DMCC

THE FUTURE OF TRADE

SPECIAL EDITION

2021

DEFYING PREDICTIONS AND
DRIVING THE POST-PANDEMIC
ECONOMIC RECOVERY

DMCC is the world's leading and fastest growing Free Zone and Government of Dubai Authority for commodities trade, enterprise and innovation in business service and infrastructure.

The Future of Trade 2021 is the fourth edition of DMCC's flagship report exploring the changing nature of global trade following reports in 2016, 2018 and 2020. This report assesses the impact of geopolitics, technology, and global economic trends on the future of trade, with a focus on trade growth, the digitalisation of trade, the pivot to sustainability, trade finance and infrastructure.

The report is a synthesis of global viewpoints on what the future holds based on research, data, and interviews with business leaders and trade experts. It spans the technology, sustainability, trade finance and infrastructural sectors and is global in its analytical framing with an emphasis on the post-pandemic economic recovery and the future politics of trade.

The Future of Trade 2021 examines the ways in which the interplay between global trade, technology and sustainability will drive the future of trade 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

The dynamics of global trade have changed dramatically over the last 12 months. The Future of Trade report of 2020, released in October, painted a bleak outlook for global trade. The health crisis had devastated economies and disrupted the lives and livelihoods of billions of people; tensions between the United States (US) and China were high and escalating; the pandemic threatened to push sustainability to the bottom of the global agenda; and governments were, understandably, focused on domestic rather than international issues, raising real fears of protectionist policies. In April of last year, the World Trade Organization (WTO) – itself under intense political pressure – warned that global trade would collapse by between 13% and 32% in 2020.

But as we approach the middle of 2021, the outlook – while still uncertain – is much more positive. The development of vaccines and their rollout – while uneven globally and still far from complete – has raised hopes of a return to something resembling normal. Global trade is expected to increase and underpin global economic growth. But the shape of world trade will differ.

Adoption of technology has accelerated exponentially during the crisis and will be a key factor driving trade in the years

ahead. Geopolitics will continue to present challenges, with the relationship between the US and China – on trade and, particularly, technology – central to the reshaping of the global trading system.

Sustainability, far from dropping down the agenda, is now more dominant than ever before, with countries, companies and investors ramping up their efforts on climate change. The last year has seen new leadership at the WTO; the signing of key international agreements including the Regional Comprehensive Economic Partnership (RCEP) and the Abraham Accords; and the UK has left the European Union (EU) with a pledge to develop new trading partnerships.

Looking specifically at Dubai, the latest data from the United Nations Conference on Trade and Development (UNCTAD) shows global foreign direct investment (FDI) fell 42% in 2020. But some markets were able to curb the situation. While FDI and trade declined sharply across the world, investments in smart infrastructure, a trade enabler, saw a rise in Dubai's FDI projects in 2020 over 2019.

This report will examine the current thinking on the future of trade as the world emerges from the COVID-19 pandemic.

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EXECUTIVE SUMMARY

Global trade will rebound in 2021 after showing surprising resilience in 2020 despite the ravages of the COVID-19 pandemic. Fears that trade would collapse by between 13-32% last year were not realised. It is estimated that global trade in goods dropped by just 5.3%, with trade supported in part by the unprecedented policy measures implemented by governments to shore up their economies.

The WTO forecasts that trade will increase 8% in 2021 and will be a major factor underpinning the global economic recovery. The recovery itself will be uneven and will, in part, mirror the success, or otherwise, of the vaccine rollout. The Organisation for Economic Co-operation and Development (OECD) forecasts global economic growth of 5.6% in 2021. This will be driven largely by recovery in the US and China. But there are risks. Regional disparities could widen further; social unrest, triggered by high, long-term unemployment, could escalate trade tensions; and fears of rising inflation may see assets repriced and markets tumble. However, this may be offset by pent-up demand among consumers and businesses, and a willingness of governments to forge trade deals. This report concludes that global trade will remain resilient and will continue to recover as we move through 2021 and beyond.

The relationship between the US and China will be central to the shaping of global trade in the years ahead. The Biden administration's China strategy - competition, confrontation and compromise – is yet to play out. While the tone of the debate has become more civilised, there remains a clear risk of escalating tensions and a further decoupling – as evidenced in the tech and semi-conductor sector. The US attempts to pull together a coalition of allies to counter the influence of China will potentially draw other nations into the fray, adding further complexity to the geopolitics of trade.

There is a strong argument for the WTO, now under new leadership, to forge a closer alliance with the World Health Organization

8%
increase of trade in 2021 predicted by WTO

(WHO), particularly on intellectual property in the health sector and cross border trade in health services. The vaccine rollout is key to recovery, and governments' ability to respond quickly and effectively to new waves and new variants of the virus will dictate how fast they bounce back and how successfully they can avoid or mitigate any long-term economic scarring. The WTO will also have to respond to increased regionalism and the growing digitalisation of trade.

Perhaps the most transformative element of the global trade outlook is, and will remain, technology. E-commerce and online retailing have grown exponentially during the crisis. E-commerce has driven growth in cross-border trade of goods and services. This boom has triggered changes to supply chains, with the demand for quick order fulfilment, next-day delivery, and returns forcing service providers to chase efficiencies across their operations. Many have turned to technology to increase efficiency and manage costs – often through Artificial Intelligence (AI) and autonomous solutions. The adoption of blockchain, and the rise of cryptocurrencies, have accelerated rapidly in the last year. While some still see them as technologies in transition, they are maturing to a point where they will have a significant impact on the way in which global trade is conducted.

A notable feature of the last 12 months has been the pivot of governments, companies and investors towards sustainable practices in international trade. There were fears that the pandemic would see sustainability drop down the political and corporate agenda. That has not been the case. Indeed, China, Japan, the US, South Korea and Canada are among nations to have announced more aggressive net zero targets. Further, companies and investors have ramped up their sustainability efforts and they are set to grow exponentially in the years ahead.

The EU's planned introduction of the Carbon Border Adjustment Mechanism (CBAM) has significant implications for international trade as it will impose a carbon price on imports of certain goods from outside of the European Union. While it may be groundbreaking

and the first of other similar international policy measures to combat climate change, critics say it may be used to impose tariffs and erect trade barriers. Challenges include how to accurately measure emissions from complex supply chains. CBAM may significantly disrupt international trade.

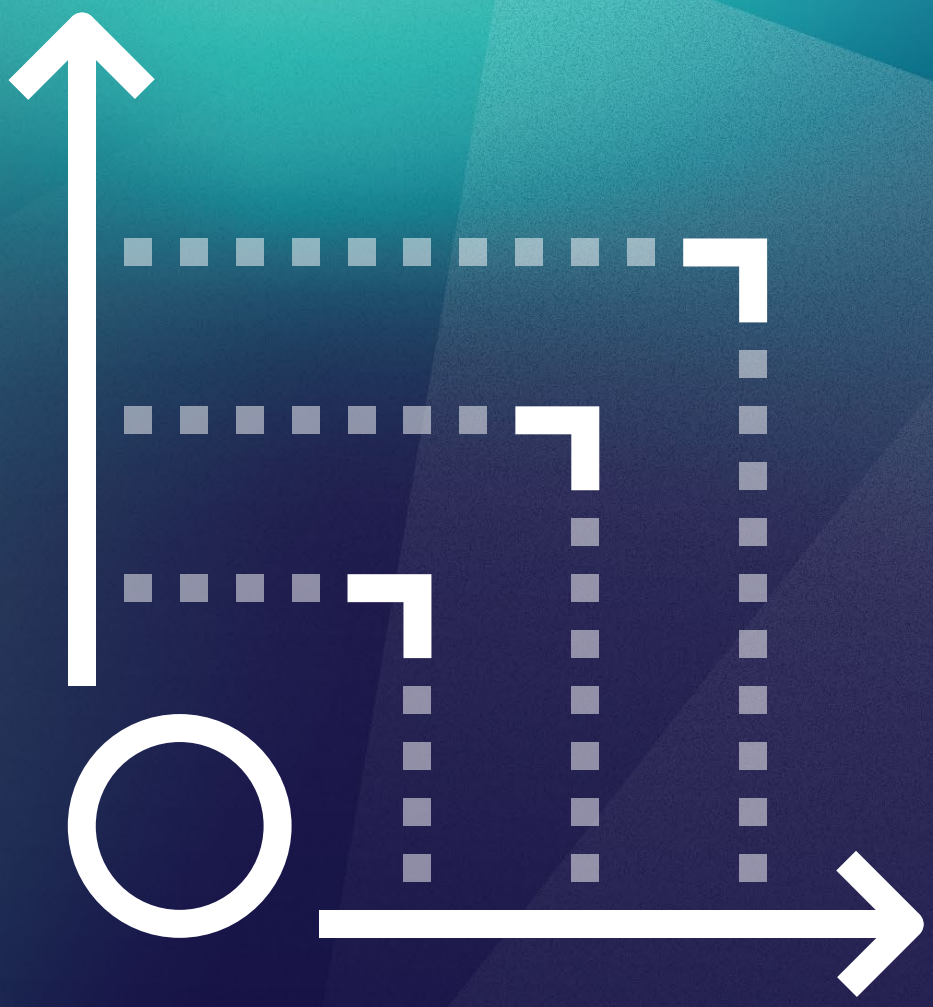
Technology may provide at least part of the answer for companies and governments seeking to make accurate assessments relating to sustainability within their trade agendas. AI can be used to collect and analyse large quantities of data as an effective means of quantifying Environmental, Social, and Corporate Governance (ESG) information and thereby help connect trading partners on green issues.

The intersection of global trade, technology and sustainability will be a feature of the future of trade.

Global trade will recover in 2021 and will show resilience going forward as the world emerges from the COVID-19 pandemic. However, global trade is in the midst of profound change. Digital technologies, changing consumer behaviours, the drive to combat climate change, and geopolitics – particularly the relationship between the US and China and specifically around technology - will reshape global trade in the years ahead.

KEY MESSAGES

- Global trade will rebound in 2021.
- The relationship between the US and China will be central to the shaping of global trade.
- Technology will continue to transform global trade.
- The adoption of blockchain and the rise of cryptocurrencies will have a significant impact on the way in which global trade is conducted.
- Sustainability remains on top of the political and corporate agenda, despite the pandemic.
- The intersection of technology and sustainability will shape the future of trade.



CHAPTER I

TRADE AND THE GLOBAL POST-PANDEMIC RECOVERY

The global economy finds itself at the start of an uneven recovery, with strong growth in the US, China and the UK, but weaker prospects in developing nations amid this newest phase of the COVID-19 pandemic. The 2020 Future of Trade report examined the COVID-19-related deterioration in international trade in the first half of 2020, along with multiple scenarios for a global economic recovery. The more pessimistic trade projections for 2020 did not materialise, owing in large part to the policy actions taken in multiple economies.

Unprecedented policy measures in the wake of the COVID-19 pandemic are estimated to have contributed 6 percentage points to global growth in 2020. These included automatic stabilisers, discretionary government spending, and financial sector stimulus (International Monetary Fund (IMF), 2021). There is continuing uncertainty around the current multi-speed recovery stemming from significant regional and country disparities.

This section analyses the global recovery and examines the opportunities inherent in any sector-specific upturns. The chapter first outlines the current state of global trade, then discusses risks, and the likely outlook for a rebound.

6%
global growth in 2020 is attributed to unprecedented policy measures

SECTION ONE

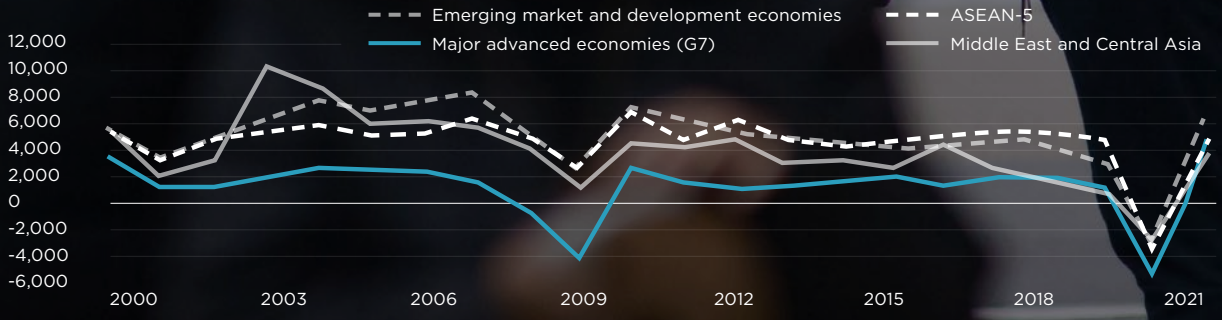
GLOBAL TRADE UPDATE: UNEXPECTED STRONG SPOTS - FUTURE OF TRADE GROWTH

Overall developments in international trade have been better than expected following the onset of the COVID-19 pandemic. While trade declined overall, the drop was not as bad as the worst-case scenario. And trade will bounce back in 2021. The global economy is set to grow by 5.6% this year, due in large part to a recovery in the US, which is expected to grow by 6.5% (OECD, 2021), and which has been significantly boosted by the Biden administration's most recent US$1.9 trillion spending package (UNCTAD, 2021a; Kaplan, 2021).

Initially, the impacts of the COVID-19 pandemic on the global economy were propagated, in part, by global trading relationships (Verschuur et al.,2021). And yet, despite this, the annual decline in global trade in goods is estimated to have been 5.3% in 2020 compared to expectations of a 9.2% drop in the WTO' s October projections. What's more, 2021 trade projections show an 8% increase, fueled by a rebound in many parts of the world (WTO, 2021). Continued policy action and fiscal stimulus by several developed economy governments will drive the outlook. Both the downturn and the expected recovery in growth are likely to be more synchronous when compared to the financial crisis of 2008-2009 (Figure 1).

FIGURE 1

Growth outlook: prospects for an upturn after COVID-19 collapse*



***Source**: International Monetary Fund *Figures include IMF projections for 2021.*

Economic recovery is under way in most regions and multiple sectors; this is largely linked to differences in the pace of vaccine rollout, the extent of economic policy support, and sector-specific characteristics of each economy – such as the reliance on the tourism or airline sectors. East Asia's experience is illustrative. Its manufacturing sector has led the global trade recovery, with yearly trade in goods up 12% at the end of last year (UNCTAD, 2021b).

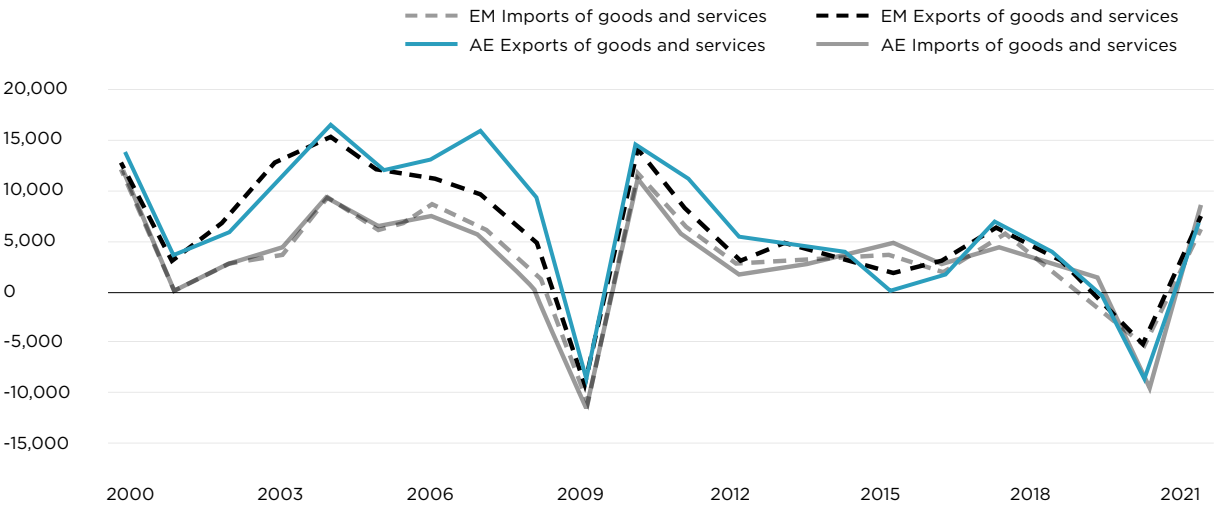
However, trade in services continues to lag and has registered double-digit declines of roughly 15% year-on-year (UNCTAD, 2021b). The recovery process has been uneven with many countries lagging, despite similarly sized expected upturns with some degree of variation (Figure 2). South-South trade remains a key opportunity for building recovery prospects (UNCTAD, 2020). Several downside risks remain in relation to the recovery in trade. Although most manufacturing sectors recorded positive trade growth in Q4 2020, the exceptions to this were the energy and transportation sectors. The value of trade in these two sectors was still about one-third lower in the second half of 2020 relative to the same period of 2019, though manufacturing and agriculture have been the clear bright spots (WTO, 2021) and offer the greatest opportunity for a rebound owing to pent-up global demand (Cable and Kihara, 2021). Additionally, several Asian economies (particularly Taiwan and South Korea) are well-placed in light of the semiconductor cycle and continued global demand in the sector – a sector China is investing actively in to catch up with current and next generation market demand.

15%

decline in trade in services YOY

FIGURE 2

Export and import growth in advanced and emerging economies*



***Source**: International Monetary Fund *Figures include IMF projections for 2021.*

The economic impact of COVID-19 has also filtered through to key drivers of trade, such as competition and how it impacts countries' trade strategies. Economies that were able to mitigate some of the economic disruption from the pandemic were able to gain market share in certain industries, such as manufacturing. Countries' underlying competitiveness could be linked to the impact of past trade liberalisation; this is the case where greater trade integration, for example in free trade areas, led to significantly lower markups by firms, indicating lower market power and more competition.

The usage of competition policy to promote resilience in trade and in industrial policy could increase amid the COVID-19 pandemic. This is predicated on questions related to the unfairness of international competition from countries, such as China, where government intervention, subsidies and state-owned enterprises facilitate substantial advantage over western competitors by means considered unfair and anticompetitive (OECD, 2020).

Interview: Simon Penney, UK Trade Commissioner for the Middle East and Her Majesty's Consul General to Dubai

What changes are we likely to see in terms of technology, the geopolitics of trade and how the sustainability agenda will impact trade flows?

Global economic recovery will be uneven unless we do all we can to ensure that vaccines reach those who most need it, which is why the UK Government is committed to supporting the COVAX Facility. No-one is safe until everyone is safe.

As recovery progresses, I think that there will be changes in the prioritisation of different technologies. I'll give a few examples.

The pandemic has driven the appetite for new technologies in the Education sector, providing an opportunity for the teaching to be transformed from the traditional classroom – one teacher and 30 children in one location – to multiple, tailored sources of teaching to geographically spread classrooms. The adoption of Edtech solutions opens unique opportunities for countries to embrace a way for learning that didn't previously exist.

Now that flexible working and schooling is seen as more of a long-term option, businesses, governments, schools and indeed individuals must up their game in the provision of cybersecurity. Recent ransomware attacks show how quickly knock-on

effects can impact whole societies.

In this region, the rise of the Agritech sector is a gamechanger. In a market where around 90% of food is imported, it's clear that this technology will make a huge difference to food security.

Agritech goes hand in hand with sustainability, which is an important priority for the UK this year as we host COP26 in Glasgow in November. I see the geopolitics of trade being rooted in supply chain diversification and resilience, as well as the ability to unlock market access barriers.

What are the key opportunities for the Middle East region arising from expanding international cooperation around trade and investment? Are there specific economies, regions or sectors which will provide interesting opportunities?

The UK wants to partner with the countries of the GCC to meet the ambitions of the different vision strategies. We want to work together in areas where we have common objectives.

For example, our partnership with the UAE on renewable energy. The UAE is a global leader in solar, and there are many examples of British renewable energy companies contributing to the UAE's diversification agenda. Investment goes both ways: Masdar has already invested heavily in UK wind farms and contributed to the UK's achievement in the first quarter of 2020, where wind and solar energy accounted for 47% of the UK's electricity. This is just one example of many, but the bottom line is that we are keen to work collaboratively with governments and businesses in the GCC to meet our shared goals.

The UK is forging a new path in its global relationships following its departure from the European Union at the end of 2020. At the same time we see a new administration in the US, a change of leadership at the WTO and a raft of new agreements on trade and cooperation such as the CPTPP and the Abraham Accords. Where do you see the biggest opportunities for establishing new trade connections or building on existing partnerships? What are the challenges to achieving this?

EU Exit has given the UK trade sovereignty and we are working at pace to secure FTAs with partners around the world. We have embarked on a Joint Trade and Investment Review with the GCC, which will lay the foundation for a future UK-GCC Free Trade Agreement. This will be a huge opportunity for businesses in the UK and the Gulf, to build new connections and strengthen historical partnerships.

Free and fair international trade has never been more important. We want to use our Presidency of the G7 to champion this and for this reason our G7 Presidency will feature a dedicated Trade Track for the very first time, led by the Department for International Trade which will focus on WTO reform, trade and health, digital trade and trade & climate policy.

SECTION TWO

COVID-19: REGIONAL TRADE DISPARITIES COULD WIDEN FURTHER

The downside risks to the outlook for global trade are balanced by silver linings:

New vaccines are being approved on an ongoing basis. However, uncertainty remains regarding their effectiveness against new virus strains; and delays in inoculating some parts of the world could lead to vaccine-resistant virus mutations. Uncertainty linked to this stop-start rhythm could impede key recovery drivers such as global private investment growth.

Continued extension of policy lifelines could reduce the extent of economic scarring, or long-term economic damage, particularly in some of the major developed economies.

Less developed economies could struggle to benefit from as much policy support as governments balance the provision of economic support with maintaining the capacity for further stimulus later on. This section examines some of the key downside and upside risks to the outlook, one year on from the start of the COVID-19 pandemic:

Insufficient production and distribution of vaccines is a downside risk in that it could fuel regional growth disparities. A resurgence of COVID-19 requiring new lockdowns, or the spread of vaccine-resistant strains of the virus, could reduce global GDP growth by 1% and take off up to 2% from global goods trade growth in 2021 (WTO, 2021). Only 0.2% out of the 700 million vaccines globally administered have been in low-income countries (WHO, 2021). In light of this, a further protracted health crisis could, among its multiple impacts, cause deep economic scarring in emerging economies, for example economies' supply potential owing to collapsed labour force participation, widespread bankruptcies, or prolonged production disruptions. Disruption to production networks might cripple productivity growth. Extended scarring could also compound underlying inflation pressures as supply constraints tighten due to the erosion of supply capacity. A potential gamechanger would be signs of a consensus on South Africa/India's proposal to waive patent rights on COVID-19 vaccines.

New lock-downs could reduce global GDP growth by 1%, and 2% of global goods trade in 2021

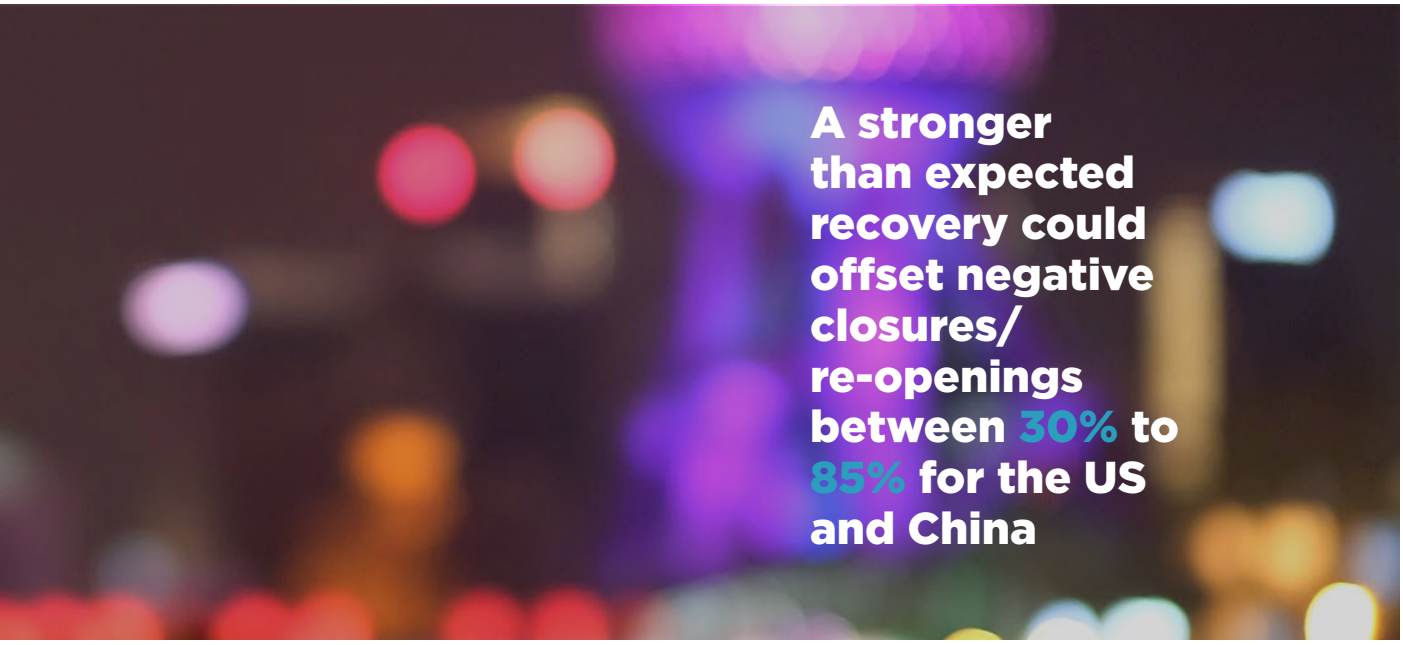
Prolonged joblessness could fuel trade tensions. The share of workers living in countries with COVID-19-related restrictions has remained high, with 93% of the world's workers in countries with some form of workplace closure at the start of 2021; global labour income is estimated to have declined by 8.3%, or US$3.7 trillion, amounting to 4.4% of global gross domestic product (International Labour Organisation (ILO), 2021). Despite extraordinary policy support (including job retention programmes and wage subsidies), unemployment rates have risen by about 11% above pre-pandemic averages with a work deficit expected to continue in 2021 (ILO, 2021). With high levels of informalisation in developing countries, scarring and production disruption could make re-entry into the labour market more difficult. A longer crisis could intensify social unrest, which could damage sentiment and slow activity further. The danger is that governments, including China's, that have reached the limit of generating growth through debt-funded investment will shift the costs of its economic model to its trading partners through mercantilist trading policies, via outward investment and trade surpluses (Klein and Pettis, 2020).

Tighter financial conditions and possible market shakeouts. A reassessment of market fundamentals, including in response to adverse COVID-19 developments or earlier-than-expected withdrawal of policy support, an increase in core sovereign bond yields (in response to large fiscal support), or a re-evaluation of inflation risks (due to monetary and fiscal support) could trigger a repricing of financial assets. Prices of assets could fall sharply, causing volatility and triggering significant losses at major nonbank financial institutions. Spillover across markets and higher risk premiums could generate financing difficulties; and it could erode banks' capital buffers and constrain their ability to provide credit. This would be problematic for export companies that are dependent on access to short-term liquidity to trade. Heightened financial contagion, and the lack of exporters' ability to access affordable short-term liquidity, has been a characteristic of the COVID-19 pandemic (Akhtaruzzaman et al., 2021). The risk is that

financial contagion risk persists, keeping exporters' financing costs high.

The economic impact of natural disasters is growing in significance. The frequency and severity of natural disasters due to extreme weather related to climate change have increased in recent years. Evidence of both short-term economic output contraction and medium-to long-term production declines is growing more robust, particularly in economies where government resources are insufficient to achieve reconstruction. The economic impact of recurrent natural disasters on the same economy is also growing (WTO, 2019a). These occurrences have inflicted a large economic and humanitarian toll and a significant deterioration in livelihoods. Smaller open economies, that are inherently more vulnerable to shocks, are likely to be particularly exposed given that fiscal capacity has been targeted to the COVID-19 response. Natural disasters could also contribute to financial stress, particularly in the insurance sector, which would impede exporters' ability to operate over the longer term.

Notwithstanding the significant uncertainties and downside risks to the outlook for international trade, there are also several upside risks that could have significant economic impacts. A potential factor that would support a stronger-than-expected recovery could be the degree of pent-up demand in both the household and business sectors. Pent-up demand could offset the negative impacts of closures/re-openings from anywhere between 30% to 85% for the US and in China (Walmsley et al., 2021). On the investment side, evidence also suggests that there is pent-up demand for cross-border investments (Goldman Sachs, 2020). The scope for further economic stimulus packages is also likely to boost cross-border trade and investment as well as a recovering political will for trade deals between developed and developing economies. Successive stimulus packages approved so far in 2021 in the US amount to at least 13% of GDP. The increase in domestic demand is not expected to be fully absorbed by US producers and will give rise to greater import demand from its major trading partners; a 1% increase in domestic demand leads to a 2.6% rise in US imports (Subran et al., 2021).



Interview: Nazir Razak, Non-Executive Chairman of Bank Pembangunan Malaysia Bhd (BPMB) and Non-Executive Independent Chairman of PLS Plantations Bhd, Malaysia

What role is sustainability likely to play in the deployment of capital as the global economy recovers from COVID-19?

In theory, sustainability and sustainable investment will play a role in the economic recovery after the COVID-19 pandemic. The pandemic has reminded us of the importance of international cooperation and has made people more concerned about health and climate change for now. However, the incentive system is not there yet for sustainability to be 'sustainable' and this period of 'softening' is likely to be a temporary reprieve.

Larry Fink's 2020 letter to BlackRock clients about importance of creating sustainable value and how addressing climate change as a defining factor in companies' long-term prospects, is good. Institutional asset managers are increasingly taking steps to comply with ESG. And yet, analyst reports still focus on quarterly earnings and shareholder returns. Shareholders and CEOs are still primarily pressured by short term incentives. The fixing of the system needs a holistic approach. Unless the system is overhauled it won't be sustainable enough.

How can the public and private sectors work together to finance what are seen as riskier investments, to diversify trading relationships?

Key to private sector involvement is domestic savings and the bond markets. In countries where this has evolved – like in Malaysia – private sector involvement has been quite extensive. Savings rates in the Far East are high, but unfortunately most bond markets are almost embryonic. This can only be fixed if the government looks at the incentive structure around taxation. In Malaysia this was done after the Asian financial crisis. Now Malaysia has, by far, the most successful domestic bond markets in the region.

In terms of public-private cooperation, there is very little appetite for this to be done across borders. Lots of restructuring needs to be done. Maybe there has not been enough creativity and innovation on the part of development banks to promote this. It is also hard to separate the roles of public and private banks in Malaysian infrastructure projects, for example. This is probably because this hasn't been properly thought over and there are no doctrines for the separation of the two. There is a need for a better business model and 'better thinking' to establish what is considered 'public' and what is considered 'private'.

SECTION THREE

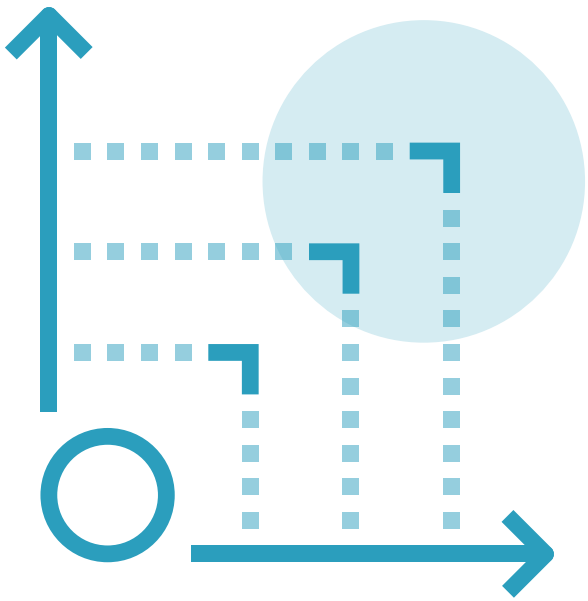
THE OUTLOOK: TRADE GROWTH TO SHOW RESILIENCE

The world economy is poised to continue to recover, driven in part by a bounce-back in international trade in goods. Sector-specific developments in the manufacturing sectors in emerging and developing economies will be of particular importance; as will the recovery in global supply chains. A further stabilisation in household and business sentiment could help support a broad-based recovery in goods and services trade – particularly with the latter, which has remained a weak spot. Underlying support for future trade growth will depend in large part on a successful and evenly distributed roll-out of COVID-19 vaccines, which has not been the case in certain regions. Recovery will also hinge on continued policy support at the national level as well as on coordinated efforts by international financial institutions to provide liquidity and assistance to ensure the financial stability necessary to attract inward investment and trade flows. After its COVID-19 collapse, international trade is likely to register a resilient recovery, notwithstanding the risks of regional weak spots.

The future of trade will hinge on policy support and coordinated efforts by financial institutions to drive trade flows

KEY TAKEAWAYS

- Trade growth is showing resilience despite the continuing uncertainty around the current multi-speed recovery and significant country disparities.
- The global economy is set to grow by 5.6% this year.
- The continued extension of policy support could reduce the extent of economic scarring.
- Emerging and developing economies could see less policy support as governments balance current stimulus with maintaining capacity for future action.



RECOMMENDATIONS

FOR GOVERNMENTS

1. International policy coordination is essential for sustained recovery in cross-border trade and investment.
2. Central bank policy coordination is essential for providing liquidity, supporting bank lending and therefore the private sector and trade.
3. Central banks need to communicate policy changes effectively to avoid rate shocks to the cost of trade finance.
4. Governments should diversify trade relationships to promote economic transformation for job-intensive growth.

FOR BUSINESSES

1. Increase investment in digital technologies of the future in order to reduce costs and build cross-sector synergies.
2. Elevate the role of research and development in order to incorporate sustainable practices in the core functioning of businesses, to promote cross-border spillover.
3. Advocate for trade policies from government that support and promote private sector involvement in sustainable development.
4. Advocate for free and open trade and against protectionist policies in a coordinated fashion such as the B20.

CHAPTER II

THE FUTURE POLITICS OF TRADE

The 2020 Future of Trade report identified the strategic rivalry between the US and China as being a definitive source of risk for the 2020s. The Biden administration's approach to China is still emerging, but the rhetoric has been taken down by several decibels. That said, it appears the US is seeking to build a coalition of allies in what may be a coordinated effort to counter the influence of China. Throughout 2020, in addition to economic stimulus propping up demand, countries also refrained from overt protectionism. However, recent trade spats over vaccines have shown how quickly commitments to free trade can fall apart.

Since the last Future of Trade report, a new WTO Director-General has taken their place, setting a new agenda focused on developing countries. And yet, in the absence of significant consensus-building relating to the new global trading order post the COVID-19 pandemic, advanced and middle-income economies will continue to focus on bilateral and regional agreements. The latter have continued to flourish: all WTO members as of June 2016 have some sort of regional trade agreement in force (WTO, n.d.). This chapter maps out key aspects of the politics of trade as they pertain to US-China relations, the new Biden administration, and the new WTO leadership.

SECTION ONE

THE BIDEN ERA: NEW PHASE IN US TRADE POLICY TOWARDS CHINA

Under President Biden, the US administration has taken a cautious approach in its trade relationship with China. On the one hand, it has not removed the Trump administration tariffs for now. And yet, US manufacturing industries that have been more exposed to tariff increases have experienced relative reductions in employment; any positive effect from import protection has been typically offset by larger negative effects from rising input costs and China's retaliatory tariffs. Crucially, higher tariffs are also associated with increases in producer prices through rising input costs (Flaaen and Pierce, 2019).

President Biden's continuation of the status quo could be due to China having agreed to make large purchases of specific US products (soybeans, agricultural products, oil and gas and manufacturing-related inputs). Although US export growth to China has shown signs of acceleration, and US Trade Representative, Katherine Tai has indicated a willingness to negotiate with China, there are no further talks planned after a tense diplomatic exchange in March (Pamuk et al., 2021). Biden's National Security Advisor has stated that China is 'the most significant' strategic challenge facing the United States – raising the risk for economic decoupling.

A US tripartite strategy of competition, confrontation and compromise is likely to frame its interaction with China when it comes to the countries' future trade relationship – at least for the time being. Admittedly, the period ahead could mark a turning point for US trade policy vis-à-vis China. Or there could be a continuation of the status quo or even an escalation of anti-China trade sentiment.

All three scenarios could occur in tandem, depending on the issue at hand. US Secretary of State Antony Blinken has highlighted that confrontation, competition and cooperation are all possible. Confrontation dominated during President Biden's first 100 days; and yet, President Xi Jinping's participation in Biden's virtual climate summit suggests signs of cooperation.

Of core importance to the US-China trading relationship – whether it will be competitive or confrontational – will be developments in the technology sector, which continues to be a contentious area (Dollar, 2021). The US administration is planning ambitious spending on R&D for key technologies to develop a competitive edge. Alongside this, efforts seeking to limit the diffusion of technology to China via export and investment restrictions, started under President Trump, have been expanded. President Biden's stated goal is to boost America's innovative edge in markets such as battery technology, biotechnology, computer chips and clean energy (Kelly and McCabe, 2021).

The US administration's focus on 'Made in America' could transform all its global trading relationships, including with China:

- President Biden recently announced the first director of the new 'Made in America' office at the White House, to push federal agencies to buy more products made in the United States (The White House, 2021).
- An overarching policy of this kind could mean that most key US bilateral trade relations will be used to create higher-paying jobs domestically rather than developing a trade policy largely driven by promoting free markets.
- In this context, the US-Mexico-Canada trade agreement (USMCA) could take priority over progressing its relationship with China.

In parallel with this policy, the US has also emphasised a return to multilateralism and rebuilding its global partnerships. And yet, there could be an inherent contradiction in its overall strategy.

US allies have built stronger investment ties with China than the US. Since Biden's election the EU, Japan, South Korea, Australia, New Zealand, and ASEAN have all signed new economic agreements with China, including through RCEP (Dollar, 2021; Harding and Reed, 2020). This is at odds with the US driving a multilateral strategy.

The US-Mexico-Canada trade agreement (USMCA) could take priority over China

SECTION TWO

A 'NEW AGE OF PROTECTIONISM' POSTPONED – FOR NOW

The global trade policy landscape has undergone a significant transformation over the last decade: the accelerated economic integration that characterised previous decades is now less evident (Gunnella and Quaglietti, 2019). Given the multitude of risks which have emerged in the wake of the COVID-19 pandemic, including with the distribution of the COVID-19 vaccines and the increasing discussions around decoupling between the US and China, there could be a 'new age of protectionism' building (Farrell and Newman, 2021; Crabtree, 2020). This could also be fueled, in turn, by the widening economic disparity between lower and middle-income economies compared with their developed country counterparts. Despite a multitude of risks, protectionism will likely be kept at bay, for now. Mitigating factors could include the following:

- A collective effort to limit trade restrictions under the new WTO leadership. During the COVID-19 pandemic, member countries of the WTO have made a collective effort to limit protectionist measures. Despite the rise in trade-restrictive measures in the first half of 2020, WTO members largely refrained from protectionist policies that would have reduced trade, or, in some cases, introduced liberalising measures. More specifically, members have proposed initiatives calling for restraint in the imposition of any new export restrictions (WTO, 2020).

- Economic nationalism does not necessarily lead to protectionism; and has historically been associated with a wide range of policies, including those associated with liberal economic policies (Helleiner, 2002). The competitive, open environment assumed by international trade economists does not typically apply in practice. Most governments support and target budding and innovative industries with subsidies, selective procurement, and trade protection. A balanced renegotiation of some trade deals, to allow the US, or any given economy, more of an advantage in new trade agreements, is more likely than overt protectionism.

Protectionism is costly, unpredictable and does not save jobs

- Protectionism is costly, unpredictable and does not save jobs. Rather, protectionist policies can typically encourage automation, shield domestic producers from competition and raise production costs. Consumers bear the cost of higher prices. Trade shocks generate the highest demand for protectionism and, notably, shocks that are unrelated to trade (such as a technology shock) generate some demand for protectionism (Di Tella and Rodrik, 2019). Estimates of the costs for each job saved exaggerate the efficacy of protectionist measures in achieving employment objectives (Carstens, 2018).

Good protectionism is fostered and should be developed as instrumental to innovation and economic development, particularly for emerging economies. Policymakers should be free to invoke patent or regulatory protection in the policy aim of fostering new industry; to grow new innovations enough to become globally competitive. Because the US economy is so well developed, the infant industry argument is not as applicable to lower-income economies that are vulnerable to economic shocks. For the economies that have the fiscal capacity, direct capital subsidies, instead of tariffs or quotas, are preferable given that they do not add to the consumer's costs (Beshkar and Bond, 2016). When an industry seeking to innovate loses its comparative advantage, both financial support and the provision of protected time are necessary in order to innovate and gain competitiveness.

Interview: Barbara Weisel, Managing Director, Rock Creek Global Advisors

US Trade Representative Katherine Tai has indicated a willingness to negotiate with China, but there are no talks planned for further negotiations. How likely is it that the US and China will engage in substantive trade talks? How does this compare with the probability of escalated trade tensions?

I think it's too early to say what direction the discussions will go. Clearly, ambassador Tai has been under a lot of pressure to advance a China policy. "We're organising a top-bottom review" – that answer won't hold for much longer.

There is pressure to deal with the retaliatory tariffs. Is there going to be a negotiation, or engagement with China that allows for removal of at least some of those tariffs? What is really under consideration? Can we go back to just the initial 301 tariffs and get rid of the tit-for-tat tariffs? How do the US and China begin that discussion? And how does the Biden administration navigate the domestic politics of this. The Biden administration will need to figure all of this out before starting any discussion with China.

There is a reason why it is taking time for US-China talks to get underway – there are many considerations. And the Biden administration is conscious of the fact that if it does anything that looks like is it being weak on China, it'll be attacked. But ultimately, there has to be some kind of process to deal with the tariffs because they are causing pain to US companies and consumers and hurting US competitiveness.

It has been said that the US never really had a cohesive economic strategy when it comes to China, what are the key elements of the US trade strategy vis-a-vis China likely to be?

I don't anticipate a big policy document announcing a final China strategy. Instead, I expect an iterative approach, with announcements of initial policies that flow from the review, then follow-up with allies and further internal discussions. The administration is already pursuing what it calls a modular approach of working with different sets of allies (Quad/ G7, EU, UK). The underlying goals in this approach are clear, and there will be different elements and partners depending on the US's shared interests with those partners.

The administration seems to be looking to develop a high wall-small fence approach to controlling technology

in order to maintain trade flows, while protecting national security and economic security, which it sees as one and the same. Determining where to draw the line on technology controls is complex and challenging– with some advocating broad restrictions that avoid any potential risk while others seeking more targeted restrictions that are coordinated with allies.

How do you see the politics around trade in the semiconductor evolving – particularly with regards to Taiwan?

Governments are now trying to promote increased production of semiconductors –The tensions with China have increased the urgency of moving. But it is worth noting that the tensions have not only been driven by China but also by COVID, which has increased attention on the need to strengthen supply chain resilience.

Is there enough pressure from the drop in supply to further accelerate this?

The issue of semiconductors and supply chains more broadly is on the agenda of various meetings, including the G7. But proposals that have emerged from both the EU and US reflect policy goals that are in tension: promoting more self-sufficiency and the need to work with allies and partners. It remains to be seen how this tension will be reconciled.

Are we shifting towards multilateral solutions?

The US is definitely shifting away from a strictly bilateral or even unilateral approach, to a more plurilateral - though perhaps not multilateral - approach. The Trump Administration's policies resulted in reflection by many of our allies, most prominently, the EU on its own foreign and economic policy approaches. So, as we look forward to how US-EU cooperation will evolve; it is important to recognise that that the EU – and not just the US – is thinking about how it wants to engage. The US and the EU clearly recognise that there is value in working together. They've held initial meetings and are delighted that we are again partners once again. But there is no detail on what the two sides will do together on digital governance, climate policy, and other major issues. And questions on how their joint work align with domestic goals, for example, Biden administration goals of, for example, reshoring jobs. There are headlines on the need for deeper cooperation, now the hard work of filling in the details must begin.

"Ultimately, there has to be some kind of process to deal with the tariffs because they are causing pain to US companies and consumers and hurting US competitiveness"

SECTION THREE

THE POLICY AGENDA UNDER A NEW WTO LEADERSHIP

Multiple and complex problems persist at the WTO, including the functioning of the WTO dispute settlement process. Under her new WTO leadership, Director-General Ngozi Okonjo-Iweala has outlined priorities to address the needs of developing countries and the necessity of raising global living standards in the wake of the pandemic. In the absence of a fully functioning WTO, economies have looked elsewhere to develop their trade relationships. The policy agenda under the new WTO leadership is likely to be predicated on helping developing countries participate more fully in the global trading system and linking successful trade policies to improved livelihoods – all under an improved and better-functioning WTO. Three defining features of the trade landscape could shape the new WTO leadership agenda:

- Regional trade and regional agreements (RTAs) may be a defining feature of the trading landscape. RTAs could spur greater coordinated trade efforts and partnership and improve functioning at the WTO level. The spread of regional free trade agreements (FTAs), in the form of transnational production, distribution and expediting international border

crossing and transportation (OECD, 2021b) have been a catalyst behind this. As reciprocal preferential agreements, RTAs are authorised under the WTO, and may increase further with China's Belt and Road Initiative (BRI) (Mitchell, 2020). Evidence suggests that BRI infrastructure improvements could increase total trade among BRI economies by 4.1%; countries such as Uzbekistan, Oman and the Maldives benefit the most after improvements in trading times, with an increase in their exports above 9%. Other countries, such as China, Saudi Arabia and Thailand are top beneficiaries in their export values given their high trade shares within the BRI (Rocha et al., 2019).

- Digital and ICT infrastructure will boost the WTO agenda given the capacity of digital trade infrastructure to expedite cross-border transactions, investments, and trade in order to deliver inclusive economic growth. The ability to move data across borders is essential for economic growth and innovation. The rapid pace of technological advancement is increasing dependence on such infrastructure. As such, there is a policy need to ensure security, resilience and reliability in digital infrastructure. The Digital Economy Partnership Agreement (DEPA) between Singapore, Chile and New Zealand (G7, 2021) put forward a statement supporting open societies in the digital and data-driven age; it impressed the need to be guided by a shared consensus for open and competitive markets and strong safeguards for human rights and fundamental freedoms for privacy – a new digital ecosystem. COVID-19 has demonstrated the need for data free flow with trust and its role in the global recovery.

- WTO collaboration with the WHO will be key, particularly on issues of intellectual property in the health sector and cross-border trade in health services. This partnership is essential for the WTO in light of the trade tensions related to the distribution of the COVID-19 vaccines. The organisations' coordination should grow in importance and strength as country disparities in the capacity to recover from the pandemic continue to become more pronounced. Both health outcomes and economic outcomes between developed, emerging and developing countries are likely to become more pronounced if recent data trends are indicative. Although there is no formal agreement between the WHO and the WTO, the WHO has observer status in the Technical Barriers to Trade (TBT) Committee, and it has ad hoc observer status in the Council for Trade-related Aspects of Intellectual Property Rights (TRIPS) and the Council for Trade in Services. The two organisations have joined efforts for policy coherence between trade and health matters at global, regional and domestic levels.

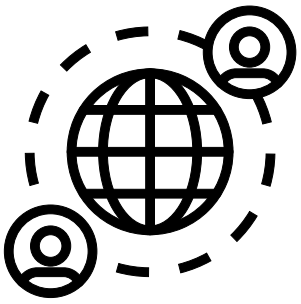
4.1%

anticipated increase of total trade among BRI economies

SECTION FOUR

THE OUTLOOK: US-CHINA TRADE RELATIONS TO DOMINATE

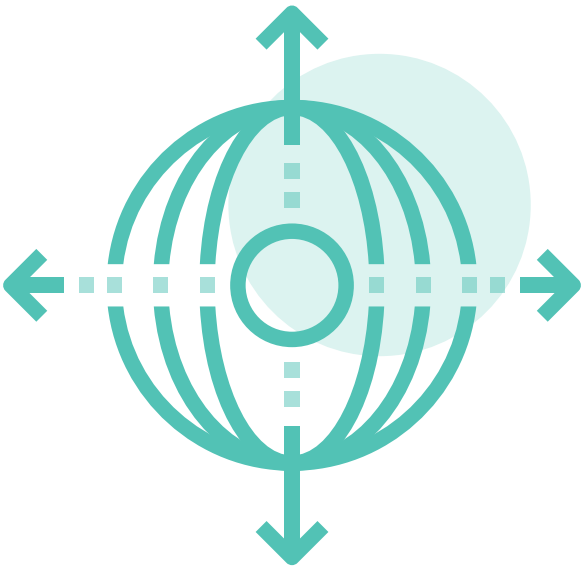
The outlook for the politics of trade includes a multitude of risks. Although tensions in the US-China trading relationship are not new, of particular concern will be the degree to which the two economies decouple from one another in their investment and trade relationship. Within this risk, developments in the technology sector will be of enormous importance. Overt and widespread protectionism is unlikely; policies that are imbued with economic nationalism – such as the Biden administration's 'Made in America' – are more likely to materialise. Given the multitude of risks which have emerged in the wake of the COVID-19 pandemic, including with the distribution of the COVID-19 vaccines a 'new age of protectionism' may build. This could also be fueled, in turn, by the widening economic disparity between lower and middle-income economies compared with their developed country counterparts. In this context, a new paradigm of stronger consensus-building is crucial under the new leadership of the WTO, including with other key institutions, such as the WHO.



Overt and widespread protectionism is unlikely

KEY TAKEAWAYS

- A tripartite strategy of competition, confrontation and compromise is likely to frame the US interaction with China.
- Given the multitude of risks in the wake of COVID-19 pandemic, and the increasing discussions around US-China decoupling, there could be a 'new age of protectionism.'
- Protectionism will be kept at bay by the fact that it is costly, unpredictable and typically costs jobs; economic nationalism is more likely to occur.
- Good protectionism should be fostered: both financial support and protected time are necessary.
- The new WTO leadership will have to tackle three defining features of the trade landscape: increased regionalism, growing trade digitalisation and closer ties with the WHO.



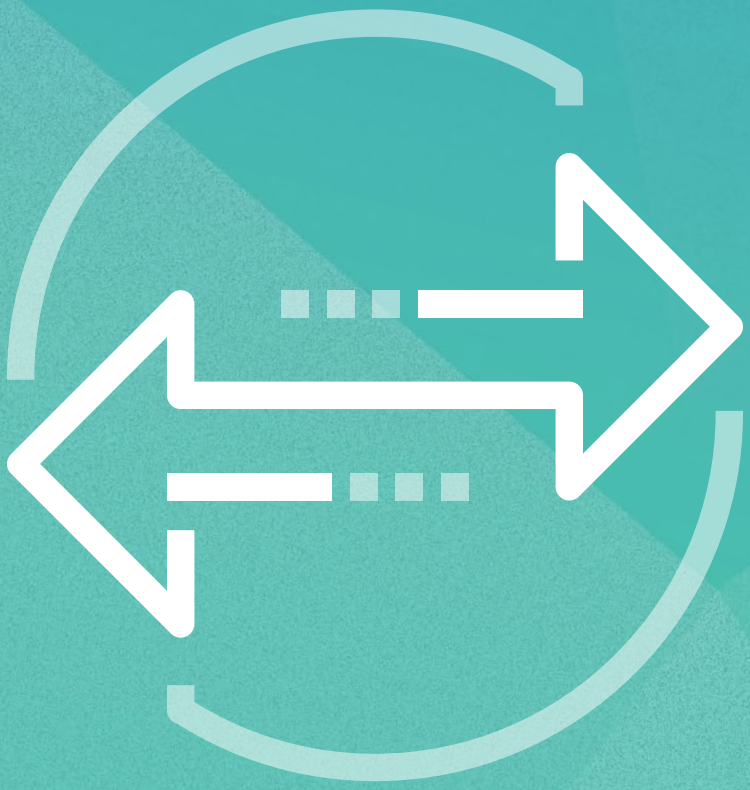
RECOMMENDATIONS

FOR GOVERNMENTS

1. Governments should use all macroeconomic and financial tools at their disposal to promote mutually beneficial trading relationships to avoid falling back on the usage of tariffs.
2. World leaders should promote a coordinated surveillance mechanism to track any resurgence of protectionism, including through international financial institutions.
3. Governments should step up coordinated action to promote and protect the Doha trade round that has stalled.
4. Governments should come up with policies to alleviate rises in youth unemployment and underemployment.

FOR BUSINESSES

1. Companies can advocate for targeted liberalisation of goods in key sectors through highlighting the economy-wide benefits and the costs of protectionist measures.
2. Information sharing in the private sector to increase awareness of job losses and loss of competitiveness associated with protectionism.
3. Companies should take advantage of and make strategic usage of free trade zones when it comes to agreeing commercial trading contracts.



CHAPTER III

KEY TRENDS IN DIGITAL TRADE, DATA, AND TECHNOLOGIES

The 2020 Future of Trade report identified three key trends at the intersection between technology and trade that would define the 2020s. These were:

- **Trend 1: Technology will facilitate goods trade by reducing costs and barriers**
- **Trend 2: Technology will unlock new markets for growth**
- **Trend 3: Technology will disrupt global value chains**

Under each of these trends the report identified some of the key innovations driving change, from Artificial Intelligence (AI) and autonomous vehicles, to blockchain and the internet of things. The collection and processing of data sits across all these technologies, placing data at the heart of trade and business in the 21st century.

Trend	Technologies
Trend 1: Technology will facilitate goods trade by reducing costs and barriers.	■ The use of AI to drive down transport and logistics costs in autonomous transport vehicles and warehousing and logistics solutions. ■ The use of blockchain in cross-border trade processes, including smart contracts and DeFi. ■ The reduction of waste, loss and fraud through security solutions supported by the internet of things. ■ The disruption of trade brokering businesses by new digital platforms.
Trend 2: Technology will unlock new markets for growth.	■ E-commerce will continue to drive trade. ■ Technology will enable services to significantly increase its share of global trade.
Trend 3: Technology will disrupt global value chains.	■ Automation will bring manufacturing closer to centres of consumption. ■ Additive manufacturing will have a similar impact on the trade in components, allowing them to be manufactured on or near sites of assembly.

In 2021, innovations continue across all these areas, and while the COVID-19 global pandemic has been an accelerator of digital trade overall, the adoption of new technologies has been uneven.

The adoption of technology in trade, like all business, is driven by the pursuit of greater efficiency, cost reductions, and the potential to build opportunities in new markets. Businesses explore and adopt new technologies as the technologies become more affordable, and the return on investment for the efficiencies they provide make financial sense.

But the period of 2020-2021 has had an additional dynamic – the impact of the COVID-19 pandemic. The 2020 report identified the pandemic as an 'accelerator' of key trends in trade, including the adoption of technology. In particular, the boom in e-commerce – driven by lockdowns and consumer preference for 'contactless' shopping – has driven several trends. First, businesses have been incentivised to establish or significantly expand their online presence. The demands of the e-commerce environment – quick order fulfilment and cost efficiency – has driven technology adoption along the value chain, especially in delivery, warehousing, and payments. The pandemic has accelerated digitisation in several parts of the value chain.

Beyond the immediate demands of e-commerce order fulfilment, it seems that the 'normal' rules apply, and the adoption of technology is progressing at a similar pace as before the pandemic. This applies, for example, in the digitisation of ports and in shipping, long-distance road transport, and the automation of manufacturing.

In addition to exploring these two dynamics, this chapter also looks at the evolving impact of blockchain technology on trade. Previous Future of Trade reports, along with others including the WTO, have heralded the revolutionary impact of blockchain technology on trade. And yet, it failed to reach mainstream use; some businesses interviewed for the 2020 Future of Trade report labelled the technology as a "solution looking for a problem". There are signs in 2021 that this is changing, and recent proof-of-stakes in blockchain technology is looking promising.

Increasingly, blockchain technology can be applied to facilitate key aspects of international trade: trust, efficiency and access to finance.

The following sections will look at the ways in which technologies are being adopted in trade, based around the following insights:

- The e-commerce boom, driven by the pandemic, has driven technology adoption at the consumer end of the value chain: in retail, last-mile delivery, distribution and warehousing.
- Meanwhile, the adoption of technology elsewhere in the value chain has continued at a more modest pace, but continues nonetheless.
- Finally, blockchain and, to some degree, cryptocurrencies, are technologies in transition, and are maturing to a point where they are set to have a significant impact on the way global trade is conducted.
- DeFi protocols have seen a considerable amount of funds invested. Since the start of 2021 alone, the total value locked into DeFi has tripled from approximately USD 20bn to USD 60bn. As digital infrastructures grow, they will continue to accelerate a ground-breaking shift in trade from the national to the global.

Expert Insight: Wendy Wang, Chief Information Officer, HSBC Commercial Banking

Trade has been largely paper-driven and has lacked the standardisation needed to enable digitalisation and improve efficiency. Blockchain-based platforms aim to solve this problem by replacing traditional paper-based instruments with digital documents and instruments such as e-bills of lading and smart contracts. This has helped companies to digitise and, in the case of blockchain platforms such as Contour, deliver tangible benefits to clients by reducing the time taken to settle a transaction from as long as 10 days to under 24 hours. COVID-19 has accelerated this move towards digitalisation and the adoption of these platforms and digitisation has seen a rapid acceleration.

The three biggest building blocks, in terms of trade finance, have been digitalisation, supply chain eco-systems and the efficiency and risk management of supply chains. For large suppliers, big events such as COVID-19 seriously impact supply chains and elevate risk. For example, potentially moving a supply chain from one region to another, or from being intercontinental to being intra-continental, could have a huge impact. Key areas for growth include improving supply chain relocation efficiency and strategies towards finding new business opportunities.

Tracking of clean labour and clean energy developments has increased – yet without accurate information, we cannot track this. Any small changes to a supply chain could potentially have a huge impact to the company, so the question is how we can manage information within the supply chain.

Digital developments signal a changing competitive environment. Companies across different sectors, such as in the garment and automobile sectors, must ensure they are not left behind this wave of innovation and digital transformation that's being led by cutting-edge tech competitors. We have seen many companies become irrelevant very quickly; success depends on the speed and efficiency of risk management.

"Key areas for growth include improving supply chain relocation efficiency and strategies towards finding new business opportunities"

SECTION ONE

THE COVID-19 PANDEMIC HAS DRIVEN TECHNOLOGY ADOPTION

The 2020 Future of Trade report identified the impact that technology could have on trade in terms of unlocking new markets for growth and creating opportunities for both the purchase and delivery of goods and services.

E-commerce has taken an increasingly large share of global retail, and with consumers becoming more comfortable with purchasing online from abroad, e-commerce has also driven cross-border goods trade. Similarly, the opportunity to sell and deliver services online is an important driver of the expansion of cross-border services trade.

The COVID-19 pandemic accelerated these trends as it shaped economies and consumer behaviour through 2020 into 2021.

E-commerce boom raises the need for supply chain efficiency

The fact that so much commerce has been forced online has had knock-on effects on the supply chain. In particular, the competitive pressures of online commerce – swift order fulfilment, next-day delivery, and returns – have forced service providers to chase efficiencies across their operations. Many have turned to technology to increase efficiency and manage cost. At the top of the list for technology executives are Artificial Intelligence and autonomous solutions. Notably, the adoption of these technologies has happened most at the consumer-end of the value chain. While automation in ports, shipping, natural resources, and other areas continues, the timeline on investments in these sectors seems to have remained unchanged during the pandemic. However, there will continue to be an element of 'cross-fertilisation' between these two groups. Just as the use of autonomous vehicles has been driven forward in enclosed areas such as ports, allowing the technology to be deployed on city streets, innovations at the consumer end of the supply chain will be deployed elsewhere.

Artificial Intelligence and autonomous solutions

The 2020 report explored the deployment of AI in various types of autonomous vehicles including ships, road vehicles, and drones, as well as smart robotics and automated supply chain management. AI continues to be deployed at speed along supply chains. While investments in ports and fleets of ships and trucks are long-term investments, the pandemic has accelerated the use of autonomous solutions at the consumer end of the supply chain.

McKinsey's 2020 AI report noted that half of respondents said their organisations have adopted AI in at least one function. AI is being deployed in product and service development, with respondents reporting that the integration of AI has increased revenue.

In comparison to areas of the supply chain that rely on integration with major infrastructure, such as autonomous ships and ports, individual businesses are much more capable of absorbing new technologies that help them react to trends and deliver their bottom line. In 2020-2021, the e-commerce boom has driven technology adoption in warehousing and logistics, and goods delivery, to serve retail demand.

Interview: David Hardoon, Senior Advisor for Data and Artificial Intelligence, UnionBank of the Philippines

Artificial Intelligence (AI) is quickly becoming a part of the mainstream in many sectors. How do you see its impact evolving alongside the use of data in trade?

Following the impacts of COVID-19, I don't think you would find a CEO now that would say AI isn't a part of their strategy. However, the strategy to execute remains a distinct and difficult journey. If we were to arbitrarily divide new generation companies and old generation companies, data is not only a part of the strategy but part of the very DNA of new companies. Older generation industries face greater challenges in operationalising and implementing AI. This is important on a global scale, and from a trade perspective, because you would find that the balance and the need for a cross-border focus on data is actually coming from the major tech giants. Banks are also aware of the need to make data usage easier from a

regulatory perspective. It comes down to how data will be leveraged and the understanding of how it will be used and expanded upon by the older generation companies.

Where do you see the role of AI adoption in the context of the COVID-19 recovery?

It's important to be specific and data driven when considering the potential impacts of AI. Doing so allows us to factually identify issues. Firstly, it is important to recognise that AI is impacting tasks and, that there may be situations where an entire task, which constitutes one job, is displaced. There is a movement from employers and, to an extent, governments, to understand the type of skills and competencies needed to adapt with these changes.

A level of pragmatism is required. We need to acknowledge and identify how change is coming and how to prepare the workforce for it. Under COVID-19, this is happening at a far more accelerated rate; exemplified by the job market where jobs that previously allowed for human-to-human interaction simply do not anymore. This period has allowed us to get a flavour of what we need, be it human interaction (physical and digital) or the things we need to automate. How we acknowledge that this change is happening and implement it, but also accelerate it within the existing and pending workforces, is key. Ultimately, this is a period of augmentation – capacity is being freed up.

How do you see the deployment of data and AI helping the global ESG effort?

What really excites me is that in sectors such as water, power and cement, there are on-the-ground cases of companies using technologies in order to achieve operational efficiency, reducing costs and quantifiably reducing emissions and wastage – ultimately moving towards a circular economy. A lot of the time, organisations simply think that ESG is just CSR. However, we cannot just shut down all the power and mines etc, despite the goal of moving towards renewable energy – so how do we bridge this gap? The reality is that we need to do everything in our power to bring down the harmful dimensions of existing energy production as we slowly incorporate new sources of energy. How do we take the existing energies, particularly in manufacturing and incorporate new technology to quantifiably achieve ESG objectives? This is something that all organisations should be doing. New potential approaches should include a willingness to finance 'dirty industries' but with key requirements that they must meet a number of objectives relating to ESG.

"We need to do everything in our power to bring down the harmful dimensions of existing energy production"

Warehousing and logistics: responding to the demands of e-commerce

The acceleration of e-commerce through the pandemic has also driven warehouse automation and digital integration. In particular, the efficiency demands of e-commerce mean that AI-supported technologies including warehouse management systems, autonomous robots for order fulfilment, machine learning, and voice activation are being adopted.

According to Statista, the global warehouse automation market is predicted to double from US$15 billion in 2019 to US$30.2 billion in 2026. This investment trend is being driven by the demands of order fulfilment in e-commerce and the increased availability and affordability of autonomous robots and systems (Schlechtriem, 2021).

Results from early adopters strongly support investment in autonomous systems – more than 70% of warehousing operations that deploy autonomous systems have achieved double-digit improvements in efficiency and productivity (Schlechtriem, 2021). ABI research estimates that more than four million robots will be installed in more than 50,000 warehouses worldwide by 2025.

The integration of autonomous vehicles is also having a knock-on effect on the adoption of other technologies, including environmental technology. As human labour is increasingly replaced by robots in warehouses, and the overall demands of the sector grow, so too will the energy demand of warehouses. Many organisations are exploring renewable energy sources, in particular, solar embedded on the large expanses of flat roofing many warehouses have. Amazon continues to develop its green energy site portfolio and, through solar and wind deployments and other investments, generates 6.5GW of sustainable electricity per year.

Autonomous delivery: contactless last-mile boosted by the pandemic

The pursuit of cost efficiency is also a major driver for the shift towards autonomous delivery vehicles. Last-mile delivery has been given a boost over the past 12 months due to increased demand for home delivery, driven by e-commerce. Furthermore, the pandemic created demand for 'contactless' delivery, for which autonomous vehicles are well-suited.

Nuro, a company that featured in the 2020 Future of Trade report, will start its commercial driverless delivery service in 2021 in California. There are similar developments in Shanghai, backed by tech giant Alibaba. Delivery robot company Starship's small pavement robots had completed one million autonomous deliveries worldwide by January 2021 (Starship, n.d.).

There have also been developments in the 'middle mile'. US company Gatik is already piloting self-driving light trucks for online grocery orders for Walmart in the US, and Loblaw in Canada. Safety drivers will accompany the trucks on pre-set routes to support the grocery supply chain – moving goods from distribution centres to retail locations rather than consumer delivery. This 'middle mile' is where some of the biggest supply chain inefficiencies lie.

Developments in larger delivery vehicles will take more time, as regulatory and safety issues are developed. However, developments in the last-mile and middle-mile of the delivery chain will open the way for the rest of the sector.

Computing and online are the bright spot for global services in 2020 - 2021

The 2020 Future of Trade reported predicted that technology would open new opportunities for both goods and services trade. However, at the global level, the rebound in services trade has been much weaker than the rebound in goods trade. This confirms expectations that services trade would be hit harder by the pandemic, with services trade down 24% year-on-year in the third quarter of 2020 compared to goods, which was only down by 5%. Much of this is due to travel restrictions, with the transport sector and spending by international travellers down by up to 88% (WTO, 2021a).

However, the surge of commerce online has also driven the adoption of online services.

While the overall picture for services has been grim, some services sectors have seen growth. Financial services increased by 2% globally, and computer services was the fastest growing sector, up 9% in the third quarter as demand for cloud computing and virtual workplace platforms boomed (WTO, 2021a).

Gartner forecasts spending on cloud services to grow 18.4% in 2021, with cloud services becoming the 'new normal' (Gartner, 2020). Cloud services will make up 14.2% of total global enterprise IT spending by 2024, up from 9.1% in 2020. Similarly, software as a service (SaaS) is forecast to grow by US$118 billion in 2021.

SECTION TWO

MEANWHILE, OTHER TECHNOLOGIES CONTINUE TO BE ADOPTED

Notably, the adoption of technology during the pandemic happened most significantly at the consumer-end of the value chain. While automation in ports, shipping, natural resources, and other areas continues, the timeline on investments in these sectors seems to have remained unchanged.

Ports and shipping – long term trends continue

The Port of Rotterdam hosted the world's first automated container terminal which became fully autonomous in 2015. It continues to drive innovation and is developing a 'digital twin' of its port based on sensor data so that it can communicate directly with other systems such as autonomous ships by 2030. Innovative solutions in this sector continue to develop with several game-changing ports and companies leading the way:

- Dubai's DP World has been a leader in the global facilitation of trade, launching autonomous boats in 2020. Its Cargospeed hyperloop-enabled cargo systems, SeaRates multisided platform for cargo tracking and visibility, and its industrial parks have been catalytic for economic growth.

- The Port of Newcastle in New South Wales, Australia and the Port of Singapore are following suit. When complete, the latter will be the largest fully autonomous terminal in the world. The first berths in Singapore are scheduled to open in 2021 (Global Infrastructure Hub, 2020).

- China's Cosco Shipping Group, Dongfeng Motor Corporation and China Mobile announced a cooperation initiative in April 2021 to jointly develop unmanned intelligent port solutions, following their joint introduction of driverless port container trucks (Si, 2021).

Innovations in ports and Maritime Autonomous Surface Ships go hand in hand; the digitisation of one impacts how both systems interface with each other. The UK port industry has created a new network to explore how developments in autonomous ships will impact on how ports operate. Similarly, major European ports such as Amsterdam, Rotterdam and Antwerp are readying themselves to handle unmanned and partially manned vessels in the coming years (Donnelly, 2021). However, mass uptake of autonomous sea vessels, beyond smaller vessels for inspection and smaller loads, is some way off.

Adoption of technology has accelerated at the consumer-end of the value chain

SECTION THREE

AUTOMATION IN MANUFACTURING: NO THREAT TO GLOBAL SUPPLY CHAINS, YET

The 2020 Future of Trade report also identified the rise of automation in manufacturing – such as robotics or additive manufacturing – as posing a threat of disruption to global value chains. Although the timescale on this trend is much longer and investment into automation continues, it is difficult to measure the level of disruption given the other issues within the global economy.

While investment in automation continues across the value chain – in primary resources, manufacturing and logistics – it will take time for this specific trend to have an impact on global trade. For the moment, the focus of investment in automation is efficiency, cost reduction, and service delivery. Deployment of automation has not yet reached levels where trade flows are impacted. For some time, decisions around the deployment of manufacturing will be determined by other factors including labour, land, logistics, and corporate issues.

Blockchain

The 2018 Future of Trade report heralded the revolutionary impact of distributed ledger technology on trade. The commercial processes involved in shipping goods are one of the most compelling use cases for blockchain technologies that could deliver results for businesses and governments in terms of reduced costs and greater security.

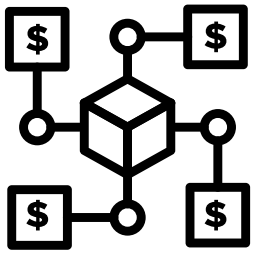
However, the adoption of blockchain technology has been slow; many of the business leaders interviewed for the 2020 Future of Trade report viewed it as a "solution looking for a problem", that would need a policy breakthrough, an act of industry leadership or some other dynamic to make the change happen. In 2021, a series of new cases are appearing that suggest the global economic disruption of COVID-19 was the disruption that blockchain and its associated applications needed to move into the mainstream.

The adoption of blockchain has benefitted greatly from the broader digital revolution during the pandemic, as banks and other businesses invested heavily in digital technologies and moved almost all operations online. From this point, blockchain is set to have a significant impact on the way global trade is conducted.

While the COVID-19 pandemic has accelerated the adoption of blockchain as one of a suite of digital technologies that will streamline trade, the technology is also in the midst of a reputational transition. Since its inception, blockchain has been associated most widely with cryptocurrencies such as Bitcoin, which themselves were associated with massive volatility.

There have been many other applications for blockchain. The past year has seen an increase in the deployment of non-currency related blockchain technologies as major IT service providers and multinationals adopt the technology for a wide range of purposes. Cryptocurrencies have also gone through a transition and are becoming a credible alternative for the mainstream financial services industry, as well as an alternative solution for exporters to access trade finance.

Fundamentally, mainstream businesses are recognising the revolutionary potential of blockchain to solve some of the most difficult challenges in trade, from trust and risk to efficiency and cost. The 2020 report explored the US$1.6 trillion trade finance gap identified by the Asian Development Bank, most of which stems from low thresholds for KYC and compliance risk, as well as low profitability due to the operational difficulties of compliance.



DeFi has tripled from USD 20bn to USD 60bn since the start of 2021

Interview: Charles d'Haussy, Managing Director - APAC, ConsenSys

What are the key comparative regional trends you are seeing in digital technology and in the development of digital assets?

In Asia, digital regulation is progressing at a much faster pace than the US and Europe. China, Hong Kong and Singapore have regulatory frameworks that are conducive to allowing firms to grow. The importance of digital assets comes into play – in that digital assets fuel trade finance, investments into equities and other securities. Crucially, digital assets mean that there are financing options available for SMEs. SMEs remain hard to finance because they are young – but if you put an SME into a digital asset system, they could start to have their equity being sold on digital asset exchanges. In Asia, this is progressing faster than in many other places in the world, where this is just beginning.

What is the scope for this type of digital asset development to reach across borders and to cover financing gaps across emerging markets?

Look at decentralised finance (DeFi). Several regulators in the world are beginning to be much more comfortable with this kind of decentralised infrastructure. Instead of going via traditional systems, you start to have greater consensus across different parts of the world for this. Instead of peer-to-peer trading, you have players (central banks and commercial banks) that are involved in a jointly-funded infrastructure. For example, in sharing a digital currency engine we will start to fully share infrastructure and stop trading via both infrastructures but connect in a shared system. This mitigates the difference in cross-country regulations between two different parts of the world and creates efficiency.

Given the emerging global digital infrastructure, how will the introduction of central bank digital currencies (CBDCs) figure?

CBDCs move most efficiently on blockchain pipes: 1 RMB from one central bank to another in blockchain, is exactly the same. By building blockchain infrastructure, you have efficiency. You have to look at the rise of the central bank digital currencies as a value chain. Looking at the value chain of finance and trade, everything starts with money. The beginning of this value chain process is starting to change with digital currencies, so everything in the ecosystem will be impacted. Everything will adapt

to digital money, which is far more efficient, accessible, programmable – and crucially – composable. In a unit of currency being composable, I can start to re-compose it in various ways that was previously impossible outside of the world of financial market derivatives.

CBDCs are not about faster money – the world doesn't need more fast money – the world needs a new kind of money that becomes programmable and composable. This will have a deep impact, triggering a movement from old systems to new systems. Markets will decide the pace of this change. Every country wants to transact but the financial regulations make it extremely complicated and expensive. In practice, with digital currency engines, I can create a new type of Dirham – one that would be available with the KYC of the sender.

What is your outlook for digitalisation in emerging and developing market economies?
We are seeing countries leapfrogging – not using old internet connections – but going directly to 4G. The pace is not the same, it costs money to enter these innovative arenas, but many are leapfrogging into them. In this world of multilateralism and geopolitics at play, what we see is CBDCs and cross-border commerce in general migrating from blockchain and DLT. People are migrating away from private networks, from intranet types of infrastructure to global infrastructure. More generally, digital infrastructure is moving from the national to the global.

Most notably, in Asia, you see governments building joint infrastructure to enable digital currency systems to facilitate trade and investment. The current dynamics show that if you don't work on a neutral technology stack, you won't be able to secure the trust of counterparties to work with. We need a technology stack that will last.

"People are migrating away from private networks, from intranet types of infrastructure to global infrastructure"

A turnaround for the technology

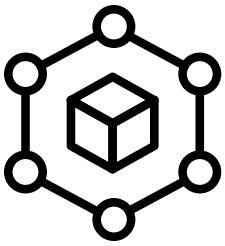
In the past 12 months there have been significant developments in blockchain technology. There has been growth in decentralised finance, interest in 'non-fungible tokens' in the art and collectibles space, and major financial institutions (including JP Morgan and Singapore's DBS Bank) have invested into digital assets (Lim, 2021). Meanwhile, governments and central banks are overhauling their systems to engage and utilise blockchain and, in some instances, launch their own digital currencies.

There has been a more apparent shift in the way that more conservative economic stakeholders – major banks and governments – view blockchain and crypto assets. A recent report by former CIA Director Michael Morelli found that the use of cryptocurrency Bitcoin in illicit finance was significantly overstated. In 2020, the illicit share of cryptocurrency activity fell to 0.34% (around US$10 billion), compared to 2-4% of global GDP, for fiat currency (Morell et al., 2021).

This likely leads to three key trends moving forward:

- Due to increased offering by credible providers, such as major multinationals, blockchain adoption will continue to gain traction and add value to global trade.
- Crypto applications of blockchain will continue to fill the gaps where mainstream trade finance is unable to.
- Blockchain-backed currencies are also undergoing a significant reputational transition.

Many governments are trying to take a more active role in the sector. China is investing heavily in a blockchain services network and has made the development and use of blockchain a national priority (Ozden, 2021).This commitment – and the likely speed of deployment in China – may further shift the centre of gravity for international trade towards Asia. The Blockchain Service Network (BSN) and the renminbi-pegged Central Bank Digital Currency (CBDC) are the backbone of China's blockchain infrastructure. The objective is to build an open-source protocol that enables businesses to access, build, and adopt blockchain technology into commerce – both domestic and international. The BSN has expanded domestically, with 120 BSN nodes across China, as well as through partnerships with blockchain protocols and multinationals including Ethereum, Polkadot, Quorum (formerly a unit of JP Morgan), Ernst & Young and the new blockchain Casper Network.



Blockchain adoption will continue to gain traction and add value to global trade

Deploying blockchain in trade

While blockchain, or distributed ledger technology (DLT), is most closely associated with Bitcoin, it is, in fact, a versatile technology with multiple applications, especially in international trade. Institutions such as the WTO concluded early on that blockchain could be revolutionary for international trade – though in some ways the attention around the technology may have worked against it.

Blockchain technology is now utilised by major information technology companies including IBM, AWS, Oracle, and SAP, who are deploying it in the supply chains of major multinationals such as Walmart and Nestlé. Blockchain is fast becoming a back-end technology in several industries including food and agriculture, pharmaceuticals and commodities.

One of the key drivers of blockchain is the reduction of risk and the ability to increase trust in trade, hence two of the most exciting applications being deployed are 'track and trace' and smart contracts. The lack of traceability and transparency along increasingly complex supply chains is an industry-wide challenge that leads to delays and costs. Solutions using blockchain can provide visibility along the supply chain from manufacturer to consumer, using a single data system and zero paperwork.
A study by PwC (2020) projected that blockchain technologies could boost the global economy by US$1.76 trillion by 2030, with increased levels of trust – through track and trace – accounting for US$962 billion of that. The impact of blockchain on contracts and dispute resolution accounts for a further US$73 billion. These figures track with WTO projections that blockchain could result in more than US$1 trillion in new trade in this decade through the removal of trade barriers. Key features of track and trace include:

- Track and trace enables location identification of all product inventory, as well as a history of product custody. This includes raw materials in processing and manufacturing to retailers and consumers – allowing a complete product provenance view. This is particularly important in industries that are sensitive to safety conditions along the supply chain, such as food or pharmaceuticals, or industries with environmental or labour concerns.

A study by PwC (2020) projected that blockchain technologies could boost the global economy by US$1.76 trillion by 2030

- Distributed ledger technology (DLT) of a blockchain allows multiple parties to transact along the supply chain directly via a peer-to-peer network, without the need for a central authority to verify transactions. Each participant has access to a shared ledger that immutably and cryptographically records all transactions, with time and date stamps. The blockchain therefore provides a single information source for a product.

- The track and trace system reveals real-time status and location of a product at any time. Most importantly, it also provides a history of the product's provenance. This can help combat issues such as counterfeiting, compliance violations, and delays. In combination with sensors and Internet of Things technology, a product's environment – temperature, humidity, etc. – can also be monitored.

While the main driver of this transition to blockchain is convenience and cost, the COVID-19 pandemic and remote working has impacted various parts of trade processes and trade finance including deal origination, distribution, authorisations and shipping (Youssef, 2020).

A WTO-TFG survey indicates that most firms (80.5%) already considering blockchain have experienced a positive benefit to their plans and activities as a result of the pandemic (Patel and Ganne, 2020). Interest in blockchain has been supported by the overall acceleration of digital processes in banks and other institutions during national lockdowns.

Blockchain technology has the potential to revolutionise trade processes and trade finance in the same way that the internet disrupted commerce. The technology will redefine value chain interactions, reduce complexity and reduce transaction costs. The main way in which blockchain technology is deployed in trade and trade finance is via smart contracts.

Major trade finance providers have recognised the transformative power of blockchain; Barclays, HSBC, BBVA, Standard Chartered and DBS to name a few. In many cases, institutions are working together through blockchain consortiums as there is a benefit to the size and coverage. The most well-known blockchain consortiums related to trade finance are we.trade, Marco Polo, Contour, Komgo, India Trade Connect, and eTradeConnect.

The application of smart contracts

Smart contracts combine legal terms and payments, synchronising the release of payments with the delivery of goods, services or other financial instruments. Smart contracts do not need to be signed manually, and the blockchain creates an immutable record and trail, both increasing trust and security and saving time and compliance costs. Most importantly, smart contracts – because of the secured data storage system and decentralised consensus model of blockchain – increase trust even between parties who have little, if any trust in each other. This massively reduces risk in trade and opens opportunities for traders to engage a much wider number of trade partners, rather than focusing on their most reliable partners.

Smart contracts streamline trade and trade finance

The Future of Trade 2020 report outlined some of the complex processes that facilitate goods trade, from bills of lading to customs clearance documents, to the interface between trade processes and financial services – and all of the paperwork between importers, exporters, banks, shipping companies, receivers, logistics suppliers, insurers and others. Blockchain stands to revolutionise these processes, supported by broader smart contract usage across business sectors worldwide.

Cryptocurrencies and trade finance

While major financial institutions are now embracing blockchain solutions, the same technologies have also enabled new market entrants to challenge the incumbents. This has already been happening in the retail banking sector, with new fintechs absorbing customers and business from banks. But blockchain technology has also allowed the rise of a new sector, which took off in 2020 – decentralised finance, or DeFi.

DeFi is an umbrella term for a variety of financial applications using cryptocurrency of blockchain technology that are aimed at disrupting financial intermediaries (Herting, 2020). As with blockchain technology, DeFi is decentralised – the history of transactions is held across various entities, allowing for greater trust, speed and complexity. DeFi take blockchain technology one step further, where blockchain focuses on value transfer, DeFi can support more complex financial use cases.

In the same way that blockchain-supported currencies cut out the middleman such as Visa, PayPal or a bank for payment transactions, DeFi aims to cut out the middleman for loans, insurance, crowdfunding, derivatives, and more, including trade finance. Smart contracts are at the core of DeFi, which most operate on the blockchain platform Ethereum. The key difference between DeFi and more mainstream fintech is that fintech builds on existing financial infrastructure, whereas DeFi is based on distributed ledger technology from the beginning.

As a sector, DeFi grew exponentially through 2020, boosted by greater interest in crypto assets and the general push towards

digitisation driven by the COVID-19 pandemic. In Q1 2021, the value of crypto assets on DeFi applications grew by 50% (even after fixing for the growth in value of the Ethereum asset itself). While this growth is now slowing, DeFi is an established part of the financial ecosystem.

Given the challenges of accessing trade finance and the US$1.6 trillion trade finance gap, it is a sector that has been ripe for disruption for some time. Simplistically, in trade finance, a third party is introduced to remove the risk between importers and exporters – such as the risk of loss, damaged goods, or non-payment. DeFi platforms allow trade finance operators to continuously originate loans using trade finance pools. The structure of DeFi is also geared at building access to financial services or banking the unbanked (Ragab, 2020).

While DeFi technology has applications across payments and lending, the trade finance application is particularly interesting. DeFi platforms allow verification of information by multiple parties, e.g. banks, freight forwarders, shipping operators, in a secure and decentralised manner (Ragab, 2020). The implication of DeFi for trade is potentially revolutionary:

- By nature, online applications are more accessible to unbanked operators in terms of the barriers to entry and their usability.
- With the removal of key intermediaries, DeFi also reduces the average costs of cross-border payments from around 7% to 3%.
- In addition to the trust and security of blockchain-based applications, the DeFi system is resilient to governments and/or other actors who may seek to intervene (Hoffman, 2020).

And yet, there are challenges to DeFi, including the regulatory environment and interoperability between DeFI platforms and more mainstream financial services. These challenges will need to be addressed if its cutting-edge technology is to reach its potential in being applied beyond the blockchain bubble.

Interview: Armand Widjaja, President Director, Central Capital Venture

What is your outlook on the latest innovations relating to blockchain?

Blockchain has been very useful at improving the efficiency of global trade. A key example of this is in the shipping sector. It not only enables the identification of which ships and containers have space, but also massively simplifies the administrative process: customs, paperwork, etc.

If Dubai ports can substantively adopt the new technology, it will accelerate trade flows. It's the hubs like those based in Dubai that can really benefit

from digitalisation of trade because it will enable faster and better processing.

These developments will continue, particularly given that many hubs and ports are no longer willing to receive paperwork. In this light, we are seeing an accelerated shift towards online transactions and to digital. This pandemic has brought a lot of initiative and technological advancements – across trade finance.

Blockchain will adapt further but it won't fundamentally change – we haven't seen its full development yet. Now is the time for us to use this innovation for integration; we need to remain flexible enough to adopt this technology.

Digitalisation of government processes to do with economic exchange, exemplified by E stamp duty – 1) it makes it easier for the transactions to go through and 2) quicker to verify and critically also reduces the risk of bribery and fraud.

What is your outlook on the regulation and deployment of data?

It is important to understand how we are communicating with each other. Rather than creating a world data platform, if it's possible, I would rather use a blockchain platform to do so in reaching an agreement over some of that data. Let big businesses compete and decide on their own before we start introducing broader regulations. If we do need to come up with regulations around data, then ultimately, these regulations will always be catching up, and this is even before an international agreement is reached. The private sector will likely lead on this agenda.

How do you see AI evolving?

I don't think AI can be used to solve everything; it has perhaps been oversold with people believing it's going to address everything. AI is reliant on patterns – and if patterns keep changing, then it will lose its effectiveness, its efficiency and its applicability. Therefore, we must make AI more applicable to the world we live in. Whilst it has been adopted more than say, blockchain, it has its limitations. AI works very well on activities which are very repetitive with highly continuous data points, rather than highly diverse data points. As soon as you get changes in the pattern, you lose the advantage of it because the system has no ability to cope with that. When you have an algorithm – if they don't recognise a data point, they just tend to ignore it.

"Let big businesses compete and decide on their own before we start introducing broader regulations"

SECTION FOUR

OUTLOOK: TECHNOLOGY ADOPTION LIKELY TO CONTINUE TO ACCELERATE

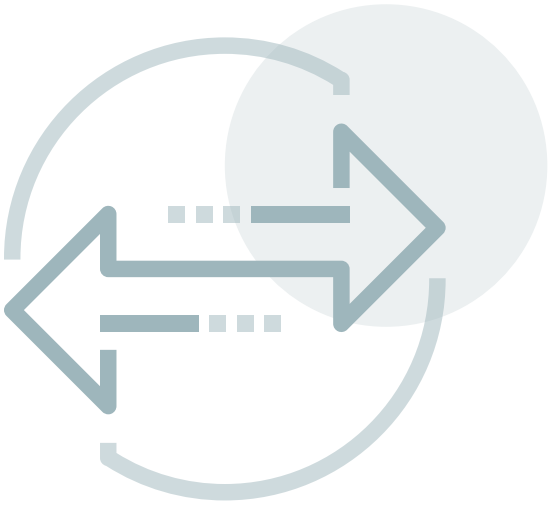
As outlined, the global pandemic drove consumers, commerce, and various services online, creating significant growth in these sectors, as well as driving the adoption of technologies along the logistics chain. The reverse of this was the thousands of square metres of commercial office space in central business districts that have been empty, as well as empty retail and hospitality businesses worldwide.

In 2021, governments, investors and businesses are asking themselves whether the dynamic changes of the pandemic are permanent. The global vaccine roll-out has provided a light and the end of the tunnel for the global pandemic, with a return to some level of normality within reach. There are signs that investors think that the commitment of consumers to a fully online lifestyle will not remain at the current high-water mark. The recent over-valuation of food delivery service Deliveroo in the UK is an interesting example of the pandemic-driven tech bubble bursting.

The answer of course, is likely somewhere in the middle. The pandemic forced governments, businesses, and consumers to change their behaviours, introducing technology into daily life. Some of these behaviours – and the investments in technology that have been made over the past 12 months – will stay. However, as physical retail, hospitality, and workplaces open up, it is likely that the acceleration of the pandemic will drop-off. Despite this, the integration of technology in trade and business will have been accelerated by several years.

KEY TAKEAWAYS

- The COVID-19 pandemic has driven commerce online and has also driven technology adoption along the supply chain.
- Specifically, companies that have invested in AI, autonomous operations and other technologies, have seen increased revenue.
- The effect of the pandemic has been most concentrated at the consumer-end of the supply chain. Technology adoption in ports and shipping continues but has not accelerated.
- Blockchain is maturing, with an increasingly wide number of applications across security, trust and efficiency.
- DeFi applications have the potential to revolutionise trade finance, and address some of the major challenges around access to trade finance by disrupting current trade finance models.



RECOMMENDATIONS

FOR GOVERNMENTS

1. Enhanced international cooperation on the usage of data in the service of economic growth and cross-border trade is essential.
2. Develop and incentivise links between regulators for the effective management of data.
3. Governments should continue to develop digital currencies and the infrastructure around them to encourage international trade and cross-border investment.
4. Governments must prioritise collaboration with the private sector to promote digital technology.

FOR BUSINESSES

1. DeFi should be a core priority for companies, particularly when building trade relationships in emerging and developing economies.
2. The private sector a should promote the ethical usage of cross-border data flows.
3. Companies should elevate the role of research and development in digital technologies.
4. Companies' enhanced coordination with governments is crucial for facilitating new technological innovations for the promotion of trade.

CHAPTER IV

THE PIVOT TOWARDS SUSTAINABILITY

Despite widely shared concerns in the international community that companies and governments would backtrack on their climate change commitments to divert resources in order to protect against the impact of the COVID-19 pandemic, efforts have instead remained on track. In some cases, countries have ramped up climate pledges over the past six months.

The lead up to the United Nations Climate Change Conference (COP26) in Glasgow, UK in November 2021, has catalysed commitments: key pledges towards attaining carbon neutral status have also been made by some of Asia's major economies. Notably, China's President Xi Jinping has pledged a peak in China's greenhouse gas emissions by 2030 and to reach net zero emissions by 2060, emphasising the need for a "green revolution" (Volcovici, 2020). Japan has announced a new carbon emission reduction target, now set at reaching 46% by 2030; a significant increase in its short-term ambitions, previously set at 26%. Japan has also pledged net zero status by 2050 (Stapczynski and Nobuhiro, 2021) South Korea has recently pledged to prohibit state institutions from financing overseas coal projects and indicated that a new target to reduce domestic carbon emissions would soon be confirmed (Hai, 2020). This chapter examines the pivot towards sustainable practices in international trade and looks at recent developments in country commitments to achieve net zero status in carbon emissions.

SECTION ONE

NET ZERO COMMITMENTS COULD POSE A TRADE POLICY CHALLENGE

Amid the recent global boost to nationally determined contributions (NDCs) in line with the 2016 Paris Agreement, the question of greater regulation and the introduction of incentives and penalties has gained increased prominence. Over the past year, new regulations have most notably been forged by the EU. The EU is set to develop its existing Emissions Trading System and introduce a Carbon border adjustment mechanism (CBAM) following its successful adoption by 444 MEP votes in March 2021 (European Parliament, 2021). The new mechanism is set to form part of a broader EU industrial strategy, covering all imports of products and commodities covered by the EU Emissions Trading System (ETS), and bringing the EU budget into closer alignment with the policy objectives of the European Green Deal (a 2019 commitment to make the EU carbon neutral by 2050 (European Commission, n.d.).

CBAM aims to address a market failure

CBAM is significant for international trade, and for the sustainability of trade, in that it aims to address the issues linked to the absence of a global price for carbon. It does so by targeting the risks (and costs) associated with the carbon leakage stemming from international trade. The mechanism imposes a carbon price on imports of certain goods from outside the EU. Most recently, in October 2020, a commission official indicated that steel, cement and electricity could be the first sectors to be subjected to a CBAM (Appunn, 2020). In this way, the price of imports more accurately reflects their carbon content, according to the commission (European Commission, 2020).

CBAM is significant for international trade and for the sustainability of trade

Suggestions about the initial imposition of CBAM on these sectors reveals some of the wider implications on how such a mechanism could impact the future of trade. As highlighted, industrial producers with highly carbon-intensive processes – identified by the EU as predominantly related to energy and materials - are set be hardest hit by the tax (Aylor et al., 2021). This will likely affect trade competition, with companies outside the EU at an elevated risk of losing market share to more carbon efficient producers. In response, companies will seek to mitigate this risk by accelerating efforts to reduce their carbon footprints via capacity building across sustainable technologies (McKinsey, 2020a). Producers based in countries with limited sets of regulations on carbon emissions face the biggest challenges, a factor that will also contribute to a shifting competitive landscape.

CBAM is ground-breaking but has been met with opposition

The CBAM policy proposal is not a new one, having been discussed over the past 10 years both in the EU and US. And yet, the adoption of the final proposal for CBAM, set to be presented before the European Commission in June 2021, will be ground-breaking in that it would make the EU the first member of the international community to introduce such a mechanism. In this respect, CBAM will be crucial for future climate policy developments and could also signal the start of a new global movement where such mechanisms are more widely adopted. Considerations towards the implementation of such a mechanism was notably included in US President Biden's election campaign, which pledged to impose 'carbon adjustment fees or quotas on carbon-intensive goods from countries that are failing to meet their climate and environmental obligations' (Joe Biden, n.d.).

From the US perspective, it is worth noting that the US stance continues to fluctuate, with Biden's envoy on climate recently warning of the 'serious implications for economies, and for relationships, and trade' and that CBAM was 'something that's more of a last resort'(Hook, 2021). Japan is reportedly also considering a carbon border tax with a decision on the move set to be made later this year (Takezawa, 2021). Across the Middle East, while government-level talks on carbon taxes remain scarce, the conversations are set to grow, promoted by organisations such as Clean Energy Business Council MENA (CEBC), which has notably addressed the boost to GCC state revenues that a carbon tax could wield; finances that could, in turn, bolster the region's decarbonisation efforts (Saidi, 2019).

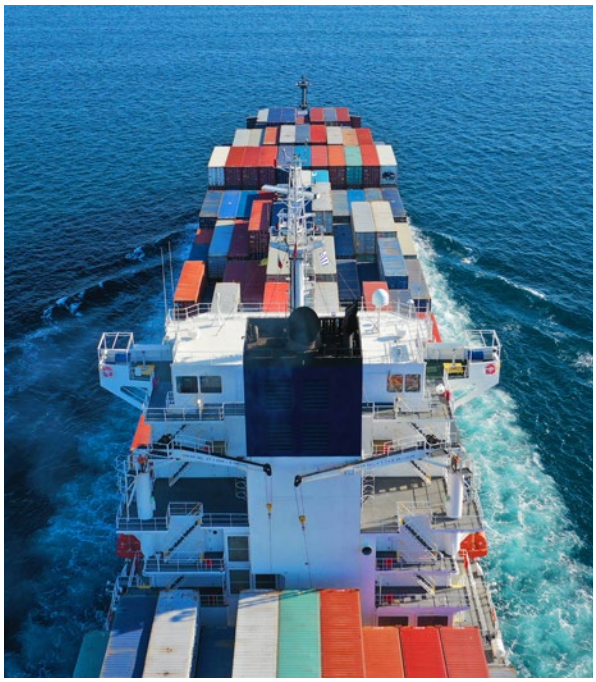
There are a number of challenges to CBAM implementation, not least due to existing opposition from several major economies such as China; President Xi Jinping strongly condemned the proposal, indicating that such a mechanism would be used 'to attack other countries or (impose) trade barriers' (Taylor, 2021). Elsewhere, Australia's Trade Minister Dan Tehan, has expressed scepticism, remarking that 'the danger is that they will be used as protectionist measures' (Greber, 2021). Shared concerns held by the international community include the potential risk that such a measure would provoke retaliatory action from countries, raising political tensions with states that regard it as a form of EU protectionism. Across the private sector, companies could oppose the negative impact CBAM on import costs with automotive and construction companies set to be hardest hit (Aylor et al., 2020).

DMCC identifies four key challenges facing CBAM, underscoring the complexities of implementing such a climate mechanism to global trade and highlighting its impact.

1 Accuracy

Products are often made through a multitude of components sourced from dozens of countries. Global supply chains can be particularly complex; the ability to accurately measure the exact emissions and classify a product poses a significant difficulty. This is particularly relevant for manufactured goods rather than primary commodities wherein the carbon values need to be adequately adjusted. An additional complexity arises in the various manufacturing technologies used in the process, which are all, in turn, subject to a number of climate policies varying from the stringent to the lax (Brzeziński and niegocki, 2020).

In this sense, it remains crucial to accurately reflect the climate policy of the country that the product originates from - a practice that remains difficult given that climate action takes place in a number of ways that cannot all be translated into monetary values; this notably includes practices such as environmental production. A lack of accuracy over these potential omissions presents complex legal and technical challenges.



2 Administration

To ensure full accuracy, CBAM require each component to be certificated, reflecting the measurements above; such a task poses a significant administrative problem that is both time-sensitive and vulnerable to error. Moreover, a comprehensive system of verification would be costly given the need for it to reach beyond EU borders in order to correctly ascertain whether the declared carbon footprint of imported basic materials is accurate (Lehne and Sartor, 2020).

3 Discrimination

The 2015 Paris Agreement was a legally binding treaty on climate change with 195 state signatories as of March 2021. NDCs lie at the heart of the agreement, embodying the plans and commitments each country pledges to make in order to reduce national emissions and adapt to the impacts of climate change. A global consensus has already been established based on the premise of NDCs; the EU's implementation of CBAM effectively risks alienating its global trade partners by overriding this consensus with new taxes and classification of countries that are now deemed 'insufficient' in their climate commitments. Such action elevates the potential for disputes between WTO members and risks further damage to an already fragile multilateral trading system (Bruegel, 2021).

4 Compliance

CBAM has already provoked widespread debate over potential issues that could arise in terms of its compliance with WTO rules. It is worth highlighting that in line with these rules, CBAM cannot favour domestically produced goods over imports; discriminate against any individual trading partner; prevent exporters from calculating their own carbon intensities, or impose unduly harsh compliance costs on exporters (Emerson and Moritsch, 2021). Challenges adhering to these requirements notably include ensuring that exporters do not face unrealistic obligations when complying with CBAM and that the freedom to calculate their own carbon intensity footprint is protected. As outlined above, accurately tracing carbon in global value chains is technically difficult and to do so comprehensively within the parameters of WTO rules poses yet another challenge.

In effect, CBAM must find a way to address the risk of carbon leakage without falling foul of discriminatory practices that would compromise its legitimacy in the face of WTO. Compliance failures would, in turn, elevate the risk of future trade-related disputes; given the ongoing disparity over WTO's dispute settlement mechanism, such disputes are also set to be protracted affairs (Griffin et al., 2019). It is crucial to also recognise that, even if WTO compliance was reached, there remains a risk of countermeasures from third countries, likely including the imposition of higher tariffs (Kuusi et al., 2020).

SECTION TWO
ALTERNATIVE MEASURES TO CBAM

The challenges and potential complications of CBAM across areas including compliance, accuracy, discrimination and administration are heightened by the risk of global trade tensions from retaliatory measures. Given this, it is likely that even a successful roll-out of such a mechanism in the EU will not be perceived as having met the growing demand for stronger and more comprehensive climate commitments.

For greater success in achieving a collective and long-term shift in climate commitments across global trade, broader country collaboration is required. Potential alternatives to CBAM are set to emerge over the years ahead. A key proposal touches on a full liberalisation of environmental goods and services.

Negotiations on liberalisation formally began during the 2001 Doha Development Round; a failure to reach a consensus on the elimination of tariff and non-tariff barriers to environmental goods and services was followed by a series of similarly unsuccessful negotiations until 2017, at which time talks were suspended.

And yet, the liberalisation of environmental goods remains a positive and potentially viable option that is set to gain prominence on the WTO's green agenda over the coming years. Calls for the negotiations on an Environmental Goods Agreement (EGA) to recommence have recently been shared from several the agreement's prospective signatories (European Commission, 2020a). This was notably demonstrated in the US in March 2021 when US Democrats introduced a resolution to direct the Biden administration to restart and conclude EGA negotiations [1]. Recent moves by members of the APEC market access group are also positive signs; Indonesia announced in March that it would fully comply with the organisation's Environmental Goods List (APEC, 2021). Commitments such as this reflect a steadily growing momentum towards a more widely shared outlook on climate issues; a shift that will likely help to bolster EGA negotiations if they recommence.

A greater capacity for consensus-building among WTO members will be critical if an Environmental Goods Agreement is to be reached. Consensus building ultimately remains a key area in need of prioritisation for the new WTO leadership in order for the successful evolution of regional and bilateral trade agreements to include environmental provisions (OECD, n.d.).

[1] House of Representatives, Resolution, (25 March 2021), [https://delbene.house.gov/uploadedfiles/ega_resolution_text_-_final.pdf]

Region-led polices such as CBAM alongside government-level commitments towards reducing carbon emissions have been widely accompanied by country pledges that focus on Non-Green House Gases (NGHG) targets.

23%

of total power generation to be renewable by 2030

Japan has pledged that renewables will comprise approximately 22%–24% of its total power generation by 2030.

20%

share of non-fossil fuels

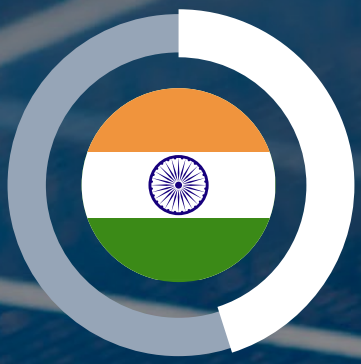
China has pledged to increase the share of non-fossil fuels in primary energy consumption to around 20% and increase the forest stock volume by around 4.5 billion cubic meters on the 2005 level.

50%

share of clean energy (including nuclear) in capacity mix by 2050

UAE has pledged a 50% share of clean energy (renewables and nuclear) in the installed power capacity mix by 2050 and a federal target to reduce energy consumption by 40% for the year 2050.

(World Resources Institute, n.d.)



40%

cumulative electric power installed capacity from non-fossil fuel based energy resources by 2030

India has pledged to reach about 40% cumulative electric power installed capacity from non-fossil fuel-based energy resources by 2030, and to create an additional carbon sink of 2.5-3 billion tonnes of CO_2 equivalent through additional forest and tree cover by 2030.

100%

carbon pollution-free electricity by 2035

The United States has pledged to reach 100% carbon pollution-free electricity by 2035.

SECTION THREE

TRADE CATALYSES GREEN TECHNOLOGY BUT MORE NEEDED FOR GREEN INVESTMENT

In parallel to these government-level commitments, ESG approaches to managing companies and investments have boomed over the past 18 months, with exponential growth set to continue. The move towards green investing constitutes an ongoing global shift from traditional investments (Quinson, 2021). 2020 marked the first year that investments in ESG-oriented funds totalled over US$1 trillion. ESG criteria employed by the global investment community, and by financial markets, is consequently expanding (Little, 2020). As the market value and market share of sustainable investments grow, accurate ways to measure ESG performance and identify ESG risks are crucial.

The Task Force for Climate-Related Financial Disclosures (TCFD) is an organisation central to this expanding area, providing a 'framework for companies and other organisations to develop more effective climate related financial disclosures through their existing reporting processes' (TCFD, 2020, p.2). In its most recent status report, published in September 2020, TCFD noted that interest in its framework grew by 85% within a 15-month period, from 2019-2020. As increasing numbers of organisations have ramped up efforts to implement TCFD recommendations, there has also been a significant growth of investor demand for companies to comply with TCFD guidelines (TCFD, 2020, p.2).

The pressure on companies and investment managers to utilise ESG criteria is likely to continue to grow amid heightened efforts towards securing long-term environmental sustainability under 'Green Recovery' strategies in response to the COVID-19 pandemic. Important to note is the shift towards TCFD compliance from across the public sector, with economies including Canada, Hong Kong, Singapore, and the UK proposing policies and partnerships, such as making TCFD reporting mandatory for companies (ICAEW, 2021).

While efforts have ramped up to establish a standard ESG framework, there remains widespread reporting inconsistencies, likely due to the numerous unverified frameworks currently available. A 2020 study by the OECD concluded that 'ESG ratings vary strongly depending on the provider chosen', in part, due to the 'different frameworks, measures,

key indicators and metrics, data use, qualitative judgement, and weighting of subcategories' (Boffo and Patalano, 2020). Crucially, the wide variety and inconsistencies have resulted in a significant lack of comparability between ESG metrics. Improvements are subsequently needed to ensure greater 'consistency across metrics; comparability of ratings methodologies, and alignment with financial materiality' (Boffo and Patalano, 2020).

To effectively address this demand, new approaches in measuring ESG are set to expand, with AI a key area that offers up the potential to significantly impact the green investment community. Utilising AI, investors will be able to collect and analyse large quantities of data as an effective means of quantifying ESG information and thereby assess the existing risks and opportunities (S&P Global, 2020).

As AI-driven models built for ESG analysis gain momentum, greater transparency across ESG investing will expand in a shift that is set to diminish current practices of self-reported data on climate and ESG information - a transition that will likely help reduce scepticism surrounding cooperate greenwashing. Greater transparency provides an opportunity for greater comparability, a practice that could significantly help efforts towards enhancing connectivity between global trade partners on green issues.

Commenting on the main impacts of an increased focus on ESG on global trade and investment: Rola Abu Manneh, Chief Executive Officer, Standard Chartered UAE

"Accelerating ESG focused investing will have a critical impact on capital flows which will increasingly seek out markets that have laid the groundwork for sustainable development including action to reduce carbon footprint. Trade will continue to drive the UAE's economy and hence the sustainable foundations we are laying will ensure that the UAE will continue to be a global trading hub."

Overview of leading ESG metrics

1 World Economic Forum (WEF)

In 2020 WEF established a set of Stakeholder Capitalism Metrics, which were designed to assist in the benchmarking of sustainable business performance. These metrics are classified into four key areas: People, Planet, Prosperity, and Principles of Governance.

2 Sustainability Reporting Standards

The Global Reporting Initiatives (GRI) established these standards in 2016 to facilitate and support best practice across impact disclosure. A key aim is to establish common objectives for organisations, enabling them to report on their sustainability impacts in a consistent and credible way. This practice aims at facilitating greater transparency and accountability among organisations.

3 Sustainability Accounting Standards Board (SASB)

An independent non-profit organisation established in 2011 that sets standards to guide the disclosure of financially material sustainability information by companies to their investors.

4 Task Force for Climate-Related Financial Disclosures (TCFD)

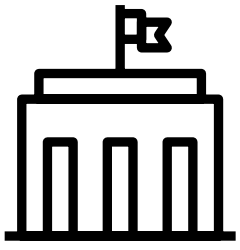
Financial Stability Board (FSB). The recommendations are structured around four thematic areas that represent core elements of how organisations operate: governance, strategy, risk management, and metrics and targets.

SECTION FOUR

THE OUTLOOK: CBAM AN IMPORTANT TOUCHPOINT

The prospective roll out of the EU's Carbon Border Adjustment Mechanism (CBAM) provides an important touchpoint on what the future of climate policy development could look like over the years ahead. It also comes amid the COVID-19 pandemic, which has further prompted the introduction of green growth strategies that are paying more attention to the possibilities of broader and higher carbon taxes.

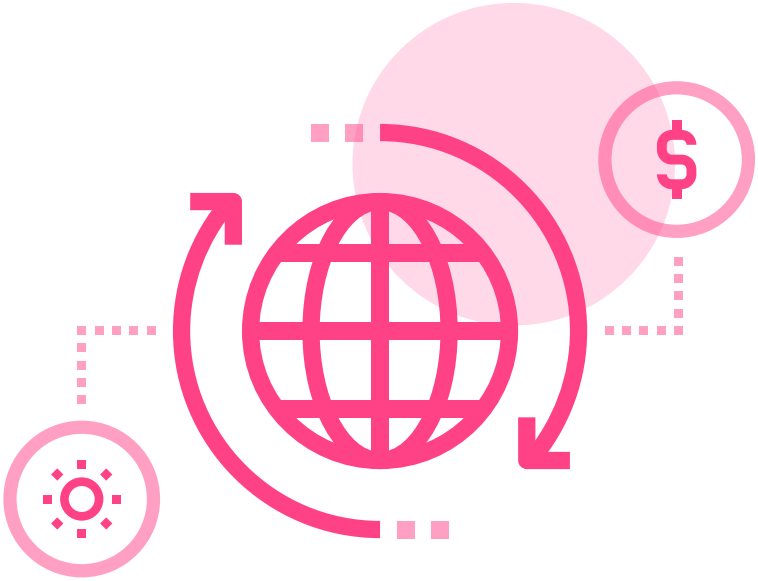
This reality is emerging alongside a growing appetite at both a cross-sector company level and from a rising number of governments, notably identified here as the EU, for the implementation of stronger and more comprehensive regulatory measures at a government level. Elsewhere, joint initiative alternatives offering a route towards carbon neutrality are set to ramp up, notably including a potential refocus by WTO members towards securing EGAs. Several countries are also establishing themselves as key players in the global effort to reinvigorate climate commitments, exemplified over the past year via a series of significant new pledges made by the US, the UK and Japan; while India, a rising leader in renewable energy, recently signed a partnership with the UK to collaborate on clean energy transition. However, CBAM presents some key challenges for global trade to navigate; its complexities and opponents suggest that introducing such mechanisms with the vision of providing an immediate and effective globally reaching solution to climate change efforts, remain unlikely. Broader and more collaborative efforts to reach this point are required, a drive that is already in rapid motion as demonstrated via the exponential growth of ESG practices across both the public and private sectors. Innovation is key to enhancing ESG reporting with areas for development notably including AI technology; such development presents vital opportunities for greater transparency and consequently, connectivity, across global trade networks as the world works towards achieving carbon neutrality.



Stronger demand for climate policy at a government level

KEY TAKEAWAYS

- Climate commitments are set to expand.
- CBAM signifies a key inflection point for countries' climate commitments.
- CBAM may be divisive and will underscore the need for alternative carbon pricing mechanisms.
- ESG will be a leading investment trend over the coming decades.
- AI-driven models built for ESG analysis will drive new approaches for ESG reporting.



RECOMMENDATIONS

FOR GOVERNMENTS

1. Governments need to come up with a more palatable means of pricing carbon in coordination with the private sector.
2. Economies' energy transition away from fossil fuels requires investment in new technology and closer coordination with the private sector.
3. Governments need firm and clear plans to execute their commitments to reach their climate goals.
4. There should be enhanced cooperation and information sharing among the world's largest emitting economies to make discernible progress towards their climate commitments.

FOR BUSINESSES

1. Companies must incorporate sustainable practices in the core of their business.
2. Companies must support implementation of ESG metrics in assessing cross-border investment and trade flows, in equities, bond markets and in foreign exchange.
3. The private and public sector need to agree to a standardised taxonomy of what constitutes a green investment.
4. Companies need to work with governments like never before to finance and channel green technology.

CHAPTER V

FACILITATING TRADE FINANCE AND INFRA-STRUCTURE

The 2020 *Future of Trade* report highlighted the dual gap – in finance and infrastructure – that threatens to impede global trade in the years ahead. In the context of the COVID-19 crisis, there is an unprecedented opportunity for governments to innovate and to create new policy solutions, rather than to solely rely on the knowledge gained from past crises (Hassler, 2020). This particularly applies to international trade where the current challenges include difficulties in accessing short-term trade finance.

The 2020 *Future of Trade* report outlined several ways in which the trade finance gap could be addressed – by increasing the size of the trade finance pool, leveraging technology to make trade finance products more available and accessible, and improving trade finance applications. This chapter explores the current challenges in accessing finance; it subsequently assesses the degree to which innovative pathways have been addressed to close the trade finance gap and to improve infrastructural access.

SECTION ONE

BUILDING RESILIENT GLOBAL TRADE FINANCE

Closing the global trade finance gap, often measured as the requested and rejected trade finance (DiCaprio and Yao, 2017), is critical in driving global export and import growth following the COVID-19 pandemic. The trade financing gap is estimated between US$2-5 trillion globally (ADB 2020) with the International Chamber of Commerce estimating that US$5 trillion in trade credit capacity is needed to return trade volumes back to 2019 levels. This gap could widen even further as supply chains move away from China to poorer developing countries (Shih, 2020). In past crises (especially during the Recession of 2008-2009), government export support programmes designed to fill gaps in private financing proved successful.

Taking stock of the past year

Short-term trade finance appears to have been the most affected by the crisis. Global trade finance is liquid but has periods of funding strains during crises, such as the crisis of 2008 (Carstens, 2018). A lack of liquidity in the short-term segment of the market is likely to have stemmed from the diminished risk appetite of private creditors. According to an OECD survey, 43% of export credit agencies have reported an increase in demand for short-term products.

Medium-to long-term trade finance appears to have been more resilient during the pandemic; in this respect, structured finance solutions have been instrumental as the pandemic reduced the pipeline of investment and trade projects (OECD, 2021a). MLT export credit transaction volumes fell by 34% in 2020, indicating a drop in large projects (OECD, 2021a).

Emerging economies and the trade finance gap are closely interlinked. Approximately half of the global trade financing gap originates in developing and emerging countries in Asia and Africa, with small and medium-sized enterprises (SMEs) impacted most (International Finance Corporation (IFC), 2020). This represents the biggest opportunity for DeFi, which is further discussed in Section 3 of this report.

SMEs face a bigger risk than larger firms of collapsing or being unable to compete given the systemic importance of trade finance for SME liquidity (Lamy and Kolar, 2020). And because SMEs, on aggregate, account for a large share of employment, the associated job losses will continue to aggravate the economic downturn created by the pandemic. With factories shut in lockdown, sales have halted alongside the revenue that would have been generated, putting the small companies that provide 70% of jobs in countries around the world under stress.

Looking ahead, certain key themes will dominate:

Governments acting through export credit agencies (ECAs) can continue to alleviate barriers to trade finance, by directly providing liquidity to exporters through working capital programmes – this has already been done by 64% of ECAs (Basquill, 2020). ECAs have endeavored to fill the gap left by the private market by facilitating the availability of government short-term support, such as export credit insurance or guarantees (OECD, 2021c).

ECAs can also introduce further flexibility in medium-term export support programmes by amending their terms and conditions to meet demand-side pressures should the crisis persist (OECD, 2021c). After 10 years of tightening regulation, capital buffers are higher, and the banking system is seen as a safe support mechanism (Baldwin and Weder di Mauro, 2020).

Leveraging technology will make trade finance products more accessible and improving trade finance applications. COVID-19 has accelerated the implementation and deployment of innovative technology and digitisation (Wreford and Louat, 2021).

Blockchain can help cover financing gaps. Local financial sectors will need to strengthen their ability to finance their own trade, given that periodic risk aversion or crises will redirect investments away from projects and countries perceived as higher risk (Wreford and Louat, 2021). Most recently, in October 2020, Standard Chartered and DBS Bank announced a project using a blockchain network to register trade finance transactions with the support of twelve other banks (Youssef, 2020).

SECTION TWO

TRADE-RELATED INFRASTRUCTURE: CRITICAL TO BUILDING-BACK-BETTER

The 2020 Future of Trade report identified the infrastructure finance gap as being an impediment to long-term global trade growth. While the pandemic has impinged on public finances worldwide, where there is fiscal space, stimulus packages have been geared towards reinvigorating economic growth prospects and, in some instances, the potential for infrastructure development. And yet, despite these efforts, the infrastructure gap remains significant.

Pre-COVID-19, the estimate was of a global infrastructure investment need of US$6.3 trillion per year up to 2030 just to support critical growth and development. Following COVID-19, these numbers have increased with a US$15 trillion gap forecast for 2040 by the G20 global infrastructure hub (Global Infrastructure Outlook, n.d.). This gap also constitutes a significant opportunity for DeFi. This section discusses how key infrastructure and infrastructural services support trade and how the quality and cost of infrastructure and related services impact on trade.

Transport infrastructure is key for trade facilitation in that poor infrastructure results in higher direct transport costs and longer time of delivery. An improvement in a country's infrastructure can make a big difference to the costs of trading. Moreover, transport costs vary across regions and products. Freight costs in developing countries are on average 70% higher than in developed countries (Barnat et al., 2020).

At the industry level, freight costs are highest among industries producing goods with a low value-to-weight ratio. Notwithstanding the lower level of oil prices, structurally high non-oil transport costs will be an obstacle to trade and impede the realisation of gains from trade liberalisation. The future of infrastructure, as it relates to the outlook for trade, is subject to many of the same risks as trade finance. For example, a protracted crisis could heighten risk aversion which could divert investment away from projects that are perceived as higher risk.

70%

higher freight costs in developing countries

A sustainable recovery in trade growth will be predicated, in part, on the funding and further development of sea, land and air transport; each sector will continue to grow in its importance for trade:

Better infrastructure for sea-based trade, is associated with higher volumes of trade and the quality of ports seems to have the largest trade impact. The number of ports in proximity to each other also foster resilience during times of crisis, during natural disasters or supply chain disruptions, given evidence of port-substitution as a mitigating factor (Hamano and Vermeulen, 2020). Increasing port efficiency has a significant and positive impact on trade. Economies that rank among the bottom 25% in terms of port efficiency (such as customs clearing turnover, timing of port operations) carry a disadvantage.

- ***Key impact: Over the coming decades, sea-based trade will be influenced by sea level rises. Ports will need to respond to these indirect effects of climate change while maintaining global trade. Projected increases in maritime trade may mean that port areas may need to double or even quadruple globally by 2050 (Hanson and Nicholls, 2020).***

Land transport and public infrastructure, including transportation infrastructure, has been proven to affect trade through its effect on a country's comparative advantage. If a sector, say textiles, is more sensitive than others to the quality of infrastructure, then the provision of good infrastructure will promote a country's comparative advantage in textiles. The provision of road infrastructure consistently appears to be a significant factor in a sector's productivity growth, a country's production specialisation, and crucially, in a country's underlying export growth (Rehman et al., 2020).

- ***Key impact: Road infrastructure appears to be particularly important for productivity growth in the transportation equipment sector, and for specialising in the production of textiles and apparel. A negative correlation exists between inland transport costs and the quality of infrastructure (Raicu et al., 2020; Yii et al., 2018).***

Air transport is critical for emerging economies' trade outlook; it is typically employed for time-sensitive products such as agricultural products and intermediate inputs. The COVID-19 pandemic has meant that the aviation sector had its worst year in history, due to global travel bans. And yet, the roll-out of vaccinations will help the airline sector start to recover. A significant bright spot in the airline industry – particularly as it relates to the future of trade – has been its involvement in air cargo, which is no longer an overlooked niche. Instead, it is expected to be a continued bright spot in 2021, with new players building up positions. Full recovery will take several years, probably until 2024-2025. (Luman and Soroka, 2021).

- ***Key impact: This sector is particularly important for developing and emerging economies where air transport (in the form of airports) both drives economic and trading relationships and is driven by them (Tolcha et al., 2020). The global freighter fleet is expected to grow more than 60% to 3,260 over the next two decades (Boeing, 2020).***

Numerous governments are now so stretched by the COVID-19 health crisis that they lack capacity and resources to facilitate economic recovery. Given this, an overarching policy priority, spanning the different forms of trade infrastructure, should be to scale up blended finance (encompassing both private and the public sector stakeholders).
Blended finance is crucial for catalysing private sector capital and boosting transaction volumes for infrastructural projects (Convergence Finance, 2020; IFC, 2020).

This type of finance is also key for the long-term management of risks in resource-rich economies where rent extraction is more common.

Blended finance is also key for infrastructural projects that promote the diversification of trade flows, in order to build resilience to shocks in resource prices (Havemann et al., 2020). There is evidence to suggest that institutional investors could be a significant additional source of funds given that they represent US$220 trillion in assets under management (Convergence Finance, 2020). Greater institutional investor involvement could broaden the sectors that can channel and absorb blended finance, as well as to increase implementation at a local level.

Interview: Greg Hodkinson, Senior Advisor and former Chairman, Arup

How can fast-growing developing economies more effectively finance domestic infrastructure, over the long-term, to transform their trading relationships?

I am more optimistic about the medium-to longer-term outlook for the mobilisation of private sector investment. At the moment, it is caught up in geo-politics. There is a gap between the infrastructure that is needed now compared to the infrastructure that exists, and that is being planned. More than ever, the private sector needs to finance infrastructure given sovereign balance sheets, and the difficulties facing the public sector in locating the necessary finances to pay for infrastructure.

What is the outlook for global infrastructure projects at a time when economies are dealing with multiple risks?

There is an opportunity for a global infrastructural alliance to put political risk in a more manageable place. When it comes to infrastructure, there are a couple of risks that the private sector can take, but political risk is very difficult to manage. By definition, it must be a private-multilateral-intergovernmental issue. That's one of the keys to unlock private capital into public infrastructure – to mitigate public sector related risk. There is also sovereign counter-party risk, potentially with low-income countries, in that they may not have the balance sheet to backstop potential multi-billion-dollar investments in infrastructure. Therefore, some form of multilateral insurance can help unlock private capital. The G7 has been working on this, but more progress is required.

How is the pivot towards more sustainable forms of energy and towards green investments going to change the way trade infrastructure is built and planned?

It is mathematically impossible to get anywhere near net zero in the time limit set by countries, unless infrastructure is at the heart of it. It is therefore essential to address this right now; and it must become a central part of the discussion in the future. It is clear that we must critically evaluate the infrastructure being invested in; if we don't invest in the infrastructure that is going to support a sustainable whole-life use, then we're effectively locking in an unsustainable future, with no way of addressing the scientific need to very quickly reach net-zero.

Smart cities are an extremely useful tool because they make the provision of urban services much more efficient. But it is a value-neutral tool, as a word of warning. I think its unstoppable and here to stay – reflecting the fourth industrial revolution (including tech around smart cities). However, questions will undoubtedly be raised about it being used appropriately and properly.

To look after the interests of the citizens in the smart cities, there must be an essential set of protocols as a part of the build back better agenda. A digital divide remains with those in most need of tech, who are still on the wrong side of this divide. This is an important issue that must be addressed in poorer and rapidly urbanising countries that have less chance of gaining access to digital resources, despite the urgent need for it.

How can the private sector/public sector look to finance infrastructure projects that finance diversified forms of trade?

There is a need to avoid short-term investment and ensure that strategic planning is undertaken to secure long-term investment, so that infrastructure can support key environmental outcomes.

The Chinese are successful – exemplified by BRI – because they have an engineering outlook in their 5-year plan. Quite frankly, we need to be doing that when it comes to infrastructure because, by definition, it's a system, so you need to have a plan, which cannot simply be pet projects of country leaders. Otherwise, the outcomes are disastrous.

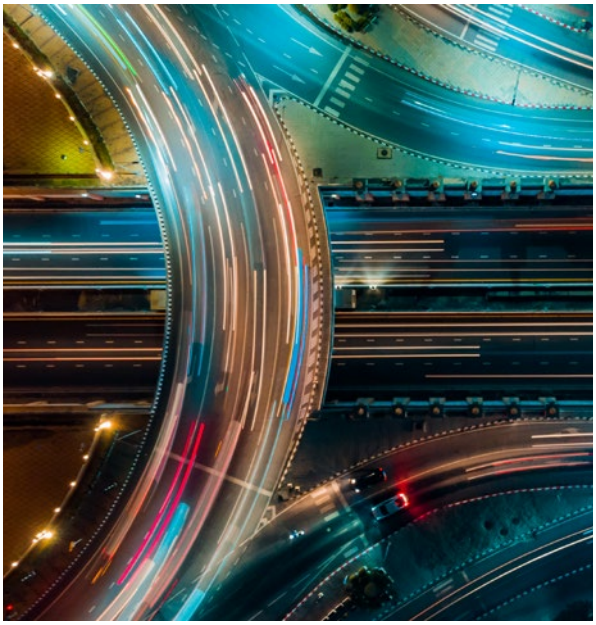
The demand for change is huge and we have the skillsets, it's a question of discipline and setting off in the right direction. Public procurers are under enormous pressure to buy the cheapest; and often under public procurement law to do so. The reason it appears cheaper is because we don't address the whole life cycle cost, alongside externality costs – which for many things, including civil infrastructure, is enormous.

China's launch of BRI has the potential to spur the western world into getting into the game too. Political risk and counter-party risk must be addressed to do so. Then private capital will be more willing to invest because infrastructure can provide relatively steady long-term returns; a very attractive prospect for companies with long-tail obligations.

SECTION THREE

THE OUTLOOK: FINANCING AND INFRASTRUCTURE REMAIN KEY FOR TRADE GROWTH

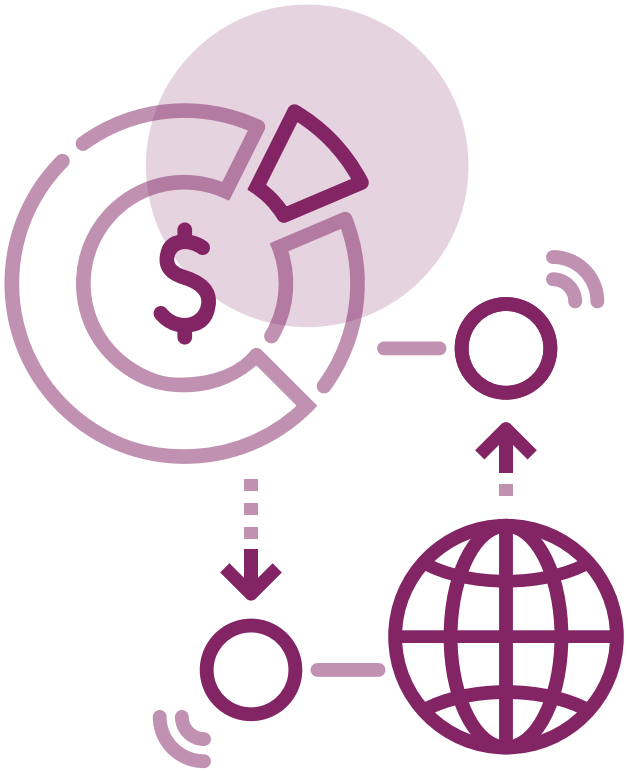
Sustained trade growth is predicated on adequate and multiple forms of financing that is resilient to financial shocks, as well as on key infrastructure to facilitate trade flows. Financing mechanisms need to be in place in order to meet SME demand for short-term finance during times of crisis and financial market volatility. Strengthening markets to meet short-term liquidity demands, as well as structured financing solutions for medium- and long-term projects is key; in this respect, fostering a diverse market of export credit agencies is essential.



The future of infrastructure, as it relates to the outlook for trade, is subject to many of the same risks as trade finance. For example, a protracted crisis could heighten risk aversion which could divert investment away from projects that are perceived as higher risk. Given this, scaling up blended finance – which catalyses private sector capital and uses multinational development banks to underwrite risk – is key.

KEY TAKEAWAYS

- The need for trade finance is significant and growing.
- Transport infrastructure is key for trade.
- Pre-COVID-19, the global infrastructure gap was high and rising, and has been pushed higher by the economic shock of the pandemic.
- The key overarching policy priority should be scaling blended finance to catalyse both private and public sector stakeholders.



RECOMMENDATIONS

FOR GOVERNMENTS

1. Governments urgently need to engage with the private sector to promote wider usage and availability of blended finance facilities to close the trade finance and infrastructure gaps.
2. Information sharing and standardisation of risk metrics, in coordination with the private sector, is key to unlocking trade finance and trade infrastructure.
3. Governments need to boost mechanisms to support access to short-term finance during financial and economic shocks.
4. Governments should support the expansion of export credit agencies to promote trade finance options.

FOR BUSINESSES

1. The corporate and financial sectors need to collaborate with the public sector and actively pursue investments in infrastructure and trade finance.
2. The business sector needs to build more ties with institutions that underwrite and insure against risks, so that further investment can be unlocked.
3. Digital technologies need to be leveraged in order to find efficient ways to fill the trade financing and trade infrastructure gaps.
4. Research and development should be elevated and targeted to developing new trade finance applications in tandem with digital technologies.

CONCLUSION

The outlook for trade remains resilient, notwithstanding the multitude of downside risks and challenges in the years ahead. The economic impact of the COVID-19 pandemic has meant that there has been long-term structural damage, or scarring, to the more vulnerable stakeholders and sectors in the global economy. Consequently, trade in goods and services is likely to be slow to recover to pre-pandemic levels.

Continued policy support, pent-up demand by households and business in the retail and manufacturing sectors are likely to support the outlook for trade. And yet, regional disparities in health, social and economic outcomes, are likely to impede the global economic recovery in cross-border trade and investments.

International policy coordination in relation to boosting trade for the more vulnerable economies remains critical to address in forums such as the upcoming G7 Summit in June. Developing and emerging economies may take longer to recover fully owing to the comparatively lower level of government resources available to support domestic economic recoveries (via wage subsidies and subsidised loans to SMEs). On balance, the politics of trade encompasses a range of risks, including tensions in the US-China trade relationship

and indications of a 'new age of protectionism.' Although protectionism is likely to be kept at bay – largely due to its costs of implementation – economic nationalism is likely to take centre stage when it comes to the setting of trade policies. The new leadership of the WTO will be instrumental in managing increased regionalism in trade, its essential partnership with the WHO and the game-changing trend of trade digitalisation.

Alongside these challenges, a sustainable future for trade needs to be predicated on leveraging key technologies, such as blockchain and DLT, and automation. Of equal importance to the increasing usage of technology will be how policy, innovative finance and private and public sector stakeholders coordinate to tackle the trade finance and trade infrastructure gaps that continue to widen following the COVID-19 pandemic.

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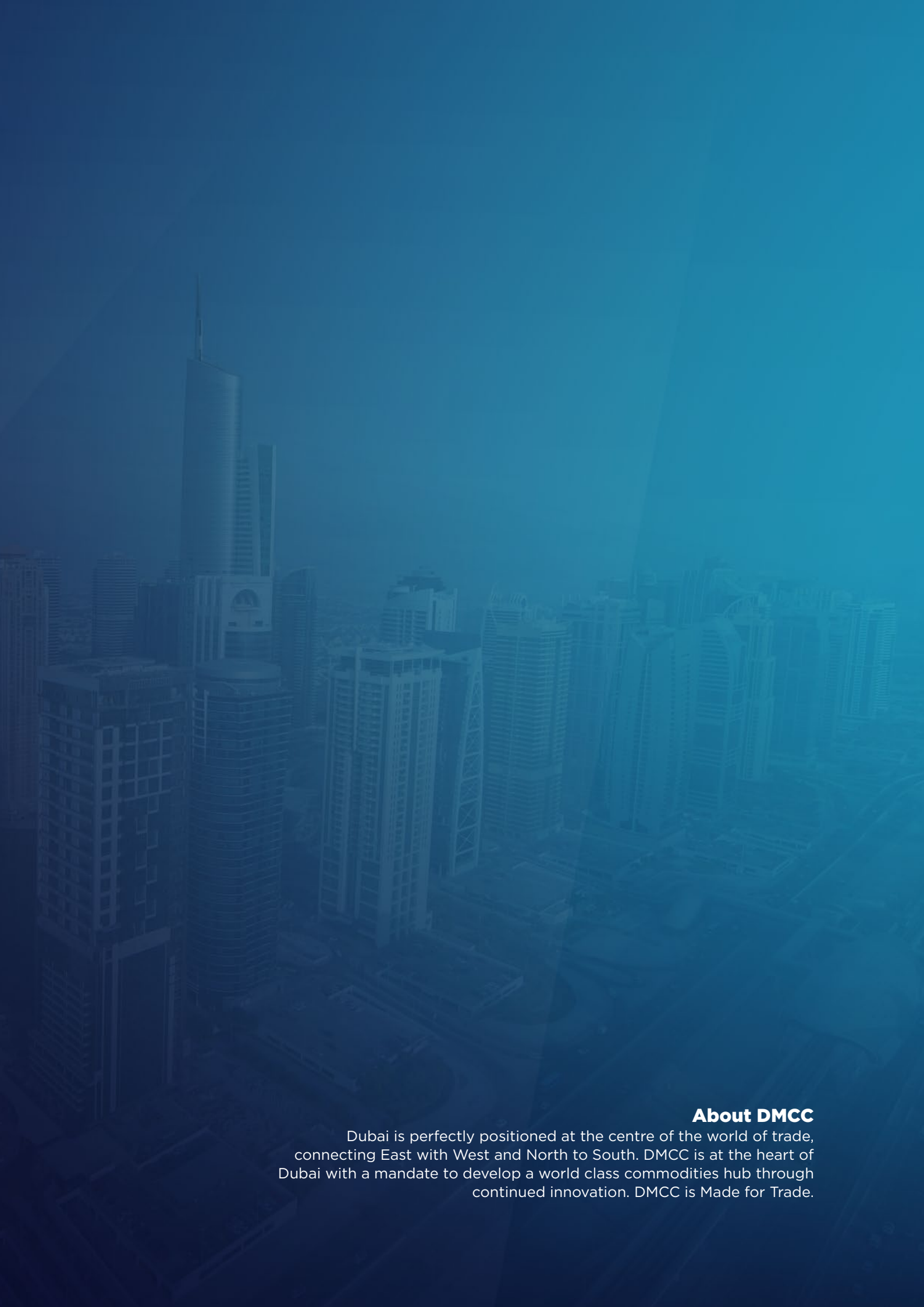

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Dubai is perfectly positioned at the centre of the world of trade, connecting East with West and North to South. DMCC is at the heart of Dubai with a mandate to develop a world class commodities hub through continued innovation. DMCC is Made for Trade.

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