law enforcement. By the end of the year pressure from big tech had watered down the provisions of the countries, although the laws did preserve their "strategic autonomy".[197]

Despite the high potential costs, many businesses interviewed for this report accepted data localisation as a cost of doing business. This was partly because, although it was an obstacle, not enough of their business relied on data flows to the extent that – unless the company was a tech business. It was also partly due to the assumption that big tech would take care of the necessary global advocacy.

4x
increase of data localisation measures since 2000

The path to interoperability

Governments and industry bodies need to take the lead in creating a "vision" for a framework for digital trade, to bring together the mosaic of national and multilateral rules. There is a significant amount of work being undertaken at the international level to try and build a global level playing field, although progress has been slow. This work is being undertaken in numerous ways, in bilateral and regional trade agreements, and at the multilateral level where there is work on AI, tax, and data, in forums such as the OECD, G7 and other organisations.

Multilateral progress

The WTO framework and the General Agreement on Trade in Services generally supports digital trade, however, there is a significant amount of work to be done to support the development of digital economies and update the rules to take into account changes in technology and the economy.[198] In addition to the WTO, several other international and regional organisations cover specific areas of policy related to digital trade.

[196] Christian Ketels, Arindam Bhattacharya, and Liyana Satar, "Global Trade Goes Digital", BCG Henderson Institute, August 12, 2019: https://www.bcg.com/publications/2019/global-trade-goes-digital
[197] Arindrajit Basu, "The retreat of the data localisation brigade", The Diplomat, January 10, 2020: https://thediplomat.com/2020/01/the-retreat-of-the-data-localization-brigade-india-indonesia-and-vietnam/
[198] World Trade Report 2018: The future of world trade: how digital technologies are transforming global commerce, WTO Secretariat, 2018

The G20 in Osaka in 2019 developed an agreement on 'data free flow with trust' (DFFT) under the Osaka Declaration on Digital Economy which was signed up to by 24 economies, including the US, EU and China, but not India.[199] The agreement aimed to create more trust and more openness in the global data system, however, critics argue that it has led to more regulation. Despite the Japanese hosts succeeding in forming a declaration, the issue was hotly debated. The BRICS countries defended data sovereignty; the US opposed data localisation laws; and Japan promoted its declaration. Japan, with a significant digital sector, hopes to internationalise the DFFT concept further. Indeed, it may be the only realistic path towards ensuring the interoperability of data flows and the global digital economy from splintering further.

The taxation of 'big tech' has also made the headlines as governments, and the public, have seen the profits of international tech companies and the comparatively small tax receipts. International discussion under the auspices of the OECD started in 2019[200] to find a more equitable approach to taxing multinational companies. This has been given further urgency following the public budget holes created by the COVID-19 pandemic. However, the US has backed out of the discussion and threatened tariffs if European economies continue to impose digital taxes on US tech firms, as France, Spain, the UK, and Italy have or have considered.[201]

Meanwhile the G7 has discussed the oversight of AI technology which is vulnerable to implicit and explicit bias, logic gaps and general algorithm complexities, with potentially severe impacts. By 2023, a self-regulating association for oversight of AI and machine learning designers will be established in at least four of the G7 countries. Regulation of the sector is challenging, but the industry will need to create standards and certifications for ethical AI usage if it is to be publicly accepted.[202] While this may not impact the way in which shoebox-sized warehouse robots act now, it will create the environment for internationalisation of AI-driven software and hardware in the future.

Trade agreements – FTAs and RTAs

While progress at the multilateral level has been predictably slow, there have been developments in both bilateral and regional trade agreements. While these may facilitate trade between the relevant parties, they also have their own set of objectives and rules, contributing to fragmentation at the global level.[203] In fact, across seven FTAs examined by the Asian Trade Centre, there were only two out of 16 key provisions that were consistent across all seven agreements.[204]

By 2023, a self-regulating association for oversight of AI and machine learning designers will be established

[199] Osaka Declaration on Digital Economy: http://www.g20.utoronto.ca/2019/osaka_declaration_on_digital_economy_e.pdf
[200] "Programme of Work to Develop a Consensus Solution to the Tax Challenges Arising from the Digitalisation of the Economy", OECD, May 31, 2019: https://www.oecd.org/g20/topics/international-taxation/
[201] "US upends global digital tax plans after pulling out of talks with Europe", FT, June 17, 2020: https://www.ft.com/content/1ac26225-c5dc-48fa-84bd-b61e1f4a3d94
[202] Kasey Panetta, "Gartner Top Strategic Predictions for 2020 and Beyond", Gartner, October 22, 2019: https://www.gartner.com/smarterwithgartner/gartner-top-strategic-predictions-for-2020-and-beyond/
[203] Christian Ketels, Arindam Bhattacharya, and Liyana Satar, "Global Trade Goes Digital", BCG Henderson Institute, August 12, 2019: https://www.bcg.com/publications/2019/global-trade-goes-digital
[204] "Comparing digital rules in trade agreements", Asian Trade Centre, July 24, 2019: http://asiantradecentre.org/talkingtrade/comparing-digital-rules-in-trade-agreements

The US-Mexico-Canada Agreement (USMCA) and the Comprehensive and Progressive Agreement for Trans-Pacific Partnership (CPTPP) are the most advanced in terms of digital provisions, even protecting developers' rights over source-code specifically. However, only the Australia-Hong Kong FTA guarantees cross-border electronic data transfer and prohibits data localisation for financial services.[205] Notably for a relatively low-level trade agreement, RCEP went quite far in terms of provisions for e-commerce.

This patchwork approach does not create the sort of level-playing field and continuity required for the mass dissemination of technology and new business models. If developments at the multilateral level are able to set a baseline, the next generation of trade agreements will likely go further, driven both by the example of agreements mentioned above, and the necessity of growth in their digital economy sectors.

Worst case scenario – the 'splinternet'

The spectre of the US-China trade tensions hovers over the debate on the fragmentation of the global digital economy; trade tensions have also risen between the two superpowers and the EU. In addition to a fragmentation of digital policy, one possible scenario is the emergence of two (or more) internets, dominated by China and the US. Russia has also tested options for a sovereign cyberspace, entirely separated from the world wide web.

The initial phases of this are already happening. The investment screening by the US on Chinese investment into US technology firms and the scrutiny of Huawei's involvement in European 5G networks are two examples. In the other direction, market access to China's digital economy is severely limited for foreign participants. Markets in regions such as southeast Asia are battlegrounds for this to play out on a commercial level, with Chinese giants such as Alibaba and Tencent competing against US big tech. Meanwhile, local competitors continue to compete nationally and regionally such as Grab, Go-jek, Shopee, and Tokopedia.

Trade tensions and fragmentation of digital policy go hand in hand

[205] "Comparing digital rules in trade agreements", Asian Trade Centre, July 24, 2019: http://asiantradecentre.org/talkingtrade/comparing-digital-rules-in-trade-agreements

SECTION FOUR
CONCLUSIONS

Key takeaways

Technology has the potential to drastically impact trade by increasing efficiency, driving down costs, and opening new business and trade opportunities.

While some technologies have the potential to boost trade – others may disrupt current patterns of production and trade and reduce international trade; the net effect of technology on trade could be only US$400 billion.[206]

The 2020 Industry Digitalisation Index results reveal a significant variability between the four sectors; digital infrastructure is by far the most digitalised function, while downstream supply chain is the least.

Technology has wider structural implications for global trade and the global economy, impacting jobs, infrastructure, legal structures, and the nature of comparative advantage.

Artificial intelligence, in combination with other technologies such as autonomous vehicles, robotics, and IoT sensors, will play a major role in driving down costs along the logistics chain, from shipper to recipient.

Blockchain has the potential to revolutionise cross-border trade processes for goods by increasing efficiency and trust and reducing costs.

[206] Susan Lund and Jacques Bughin, "Next generation technologies and the future of trade", Mckinsey Global Institute, April 18, 2019

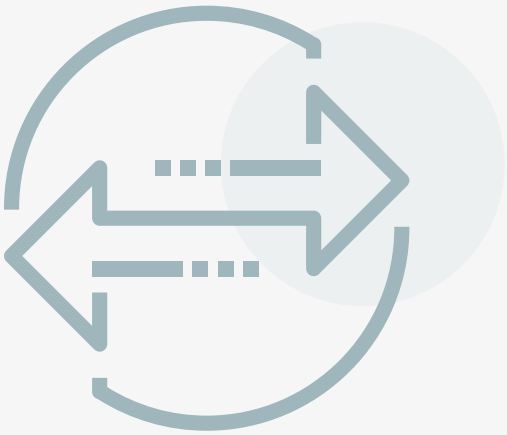
Trade brokering business models are under threat by a new wave of digital platforms that offer services for up to 90% less cost.

Technology will continue to unlock new markets and new areas of growth for both goods and services through e-commerce and enabling the delivery of cross-border services online.

Automation and robotics will shorten supply chains by moving manufacturing closer to centres of consumption while additive manufacturing will undermine components supply chains.

There is an urgent need for governments to address the fragmentation of the global technology policy environment.

CONCLUSIONS



Technology has huge potential to drive trade, but in some cases domestic regulation or international interoperability stand in the way of broad uptake, limiting the impact on trade growth. There is significant opportunity for governments and businesses to cooperate to identify areas for change to allow technology to facilitate trade.

There is also a role for governments to mitigate the potential downsides that technology may have on trade and jobs, through investment in infrastructure and education, and the development of global policy on technology.

RECOMMENDATIONS

BUSINESS

- Invest in technologies to reduce trade costs and increase efficiencies.
- Take advantage of new, competitive, digital platforms that facilitate trade and open new markets.
- Take the lead in driving domestic regulatory change to allow the implementation of technologies that facilitate trade e.g. acceptance of electronic trade documents, blockchain etc.
- Contribute to the development of international agreements and standards on interoperability, data and other aspects of trade and technology.

GOVERNMENT

- Work with business to identify obstacles to trade that could be eliminated by technology and embrace the regulatory changes necessary to allow technology to facilitate trade.
- Prioritise investments into digital infrastructure and digital skills development to drive trade and economic growth through the 2020s.
- Invest in retraining and reskilling workforces to mitigate the negative impacts of technology on the economy and specifically on jobs.
- Cooperate at the international level on data and e-commerce which will be essential to global trade in the next decade.

CHAPTER IV

MAKING TRADE HAPPEN

FINANCE AND INFRASTRUCTURE

Building up strong financial, physical, and digital networks and infrastructure to facilitate trade is crucial to the future of trade in both developed and emerging markets. The capacity of any economy to successfully engage in international trade is dependent on more than just having products to export and services that can be delivered across borders. Being able to finance trade activities and being able to get goods and services to markets and customers are critical.

Although these aspects of trade are fundamental, there is a significant gap in terms of financing. Up to 90% of global trade is reliant on some form of trade finance yet there is a US$1.5 trillion gap in financing in the sector. This gap is predicted to widen to US$2.5 trillion by 2025.[207] Similarly, goods trade relies on roads, ports and other physical infrastructure, and goods and services trade rely on telecommunications and digital infrastructure, yet there is a US$6 trillion gap between infrastructure needs and the available financing. This gap is predicted to widen to up to US$15 trillion by 2040.

In order to narrow the gaps, there must be significant change in the way both private and public sector actors operate and work together. The continuation of the gaps will at best limit potential trade growth opportunities, especially for businesses and economies that have not historically engaged in cross-border trade. At worst, they will contribute to a decline in trade.

Key barriers to addressing the finance gap are the misperception of trade finance and infrastructure investment as high-risk, and the lack of access for wider groups of investors due to regulatory burden.

The trade finance gap can be closed by increasing the size of the pool of finance and improving access to trade finance. Technology has a major role to play but needs to be supported by global agreement on the digitalisation of trade finance.

The infrastructure finance gap can be closed by finding solutions to enable reserves of private capital to enter the infrastructure investment pool. This requires coordination with government, and greater innovation in infrastructure planning and development overall.

There are prospects that the financing gaps will narrow in the coming years. Both trade finance and trade-related infrastructure are increasingly catching the attention of players outside of their usual industries as well as the attention of governments. However, the geopolitical environment poses a threat as a block to global cooperation and a distraction from these highly practical solutions to driving trade.

[207] "Why Exporters Need to Mind the Trade Finance Gap", World Economic Forum, 10 February 2020: https://www.weforum.org/agenda/2020/02/exporters-mind-trade-finance-gap/

SECTION ONE

THE IMPACT OF THE FINANCING GAP

Critical channels to facilitate trade

Trade finance and infrastructure are often eclipsed by tariff policy and geopolitics in discussions about trade, but they are critical channels to facilitate trade that can help improve the strength of participation in the global economy for diverse actors.

Trade finance

What is trade finance? Over the years, trade finance has evolved into an increasingly complex instrument. At its foundation, trade finance introduces a third-party to transactions between exporters and importers, thus reducing both payment and supply risk. The most common form of trade finance is a letter of credit (LC), providing a guarantee to both parties in the transaction, although the industry has developed significant complexity and many more products.

Trade finance reduces risk by reconciling the divergent needs of importers and exporters, lowering the risks of non-payment, and boosting efficiency and revenue. As much as 90% of global trade is reliant on trade and supply chain finance and is estimated to be worth round US$10 trillion a year.[208] By providing exporters and importers access to critical finance needed to facilitate exchange, trade finance drives economic development and helps to maintain a flow of credit in supply chains.

Smaller businesses, who often face limited access to loans and other forms of interim financing when seeking to cover costs of goods they are importing and exporting, need access to finance. Trade finance helps to close the trade cycle funding gap and ensure smooth movements of goods and services for all economic actors.

90%

of global trade is reliant on trade and supply chain finance

[208] "ICC Trade Register Report 2019", International Chamber of Commerce: https://iccwbo.org/publication/icc-trade-register-report/

Infrastructure

Infrastructure is a massive economic multiplier. Well-maintained ports, highways, airports, rail links, and related services connect trading partners, reduce transport costs, promote competitiveness and facilitate both regional and global economic integration. The quality of transport infrastructure has a significant impact on bilateral trade flows and is one of several considerations that factor into company decisions on where to base operations.

The inverse is also true – where infrastructure is of poor quality or lacking, transport costs and delivery times increase, and economic growth is damaged. Raising the capacity of countries with below-average infrastructure even halfway to the global average could increase global trade by US$377 billion.[209]

In the modern world, concrete, steel, and increasingly fibre-optic cables are the essential building blocks of the economy and the foundations for international trade.[210] The shift in the importance of digital cross-border trade – both the digital purchase of goods and services and the digital delivery of services – means that an economy's digital infrastructure is now just as important as its transport infrastructure.

The importance of digital connectivity for business resilience has been underscored during the lockdowns during COVID-19 pandemic.[211] Key physical digital and telecommunications infrastructure includes the mobile phone towers, fibreoptic cables, and Wi-Fi networks that link devices, as well as the data infrastructure, storage and processing capacity in data centres and cloud services.[212] Functioning digital infrastructure is proven to drive growth: the World Bank found that a 10% increase in internet access correlated to a 1.38% increase in GDP in developing countries. Both transport infrastructure – airports, roads, railways and ports, as well as ICT infrastructure such as mobile phones and mobile and broadband internet, are proven to increase both imports and exports. A 10% increase in mobile phone penetration can drive trade by 1%.[213]

Investment into the infrastructure sector remains critical to creating economic growth, particularly in times of a slowdown or recession. Its use as both an asset class and a fiscal policy tool means that investment into the sector can be flexible while still delivering positive outcomes for both the public and private sector. However, investment in the sector is not keeping up, which may limit trade growth in both goods and services, especially in emerging markets.

US$ 377 billion

increase of trade if improvements to infrastructure are made in underdeveloped countries

[209] Teddy Soobramanien and C. Zhuawu, "Infrastructure for Trade Development", Commonwealth Trade Hot Topics, 2014: https://doi.org/10.14217/5jz5m7pkrqf8-en.
[210] Teddy Soobramanien and C. Zhuawu, "Infrastructure for Trade Development", Commonwealth Trade Hot Topics, 2014: https://doi.org/10.14217/5jz5m7pkrqf8-en.
[211] Davide Strusani and Georges V. Houngbonon, "What COVID-19 means for Digital Infrastructure in Emerging Markets", EM Compass/IFC, May 2020: https://www.ifc.org/wps/wcm/connect/8f9237d2-eceb-433f-a2d0-300907808722/EMCompass_Note_83-for+web.pdf?MOD=AJPERES&CVID=n7M5wS.
[212] "Digital Infrastructure Sector Analysis", AIIB, 10 January 2020: https://www.aiib.org/en/policies-strategies/operational-policies/digital-infrastructure-strategy/.content/_download/Full-DISA-Report_final-with-Appendix-2020-01-10.pdf
[213] Normaz Wana Ismail and Jamilah Mohd Mahyideen, "The Impact of Infrastrucure on Trade and Economic Growth in Selected Economies in Asia", Asian Development Bank Institute, December 2015: http://www.sefifrance.fr/images/documents/basdimpactinfontrade12_2015.pdf

The investment gaps

There is a massive financing and investment gap in both trade finance and infrastructure that will increase over the next 10 years unless action is taken

Despite the critical role trade finance and infrastructure play in economic growth and in boosting trade, large investment gaps continue to plague the sectors. The gaps in both sectors have widened since the 2008 global financial crisis and are expected to grow in the 2020s unless significant action is taken by both private and public sector actors.

Trade finance gap – US$1.5 trillion, rising to US$2.5 trillion by 2025

The trade finance gap reflects the availability of trade finance. In 2017 the gap was estimated at close to US$1.5 trillion[214] – it has widened since. This value never enters the trading system and yet there is real demand for it. Boosting the availability and successful acquisition of trade finance is critical to supporting international trade.

Recent studies estimate that the trade finance gap could reach US$2.5 trillion by 2025. The barriers to filling this financing gap are likely to be exacerbated in the next five years by geopolitical tensions and other trade trends – including the restructuring of supply chains.[215]

Global infrastructure investment gap – US$6 trillion, rising to US$15 trillion by 2040

The OECD estimates annual investment needs in infrastructure ranges from US$2.9 trillion to US$6.3 trillion.[216] Based on current investment trends, this will translate into a cumulative investment gap of at least US$5.2 trillion through 2030, and at least US$14.9 trillion through 2040 if the needs of the Sustainable Development Goals (SDGs) are taken into account.[217] The Global Infrastructure Hub similarly predicts a US$15 trillion gap between projected investment and the amount needed to provide adequate global infrastructure by 2040.[218]

US$ 2.5 trillion trade financing gap by 2025

[214] "Trade Finance and the Compliance Challenge", World Trade Organization and International Finance Corporation, 2019: https://www.wto.org/english/res_e/booksp_e/tradefinnace19_e.pdf
[215] Marc Auboin and Violeta Gonzalez Behar, "Why Exporters Need to Mind the Finance Gap", World Economic Forum, 10 February 2020: https://www.weforum.org/agenda/2020/02/exporters-mind-trade-finance-gap/
[216] "China's Belt and Road Initiative in the Global Trade, Investment and Finance Landscape", OECD, 2018: https://www.oecd.org/finance/Chinas-Belt-and-Road-Initiative-in-the-global-trade-investment-and-finance-landscape.pdf
[217] "China's Belt and Road Initiative in the Global Trade, Investment and Finance Landscape", OECD, 2018: https://www.oecd.org/finance/Chinas-Belt-and-Road-Initiative-in-the-global-trade-investment-and-finance-landscape.pdf
[218] "Anita George, Rashad-Rudolf Kaldany, and Joseph Losavio, "The World is Facing a $15 trillion Infrastructure Gap by 2040. Here's How to Bridge It", World Economic Forum, 11 April 2019: https://www.weforum.org/agenda/2019/04/infrastructure-gap-heres-how-to-solve-it/

FIGURE 1

Comparison of estimates of global infrastructure investment needs

Source	Sectoral Scope	Actual/expected annual investment (USD trillion)[1]	Investment need (USD trillion)		
			Time frame	Total	Per annum
Bhattacharya et al. (2016)	Including power generation, transmission and distribution, primary energy supply, energy demand and efficiency, transport, water and sanitation and telecommunication	3.4 (2015)	2015 - 2030	75 - 86	5 - 6
NCE (2014)			2015 - 2030	96	6.4
OECD (2017a)		3.4-4.4 (2017)	2016 - 2030	95	6.3 (or 6.9 under a 2C scenario)
Gi Hub (2017)	Including roads, railways, airports, electricity generation, transmission and distribution, water and telecommunication	2.3(2015) growing to 3.8 (2040)	2015 - 2040	94	2.9 (2015)-4.6 (2040)
McKinsey (2016)	Including transport (roads, railways, airports, and ports), water, power and telecommunication	2.5	2016 - 2030	49	3.3

[1] The approaches to estimating actual investment needs and expected investment trends vary widely among studies. See also OECD (2017b).

Least developed countries are hardest hit by lost opportunity

The potential for lost opportunities is particularly high for emerging economies. The reluctance to invest in emerging markets due to investment risk, the regulatory environment, and high compliance has impacted both infrastructure and trade finance. Such issues were exacerbated by the regulatory boom following the global financial crisis, and while there has been some movement in the interim period, there is a real risk of the pattern being repeated following the COVID-19 pandemic driven by a lack of available finance and aversion to risk. This will have a compound effect on global trade given the on-going shift of global growth and demand towards emerging markets.[219]

In Africa alone, trade finance requests see rejection rates of over 50% and the trade finance gap in the region is estimated at over US$100 billion annually, equivalent to one third of total market value.[220] Given the lack of alternative sources of financing, traders abandon the majority of their applications for finance once rejected. Trade in low income

[219] "Trade Finance and the Compliance Challenge", World Trade Organization and International Finance Corporation, 2019: https://www.wto.org/english/res_e/booksp_e/tradefinnace19_e.pdf

[220] Marc Auboin and Violeta Gonzalez Behar, "Why Exporters Need to Mind the Finance Gap", World Economic Forum, 10 February 2020: https://www.weforum.org/agenda/2020/02/exporters-mind-trade-finance-gap/

countries is more likely to be undertaken by SMEs – and trade lending to SMEs in such markets is severely constrained by the lack of availability of the necessary financial instruments, including trade finance.

Similarly, emerging markets have the greatest need for infrastructure spending. Infrastructure spending is what has the potential to boost economic growth most. Developing countries who invest at least 30% of GDP or gross fixed capital formation – infrastructure and capital equipment – have historically been among the world's fastest growing economies.[221] Asia alone requires over 50% of the projected global infrastructure investment gap. Africa and the Americas will have proportionally larger investment gaps. The Americas face an investment gap of 32%. Africa currently faces a gap of 28% though this is forecast to widen to 43% if the UN Sustainable Development Goals (SDGs) are taken into account.[222] The investment gap will continue to impede progress towards the SDG targets around inclusive growth, job creation, and women's economic empowerment.[223]

Closing the gaps will lay the groundwork for trade growth

Access to trade finance is one of the top three export obstacles for half of the world's countries.[224] Closing the gap and getting trade finance to legitimate businesses wanting to trade is an important and relatively straightforward way to facilitate international trade. Initiatives such as the ADB's Trade Finance Program which provides loans to over 200 partner banks to support trade are making a difference. Since 2009 the programme has supported 15,000 SMEs in developing Asia make over 21,000 transactions valued at US$36 billion. But issues around building the pool of trade finance and increasing access for traders remain, and multilateral development banks can only do so much.[225]

Infrastructure finance is a major focus of multilateral development banks such as the World Bank, the World Bank's International Finance Corporation, and the Asian Development Bank. The need for greater infrastructure investment even spurred the creation of the Asian Infrastructure Investment Bank (AIIB) in 2016. Yet these development banks cannot do enough, hence there is increasing focus on involving private or commercial finance in infrastructure investment. Currently, private or commercial investment only accounts for 5% of sources of financing for state-owned enterprise infrastructure development, versus 31% by development banks, and 64% public sector; and 25% of sources of financing for PPI investment versus 30% for development banks and 45% from the public sector.[226]

The multi-trillion-dollar gaps in both trade finance and infrastructure development signal that trade volumes could be larger and trading relationships and patterns more efficient. With the investment gaps only set to grow in the next 10 years, addressing the barriers to growth and investment in these sectors is critical. Only by increasing the supply and access to trade finance and investment in foundational infrastructure, will global trade increase and become more participatory for both developed and emerging economies.

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[221] Hannah Marais and Jean-Pierre Labuschagne, "If You Want to Prosper, Consider Building Roads", Deloitte, 22 March 2019: https://www2.deloitte.com/us/en/insights/industry/public-sector/china-investment-africa-infrastructure-development.html

[222] "Global Infrastructure Outlook: Infrastructure Investment Needs", Global Infrastructure Hub and Oxford Economics, July 2017: https://cdn.gihub.org/outlook/live/methodology/Global+Infrastructure+Outlook+-+July+2017.pdf

[223] "2019 Trade Finance Gaps, Growth, and Jobs Survey", Asian Development Bank, September 2019: https://www.adb.org/publications/2019-trade-finance-gaps-jobs-survey

[224] "The Global Enabling Trade Report 2016", World Economic Forum and Global Alliance for Trade Facilitation, 2016: http://www3.weforum.org/docs/WEF_GETR_2016_report.pdf

[225] "2019 Trade Finance Gaps, Growth, and Jobs Survey", Asian Development Bank, September 2019: https://www.adb.org/publications/2019-trade-finance-gaps-jobs-survey

[226] "Bridging the Infrastructure Gap: Tools for Creating Investable Infrastructure Project Pipelines", World Economic Forum: http://www3.weforum.org/docs/WEF_Bridging_the_Infrastructure_Gap.pdf

SECTION TWO
BRIDGING THE GAP

For trade finance, the main obstacles to bridging the finance gap centre around the availability of trade finance and rejections for trade finance applications due to stringent 'know your customer' (KYC) and anti-money laundering (AML) requirements. There are also structural changes in the global financial services industry that have reduced the network size of the biggest banks, also driven by compliance concerns and a changing attitude towards risk. Solutions to these issues lie in the application of technology to the sector which, like many other parts of the trade process, severely lags behind.

Meanwhile, infrastructure development has historically been the preserve of governments. One of the key obstacles is the integration of the significant capital reserves resting in the private sector into infrastructure development through appropriate financial products developed within an acceptable regulatory and risk framework. As with trade finance, there is a significant role for digital technological innovation, as well as the need to address issues in infrastructure project pipelines and planning.

Shared issues

As well as sharing multi-trillion-dollar financing gaps, both trade finance and infrastructure investment share a number of similar challenges.

Risk perception

The perceived risk of investment into trade finance and infrastructure, despite the fact that they are highly regulated, has contributed to the financing gap. The global financial crisis in 2008 resulted in a shift towards more risk-averse behaviour among investors, underpinned by regulation.[227] As a result of the crisis, export markets are estimated to have reduced by around 40 to 50% in size.[228]

In reality, given the high barrier to entry for investment in such sectors, the risk of default is actually fairly low. In most cases investment in infrastructure is underwritten by strong collateral and is carefully documented.

40-50%

estimated reduction in export since 2008 crisis

[227] "Why is Private Investment in Public Infrastructure Declining?", World Economic Forum, 08 November 2018: https://www.weforum.org/agenda/2018/11/why-is-private-investment-in-public-infrastructure-declining

[228] "2020 Trade Finance Guide", Trade Finance Global: https://www.tradefinanceglobal.com/trade-finance/

There are also other long-held misconceptions: that investments are too long-term before bearing revenue, and that compliance costs and opaque operations make it more difficult to invest. In fact, for the right type of investor cash flows from infrastructure are relatively predictable, of long duration, somewhat indexed to inflation, and relatively uncorrelated with public equity markets.[229]

New investor access

Given the nature of trade finance and infrastructure finance, access remains limited to the big players. Smaller players face much higher costs of entry, discouraging many from looking more seriously at these sectors. "De-risking" has been driven by concerns of compliance and regulatory issues, particularly since 2008 with the emergence of new regulation on anti-money laundering and terrorist financing. Companies are now going above and beyond to ensure full compliance with national and international regulation, or risk running afoul of complex regulatory environments. Such issues are only further dampening investment and operation in these sectors.

Heightened perception of regulatory risk in emerging markets in particular have led to a decline in international banking and other relationships, as many fear that local entities may not be able to meet all new regulatory requirements in effect. Despite the fact that there is little evidence that the US$18 trillion in international trade transactions are subject to significant amounts of fraud[230], institutions are erring on the side of caution.

Exploring the trade finance gap

In addition to the common issues of regulatory concerns and a lack of access for investors, trade finance also faces unique challenges due to the nature of the sector, the types of transactions that take place and a lack of innovation in the sector.

Key barriers to the growth of trade finance include:

- The small (and decreasing) size of the trade finance pool due to perceived risks
- The difficulties businesses face in accessing trade finance products
- The low rate of successful applications for trade finance products

1. The size of the trade finance pool is shrinking due to perceived risk by large banks

De-risking strategies pursued widely over the last decade have been partially driven by concerns over compliance issues, particularly in emerging markets. Banks have largely cut down on trade finance operations due to these risks, drastically cutting down the pool of finance available for smaller businesses looking to join the global trading system.

78% of surveyed banks in the Asian Development Bank's Trade Finance Gap, Growth, and Job Survey 2019 cited know

[229] Michael S. Burke and Clive Lipshitz, "The Infrastructure Gap: Financing and Funding the Future", AECOM: https://infrastructure.aecom.com/infrastructure-funding

[230] "Trade Finance and the Compliance Challenge", World Trade Organization and International Finance Corporation, 2019: https://www.wto.org/english/res_e/booksp_e/tradefinnace19_e.pdf

your customer (KYC) [and anti-money laundering] regulations as major obstacles to expanding trade finance operations.[231] As a result, 60% of banks expect the trade finance gap to widen, not decrease, over the next two years.[232]

Further, increasingly complex national and international regulation on compliance means that banks and other trade finance institutions are going above and beyond to exceed regulatory guidance provided to 'be on the safe side'. As a result, trade finance rejection rates accelerated in a third of institutions surveyed in a BNY Mellon report in 2018.[233]

In reality, the risk of default in trade finance transactions is small – generally at around 0.2% on average globally, with little variation across countries.[234] The average transaction default rate on short-term international trade finance (credit and guarantees) was no more than 0.46% with a recovery rate of 52% between 2013 and 2017.[235]

FIGURE 2

Risk characteristics of short-term trade finance products, 2008-17

Category	Default Rate	Implied maturity (days)	Recovery rate
Import and export letters of credit	0.22%	80	71%
Loans for import/export	0.8%	120	45%
Performance guarantees	0.36%	110	18%
Total	**0.46%**	**90**	**52%**

2. Businesses cannot access trade finance products

Access to finance is critical for smaller players seeking to access global trade. The 2008 global financial crisis saw export markets reduce dramatically and smaller organisations were hardest hit. Yet these are the sectors who stand to benefit most from trade finance, particularly in emerging markets, and has had significant consequences for such organisations in the global trading system. Small and medium-sized enterprises (SMEs) often have more limited access to loans and other forms of interim financing to cover the cost of goods for import and export. Trade finance helps goods to keep moving, even when companies don't have enough internal

[231] "2019 Trade Finance Gaps, Growth, and Jobs Survey", Asian Development Bank, September 2019: https://www.adb.org/publications/2019-trade-finance-gaps-jobs-survey
[232] "2019 Trade Finance Gaps, Growth, and Jobs Survey", Asian Development Bank, September 2019: https://www.adb.org/publications/2019-trade-finance-gaps-jobs-survey
[233] "2019 Global Survey – Overcoming the Trade Finance Gap: Root Causes and Remedies", BNY Mellon, 2019: https://www.bnymellon.com/_global-assets/pdf/our-thinking/2019-global-survey.pdf
[234] Marc Auboin and Violeta Gonzalez Behar, "Why Exporters Need to Mind the Finance Gap", World Economic Forum, 10 February 2020: https://www.weforum.org/agenda/2020/02/exporters-mind-trade-finance-gap/
[235] "Trade Finance and the Compliance Challenge", World Trade Organization and International Finance Corporation, 2019: https://www.wto.org/english/res_e/booksp_e/tradefinnace19_e.pdf

cash flow to finance transactions on their own – an issue that impacts as much as 80%of global trade.[236]

There has also been a marked decline in international banking relationships, which have traditionally contributed by offsetting risk. An estimated 200,000 correspondent banking relationships have disappeared since 2008, primarily due to heightened perceptions of regulatory risk.[237] Correspondent banks are critical to trade finance, by helping to confirm letters of credit, engage in supply chain finance, and clear trade-related payments in foreign currency.[238] Many institutions will no longer engage in trade finance without a correspondent banking relationship in that country.

Given the decline in network banking and international banking relationships, combined with the more risk-averse strategy pursued by many financial institutions today, overall access to trade finance products has decreased over the last decade. This issue disproportionately affects SMEs – and even for those who do manage to access trade finance products, the next hurdle is making a successful application.

3. The rate of successful trade finance applications is low

The lack of access to trade finance products disproportionately affects SMEs. But, even for those who can access the products it is then even more difficult to complete a successful application.

60% of trade finance request by SMEs are rejected, compared to only 7% of requests by multinational companies.[239] Some estimates suggest that 75% of all trade finance rejections relate to SMEs.[240] In at least two thirds of such cases, traders do not seek alternative financing,[241] largely meaning they don't trade. Thus, the estimated value of unmet demand for trade finance is US$ 1.5 trillion annually, all of which could be contributing to global trade.

Completing comprehensive KYC processes in such regions is impeded by a number of constraints: a lack of credit history, limited knowledge and experience of trade finance within smaller players, and the absence of collateral. 78% of banks surveyed in 2019[242] reported that KYC (and anti-money laundering) regulations are critical obstacles to expanding their trade finance operations. The issue affects smaller players in the industry much more than the large players – as completing comprehensive KYC processes and obtaining all necessary information may be much harder to source and complete for less-established companies. As compliance costs and potential regulatory risks grow, it has become more difficult for banks and other trade finance institutions to remain engaged. Smaller countries and small players are particularly vulnerable to the impacts of this on trade. With trade in low income countries significantly more likely to be undertaken by SMEs[243], the reluctance of banks to engage with such players due to difficulty in completing KYC processes, has significant consequences for whole economies.

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[236] "2020 Trade Finance Guide", Trade Finance Global: https://www.tradefinanceglobal.com/trade-finance/
[237] "Trade Finance and the Compliance Challenge", World Trade Organization and International Finance Corporation, 2019: https://www.wto.org/english/res_e/booksp_e/tradefinnace19_e.pdf
[238] "Trade Finance and the Compliance Challenge", World Trade Organization and International Finance Corporation, 2019: https://www.wto.org/english/res_e/booksp_e/tradefinnace19_e.pdf
[239] "Trade Finance and the Compliance Challenge", World Trade Organization and International Finance Corporation, 2019: https://www.wto.org/english/res_e/booksp_e/tradefinnace19_e.pdf
[240] "Trade Finance and the Compliance Challenge", World Trade Organization and International Finance Corporation, 2019: https://www.wto.org/english/res_e/booksp_e/tradefinnace19_e.pdf
[241] "Trade Finance and the Compliance Challenge", World Trade Organization and International Finance Corporation, 2019: https://www.wto.org/english/res_e/booksp_e/tradefinnace19_e.pdf
[242] 2019 Trade Finance Gaps, Growth, and Jobs Survey", Asian Development Bank, September 2019: https://www.adb.org/publications/2019-trade-finance-gaps-jobs-survey
[243] "Trade Finance and the Compliance Challenge", World Trade Organization and International Finance Corporation, 2019: https://www.wto.org/english/res_e/booksp_e/tradefinnace19_e.pdf

Closing the trade finance gap

The following actions, which require coordination between the private sector and government, will help close the trade finance gap and support international trade engagement.

1. Increase the size of the trade finance pool by replacing the banks that have left the industry and by allowing more and more varied actors to engage in the sector.

Trade finance has increasingly emerged as a compelling private debt opportunity for institutional investors – given the potential for relatively stable risk-adjusted returns.[244] However, currently, large financial institutions continue to dominate operations and investment in the sector.

In trade finance, a large share of international trade finance is supplied by a small group of 40 international banks. This accounts for around 30% of trade finance intermediated globally.

Local banks are able to take on much of this burden – but with the support of larger, global banks who can support trade finance transactions that need to be settled in the currency of the end transaction, confirm letters of credit, engage in supply chain finance, and help clear trade-related payments in foreign currency.[245] Regulatory frameworks that support these types of engagement would better allow smaller players, including those still within the financial sector, to begin bridging the financing gap.

Improvements in the efficiency and transparency of transaction processes, if implemented on a larger scale, would also encourage further institutions to provide more trade finance to businesses, particularly in geographies with high levels of unmet demand.[246] Enhancing transactions as a whole by addressing efficiency and reducing risk through improved transparency, rather than focussing on cost production and distributing risk, is what is required most to help bring new providers into the sector.

30%

of trade finance is offered by 40 international banks. Meaning local banks are required to fill the gap

[244] h"The Trillion Dollar Trade Finance Opportunity", Insight Investment, 31 May 2018: https://www.insightinvestment.com/globalassets/documents/recent-thinking/uk-the-trillion-dollar-trade-finance-opportunity.pdf
[245] "Trade Finance and the Compliance Challenge", World Trade Organization and International Finance Corporation, 2019: https://www.wto.org/english/res_e/booksp_e/tradefinnace19_e.pdf
[246] "2019 Global Survey – Overcoming the Trade Finance Gap: Root Causes and Remedies", BNY Mellon, 2019: https://www.bnymellon.com/_global-assets/pdf/our-thinking/2019-global-survey.pdf

Alternative financing sources are also becoming increasingly popular. A recent study (April 2020) surveying 700 executives at medium to large sized businesses in the UK, the US, and China found that over 80% were considering switching from traditional banks to alternative lenders for trade finance.[247] The COVID-19 pandemic is likely to accelerate such movement. Big commercial banks are also likely to be more cautious in offering trade financing in the wake of COVID-19 given the perception of heightened risk profiles.[248] Commodity trade finance in particular has suffered from low volumes and high loan losses during the pandemic, encouraging more banks to retreat from the trade finance market. Trade commodity finance revenues for banks globally dropped 40% year-on-year in the second quarter of 2020.[249] ABN Amro, one of the world's most active commodity trade financiers globally, in August 2020 announced that its trade and commodity finance activities will be discontinued completely.[250]

FIGURE 3

Commodity trade finance revenues take hit from pandemic

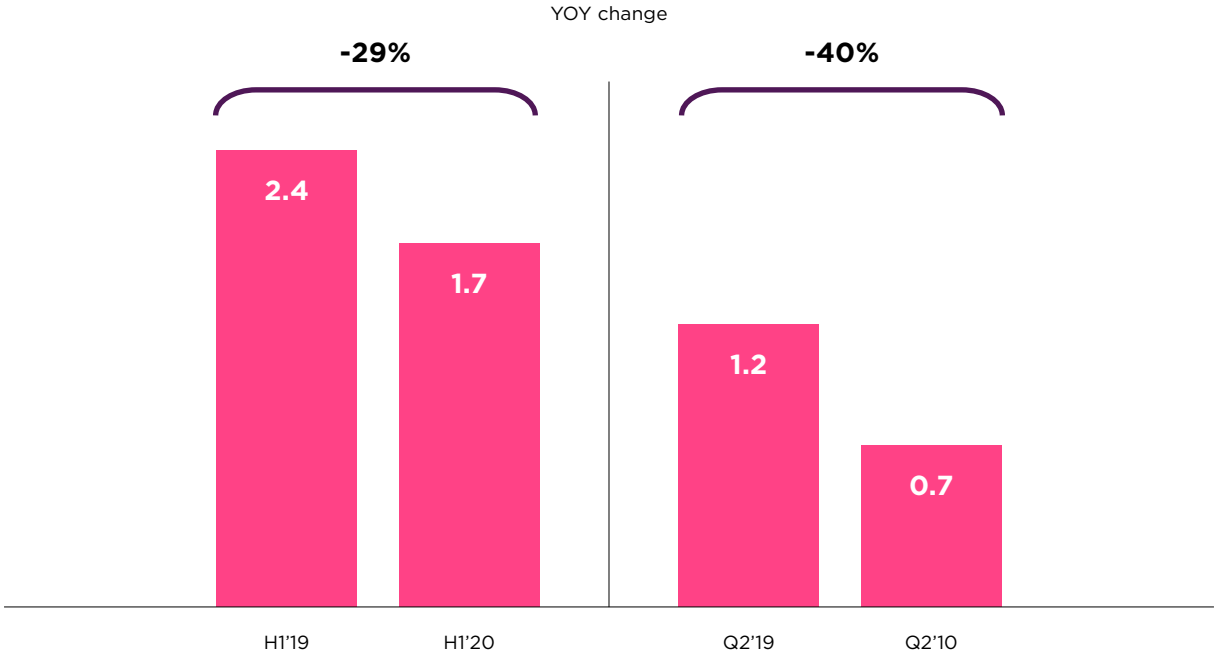


Chart created August 13, 2020.
Revenue pools include revenues from all institutional clients and corporates with annual sales turnover of more than US$5 million.
2Q20 and 1H20 revenue pools are preliminary.
Chart shows year-over-year change in total revenues.
Source: Coalition, a business division of CRISIL - an S&P Global Inc. company

[247] "Alternative Trade Financiers Ramp up Support During Coronavirus Fallout", Global Trade Review, 15 May 2020: https://www.gtreview.com/news/global/alternative-trade-financiers-ramp-up-support-during-coronavirus-fallout/
[248] "Alternative Trade Financiers Ramp up Support During Coronavirus Fallout", Global Trade Review, 15 May 2020: https://www.gtreview.com/news/global/alternative-trade-financiers-ramp-up-support-during-coronavirus-fallout/
[249] Sanne Wass, "Hit by 40% Revenue Slump, Commodity Trade Finance Faces Bank Retreat, Reshaping", S&P Global, 14 August 2020: https://www.spglobal.com/marketintelligence/en/news-insights/latest-news-headlines/hit-by-40-revenue-slump-commodity-trade-finance-faces-bank-retreat-reshaping-59914072
[250] Sanne Wass, "Hit by 40% Revenue Slump, Commodity Trade Finance Faces Bank Retreat, Reshaping", S&P Global, 14 August 2020: https://www.spglobal.com/marketintelligence/en/news-insights/latest-news-headlines/hit-by-40-revenue-slump-commodity-trade-finance-faces-bank-retreat-reshaping-59914072

However, the existing funding vacuum – only exacerbated by the pandemic – may continue to attract alternative lenders to the space. Alternative sources of trade finance, such as through crowdfunding and microfinance, may be incentivised to fill the gap increasingly left by bigger institutions exiting trade finance portfolios.

Major changes to the trade finance landscape will only be noticeable in two years – given that it takes banks a minimum of 12 to 18 months to exit trade finance portfolios. It is only after this transition period that the shape of a new market will emerge.[251]

2. Leverage technology to make trade finance products more available and accessible

There is growing optimism that technological solutions can bridge the financing gap in trade finance. Various technologies – from blockchain, to big data and artificial intelligence, have the potential to close the financing gap by improving efficiency, lowering costs, and introducing more innovation. Technology can improve the ease of doing business, help enable adoption of common global standards, facilitate operational efficiency, optimise processes, and provide more security throughout the supply chain.

Though companies worldwide have started to implement technological solutions to improve efficiency and have succeeded in making certain processes faster, more digital, and more efficient, such banks remain digital islands. Because of the lack of interoperability between institutions and countries, data silos cannot connect with partners, thus creating further risk, cost, and friction in trade transactions.

A 2018 ICC Global Survey shows that over 60% of banks surveyed are implementing technology solutions to digitalise trade finance operations. However, only 9% of banks reported that solutions implemented so far have led to a reduction of time and costs in trade finance transactions.[252] As a result, transactions in trade finance look much the same they did a century ago – relying almost solely on paper transactions.

A single transaction between a small number of parties can involve around 5,000 data field interactions and 100 pages of documents, delaying a transaction by up to four weeks.[253] Companies still rely largely on non-technological transaction – a recent survey showed that among the companies surveyed, the rate of application of technology is heavily limited. Less than one third of companies file trade finance documents electronically, and less than one fifth use e-commerce, cloud compute, analytics, and mobile applications.[254]

60%

of banks of implementing digital trade finance solutions

[251] Alice Yu, "Report Outlooks of Lithum and Cobalt, S&P Global, 20 August 2020: https://www.spglobal.com/marketintelligence/en/news-insights/blog/report-outlooks-of-lithium-and-cobalt

[252] "ICC Global Survey 2018: Securing Future Growth", International Chamber of Commerce, 2018: 2018 ICC Global Survey

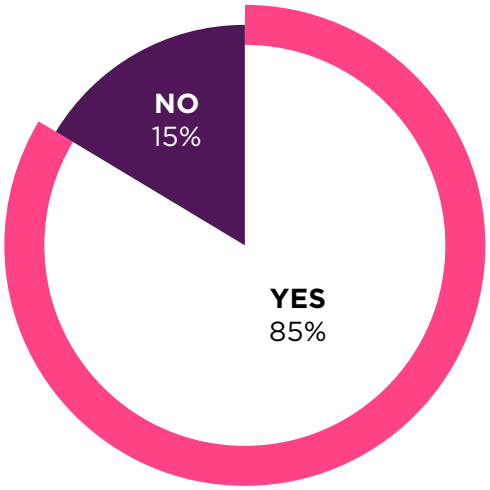
[253] "Pulse Check of Digital in Trade Finance", The Boston Consulting Group, 2018: https://www.theglobaltreasurer.com/2019/08/14/what-will-tech-led-trade-finance-look-like/

[254] Chris Santiago, "Why the Global Trade Finance Gap is Going to Get Worse", The Asset, 9 September 2019: https://theasset.com/capital-markets/38618/why-the-global-trade-finance-gap-is-going-to-get-worse

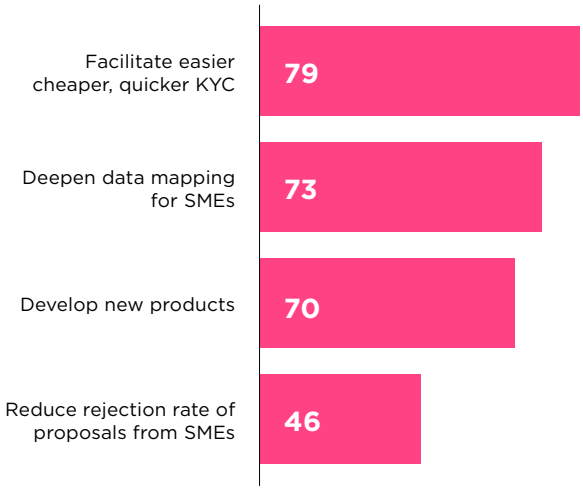
FIGURE 4

Bank's engagement with SMEs through technology (3% responses)

a. Percentage of banks gearing up to service more SMEs through technology



b. How fintech and digitalization can enhance bank engagement with SMEs



Implementing more basic digital solutions – such as basic digital securities, intelligent optical character recognition, and technology that supports know your customer (KYC) requirements, could increase efficiency by up to 50% in these sectors[255], without requiring such widespread adoption or comprehensive international coordination to develop a rigorous framework to support the implementation of technologies like blockchain.

A recent report estimates that the full digitalisation of trade finance processes would enable the streamlining of over 90% of data field interactions, creating a process that is faster and less vulnerable to error and fraud.[256] This will boost activity and access to trade finance products by making them more widely available to smaller businesses.

3. Increase the success rate of trade finance applications through technology

Digital solutions have perhaps the most potential to make a difference in trade finance. Solutions such as sharing data through centralised KYC databases would remove the need for multiple banks to undertake due diligence processes on the same companies and individuals. Technologies such as legal identity identifiers (LEIs) could save banks up to US$ 500 million each year alone in KYC costs – savings that represent 4% of existing global trade adoption costs.[257] Implementing such solutions will dramatically increase the success rate of trade finance applications –

[255] "Pulse Check of Digital in Trade Finance", The Boston Consulting Group, 2018: https://www.theglobaltreasurer.com/2019/08/14/what-will-tech-led-trade-finance-look-like/
[256] "The Evolution of Trade Finance: Blockchain Signals New Era", MarcoPolo, 26 February 2020: https://www.marcopolo.finance/evolution-of-trade-finance-blockchain/
[257] Joon Kim, "Addressing the Trade Finance Gap", International Banker, 10 June 2019: https://internationalbanker.com/finance/addressing-the-trade-finance-gap/

given that most applications are denied due to compliance concerns, particularly around KYC issues.

The benefits of more technological application in trade finance are potentially limitless:

a. Artificial intelligence
Artificial intelligence (AI) has the potential to solve one of the biggest problems in trade finance: reducing the barrier between small businesses and access to finance. institutions have historically been inflexible in processing applications and assessing credit scores of smaller institutions, given the lack of available data and the complexity of identifying crucial data to make financial decisions.[258] The use of AI could allow banks to access relevant information from big data sources – such as geographic and socio-economic classifications and census data – in order to complete the detailed due diligence trade finance requires.

Financial institutions are starting to explore ways to best harness new AI technology in trade finance. For example, Citi has announced plans for a new joint venture with EY and SAS to develop an AI-based risk analytics scoring engine to streamline the decision-making process int trade finance transactions, and a syndicate of Lloyd's Banking Group has done similar with Previse.[259]

b. Blockchain/DLT
Blockchain has been touted as the answer to solving the financing gap, particularly in trade finance.[260] However, blockchain remains relatively unproven at scale and depends largely on coordination and network effects. The technology, if proven effective, could make trade processing fast, paperless, transparent, and safe. The success of such technologies in trade finance depends on the network effects. To maximise its value, a large number of trading parties will have to subscribe to this model – which will require fundamental changes to the global regulatory framework. For example, a DLT-based, digitised letter of credit must be legally accepted in both import and export countries for it to be of any use.[261]

Financial institutions that pursue DLT should focus first on establishing common legal frameworks and interoperability, which will help improve underlying efficiency.

c. Big data and centralised data
Likewise, big data has the potential to massively improve efficiency. Such technology requires a lower rate of interoperability and mass adoption than technologies such as DLT would require. Big data technology that increases efficiency – for example, optical character recognition (OCR), which converts text from trade documents to digital format, could increase efficiency by up to 50% by eliminating the need for a human operator. This requires far less interoperability between institutions for scale and helps to reduce turnaround time and costs by automating the transition from paper to digital and back again to paper.[262]

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[258] Nash Riggins, "What Will Tech-Led Trade Finance Look Like?", The Global Treasurer, 14 August 2019: https://www.theglobaltreasurer.com/2019/08/14/what-will-tech-led-trade-finance-look-like/
[259] Nash Riggins, "What Will Tech-Led Trade Finance Look Like?", The Global Treasurer, 14 August 2019: https://www.theglobaltreasurer.com/2019/08/14/what-will-tech-led-trade-finance-look-like/
[260] "The Evolution of Trade Finance: Blockchain Signals New Era", MarcoPolo, 26 February 2020: https://www.marcopolo.finance/evolution-of-trade-finance-blockchain/
[261] "Pulse Check of Digital in Trade Finance", The Boston Consulting Group, 2018: https://www.theglobaltreasurer.com/2019/08/14/what-will-tech-led-trade-finance-look-like/
[262] "Pulse Check of Digital in Trade Finance", The Boston Consulting Group, 2018: https://www.theglobaltreasurer.com/2019/08/14/what-will-tech-led-trade-finance-look-like/

4. Drive global agreement on the digitalisation of trade finance

While technologies have significant potential, interoperability remains a key barrier to the implementation of any of the above solutions at scale – and due to a lack of global standards, basic technological advancement – such as e-bills of lading – are not legally recognised in most countries, thus rendering digitalisation in most trade transactions meaningless. Unless digital trade finance – through LOCs, websites, and OCR technology for example – is accepted across borders – there is no incentive for companies to adopt such technology. Governments will need to adopt regulation on both the national and international levels in order for technology to effectively close the investment gap. Take up is compromised by high cost and a lack of global standards for digital finance.

Exploring the trade finance gap

The main challenge for addressing the infrastructure gap is an overreliance on public funding and limited use of private capital

More than US$100 trillion is held by pension funds, sovereign wealth funds, mutual funds, and by other institutional investors.[263] Furthermore, these institutional investors are in the market for stable opportunities that can match their long-term liabilities. In this respect, infrastructure investment would be a good match given its time horizon, synthetic inflation hedge, relatively high expected yields and returns that are uncorrelated with business cycles providing portfolio diversification.[264] So why is private or commercial investment not able to bridge the investment gap?

Issues exist on both sides. From an investor perspective, there is a dearth of bankable projects ready for investment. Although many governments now are developing portals to market investment-ready projects in their pipeline, there is a long way to go until this process is perfected. Furthermore, the investment environment in many contexts is conducive to private investment in the way that development banks can engage.

US$ 100 trillion

is held by pension funds, sovereign wealth funds, mutual funds, and by other institutional investors

[263] Jason Zhengrong Lu, "A Simple Way to Close the Multi-Trillion-Dollar Infrastructure Financing Gap", World Bank Blogs, 15 April 2020: https://blogs.worldbank.org/ppps/simple-way-close-multi-trillion-dollar-infrastructure-financing-gap

[264] "Roadmap to Infrastructure as an Asset Class", OECD: https://www.oecd.org/g20/roadmap_to_infrastructure_as_an_asset_class_argentina_presidency_1_0.pdf

From a public perspective, governments have historically been more reluctant to experiment with assets as politically and economically important as infrastructure.[265] Furthermore there has been broader public reticence around private sector involvement due to a history of failure, scandals and corruption.[266] This is despite the massive need for infrastructure development against a reality of constrained public sector budgets.

Bridging the infrastructure gap

Bold leadership is required to prioritize innovative solutions that harness private capital and bring innovation to the sector. The private sector can sometimes be drawn to infrastructure – but only a very small subset of actors in a niche set of circumstances. In order to have an impact on trade, this needs to change. The following section outlines the ways in which private sector capital can be leveraged to finance infrastructure.

1. Increase the size of the infrastructure finance pool by finding ways to involve private finance

Increasing the size of the infrastructure finance pool by involving the private sector could contribute to global trade – particularly as governments are increasingly looking towards large infrastructure programmes to boost economic growth. There also remains significant room to improve the effectiveness and efficiency of how infrastructure investment is spent. Up to 38% of global infrastructure investment is not spent effectively because of bottlenecks, lack of innovation, and market failures.[267] The simplest way to improve project preparation and the pipeline of bankable investment projects. In the first instance, tools such as the World Economic Forum High-Level Decision-Making Tool can help governments make decisions on whether private involvement, in a public-private partnership, is appropriate or not.[268] A project pipeline for potential private sector investment can now be developed. Jason Zhenrong Lu, Head & Lead Infrastructure Finance Specialist, at the Global Infrastructure Facility (GIF), a World Bank-led project preparation facility recommends investing around 3% of total project budgets in proper project preparation: studies, designs, environmental and social impact assessments, structuring, and preparation of project agreements. This can save time, money, and avoid corruption and waste in the long run. In this way, the World Bank's Global Infrastructure Facility (GIF) has built a robust pipeline of more than 80 projects that are expected to mobilise more than US$60 billion, more than half of which will come from the private sector.[269]

80+

projects are in the World Bank's GIF pipeline at a cost of over US$60 billion

[265] Anita George, Rashad-Rudolf Kaidany, Joseph Losavio, "The World is Facing a $15 Trillion Infrastructure Gap by 2040. Here's How to Bridge It", World Economic Forum, 11 April 2019: https://www.weforum.org/agenda/2019/04/infrastructure-gap-heres-how-to-solve-it/

[266] "Roadmap to Infrastructure as an Asset Class", OECD: https://www.oecd.org/g20/roadmap_to_infrastructure_as_an_asset_class_argentina_presidency_1_0.pdf

[267] Jonathan Woetzel, Micklas Garemo, Jan Mischke, Priyanka Kamra and Robert Palter, "Bridging the Infrastructure Gaps: Has the World Made Progress?", McKinsey & Company, 13 October 2017: https://www.mckinsey.com/industries/capital-projects-and-infrastructure/our-insights/bridging-infrastructure-gaps-has-the-world-made-progress#section%205

[268] "Bridging the Infrastructure Gap: Tools for Creating Investable Project Pipelines", World Economic Forum, November 2019: http://www3.weforum.org/docs/WEF_Bridging_the_Infrastructure_Gap.pdf§

[269] "Bridging the Infrastructure Gap: Tools for Creating Investable Project Pipelines", World Economic Forum, November 2019: http://www3.weforum.org/docs/WEF_Bridging_the_Infrastructure_Gap.pdf

Further, a more conducive investment environment for infrastructure investment is required to turn infrastructure into an asset class that can be purchased by long-term patient capital, as this is where the money lies.

Improving the investment environment can be done in several ways. The first set involves risk mitigation for the investor. This means risks throughout the lifecycle including construction, completion, currency risks, revenue stability, environmental risk and demand fluctuation. These risks can also change throughout their lifecycle. The viability of infrastructure as an asset class relies on these risks being addressed, mitigated and allocated to the appropriate stakeholders.[270] Second, the appropriate legal, regulatory, tax, governance and accounting frameworks must be present, as well as functioning capital markets. Securing all of these aspects credibly can be difficult for emerging markets.

2. Allow for greater innovation in infrastructure planning and development

Infrastructure as a sector ranks low in terms of digitalisation and has struggled to extract value from the massive amounts of data it produces. Yet there are multiple opportunities for innovation across infrastructure planning and development from digitalising decision-making to creating innovative investment vehicles.

Countries, international institutions, and companies are already however looking at innovation throughout the infrastructure life cycle. This ranges from data analytics approaches, building information management, implementing real-time analysis of demand and asset operational performance. However, barriers remain including an inflexible regulatory environment and reticence by governments to embrace innovative digital solutions, as well as dissemination of technology across the sector, and data and privacy concerns.

3. Bridging the financing gap can be supported by foreign investment and foreign policy

Infrastructure gaps remain a critical obstacle to growth, investment, and economic diversification – and bridging the financing gap is key overcoming this hurdle. One option to bridge this gap is through foreign funding, and infrastructure is increasingly being used as a foreign policy tool today.

It is clear how much infrastructure growth can contribute to a country or region's economic growth – in just the last 30 years, countries that have spent more than 30% of GDP on gross fixed capital formation have seen fast growth. Between 2010 and 2017, China spent 44%; and India 31%. In comparison, South Africa allocated 19.6% of GDP on gross capital fixed formation; and North African countries 22.8%.

The African continent for example is a prime candidate of infrastructure spending being boosted through foreign investment. The continent is looking for infrastructure-induced economic growth – it is estimated that the region will need to spend US$130 to US$170 billion per year to meet its infrastructure needs. The African Development Bank estimates that the region is currently coming up between US$68 and US$108 billion short.[272]

[270] "Roadmap to Infrastructure as an Asset Class", OECD: https://www.oecd.org/g20/roadmap_to_infrastructure_as_an_asset_class_argentina_presidency_1_0.pdf
[272] Wade Shepard, "What China is Really Up to in Africa", Forbes, 3 October 2019: https://www.forbes.com/sites/wadeshepard/2019/10/03/what-china-is-really-up-to-in-africa/#:-:text=The%20central%20players%20in%20many,being%20developed%20via%20Chinese%20partnerships

As a result, many African leaders have looked to China to bring its expertise and funding – the country now accounts for 40% of the region's infrastructure projects. China is now a central player in many of Africa's biggest infrastructure projects, including the US$12 billion Coastal Railway in Nigeria, the US$11 billion mega-port and economic zone in Bagamoyo, and the US$4.5 billion Addis Ababa-Djibouti Railway.[273] China's growing presence in Africa's infrastructure sector is one of the megatrends of this decade. Most funded projects are in transport, shipping, and ports (52.8%); followed by energy and power (17.6%).[274]

In many cases, contractors in countries needing such strong infrastructure funding do not have the capacity for major infrastructure projects – and often will turn to companies in either the West or in China for large scale construction. Though not all of this investment falls under China's Belt and Road Initiative (BRI), 37 African countries are signatories to various agreements under the BRI and funding has dramatically increased in the region over the last decade. Many Chinese state-owned enterprises are operating in the region purely for profit – but given the inter-relatedness between the region and China, such investments are critical to the country's long-term political stability.

Who is jumping ahead, and who is falling behind?

Christine Lagarde, head of the International Monetary Fund, has said that "investing in badly-needed, but well-designed, infrastructure is an obvious area of great potential."[275] Infrastructure investment has the impact of boosting both short-term demand and long-term supply - and in the long-term, boosts economic growth partially by increasing the potential supply capacity of an economy.[276]

It is indisputable that infrastructure investment can help countries boost economic growth and increase their share and participation in global trade. Countries around the world are looking to infrastructure – including as a potential response to the COVID-19 pandemic – to boost economic growth. China for example is counting on investment in the infrastructure sector to fuel its economy. The government's 2020 work report allocates a large portion of government investment to infrastructure issues such as 5G and new-energy vehicles.[277] Indonesia under President Joko Widodo has championed major infrastructure projects, including the building of a new capital city, as part of a wider drive to support economic growth in the country.

[273] Wade Shepard, "What China is Really Up to in Africa", Forbes, 3 October 2019: https://www.forbes.com/sites/wadeshepard/2019/10/03/what-china-is-really-up-to-in-africa/#:~:text=The%20central%20players%20in%20many,being%20developed%20via%20Chinese%20partnerships

[274] Hannah Marais and Jean-Piere Labuschagne, "If You Want to Prosper, Consider Building Roads", Deloitte, 22 March 2019: https://www2.deloitte.com/us/en/insights/industry/public-sector/china-investment-africa-infrastructure-development.html

[275] "How to Prioritise Public Infrastructure Investments", PwC, 2016: https://www.pwc.com/gx/en/issues/economy/global-economy-watch/prioritise-public-infrastructure-investments.html

[276] "How to Prioritise Public Infrastructure Investments", PwC, 2016: https://www.pwc.com/gx/en/issues/economy/global-economy-watch/prioritise-public-infrastructure-investments.html

[277] "New Infrastructure to Boost Economic Growth", Global Times, 24 May 2020: https://www.globaltimes.cn/content/1189336.shtml

SECTION THREE
CONCLUSIONS

Key takeaways

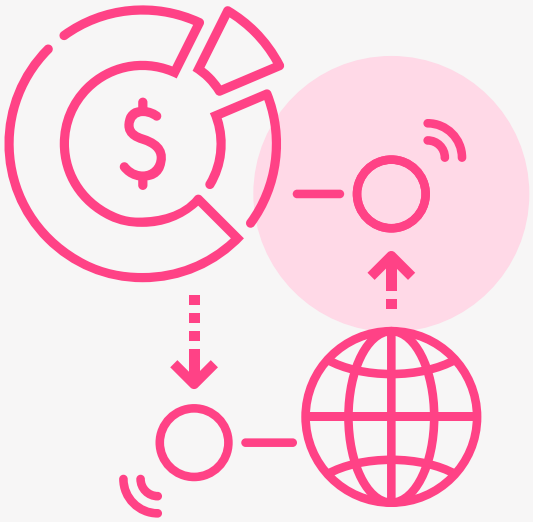
Access to finance and trade-related infrastructure – both physical and digital – are critical in making trade happen. Though policy and technology can help overcome obstacles to trade, these issues remain critical to trade growth.

The trade finance and infrastructure finance gaps will only grow over the next ten years unless there is a significant change in how public and private sector actors operate. Bridging the investment gap in both trade finance and trade-related infrastructure is due to a few shared issues: notably the perception of such sectors as being too high risk. There also remains a high barrier to access for wider groups of investors in such regulated sectors.

The trade finance gap has seen some unique barriers, including the small size of the trade finance pool, the difficulty businesses face in accessing trade finance products, and the low rate of successful applications for trade finance products. To close the trade finance gap, there are a number of solutions – including increasing the size of the trade finance pool, leveraging technology, increasing the success rate of applications, and driving stronger global standards in the industry.

The main challenge in addressing the infrastructure gap is an overreliance on public funding and the limited use of private capital. Bridging the infrastructure gap will require increasing the size of the infrastructure finance pool by further involving the private sector and allowing for greater innovation in the sector.

CONCLUSIONS



Highly regulated sectors like trade finance and infrastructure have traditionally not been a matter of public debate – they have often been left to the big public sector players, and in some cases, private actors. But there remains a huge financing gap in both sectors, which cannot be filled by the current state of play in such sectors. Trends in place since the 2008 Global Financial Crisis and more recently the impact of the COVID-19 pandemic are only increasing the barriers to entry and ease of remaining in such sectors.

In order to bridge financing gaps, there must be change in how public and private sector actors operate. Access for a wider group of investors is necessary, as is dispelling perceptions that investment in such sectors is a risky endeavour.

RECOMMENDATIONS

BUSINESS

- Streamline access to technology to manage the regulatory burden and boost the availability of trade finance products especially for SMEs.
- Partner with small fintechs and local players to get finance to wider groups of traders.
- Work with DFIs and governments to get private finance into the system for infrastructure spending.
- Cooperate further with other private sector organisations on regulatory frameworks.

GOVERNMENT

- Enable private capital into public infrastructure projects by ensuring ease of access for private investors.
- Work with the private sector to build inclusive regulatory frameworks.
- Streamline compliance frameworks to encourage greater private sector involvement in trade finance.
- Make a stronger case for businesses on the low risk of investment in infrastructure.

CHAPTER V

SUSTAINABILITY IN TRADE

International trade has a significant impact on global environmental footprint. Shipping is responsible for up to 4% of global greenhouse emissions, and air cargo 2.4%[278]. Road freight shares of total international trade-related emissions are expected to grow from 53% in 2010 to 56% by 2050.[279] Driven by the falling cost of global transport, global value chains have expanded, allowing components to cross multiple borders before final assembly and then significant journeys to market. The quality and enforcement of environmental and labour laws in low-cost labour centres can also be poor, allowing long and complex value chains to hide environmental and social costs.

However, as sustainability becomes an increasingly important issue globally, the potential for the positive impact of trade on sustainability is also being explored. Innovative solutions that deliver sustainable technology, restructure supply chains to be more sustainable both environmentally and on labour issues, and contribute to circular economy principles can make a big difference in reaching global sustainability goals.

Sustainability is moving from a 'nice to have' for companies to a necessity as pressure from various sources increases. But this is not always easy to implement and achieve in practice. Among the businesses and trade experts interviewed for this report, many felt that corporate attention to sustainability had accelerated in the past several years and that the incorporation of sustainability into business as an imperative is fast approaching a tipping point. However, many businesses and experts thought that the economic imperative is not yet present for sustainability to be incorporated into all aspects of business operations, including trade – and there is still some way to go until sustainability is business critical.

As pressure increases from key sources – consumers, investors, and governments – businesses are looking more at sustainability, driving it close to the top of the agenda in the boardroom. Further complicating the incorporation of sustainability into business models and global trade is the difficulty in implementing sustainable practices – due partially to a lack of established industry guidelines.

Innovative solutions, such as through technology, the development of sustainable supply chains, and the implementation of circular economy principles, have the potential to 'green' trade and ensure that global trade supports global sustainability goals. Global trade policy – on the multilateral, bilateral, and national level – can further support this shift towards more sustainable practices.

These trends, like others in global trade, have been impacted by the COVID-19 pandemic. In sustainability, the pandemic has had mixed effects – in the short-term, it has been positive, with a reduction in emissions and social pressure to 'build back better'. However, there is a significant risk that businesses and governments across the world will focus on economic recovery at all costs, even if this means sacrificing sustainability commitments in the short term.

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[278] "Fact Sheet: The Growth in Greenhouse Gas Emissions from Commercial Aviation", Environmental and Energy Study Institute, 17 October 2019: https://www.eesi.org/papers/view/fact-sheet-the-growth-in-greenhouse-gas-emissions-from-commercial-aviation

[279] "The Carbon Footprint of Global Trade", International Transport Forum: https://www.itf-oecd.org/sites/default/files/docs/cop-pdf-06.pdf

SECTION ONE

TRADE AND SUSTAINABLE DEVELOPMENT

Global trade generally supports sustainable development. This view is based on the impact trade has on economic growth – but the relationship between trade and environmental and social sustainable development goals is much more complex. Trade has historically been viewed as negatively impacting sustainability as it has driven emissions, deforestation and biodiversity loss, and created labour and human rights issues.

However, global trade can positively contribute to global sustainability goals beyond just delivering economic growth. For instance, the existence of responsible companies in low-cost labour centres can be and has been a catalyst for change in environmental stewardship. There is significant innovation in reducing emissions in the transport sector. Alongside the integration of AI into transport covered in Chapter III, is a shift towards electric power over combustion engines. There is a global shift in renewable power generation to supply the increased electricity demand of an electric transport sector which will also impact the demand and trade in fossil fuels. Furthermore, the more modest outlook for trade growth in the coming years may curb trade-related emissions.

Given the importance of global value chains, the changes that companies are making in response to consumer, investor and government pressure will have a significant impact on trade. However, reducing the life-cycle impact of a product and integrating sustainability into supply chains is not a simple task. Shorter supply chains may reduce transport emissions but sourcing closer to home is not always the most sustainable option overall in terms of resource use, labour, emissions and sustainable development. In response to the complexity and difficulty in measuring impacts, the holistic concept of the 'circular economy' is gaining significant ground.

Shorter supply chains may reduce transport emissions but sourcing closer to home is not always the most sustainable option

3 key drivers for sustainability in trade:

1) Consumers 2) Investors 3) Govern-ments

Corporate sustainability

Corporate sustainability is a term which is now widely used among businesses worldwide. It has evolved from the idea of corporate social responsibility (CSR), a concept which became popular at the end of the 1980s, with the focus on stakeholder interests and giving back to society with no consideration of adjusting or changing company's operations. The CSR measures implemented by the companies often did not take into account long-term impact on the communities and were instead focused on enhancing company's brand by contributing or investing financial resources into projects aimed at improving the lives of people.

Corporate sustainability is based on the notion that continuous improvement of business operations should take into account social, economic and environmental issues of material importance, and should be identified in close collaboration with internal and external stakeholders. Adoption of sustainable practices can also lead to cost reductions, increase in customer satisfaction and revenue through advancement of changes in regard to the diversity and well-being of the employees, changes to supply chains, governance, and other areas.

The push towards greater sustainability in trade is due to three key drivers:

- Consumers: consumers are increasingly demanding greener products and are now demanding greater transparency across the entire supply chain for products.
- Investors: sustainability issues are increasingly important to investors, with a view that there will be a reallocation of capital in the near future due to climate risk.
- Governments: increasing political pressure, due partially to sustained campaigning from major international organisations, has led government to build sustainability into policy planning.

UN Global Compact

At the multilateral level, the establishment of the United Nations Global Compact in 2000 and the adoption of the Agenda 2030 by all United Nations Member States further solidified the need for sustainable practices, and called for the governments and businesses worldwide to contribute to the 169 global targets through 17 Sustainable Development Goals (SDGs), which currently serve as a beacon for governments and businesses. This has been increasingly disseminated through the recent inclusion of chapters on sustainability in trade agreements being negotiated today.

As sustainability becomes increasingly important, sustainability reporting has also become a more widely accepted practice, with the emergence of internationally recognised reporting frameworks, such as the Global Reporting Initiative, which is used by more than 80 per cent of the world's top 250 companies. A previously voluntary practice of reporting on sustainability has now become the new norm as non-financial data becomes as important as financial data to investors. However, the lack of established industry guidelines and boundaries for sustainability continues to hinder widespread adoption.

The COVID-19 pandemic has had a mixed effect on the shift towards sustainability. The immediate impact of lockdowns has been lower emissions due to fewer flights, reduced global production and consumption. Employee well-being and job security has also attracted a lot of attention. Companies that let go high proportions of employees saw a negative impact on their brands. This could in the future encourage more stringent requirements for organisations to enhance protection of human capital, which could in turn impact growth in the SME and start up space, who often focus almost exclusively on revenue growth.

This report looks at future trends in global trade. Sustainability's role in trade has long been contentious and has historically required sacrificing profit and increasing costs to implement. Global trade has further hugely contributed to global emissions and exacerbated issues across climate, labour, and human rights. But this may no longer be true – trade can actually contribute to sustainability goals and business can be done sustainably with effective operational change. The challenge for economic actors, government, and the global trading system in the context of the Paris Agreement is how to enable trade to happen in a more sustainable manner. This chapter will explore the impact of a drive towards sustainability on trade, and the impact of trade on sustainability.

DMCC launches new sustainability index

It is unquestionable that sustainability has become a more important issue for businesses. DMCC in this report has debuted a new index tracking the trade of environmentally sound technologies (ESTs). The Sustainability Index finds that international trade in green technologies has grown dramatically in recent years – thus illustrating the importance of incorporating sustainability into business and trade, and in moving the global economy towards a low-emissions future.[280] An increase of trade in ESTs, as shown in this chapter, suggests that more businesses are making use of technologies that can improve or mitigate damage to the environment.[281]

[280] Cebr research

[281] Cebr research

SECTION TWO

SUSTAINABILITY: TOWARDS THE TIPPING POINT

Mixed outlook on the 'tipping point'

Of the business leaders and trade experts consulted for this report, all agreed on the growing importance of sustainability in trade and business. Companies are requesting meetings on environmental, social, and corporate governance issues (ESG) issues more frequently – from as little as one meeting per year on these issues two years ago, to being incorporated into 20% of annual meetings requested today.

Sustainable trade is now clearly more important in business decisions – and consumer preferences showing the increasing importance of sustainability issues means it is now more important to fold these ideas into business models. Investor pressure is also a significant catalyst driving this change.

However, views are mixed on how business critical incorporation of sustainability is today. It is of growing importance – but is it yet fully essential to implement? A highly significant 92% of CEOs believe integration of sustainability will be important to the future success of businesses – but only 48% say they are actually implementing sustainability into operations.[282]

There are clear indicators that sustainability will begin to shape future demand in the coming years, but the lack of comprehensive solutions and global regulatory frameworks to standardise the incorporation of sustainability has resulted in piecemeal implementation by businesses and governments. The State of Integrated and Sustainability Reporting 2018 research developed by the Sustainable Investments Institute revealed that nearly all (97%) of S&P 500 reporting companies chose to "customize extant sustainability reporting models — in style, format and content — instead of closely following any one framework."[283]

Despite an increase in sustainability reporting, its piecemeal implementation has resulted in fairly choppy implementation of sustainable business principles. However, there is increasing understanding among companies that embarking on sustainability reporting, contrary to traditional views, can actually

[282] Lise Kingo and Clarke Murphy, "How to Build Sustainable Business Leadership in a post-COVID World", World Economic Forum, 16 June 2020: https://www.weforum.org/agenda/2020/06/how-to-build-sustainable-business-leadership-in-a-post-covid-world/
[283] "State of Integrated and Sustainability Reporting 2018", Harvard Law School Forum on Corporate Governance, 3 December 2018: https://corpgov.law.harvard.edu/2018/12/03/state-of-integrated-and-sustainability-reporting-2018/

highlight areas for cost-saving and increased efficiency. Embarking on a comprehensive review of company operations can often result in the dual benefits of improving sustainability within operations and becoming more cost efficient.

As more companies engage in sustainability reporting, there will also be increased pressure for national and international regulation on reporting. This could further incentivise mandatory reporting standards and encourage a comprehensive review of global business and trade operations on sustainability issues.

Across sectors, consumer-facing industries appear to be moving towards sustainable solutions first – consumer demand for such changes has encouraged faster adoption. This is likely to be followed by banks, traders, and commodities players as consumer demand for sustainable goods increases, and as the risks of climate change are built into investment decisions.

Based on our research, the adoption of sustainability practices may follow a similar curve as in any innovative new technology, where a slow adoption at the beginning is followed by a fast-paced acceleration as more companies adopt it. This trend can be due to anything from a transformation in regulatory standards to the development of new 'best practices' in business that are essential to success.

FIGURE 1

Diffusion of innovations

With such a pattern of adoption expected in sustainability across all industries and sectors, it is in companies' best interests to move towards early adoption. Though the economic incentive for adoption of sustainable practices is not yet wholly convincing, increasing investor and consumer pressure will likely lead to stronger regulatory frameworks on sustainability sooner rather than later. Sustainable trade is being driven by consumers, investors, and governments. Businesses that engage in sustainable trade could stand to see huge gains from early adoption.

Driving the tipping point

Consumer demand – sustainability sells

The modern consumer is increasingly vocal. Increasing social awareness among large consumer groups has put the spotlight on sustainability, thus supporting a shift in consumer preferences towards more responsible brands and products. The last decade has seen growing international sentiment for "greener" products and has brought about change in many global companies – from the likes of Mattel, with its use of plant-based plastic, to Mars, with its commitment to sustainable palm oil. Companies that have made the switch have largely been rewarded, seeing increases in profits and growing business and trade.

Reports over the last two years have shown that products with sustainability claims generally outperform growth rates of total products in their respective categories, by as much as 13%.[284] Customers increasingly want sustainable products from sustainable companies – and are looking at the way companies operate through the entire supply chain on sustainability issues. Labour practices, the environmental impact of production, packaging, and more are increasingly important.

There is now a strong business case for sustainability boosting revenue growth and profitability. However, though corporate responsibility remains a key focus for businesses operating across the world, a 'race to the bottom' in some countries that are seeking greater foreign investment disincentivises companies from spending the extra cost to implement sustainable business practices. Consumer demand for greener products will slowly however outweigh the benefits of sacrificing sustainability for cheaper supply chain costs. Companies will have no choice but to look at key issues like working conditions, environmental factors, corruption, and human rights issues in order to stay competitive.

Investor pressure – sustainability and the share price

Environmental and social governance (ESG) issues are increasingly important to investors. Though corporate leaders understand that businesses have a critical role to play in tackling sustainability issues, often it appears to run counter to shareholder pressure.[285] However, a recent survey of senior executives at 43 of the world's biggest institutional investors proves that ESG is actually front of mind.[286] Trends are moving towards the incorporation of ESG performance into all reviews by shareholders. Over the last two decades, this has become an issue of global concern.

In 2006, when the UN-backed Principles for Responsible Investment (PRI) were launched, 64 investment companies with US$6.5 trillion in asset under management signed the commitment, which required the incorporation of ESG issues into investment decisions. To date, over 3,300[287] companies have committed to the PRI, representing well over US$81.7 trillion in assets under management.[288]

[284] "It's Official: Customers Prefer Sustainable Companies", Entrepreneur Europe, 1 December 2018: https://www.entrepreneur.com/article/324001
[285] Robert G. Eccles and Svetlana Klimenko, "The Investor Revolution", Harvard Business Review, May-June 2019: https://hbr.org/2019/05/the-investor-revolution
[286] Robert G. Eccles and Svetlana Klimenko, "The Investor Revolution", Harvard Business Review, May-June 2019: https://hbr.org/2019/05/the-investor-revolution
[287] "Signatories", Principles for Responsible Investment: https://www.unpri.org/signatories/signatory-resources/signatory-directory
[288] Robert G. Eccles and Svetlana Klimenko, "The Investor Revolution", Harvard Business Review, May-June 2019: https://hbr.org/2019/05/the-investor-revolution

Though some corporates may not yet fully comprehend the scale of importance ESG issues hold today, that will change rapidly. As much as 25% of investors holding shares in various corporations employ sustainable investing strategies.[289]

Larry Fink, CEO of BlackRock, the world's largest asset manager this year issued a letter (see box) to clients in January 2020 on the fundamental reshaping of finance, announcing a number of new initiatives that will place sustainability at the centre of their investment approach.

Fink argues that there will be a significant reallocation of capital in the near future – based on the understanding that climate risk is investment risk. New initiatives that BlackRock and other large investors are introducing include making sustainability integral to future portfolio construction and risk management, and exiting investments that are detrimental to sustainability initiatives.[290]

Letter to BlackRock clients from Larry Fink, CEO, BlackRock, January 2020

"Climate change has become a defining factor in companies' long-term prospects. Last September, when millions of people took to the streets to demand action on climate change, many of them emphasised the significant and lasting impact that it will have on economic growth and prosperity – a risk that markets to date have been slower to reflect. But awareness is rapidly changing, and I believe we are on the edge of a fundamental reshaping of finance.

The evidence on climate risk is compelling investors to reassess core assumptions about modern finance. Research from a wide range of organizations – including the UN's Intergovernmental Panel on Climate Change, the BlackRock Investment Institute, and many others, including new studies from McKinsey on the socioeconomic implications of physical climate risk – is deepening our understanding of how climate risk will impact both our physical world and the global system that finances economic growth.

Will cities, for example, be able to afford their infrastructure needs as climate risk reshapes the market for municipal bonds? What will happen to the 30-year mortgage – a key building block of finance – if lenders can't estimate the impact of climate risk over such a long timeline, and if there is no viable market for flood or fire insurance in impacted areas? What happens to inflation, and in turn interest rates, if the cost of food climbs from drought and flooding? How can we model economic growth if emerging markets see their productivity decline due to extreme heat and other climate impacts?

Investors are increasingly reckoning with these questions and recognising that climate risk is investment risk."[291]

[289] Robert G. Eccles and Svetlana Klimenko, "The Investor Revolution", Harvard Business Review, May-June 2019: https://hbr.org/2019/05/the-investor-revolution
[290] Larry Fink, "A Fundamental Reshaping of Finance", BlackRock: https://www.blackrock.com/corporate/investor-relations/larry-fink-ceo-letter
[291] Larry Fink, "A Fundamental Reshaping of Finance", BlackRock: https://www.blackrock.com/corporate/investor-relations/larry-fink-ceo-letter

Companies across the world are seeing growing investor and market pressure to make changes to business models and investment decisions. A number of Japan's top financial institutions – including Mizuho Financial Group and Sumitomo Mitsui Financial Group who are among the top five global lenders to coal power and mining have this year made public commitments to exit coal financing. Other global banks such as JP Morgan have already implemented similar policies.[292] Banks globally, from the Philippines to the United States, are increasingly making commitments that are more in line with the growing importance of ESG issues. Major banks are reporting that climate change and related sustainability issues are the number one issue that clients are raising. There is increasing pressure for investors to commit to financing only climate-friendly projects. The view that adhering to sustainable investing principles requires a sacrifice of some financial returns no longer holds true.[293]

Government pressure – sustainability and the licence to operate

Increasing political pressure is also contributing towards a greater shift towards sustainable business practices. Sustained campaigning from major international organisations have pressed governments to build more sustainability into policy planning, particularly as they realise the level of international demand for such policies. Government policy encouraging sustainable practices can play an important enabling role in moving the private sector towards mobilising its resources to deliver innovations in the sector.

Structural changes within government policy can move economies towards greater efficiency and wider dissemination of sustainability friendly policies that would address social, economic and environmental issues. However, as pointed out in discussions with leading firms, there is a risk of greater protectionism as government and international institutions move to tackle climate protection, as vested interests may use such regulation to protect their own markets.

Efforts to 'green' value chains globally are impeded by existing trade rules that were not created with sustainable, circular business models in mind.[294] This has led to a race to the bottom in many countries on environmental regulation, where standards on ESG issues – from labour, to environmental standards, have been abandoned or lowered in order to attract more foreign investment.

This is beginning to change; governments are starting to recognise that trade goals must be compatible with sustainable development. Many free trade agreements (FTA) today have dedicated chapters on environmental issues, though the level of ambition and effectiveness varies. This is explored further in the following section.

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[292] Aaron Sheldrick and Takashi Umekawa, "Mizuho to Stop Lending to New Coal Power Projects", Reuters, 15 April 2020: https://www.reuters.com/article/us-coal-japan-mizuho-climatechange/mizuho-says-it-will-stop-lending-to-new-coal-power-projects-idUSKCN21X0F5, Refinitiv SDC Platinum Data

[293] Robert G. Eccles and Svetlana Klimenko, "The Investor Revolution", Harvard Business Review, May-June 2019: https://hbr.org/2019/05/the-investor-revolution

[294] "How Can Trade Rules Support Environmental Action?", World Economic Forum, March 2020: http://www3.weforum.org/docs/WEF_GFC_Briefing_on_Trade_and_Environment_Report_2020.pdf

While trading frameworks remain unconducive to sustainable or circular business models, efforts to 'green' value chains will remain more difficult. As governments are starting to realise, trade goals can and should be compatible with sustainable development and can boost revenue growth and economic development.

But the economic imperative for sustainability is still missing

Despite the pressure from consumers, governments, and major investors such as BlackRock, concerns around economic outcomes remain a key barrier to the full integration of sustainability into business operations and investment decisions. Many of the businesses and trade experts interviewed for this report felt that sustainability still remained a 'nice to have' in many economies and sectors.

It may take some time before the views espoused by Larry Fink filter through to the economy and other large investors take on the same strategies. Consumer views will likely continue to drive consumer-facing brands to 'go green', but this comes at a cost to consumers, making affordability an issue, especially given the economic impact of the COVID-19 pandemic. Governments have a major role to play, though many are wary of suffocating their industries and making them globally uncompetitive. Economies such as the EU have the political will, institutional capacity and the market size to take significant policy steps including on trade policy with proposals such as a carbon tax. Finally, there is the question of how sustainability is integrated into business, which will be explored below.

The outlook

Even if the economic imperative for sustainability is not yet fully formed, growing consumer and investor demand means that sustainability can have significant economic advantage for both marketing and investor relations purposes. Furthermore, the regulatory space is being increasingly tightened by governments who have committed to reducing their national emissions. While compliance with environmental regulation does create administrative burdens, it also creates a level playing field that guarantees companies can compete while reducing their environmental impact. The challenge for businesses today is remaining competitive and achieving growth while reducing emissions at or beyond the policy requirements. The following section will look at business innovation and sustainable trade policy in greater detail.

SECTION THREE

GREENING TRADE THROUGH INNOVATION

Trade has a role to play in the sustainability transition. It can contribute to sustainability goals by reducing emissions, lead to dissemination of the importance of sustainability issues through new technologies and business practices, restructuring supply chains to be both more efficient and sustainability-friendly, and contribute to national and international sustainability commitments.

The push for sustainability is there – growing pressure from investors, consumers, and governments are heralding a change towards more sustainable business operations. Though the economic incentive is not yet fully formed, it will soon be – and government policy on sustainability requirements will only hasten this shift.

Innovations in technology and changes in the way supply chains are structured are and will be the most effective and efficient ways for businesses to make their operations more sustainable. Below we explore ways in which sustainable trade will be implemented.

Technology will drive sustainability in trade – DMCC's new sustainability index showing environmental industrialisation

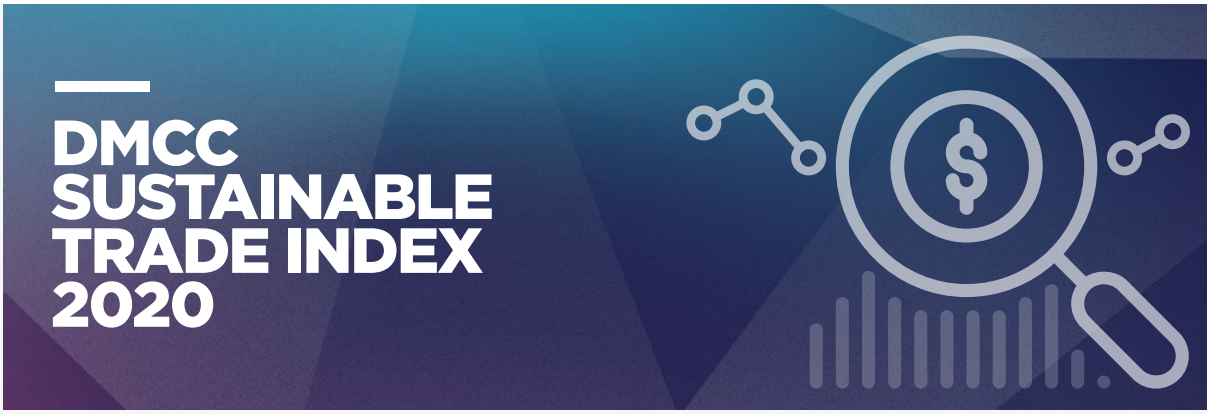
DMCC's new sustainability index charts growth in environmentally sound technologies (ESTs). Tracking such changes shows the growing connections and relationships between trade and sustainability. As explored in Chapter III, the introduction of new technologies on the market can drive trade growth. The boom in trade driven by the growth of ICT products such as laptops and mobile phones, with their many components and long global value chains is a prime example. It is now being mirrored by a boom in ESTs, which also tend to be high-tech products with multiple components.

Tracking sustainability through trade in ESTs is a comprehensive way of looking at how countries are re-industrialising in an environmental way.

Environmentally sound technologies

Technology, like in many other sectors, is rapidly contributing to the transition to a green economy and boosting trade in sustainability-related sectors. Environmentally sound technologies (ESTs) are defined by the UN as technologies that protect the environment, are less polluting, use resources in a more sustainable manner, recycle more of their wastes and products, and handle residual wastes in a more acceptable manner than the technologies for which they were substitutes.[295]

Key types of ESTs include goods that provide air pollution control, technologies for wastewater management and solid and hazardous waste management, renewable energy technologies and environmentally preferential products (which produce less negative environmental effects relative to alternative products serving the same purpose).[296]



DMCC's Sustainable Trade Index measures growing trade in ESTs, and acts as a proxy to show the growing interest among businesses worldwide in moving towards sustainability.

Trade in ESTs illustrates the growing importance of sustainability

The US, China, and Germany are the largest importers of ESTs, reflecting their environmental industrialisation. Other countries, such as Mexico, have applied deep tariff cuts on green technologies in order to encourage further growth in the space. Such policies can have a huge impact – Mexico is the only developing country to feature on the top ten list of importers outside of China – showing that such policies can have value in encouraging growth in the movement towards more sustainable business.

[295] UN definition, DMCC report
[296] DMCC report

FIGURE 2

Largest importers of environmentally sound technologies, 2018

1	**US**
2	**China**
3	**Germany**
4	**Mexico**
5	**Japan**
6	**South Korea**
7	**France**
8	**UK**
9	**Canada**
10	**Hong Kong**

The US is the largest importer of ESTs

In 2017, the US imported US$103 billion worth of ESTs and China imported US$87 billion. Japan, South Korea, France, the UK, Canada, and Hong Kong all imported between US$20-25 billion of ESTs in 2017.

Trade among key exporters and importers over the last twenty years shows clear growth in EST trade – increasing by as much as 80% over the last decade.

The increase shown in the trade of ESTs – as seen by charts below showing trade in ESTs among key exporters and importers, including China, the US, and the EU, reflect the growing need for businesses and institutions to make use of such technology to move their activities towards a more sustainable path.

There are interesting dynamics between the key EST exporters and importers, as shown in the graphs below. The analysis of monthly trade flows between the EU and China shows that the EU consistently imports more ESTs from

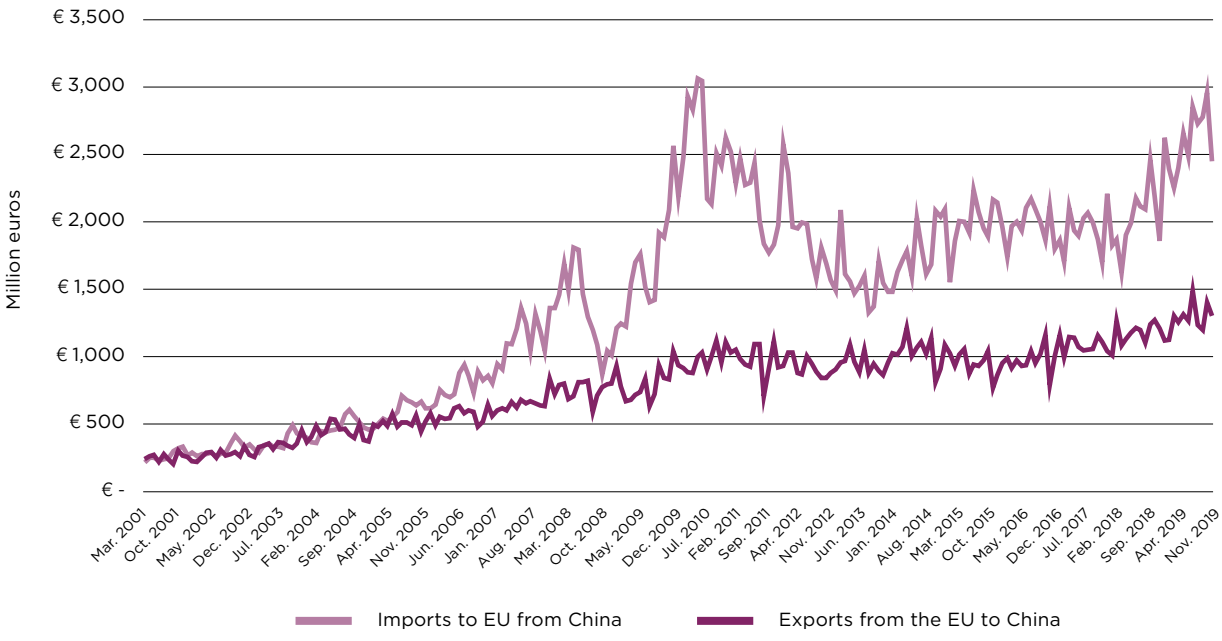
China than it exports. Overall, EST imports to the EU from China grew by 39% over the ten years to November 2019, while flows from the EU to China increased by 79% over the same time period.

Looking at the trade between the EU and the US shows that the EU is a net exporter of ESTs to the US. The month with the highest value of exports from the EU to the USA was December 2016, when there were €2.2 billion ESTs exported to the US. Trade flows of ESTs from the EU to the US more than doubled over the ten years to November 2019, with growth of 118%. Flows in ESTs from the US to the EU grew at a slower rate of 40% over the same time period.

Trade between Germany and the rest of the EU can be volatile month-to-month, but Germany is consistently a net exporter of ESTs to the other 27 EU countries. The data for October 2019 was the highest on record in terms of imports to other EU countries from Germany, at €3.7 billion. Exports to Germany from the rest of the EU stood at €2.8 billion in the same month. Trade flows from Germany to the rest of the EU increased in value by 37% over the past ten years, while EST exports from other EU countries to Germany increased by 31%.[297]

FIGURE 3

EU/China trade in environmentally sound technologies



[297] Author analysis

FIGURE 4

EU/USA trade in environmentally sound technologies

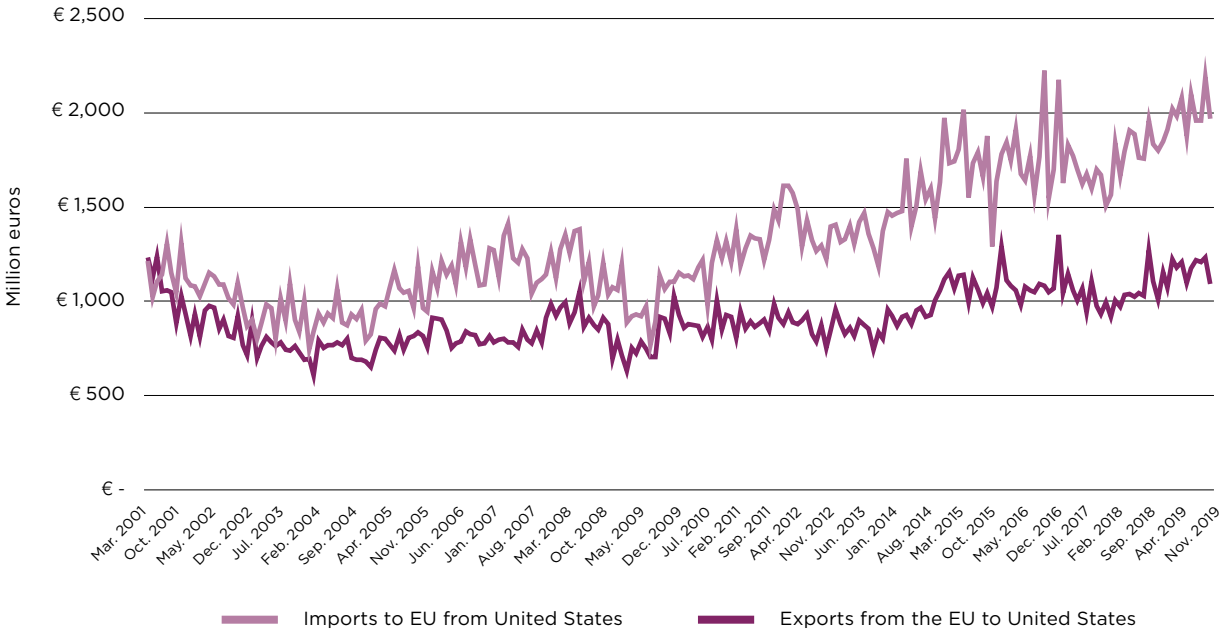
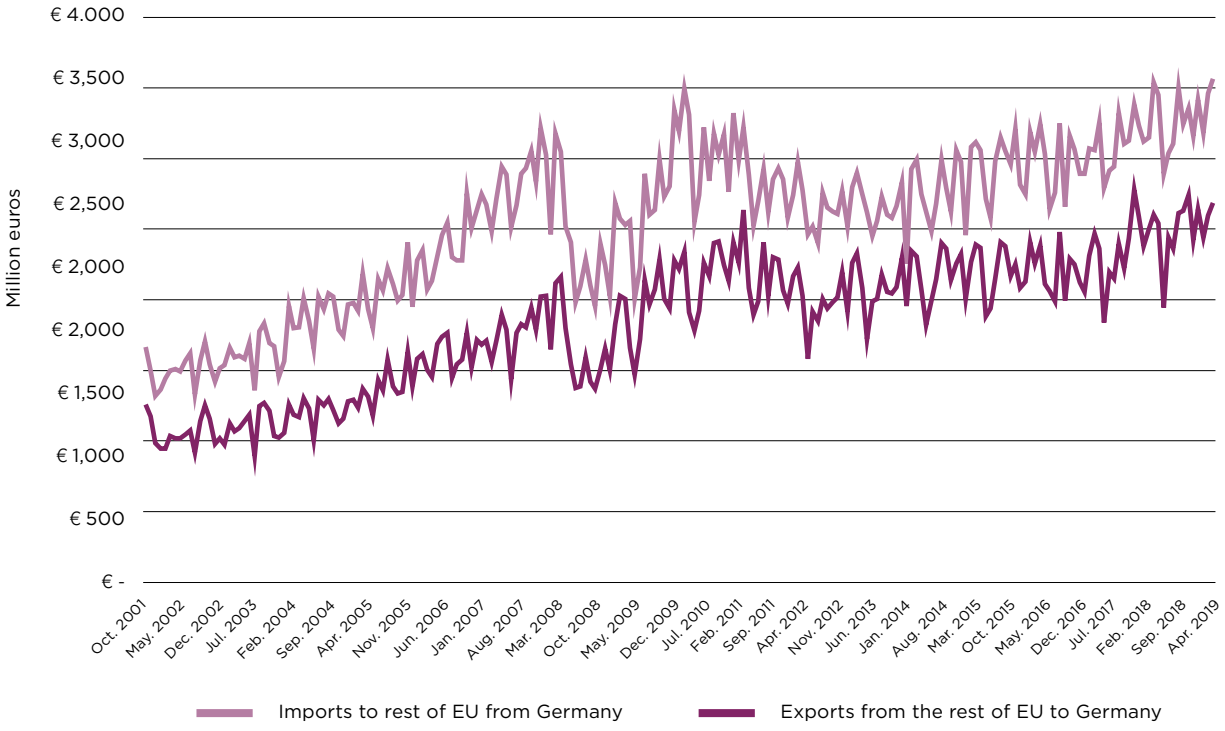


FIGURE 5

EU/USA trade in environmentally sound technologies



China is the biggest exporter of ESTs

Key trading hubs are also the most important hubs for ESTs
As may be expected, the key economies buying and disseminating green technologies globally are some of the world's biggest economies. China is currently the biggest exporter of ESTs, followed by Germany and the US – all heavily producers of ESTs.

FIGURE 6

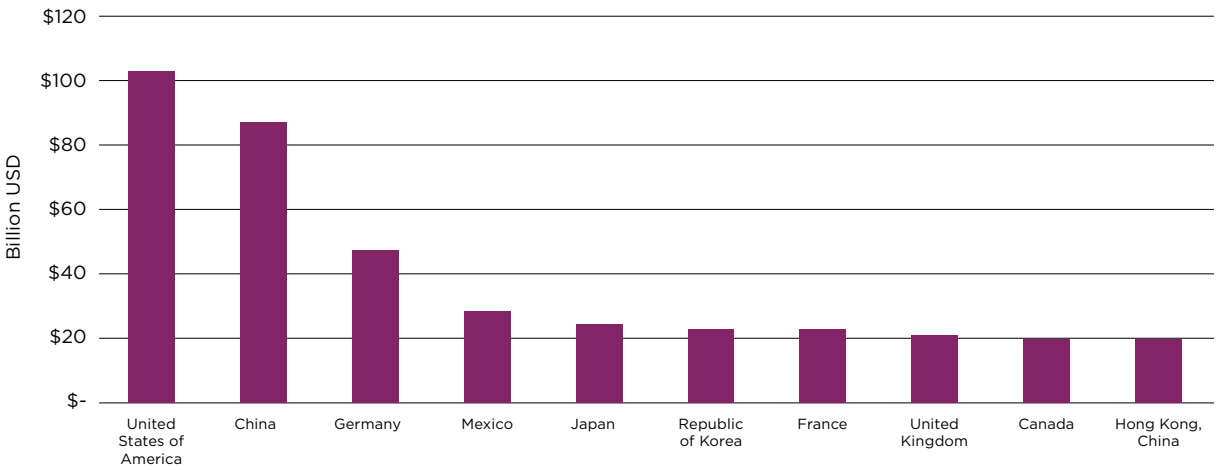
Largest exporters of environmentally sound technologies, 2018

1	**China**
2	**Germany**
3	**US**
4	**Japan**
5	**Italy**
6	**South Korea**
7	**Mexico**
8	**Hong Kong**
9	**Netherlands**
10	**UK**

Key trading hubs, as on page 150, which have strategic importance to world trade, are also often top importers of ESTs globally.

FIGURE 7

Value of imports of environmentally sound technologies, 2017, top 10 importers



As well as analysing data on the top ten countries for importing ESTs, DMCC has studied the ten trade hubs identified in this report as being of strategic importance to world trade. Four of the trade hubs referenced in the CTI are also among the top ten importers of ESTs globally. After this, it was found that the Netherlands beat Singapore and Switzerland to fifth place. The Netherlands imported $19.6 billion of ESTs in 2017, while Singapore and Switzerland imported $13.8 billion and $8.1 billion respectively.

FIGURE 8

Value of imports of environmentally sound technologies, 2017, trade hubs

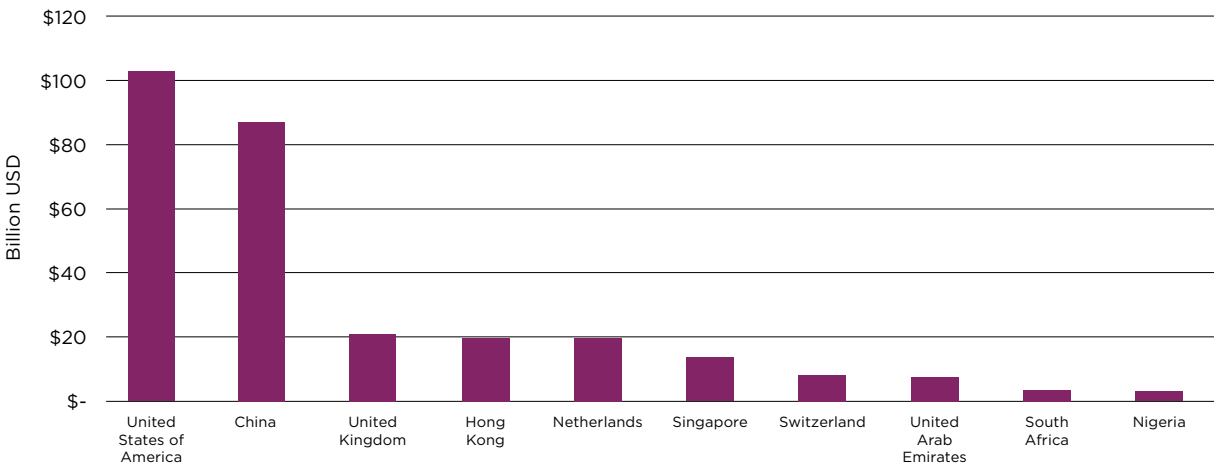


FIGURE 9

Fastest growing exporters of environmentally sound technologies, 2018 annual growth

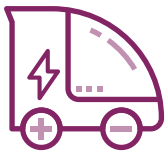
1	**Benin**
2	**Bermuda**
3	**São Tomé and Príncipe**
4	**Zambia**
5	**Tanzania**
6	**Mozambique**
7	**Nigeria**
8	**Georgia**
9	**Brunei Darussalam**
10	**Botswana**

UN research also shows where the fastest growing importers and exporters of ESTs are Benin and Bermuda are the fastest growing exporters, while Guyana and Brunei Darussalam are the fastest growing importers. Benin is well integrated in value chains for solar water heaters, contributing to the growth in trade. Although, the high growth rates are partly a result of the small sizes of these economies.

FIGURE 10

Fastest growing importers of environmentally sound technologies, 2018 annual growth

1	**Guyana**
2	**Brunei Darussalam**
3	**Uzbekistan**
4	**Montenegro**
5	**Bolivia**
6	**São Tomé and Príncipe**
7	**Mozambique**
8	**Gambia**
9	**Aruba**
10	**Zambia**



New tech does not always boost trade growth overall

EST trade and long-term trade growth

The increase in trade in ESTs is a new and growing sector of trade, and one that is likely to continue to grow as the pressure for sustainability in business and trade grows. However, as referenced in Chapter III, new technologies do not always boost trade growth overall. This seems to be the case in particular with ESTs. Electric vehicles have fewer parts meaning the trade in components in the automotive sector, worth US$392.5 billion per year,[300] will be undermined. Renewables technologies such as wind turbines and solar panels may substitute the trade in fossil fuels. Recycling technologies will undermine the trade in commodities. Production technologies such as additive manufacturing will mean that components may be increasingly made on-site and may undermine trade in some finished goods altogether. Reduction in resource use is a positive development for the planet, but the global trade system and economies that rely on global trade must be prepared for the impact of sustainability and technology on trade, in particular on supply chains.

Sustainable supply chains

A company's supply chain produces, on average, 5.5 times as many greenhouse gas emissions as its own operations do.[301] Companies that are looking to become more sustainable have quickly realised that their supply chains have far greater environmental costs than their own operations, accounting for more than 80% of greenhouse gas emissions and more than 90% of the impact of air, land, water, biodiversity, and geological resources.[302] The G20 has acknowledged that global supply chains have significant potential for both the creation of jobs and for environmental gains to encourage balanced economic growth.[303]

Companies are thus increasingly looking at greening supply chains to reduce their environmental footprint, but also to increase value.

[300] Daniel Workman "Automotive Parts Exports by Country", World's Top Exports, 12 August 2020: http://www.worldstopexports.com/automotive-parts-exports-country/
[301] Mike Scott, "Companies Look to Supply Chains for Sustainability Gains", Forbes, 11 February 2019: https://www.forbes.com/sites/mikescott/2019/02/11/companies-look-to-supply-chains-for-sustainability-gains/#7923d06c1c55
[302] Anne-Tita Bove and Steven Swartz, "Starting at the Source: Sustainability in Supply Chains", McKinsey & Company, 11 November 2016: https://www.mckinsey.com/business-functions/sustainability/our-insights/starting-at-the-source-sustainability-in-supply-chains
[303] "Strengthening Sustainable Global Supply Chains", BDI, 29 November 2017: https://english.bdi.eu/article/news/strengthening-sustainable-global-supply-chains/

Just as with the integration of technology and data gathering, in the future supply chains may become a source of value and opportunity instead of a cost centre. Greening supply chains has huge potential shared value, from increased efficiency, reduced resource use and costs, access to new markets, and an increase in resilience and resistance to economic shocks. For many industries, consumer education is turning into demands for greater transparency all along a company's supply chain, which can become a source of differentiation and competitive advantage. Supply chains also hold the biggest opportunities in improving ESG performance for companies.

In addition to reducing the impact of goods and services on the environment, companies are increasingly considering how they can increase their supply chain resilience against the impact of climate change. As climate progresses, risks – in the form of drought, flood, fire, and storms – will increase, and costs will mount. A 2018 study of almost 7,000 businesses by the international NGO CDP[304] predicted climate change could cost businesses up to US$1 trillion by 2023. Around half of the risks identified by the report were considered likely, very likely or certain to materialise in the short- or medium-term. As a specific example, Unilever has reported losses of as much as EUR 300 million per year as worsening water scarcity and declining agricultural productivity have led to higher food costs.[305] Making a supply chain more resilient may not immediately increase value, but it will ensure business continuity in the longer-term.

There are challenges in addressing sustainability in supply chains, both for value-creating and business resilience purposes. The first is around locating the problems within the supply chains. Companies often do not deal directly with all the firms in their supply chains. In most cases, suppliers are used through the value chain and often subcontract portions of large orders to other firms. This hinders efforts to discover the sustainability impact and make concrete changes. Given the lack of transparency in many supply chains, it is often difficult for companies to hold suppliers and further subcontractors accountable to environmental and social standards. Further, domestic regulations often hinder efforts to green supply chains. Firms have reported that domestic economic and environmental policies often do not always facilitate sustainable trade specifically making it much easier for companies to just not engage in such issues.[306]

US$ 1 trillion
cost of climate change to businesses by 2023

[304] "Global Climate Change Analysis", CDP, 2018: https://www.cdp.net/en/research/global-reports/global-climate-change-report-2018
[305] Anne-Tita Bove and Steven Swartz, "Starting at the Source: Sustainability in Supply Chains", McKinsey & Company, 11 November 2016: https://www.mckinsey.com/business-functions/sustainability/our-insights/starting-at-the-source-sustainability-in-supply-chains
[306] "Green Trade", World Economic Forum: https://www.weforum.org/projects/trade-climate-change-sustainability

Circular economy / sharing economy

Chapter III explored the concept of the sharing economy. Facilitated by digital platforms, the sharing economy enables greater use out of assets. At its most commercial this includes services such as Airbnb or carshare schemes such as ZipCar. There are much less commercial forms however for sharing cars, gardening equipment, or living spaces. The sharing economy may undermine trade as even though it incentivises the purchase of quality products, it may reduce trade volumes as better use is made of the asset. It may also therefore be good for the environment. A much more holistic way of approach sustainability in products across industries is the 'circular economy'.

The circular economy is "an alternative to a traditional linear economy (make, use, dispose) in which we keep resources in use for as long as possible, extract the maximum value from them whilst in use, then recover and regenerate products and materials at the end of each service life."[307]

Countries and regions are moving towards adopting circular economy policies. The shift towards the circular economy reflects a growing commitment to sustainable development. But addressing the trade-related aspects of circular economy policies is key in reaching the economic, social, and environmental aspects of the circularity.

The EU for example adopted the EU Circular Economy Plan in 2015, with a view to reduce the bloc's dependency on primary raw materials and to demonstrate global leadership and gain competitive advantages through such a transition. Circular economy policies work to limit the environmental threats present in today's consumption cycle, offering an alternative to unsustainable linear consumption.

Circular economy policies can have a global impact on trade. Widely viewed to help reduce the resource footprint for industrial development and for tackling the global waste crisis,[308] trade policy is critical in facilitating the movement of goods and services that support such policies. Such policies, as they are increasingly adopted at greater scales, will impact global value changes, trade in second-hand goods, trade in waste, and in related services.

A shift to circular economy systems will primarily impact primary and secondary resource flows, and thus demand and trade in such resources. This may translate into opportunities – or issues – for sustainable development both in countries implementing circular economy policies and for sustainable development in third countries. This could include shifts such as changes in demand for primary resources as certain products may remain in the economy for longer, a move towards recyclable waste becoming a traded good, and a wider impact on global trade policy.[309]

Trade in global waste and the movement of goods and services within a value chain will all be impacted by the transition to a circular economy. For example, China's ban on waste imports for recycling in 2017 had significant impact on circular economy policy in the EU and more widely – and has been followed suit by other waste importing countries.

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[307] "WRAP and the Circular Economy", WRAP: https://www.wrap.org.uk/about-us/about/wrap-and-circular-economy

[308] Patrick Schroder, "The US-China Trade Dispute: What Impact on the Circular Economy?", Chatham House, 20 August 2019: https://www.chathamhouse.org/expert/comment/us-china-trade-dispute-what-impact-circular-economy#

[309] "EU Circular Economy and Trade: Improving Policy Coherence for Sustainable Development". Institute for European Environmental Policy, 24 January 2020: https://ieep.eu/news/eu-circular-economy-and-trade-improving-policy-coherence-for-sustainable-development

SECTION FOUR

SUSTAINABLE TRADE POLICY INTERVENTIONS

As explored in this chapter, though there is growing understanding of the important role sustainability will play in the future of global trade, the economic incentive is yet missing. However, growing investor and consumer pressure will likely move the needle for many companies and governments. In order to ensure widespread adoption, both national and international policy will need to further develop standards. There is already a growing body of trade-related policy at the global level and in trade agreements that aim to support sustainable trade and will further encourage this move for businesses even while the economic incentive is not yet critical.

WTO commitments

Sustainable development and the protection of the environment are enshrined in the activities of the WTO by the Marrakesh Agreement which established the WTO. The Doha Ministerial Declaration launching the Doha Development Round at the WTO reaffirmed similar sentiment on the "commitment to the objective of sustainable development, as stated in the Preamble to the Marrakesh Agreement."[310] There is no specific agreement dealing with the environment, but WTO rules allow for trade-related measures aimed at protecting the environment within reason.

This lack of involvement in addressing a global existential threat is understandable given the nature and role of the organisation, but has been a source of criticism.

Greenpeace and Friends of the Earth wrote a paper[311] for the WTO on how the organisation can get better at integrating and defending the interests of multilateral environmental agreements. There is scientific consensus that global eco-systems are being severely impacted as a result of human activity. As the impacts are felt in different countries, they will cause differences in

[310] "A Sustainability Toolkit for Trade Negotiators", International Institute for Sustainable Development: https://www.iisd.org/toolkits/sustainability-toolkit-for-trade-negotiators/1-why-is-sustainable-development-important-for-trade-and-investment-agreements/
[311] "Is the WTO the Only Way?", World Trade Organization: https://www.wto.org/english/forums_e/ngo_e/posp66_greenpeace_wto_e.pdf

between global players who seek different outcomes and may cause friction in the negotiation and implementation of trade rules. There has already been discussion and cases which has led to collaboration between the multilateral environmental agreement secretariats.[312] However, as the impacts of climate change become more obvious, there may need to be greater thought into how the WTO and trade rules can support countries' efforts against climate change and other environmental issues.

Preferential trade agreements

Trade negotiators are increasingly understanding that global value chains and trade can be both sustainable and profitable. Open borders can facilitate greater dissemination of environmentally sound technologies and higher environmental and social standards.[313]

Globalisation and sustainability are not mutually exclusive. With the right incentives – from the market or driven by policy – structural changes in trade and investment can move economies towards greater efficiency and promote wider dissemination of environmentally friendly policies. This is already being seen, as more and more sustainability chapters are being included in trade agreements and are becoming more enforceable – future trade negotiations will have to include more discussion and enforcement of sustainability issues.

Many trade agreements now contain dedicated chapters to sustainable action.

The US has environmental chapters in 13 of its trade agreements, including the USMCA.[314] The EU has included trade and sustainable development chapters (TSD) in all its FTAs since 2009. The chapters commit both parties to uphold standards in multilateral agreements such as the Paris Agreement and ILO conventions.[315] The UN Environment Programme has developed a sustainability toolkit for trade negotiations to enable trade and investment as vehicles for achieving the 2030 Sustainable Development Agenda.[316]

The EU has included trade and sustainable development chapters in all its FTAs since 2009

[312] "The Doha Mandate on Multilateral Environmental Agreements", World Trade Organization: The Doha mandate on multilateral environmental agreements (MEAs), (WTO website)
[313] "World Trade, Growth, and Income: Globalisation and Sustainability Can Go Hand in Hand", BDI: https://english.bdi.eu/article/news/world-trade-growth-and-income-globalisation-and-sustainability-can-go-hand-in-hand/
[314] "Current Trade Agreements with Environmental Agreements", US Department of State: https://www.state.gov/key-topics-office-of-environmental-quality-and-transboundary-issues/current-trade-agreements-with-environmental-chapters/
[315] Sam Lowe, „The EU Should Reconsider Its Approach to Trade and Sustainable Development", Centre for European Reform, 31 October 2019: https://www.cer.eu/insights/eu-should-reconsider-its-approach-trade-and-sustainable-development
[316] "A Sustainability Toolkit for Trade Negotiators", International Insttitue for Sustainable Development: https://www.iisd.org/toolkits/sustainability-toolkit-for-trade-negotiators/1-why-is-sustainable-development-important-for-trade-and-investment-agreements/

However, often sustainable development chapters in trade agreements lack teeth. Chapters in the EU agreements are not subject to enforceable dispute settlement procedures and there are no financial penalties for non-compliance.[317] The US agreements are covered by dispute settlement mechanisms, and trade concessions may be withdrawn. Canadian agreements allow for cases to be brought in the event of a trade-related labour issue with potential fines for violations. However, there is little evidence that the US and Canada's approaches are more effective than the EU's, yet there is a significant drive for a similar approach. Trade experts say that consultation and engagement are likely to be more fruitful, given other economic and diplomatic consideration and the impact of sanctions.[318]

However, despite the implementation on paper of sustainable development chapters in the new generation of the EU FTAs, there is limited evidence that the negative environmental impact of the expanded trade fostered by the agreements is being reduced, at least so far. The European Commission and other stakeholders have recognised the need for further action. As with business sustainability, the economic imperative prevails. Despite having committed to avoid trade deals with the countries who have not signed the Paris Agreement, the EU tried to re-open trade negotiations with the US in 2018. Similarly, the EU-Mercosur agreement seems to have not been impacted by the Amazon fires and the inaction of the Brazilian government.[319]

The EU is taking sustainability in trade policy more seriously than most, but the efforts seem to make meaningless contributions in the face of global trends – shipping emissions could grow between 50% and 250% by 2050, while aviation emissions could increase by 300-700%. This may mean that in order to make progress, committed economies must take matters into their own hands.

Trade defence measures provide the means to impose sustainability on trade. The European Commission President Ursula von der Leyen and Trade Commissioner Phil Hogan have alluded to an increase in their use by the EU. Trade measures, as referenced in Chapter II have been increasing in the last several years, are usually adopted as a protectionist measures but they could be applied to industries that provide environmental goods or selectively block imports from carbon-intensive industries. Border tax measures have also been discussed, though there are problems with their compatibility with WTO law.

A more progressive stance would be a more ambitious, sustainability-driven trade agenda. The EU has strong global standards-setting power and has successfully utilised it in industries such as the chemicals sector (REACH) and automotive (EURO IV). In the future, the EU could set sustainability standards across a range of traded commodities and services. This would be stronger if a coalition of countries could act together. Other areas would be reforming the Common Agricultural Policy and ensuring that the trade agenda with all regions – including Africa – is aligned with climate and biodiversity goals.

[317] Sam Lowe, "The EU Should Reconsider Its Approach to Trade and Sustainable Development", Centre for European Reform, 31 October 2019: https://www.cer.eu/insights/eu-should-reconsider-its-approach-trade-and-sustainable-development

[318] Sam Lowe, "The EU Should Reconsider Its Approach to Trade and Sustainable Development", Centre for European Reform, 31 October 2019: https://www.cer.eu/insights/eu-should-reconsider-its-approach-trade-and-sustainable-development

[319] Celine Charveria and Marianne Kettunen, „Time to Get Real About Sustainability and Trade within the European Green Deal", Insttitue for European Environmental Policy", 19 November 2019: ,https://ieep.eu/news/time-to-get-real-about-sustainability-and-trade-within-the-european-green-deal

SECTION FIVE

HAS THE COVID-19 PANDEMIC PUT SUSTAINABILITY ON THE BACK-BURNER?

Sustainable trade generates both balanced economic growth and promotes environmental stewardship.[320] The COVID-19 pandemic will impact the growth of sustainable trade in both positive and negative ways. However, given the vast economic damage caused by the global lockdowns, the priority for governments will be on restarting the economy; not building back more sustainably.

The positives – reductions in emissions and a rethink of operational procedures

The nationwide lockdowns implemented globally in response to the COVID-19 pandemic have already resulted in an 8% reduction on CO^2 emissions. With so much of the world's production line shut down, emissions have drastically decreased – and communities are noticing.

Improvement in living conditions – with the reduction of pollution in major cities and a revitalisation of flora and fauna – is encouraging communities to increase social pressure on governments to maintain these lower levels of emissions in order to support more healthy lifestyles.

There is now more social and political pressure to 'build back better' – and as such, the environmental changes shown during the COVID-19 pandemic could encourage a more long-term societal shift towards a more sustainable mindset. Major international organisations are similarly stepping up pressure for governments to include sustainability indicators into stimulus packages being announced to mitigate the economic damage caused during the pandemic. South Korea, for example, has introduced its 'Green New Deal', which sets an ambitious goal of net-zero carbon

[320] Stephen Olson, „Will COVID-19 Advance Sustainable Trade", ARTNeT, 24 June 2020: https://artnet.unescap.org/trade/advocacy/e-forum/will-covid-19-advance-sustainable-trade

emissions by 2050 and the introduction of a carbon tax. An initial parliamentary proposal calls for an investment of US$10.5 billion over the next two years, with the focus on the creation of 133,000 jobs. The plan includes remodelling public buildings, creating urban forests, recycling, establishing a foundation for new and renewable energy, and creating low-carbon energy industrial complexes to reduce reliance on fossil fuels.[321]

The negatives – the focus is on economic recovery

Economic distress from the pandemic means that governments across the world are focussing primarily on restarting national economies and mitigating the damage caused by prolonged lockdowns.

China for example has approved more coal plants in the last six months than it has in years; many Indian states have amended legislation to provide labour law exemptions; Indonesia is backtracking on efforts to curtail illegal logging; and the US has moved to weaken environmental protection, with environmental reviews no longer required for infrastructure projects initiated during this pandemic.[322]

Further – the key change that encourages sustainable trade is the reduction of trade barriers. The COVID-19 pandemic has instead encouraged further protectionism. As many as 90 countries have imposed restrictions on the export of medical supplies, and 29 countries have imposed restrictions on food exports.[323]

Overall, business leaders feel that the need for economic recovery will, in the short term, outweigh sustainability goals. COVID-19 is likely to put sustainability on the back burner.

However, the pandemic and resulting national lockdowns has also shown that a more sustainable future is possible – and thus will likely drive sustainability back up the agenda in the long run.

90

countries have imposed restrictions on the export of medical supplies

29

countries have imposed restrictions on food exports

[321] Josh Smith and Sangmi Cha, "Jobs Come First in South Korea's Ambitious ‚Green New Deal' Climate Plan", Reuters, 8 June 2020: https://www.reuters.com/article/us-southkorea-environment-newdeal-analys/jobs-come-first-in-south-koreas-ambitious-green-new-deal-climate-plan-idUSKBN23F0SV

[322] Stephen Olson, "Will COVID-19 Advance Sustainable Trade", ARTNeT, 24 June 2020: https://artnet.unescap.org/trade/advocacy/e-forum/will-covid-19-advance-sustainable-trade

[323] Stephen Olson, "Will COVID-19 Advance Sustainable Trade", ARTNeT, 24 June 2020: https://artnet.unescap.org/trade/advocacy/e-forum/will-covid-19-advance-sustainable-trade

SECTION SIX

CONCLUSIONS

Key takeaways

Among the businesses and trade experts reviewed for this report, many feel that corporate attention to sustainability has accelerated in the past several years, and that the incorporation of sustainability into business models is fast approaching a tipping point – but is not quite there yet.

The changes that companies are making to further embed sustainable principles into their businesses due to consumer, investor, and government pressure will have a significant impact on trade. However, incorporating sustainable principles across the entire trading system is no easy feat. The challenge for economic actors, government, and the global trading system is how to enable trade in a more sustainable manner.

Despite clear indications of the growing importance of sustainability, the lack of comprehensive solutions, global regulatory frameworks, and standardised reporting remains a barrier to comprehensive implementation.

Like in many other industries, sustainability will likely see a similar path to global adoption – slow adoption at first, followed by fast-paced acceleration as more companies adopt such standards.

Traditional views that suggest adopting sustainable practices is only possible by sacrificing some level of profit no longer holds true – as seen by many recent studies that show that such changes can actually improve company growth and revenue.

However, efforts to implement sustainability will remain piecemeal and uncoordinated as long as global trade rules are not conducive to such changes.

Though governments are beginning to realise that trade goals must be compatible with sustainable development, and new bilateral and multilateral agreements are incorporating chapters on sustainability, there is some way to go.

The economic imperative for sustainability also remains missing to some extent – but there is growing consumer and investor demand, meaning that sustainability can be a significant economic advantage for both marketing and investor relations purposes. Government policy on sustainability requirements may be a proxy for economic incentive for now.

The COVID-19 pandemic may have both positive and negative impacts on sustainability in business – though there is increasing understanding of the benefits of sustainable business practices, the priority for governments will be on restarting national economies.

CONCLUSIONS

Sustainability in business and trade is rapidly approaching a tipping point. Companies are increasingly seeing the value – both internally and externally – in comprehensively incorporating sustainable principles into business and trade. It is no longer true that adopting such measures is costly and requires a sacrifice in profits and growth.

However, business leaders remain divided on whether sustainability is an economic imperative. Though it is fast approaching, key barriers remain, including a lack of established reporting standards, uncoordinated policy responses, and the current global trading order. In order for this to change, innovative solutions are required, which could include the use of technology and stronger policy coordination in both bilateral and multilateral agreements.

RECOMMENDATIONS

BUSINESS

- Implement company-wide reviews and sustainability reporting plans, which, when conducted effectively, can have the dual benefits of improving sustainability within operations and becoming more cost efficient.
- Issue guidelines on investment and corporate practices that are more in line with sustainability principles, encouraging other businesses to do the same.
- Work on increasing supply chain resilience against the impact of climate change – if changes are not made, by 2050, between US$2.8 and US$4.7 trillion of GDP in Asia will be at risk due to climate change.[324]
- Set ambitious targets, make them public, be accountable, and work with competitors, NGOs and authorities to achieve them.

GOVERNMENT

- Incentivise the use of standardised sustainability reporting through policy change and new business incentives.
- Drive a comprehensive review of sustainability efforts in global business and trade operations.
- Build circular economy principles into government policy, both nationally and on trade issues.
- Build sustainability into trade agreements negotiated on the bilateral, regional, and multilateral levels.

[324] Jonathan Woetzel, Oliver Tonby, Mekala Krishnan, Yuito Yamada, Dickon Pinner, and Ruslan Fakhrutdinov, „Climate Risk and Response in Asia: Research Preview“, McKinsey & Compnay, 12 August 2020: https://www.mckinsey.com/featured-insights/asia-pacific/climate-risk-and-response-in-asia-research-preview#

CONCLUSIONS 2020

This report set out to explore the future of trade – how international trade will develop over the coming years and throughout the 2020s. The report has identified several key trends that will shape the landscape for international trade.

The economic recovery from the COVID-19 pandemic will provide the economic backdrop for the future of trade in the 2020s. The economic damage and the specific nature of the pandemic – border closures and the impact on labour as well as other factors – have had a particularly negative impact on trade. It may take years for the global economy to recover and the landscape exiting the crisis will be significantly different to that in 2019.

The pandemic hit at a time of weakness for global trade, primarily caused by global trade tensions driven by the strategic rivalry of the US and China. This rivalry looks set to continue and potentially worsen before it gets better. The trade tensions have had significant spill-over in terms of global trade figures. They have also reduced the ability of global trade institutions to drive progress and address increasing protectionist tendencies.

Technology will continue to be one of the key drivers of trade as it has the potential to further drive down trade costs and open new trade opportunities, especially for SMEs and developing countries. However, some technologies may have a disruptive effect and drive

down trade by enabling the production of goods closer to their markets of consumption. The uptake of these technologies will be incentivised by a more complex and riskier geopolitical environment.

Trade finance and trade-related infrastructure remain essential for trade. Yet, both suffer from significant financing gaps. Technology may provide solutions in both sectors, but there is a significant need for cooperation between private capital and the public sector to allow a wider group of investors in. Without adequate trade finance and infrastructure, trade cannot support economic recovery.

Sustainability in business and trade is rapidly approaching a tipping point, but despite pressure from investors, consumers, and governments, for many businesses the economic imperative is not there yet. Addressing sustainability in supply chains can be an important way to reach sustainability goals, as well as making business more resilient in the long term.

In summary, the landscape for trade in the 2020s will be extremely challenging. Businesses had already begun to change in response to trade tensions by reviewing and recalibrating their supply chains to become more focused on risk and resilience, in addition to efficiency. This has been accelerated by the pandemic, along with other trends such as digitalisation.

RECOMMENDATIONS

The report identified four key drivers for trade in the 2020s that could drive trade by US$18 trillion up to 2030. This included the implementation of technology that supports trade, the growth of cross-border services trade, innovation in trade policy, and the development of trade related infrastructure. These will be essential to trade growth in the coming years. In order to drive trade, the following recommendations for businesses and governments have been developed:

BUSINESS

- Be ready to adapt to a more challenging trade landscape – expect difficulties trading across jurisdictions and increased protectionism, as well as more modest trade growth overall. Review and recalibrate supply chains to focus on resilience and risk as well as efficiency.
- Increase investment in technologies that reduce trade costs and open new markets or partner with services that leverage these technologies. Take the lead in driving domestic regulatory change to allow the implementation of technologies that facilitate trade e.g. acceptance of electronic trade documents, blockchain etc.
- Make the case for international – if not multilateral – agreement on key issues such as e-commerce and services. Contribute to the development of international agreements and standards on interoperability and other aspects of trade and technology to address fragmentation.
- Advocate towards government for international trade in national trade policy and international trade policy to support the survival of the WTO and the global trading system. In addition, support national government to defend the value of trade domestically.

- Be more ambitious on ESG – implement company-wide reviews and sustainability reporting, and issue guidelines on investment and corporate practices. This is not only the right thing to do, it has significant benefits.

GOVERNMENT

- Like-minded governments must come together and defend global trade. This should include finding common ground for progress on WTO reform, as well as making the case domestically for international trade rather than allowing it to be a scapegoat.

- Governments should resist protectionism and when building national security into trade policy, this should be done in a way that is strategic and constructive, not as a short-term protectionist measure.

- In the absence of multilateral progress, governments will need to become more innovative with their trade policy in terms of seeking out deeper regional and bilateral deals and pursuing sector-specific international opportunities. International opportunities include e-commerce, the free flow of data, the interoperability of technology, services, and sustainability.

- Governments must continue to invest in infrastructure – both physical and digital – in order to facilitate trade in both goods and services. In particular, close the infrastructure finance gap by working with business to get private capital into infrastructure projects.

- The on-going digitalisation of the economy makes digital infrastructure particularly important, as well as digital education and skills development in light of the job losses caused by the pandemic and those that may be driven by automation and AI.

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