DMCC

THE FUTURE OF TRADE

2024

DECOUPLED AND RECONFIGURED


DMCC

INTRODUCTION

Navigating New Challenges and Opportunities

The Future of Trade 2024 is the fifth edition of DMCC's biennial flagship report. In a time of profound change, we delve into the power dynamics shaping the global trade landscape.

New political and economic alliances are forming. Rising geopolitical tensions and conflicts are shifting trade networks and accelerating regionalisation. The United States and China are embroiled in a "chip war" as each fights for supremacy in the semi-conductor industry. Meanwhile generational changes – namely the dawn of AI and drive for carbon net zero – are redefining the global trade landscape as the biggest redeployment of capital in history is deployed and business operations are transformed.

This report examines the key themes impacting the future of trade, including geopolitics, sustainability, technology, and finance, and how these forces will reshape trade dynamics. We reflect on predictions made in our previous report, written as global commodities rebounded from their COVID-19 stasis, and examine how trade has evolved from a global crisis that continues to influence government policy and consumer behaviour.

The last few years have shown how a succession of crises can disrupt the global economy. Against a backdrop of wars in Europe and the Middle East, macroeconomic challenges such as slowing growth and inflation, and ongoing trade tensions between the United States and China, the present situation paints a complicated picture for global trade. This year promises further change. Just under half of the world's population will go to the polls in some 80 elections that could shift domestic and foreign policies, driving economic nationalism and trade protectionism. The EU has entered the transitional phase of its carbon border mechanism, amid a global patchwork of multilateral and national green policies with varying levels of ambition, a development which could re-route trade and exacerbate

Introduction

regionalisation between carbon-intensive and greener producers. In a further paradigm shift, more businesses are incorporating AI and related technologies into their operations to increase efficiencies and inclusiveness of trade. However, they are making this transition in the absence of clarity on both regulation and data harmonisation.

This landscape provides fertile territory for new trade barriers. In the push for economic growth, businesses will need to remain vigilant to the consequences of policy decisions, market forces and trends that can disrupt production, operations, and supply chains.

However, there is also a rich vein of opportunities for global trade. The shift to regionalisation and bloc-based trade will carve out new relationships and corridors. A rise in friendshoring and decoupling from China will diversify supply chains and boost production in emerging markets. There are signs that global inflation and interest rates may contract, fuelling business confidence and buying power for consumers.

Meanwhile, the twin forces of technology and sustainability present the biggest opportunities for trade resilience. These will drive a rapid and, at times, interlinked growth in digital services trade and production of technology and environmental goods, leading to demand for key commodities and the rise of new trade hubs and facilitators. Many of these developments will be underpinned by the widespread adoption of artificial intelligence.

We stand at the cusp of a profound transformation, where multiple factors have the potential to reshape the global trade landscape. Businesses and policymakers alike must be equipped with the latest intelligence to understand the dynamics at play, and the tools to draw on to safeguard operations, trade, and economic performance.

With insights taken from nine global roundtables with over 150 industry experts, the Future of Trade 2024 explores the dynamic evolution of international trade and offers predictions of the likely trends for the next two years and beyond.

TABLE OF CONTENTS

Table of contents

EXECUTIVE SUMMARY

As the world gears up for a period of profound change, new opportunities emerge for businesses and governments that promise to reshape trade for decades. While this era brings unpredictability, there are major gains to be made. Agility is key for businesses to thrive; those who invest and understand the shifting market dynamics will be best placed to reap the potential on offer.

The next few years herald trade growth, albeit gradual, driven by new digital advances, the rapid and widespread adoption of AI, and services trade. In the global quest for sustainability, a competitive field is emerging in the supply of green products, a case in point being energy where the Gulf region is turbocharging investments in renewable and clean forms of energy like hydrogen. As a result, Asia and the Middle East are set to lead the world in trade expansion as alliances form and supply chains adapt to multifaceted pressures.

We expect three transformative forces to shape global trade in the next few years:

- An accelerated shift to regionalisation
- Widespread supply chain restructuring
- A surge in digital services trade and AI adoption

Regionalisation will be driven by new alliances forged from the pressures of geopolitics, climate and technology.

As outlined in our Future of Trade 2022 report, this new era of multilateralism will see the emergence of new trade blocs and corridors. It is a marked departure from the drive to globalisation of the last two decades as corporations prioritise resilience over cost savings and efficiencies.

This trend will be heavily influenced by political events, namely the U.S. elections, which could trigger a new wave of protectionist tariffs on sensitive goods. Over the next few years, there will be an increase in friendshoring – the movement of operations to allies, aided by regional multilateral agreements - which will strengthen inter-regional trading hubs in Asia and North America. Fast-growing emerging markets that are pursuing non-aligned strategies will benefit from increased trade in the multipolar landscape.

Supply chain restructuring will be front of mind for companies looking to de-risk their logistics networks by moving production out of areas affected by conflict, protectionism, and climate change. This may entail longer shipping routes and elevated costs but prioritises resilience.

Compounding this trend is climate change. Driven by shifting consumer consciousness and extreme weather events impacting trade and production costs, governments and companies are increasingly embracing net-zero commitments. Trade is emerging as a key enabler in the pursuit of renewable energy sources and sustainable technologies. Carbon-pricing regimes are evolving across different jurisdictions and will force companies to internalise the carbon cost of production, which will create new trade opportunities for more sustainable suppliers and drive forward a greener trade landscape.

AI is set to revolutionise trade. This will herald a paradigm shift in the operating environment, as businesses embrace the ability to optimise supply chains, enhance efficiency and reduce costs through predictive analytics, drive data-driven market insights to capture new business opportunities, and use AI-powered trade finance solutions to streamline transactions.

From our survey of trade leaders and policymakers, AI is held up as the technology with the most transformative power, influencing what is traded, how, and at what cost. Whilst the potential is vast, concerns remain in shaping appropriate regulation amid diverging rules on data flows and harmonisation. Nonetheless, the advent of AI heralds a new era of digitally driven trade, fuelled by advancements in blockchain, big data, and additive manufacturing across sectors.

Beyond AI, semiconductors are poised to be the frontline in the drive for technological supremacy. Beyond their indispensable role in electronics, semiconductors are also integral to the green transition, as essential components in solar panel cells and electric vehicles. The emerging 'chip war' between China and the United States will compound trade tensions and further regionalisation as both powers ramp up production and shield their industries.

Technology will also be key to addressing wider macroeconomic challenges. Our previous Future of Trade 2022 report highlighted soaring inflation as a key factor to subdued consumer demand and heightened trade costs. Against a modest global growth forecast for the year ahead[1], persistently high global inflation and interest rates, this report finds demand will remain weak for the foreseeable future, particularly in China and Europe, that will constrain business access to finance.

There is a risk that the trade finance gap, now at a record of $2.5 trillion, may widen despite increased adoption of solutions like fintech and blended finance. The expected persistence of macroeconomic challenges will contribute to cautious lending practices which will be most detrimental to small businesses in emerging economies.

Nevertheless, technologies such as AI and blockchain have huge potential to improve transaction efficiency and access to credit. These can provide manufacturers and exporters with vital new options to boost production and trade flows. What is key is the extent to which governments can harness the potential of these technologies and provide regulatory frameworks that give flexibility, rather than stifle, business innovation and their knock-on effects on trade.

The landscape is filled with uncertainty and risk. But there are opportunities for businesses and governments to drive trade resilience and growth. It is essential for businesses to remain vigilant against regulatory considerations, macroeconomics and trade trends. AI and other technology should be strategically integrated into business operations to capitalise on its transformative potential. Diversification and risk management strategies should be adopted to mitigate against geopolitical developments, including U.S.-China trade tensions, and the growing sensitivity of semiconductors, commodities and minerals integral to technology and the green transition. A strategic focus on emerging markets with high growth potential should also be considered for supply chain reconfiguration, allowing for the development of exciting new consumer markets and production hubs.

For governments, the central focus must remain the provision of appropriate and flexible regulatory frameworks for technology that balance innovation, consumer protection, and trade facilitation. Continued trade liberalisation for services, and digital services in particular, should be energetically articulated and pursued. Meanwhile, efforts should be made to standardise national and regional carbon policies to avoid further fragmentation of the climate policy landscape. Barriers to trade in environmental goods and technology should be removed to encourage trade and progress in global climate goals.

The main findings of the Future of Trade report are:

- Trade will grow – albeit slowly. All regions will experience export growth over the next two years, with North America, Asia and Africa leading the way.
- Regionalisation will accelerate, marked by friendshoring strategies and trade hubs centred around Asia and North America.
- Geopolitical tensions and conflicts will heavily shape supply chain restructuring strategies, leading to a rerouting of trade and potential inflationary pressure.
- The widespread adoption of AI will drive greater trade efficiencies.
- Digital services will surge, driven by the dawn of generative AI.
- The battle for supremacy in semiconductors will become more prominent amid the U.S. and China chip war, with knock-on effects across industries and the green transition.
- Carbon pricing and trading systems will significantly change the nature of trade, favouring lower carbon-intensive producers and sustainable products.
- The trade finance gap is likely to remain high or even widen.
- Risks to trade growth include high inflation, elevated interest and the slowdown of the Chinese and European economies.
- Supply chain reconfiguration will allow for the development of new consumer markets and production hubs.

[1] WTO, 2024

CHAPTER I

THE FUTURE OF TRADE

SECTION ONE

THE OUTLOOK FOR GLOBAL TRADE

Global trade is expected to grow in 2024 albeit slowly. Despite a 1.2% contraction in merchandise trade volume in 2023, the WTO predicts a modest rebound with growth of 2.6% in 2024 and 3.3% in 2025[2] – mirroring similar projections for global GDP.

However, this forecast faces a number of pressures not least the economic headwinds tied to the Chinese and European slowdowns, high inflation, and geopolitical tensions. Risks abound, including sea shipment disruptions linked to regional conflicts and rising protectionism. Trade will need to demonstrate its resilience to sustain the wider global economic recovery.

FIGURE 1

Merchandise trade volume and GDP growth, 2019-2025[3]

Source: WTO, 2024

[2] WTO, 2023b

[3] "P" denotes predictions.

CHAPTER I: The Future of Trade

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A number of forces will support the global trade landscape in 2024 and beyond. E-commerce and digital services, having surged during COVID-19, will continue to grow. The advances in technology of the past few years will undergo their most transformative shift yet with the advent of AI, significantly redefining the trade landscape. The global energy transition will support increased trade in renewables, clean energy, and green tech. Meanwhile shifting geopolitical and macroeconomic events will lead to trade divergence, volatile commodity prices, new regional partnerships and trade corridors – especially for emerging economies that can offer alternative sources of production to China.

Sustained surge in e-commerce and digital services

The use and popularity of e-commerce platforms, accelerated under COVID-19, has surged in the past two years. This is expected to remain the case, with the proliferation of young consumer markets, increased internet uptake worldwide, and an improved user experience in online marketplaces. The B2B e-commerce market alone is expected to grow at an average rate of 14.5 per cent through 2026[4,5] driven by major Chinese retailers such as Alibaba, JD.com and Pinduoduo.[6] In a bid to meet demand, platforms have rushed to improve the online shopping experience by making digital payment systems more efficient, providing better product recommendations and enhancing customer support. In the coming years, the presence of young consumer markets in developing countries, particularly in Asia Pacific and Latin America, is set to bolster market growth further.[7] Meanwhile, services continue to outstrip goods in terms of growth. In 2023 global services trade registered 9 per cent growth. Digitally delivered services have done particularly well in recent years, largely due to the ease and speed of their delivery which have provided increased reliability amid a pattern of global shocks.

Widespread AI adoption will drive efficiencies

The impact of AI on global trade will be profound and multifaceted. From supply chain management and logistics to market analysis and customer engagement, there is a vast wealth of potential to transform how trade is currently conducted. With AI-powered predictive analytics, businesses can optimise inventory management, reduce costs, and enhance efficiency by anticipating demand fluctuations and streamlining production processes. Meanwhile, AI-driven automation is transforming trade finance and documentation processes, expediting transactions and reducing administrative burdens. As AI continues to advance, its integration into global trade ecosystems promises to drive innovation, unlock new efficiencies, and reshape the competitive landscape for businesses worldwide. Companies that are willing to invest and understand the enormous potential of AI – as well as other technologies in the realm of Web3 – stand best placed to reap the benefits within the next five years. Those unwilling to invest leave themselves at risk of being left behind to their competitors.

[4] Average measured as a Compound Annual Growth Rate (CAGR).
[5] ITA, 2024
[6] ITA, 2024
[7] Digital Journal, 2022

The B2B e-commerce market alone is expected to grow at an average rate of 14.5% through 2026 driven by major Chinese retailers such as Alibaba, JD.com and Pinduoduo.

Sustainability to bestow competitive trade advantages

Amid the global sustainability drive, the link to trade and innovation gets stronger. Clear challenges are emerging as well as distinct competitive advantages at the regional level. One example is the energy transition where the Middle East has positioned itself advantageously with strong upstream oil and gas as well as major investments in installed capacity for renewable and clean forms of energy – in particular hydrogen. Meanwhile, global demand for environmentally sound technologies (ESTs) such as electric vehicles and solar panels continues to soar, as more and more countries wake up to the economic advantages of the green transition, something that will become clearer as regional policies such as the EU's Carbon Border Adjustment Mechanism (CBAM) comes into effect and prices less clean producers out of the consumer market. Meanwhile, the race for semiconductor supremacy will have a knock-on effect on the development of green products such as solar panels, with rising tensions between China and the United States opening an interesting battleground in the green transition.

Commodities markets remain highly exposed

As the last two years have shown, commodity and energy prices remain highly exposed to market forces. Russia's invasion of Ukraine saw notable price hikes for a number of commodities, in particular

oil and natural gas, nickel, aluminium, fertilizers, wheat and corn. Whilst the world appears removed from a long-term commodity 'supercycle', commodity prices are nonetheless expected to remain high in the near to mid-term, largely because of the sustainability transition as well as geopolitics and conflicts that are causing supply shortages, driving costs up from rerouted cargo, and compounding global inflation and interest. Amidst these challenges and opportunities, strategic adaptation and robust risk management will be essential for stakeholders navigating the complexities of commodities trade in the years ahead.

Geopolitical and macroeconomic factors

Geopolitics will remain one of the biggest factors influencing the global trade landscape in 2024. Conflicts in Europe and the Middle East will sustain commodity prices, and divert and disrupt trade flows. Given the proxy nature of these conflicts, there is a high risk of spillover to other regions, including the potential to bring the United States and China into more direct confrontation. Such a situation would send shockwaves through markets and lead to further instability, driving up inflation and keeping interest rates high.

Despite the turmoil, there are opportunities for trade. Emerging markets like Mexico, Vietnam and India are positioning themselves as alternative sources of production to China, in particular for manufacturing goods, and seeing companies shift supply chain segments to their markets. In the Middle East, countries like the UAE and Saudi Arabia are capitalising on their status as a relatively neutral political arbiter and their central geographical position as well as a trade facilitator between East and West and the Global South. Amid the push to greater regionalisation, a deepening of intra-regional trade corridors is happening, namely through bilateral and multilateral trade agreements, a lowering of tariffs and the elimination of trade barriers between the Middle East and Asian markets, which is yielding considerable results.

Green, digital and resilient: Trade in 2024

In 2023, the Middle East and Europe were the only regions in the world to experience negative export growth as they were deeply impacted by regional conflicts and the consequent rise in commodity prices which subdued consumer demand. Nevertheless, all regions in the world are forecast to see positive export growth in the next two years, with Africa seeing the highest growth at 5.3 per cent, North America second at 3.7 per cent, and Asia third at 3.4 per cent. Sustaining this will be key for the global economy to mitigate shocks and remain resilient amid unfolding crises.

FIGURE 2

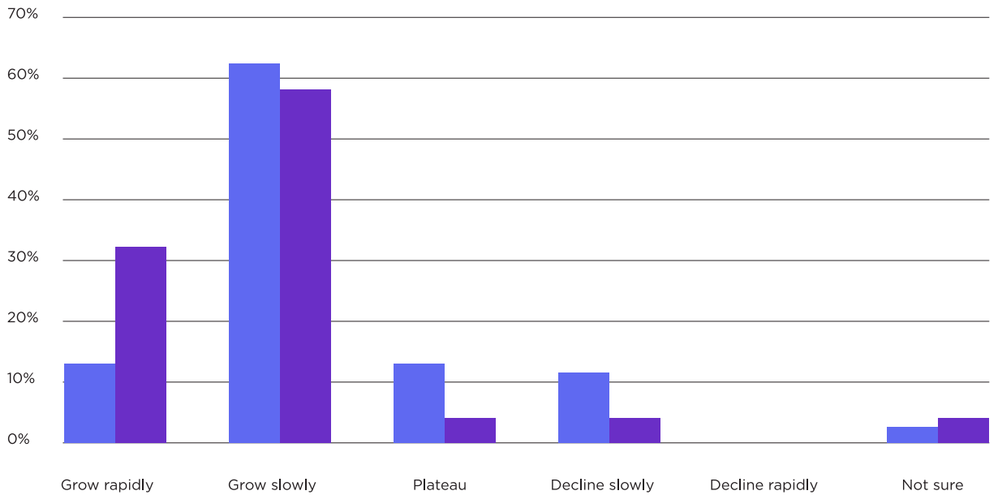
Regional merchandise export volume growth, 2020-2025

Source: WTO, 2024

Goods continue to make up the bulk of global trade volumes – at 75 per cent of the total $31 trillion – but services are catching up fast. In 2023, services trade grew by 9 per cent compared to 6 per cent for goods, a sign of the shifting importance of services in the global economy. This is something agreed on by trade experts. In our Future of Trade survey, we asked more than 100 industry leaders about their trade outlook for goods and services, with a sizeable majority believing services would grow more rapidly compared to goods, while most thought that both goods and services would grow slowly. Few foresaw a plateau or decline for services trade.

FIGURE 3

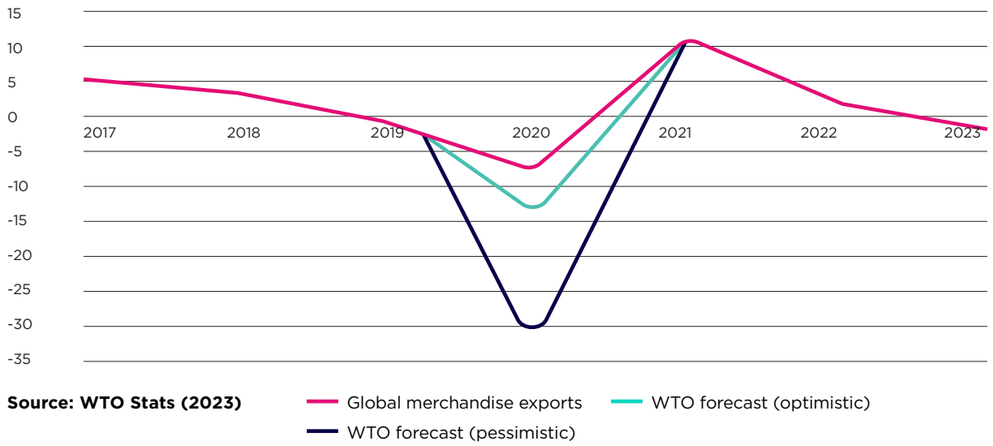
Over the next two years, do you expect global trade of goods and services to:



Source: DMCC Future of Trade survey, 2024

FIGURE 4

Global merchandise export volume change - annual (% change over previous year)[8]

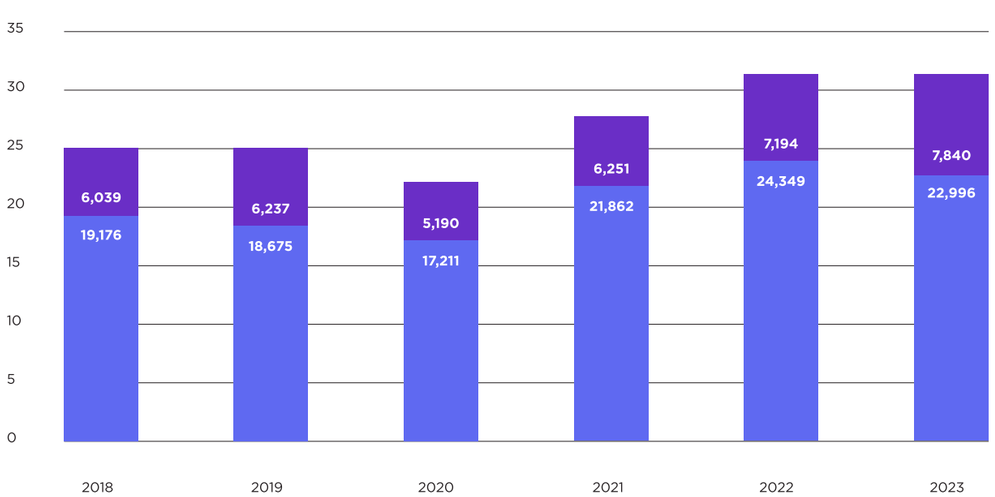


Source: WTO Stats (2023)

[8] The 2020 forecasts are based on the WTO 2020 publication (WTO, 2020a). That publication stated that a 2021 recovery in trade is expected but did not include forecasts. The 2021 forecasts are based on a publication that year, predicting that world merchandise trade volume would increase by 8.0 per cent in 2021 (WTO, 2021).

FIGURE 5

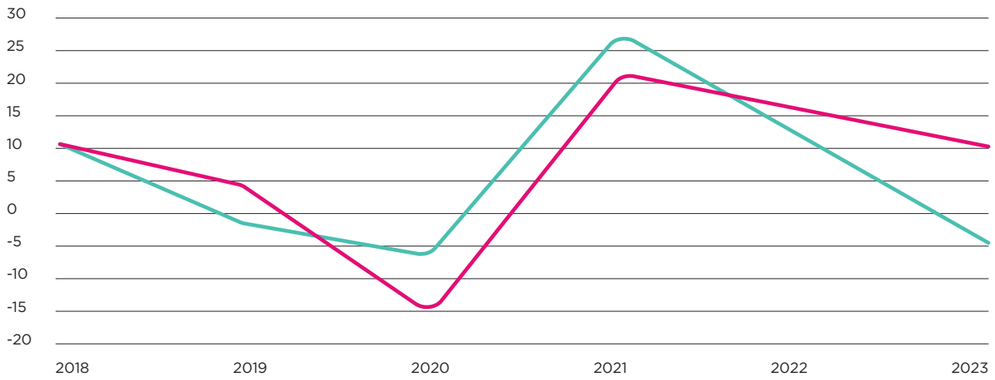
World trade in goods and services, 2018-2023 ($ trillions)



Source: WTO (2024)

FIGURE 6

World trade in goods and services, 2018-2023 (annual % change)



Source: WTO (2024)

Digital services are a thriving segment of global services trade. Their inherent reliability, efficiency and flexibility underpinned rapid advances during COVID-19 and digitally delivered services continue to grow amid global crises and uncertainty.

This is particularly the case for regions like the Middle East which benefit from high internet penetration, a young population and enhanced digital shopping infrastructure including online marketplaces for traditional shopping malls. In 2020, the share of users in the UAE who shopped online more than doubled, from 27 per cent to 63 per cent. In Bahrain, the share tripled to 45 per cent.

Exports of digital services – which are a blend of computer, consulting, legal, financial, management, research and development services – grew on average over 8 per cent per year in the years up to 2022 (far outpacing goods at 5.6 per cent, and other services at 4.2 per cent), and reaching a global value of $3.82 trillion.[9]

At a regional level, North America and Europe remain the biggest exporters of digital services. However, Asia and the Middle East have seen their exports shoot up since 2019, with growth rates outstripping the global average.[10] For Asia, this has been boosted by its booming e-commerce platforms and its growing expertise and supply of computer and information services.

Demand for digital services will likely remain strong in the coming years amid wider economic uncertainty and the rapid rise of downloadable and streamed products such as software, music and e-books, online newspapers, gambling and gaming. As a case in point, Netflix, the world's largest video-streaming service, has seen revenues increase ten-fold to reach a value of $33.7 billion in 2023. Over 300 million Netflix subscribers are expected by 2028[11]. From booking travel and hotels to finding employment, the exponential rise in demand for digital services will contribute to increased globalisation in this space. Many services that traditionally required proximity between producers and consumers can now be provided remotely, due to technology advances, falling prices for voice and data communications and the computerisation of tasks.[12]

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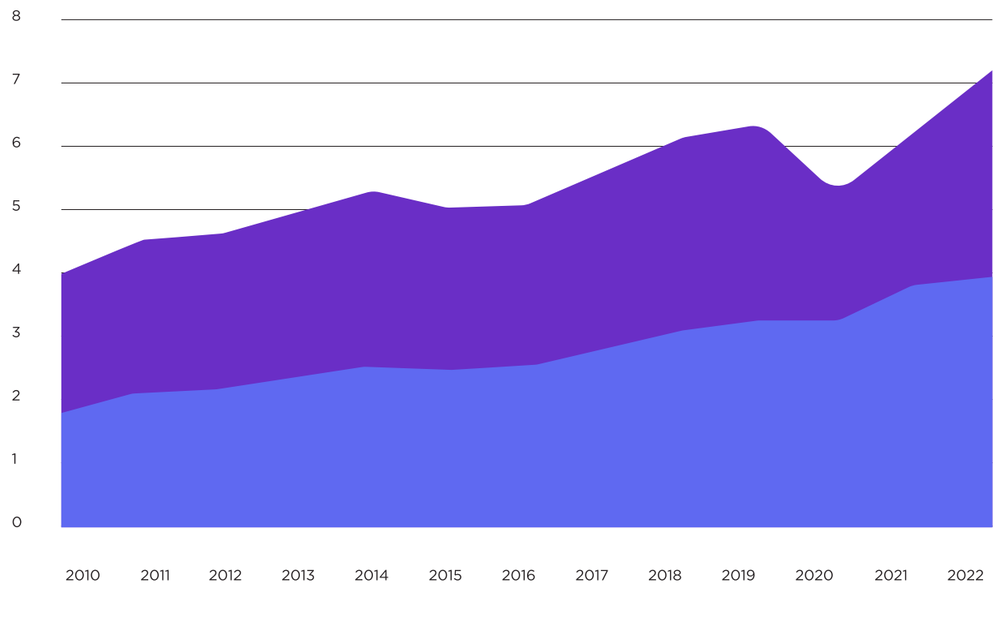
[9] WTO, 2023d
[10] WTO, 2023d; WTO, 2023e
[11] Iqbal, 2024; Kelly, 2024
[12] WTO, 2023f

CHAPTER I: The Future of Trade

FIGURE 7

Global exports of services 2010-2022 ($ trillion)



Source: UNCTAD Stats (2023)

Meanwhile, the green transition presents clear challenges to global trade, but also a major opportunity. Amid growing carbon consciousness worldwide, companies and governments are increasingly committing to net zero and there has been reciprocal growth in production and trade of environmentally sound technologies (ESTs). Over 140 goods are now classified as EST, and a new race for supremacy in this area could already be underway as China ramps up production on electric vehicles and is embroiled in rising tensions with the United States on semiconductors. Meanwhile, the Gulf region is carving out a clear competitive advantage within the global energy transition, as its abundant, low-cost and low-carbon resources continue to drive major investment to the region. The Middle East has taken centre stage when it comes to global capital allocations and project developments for traditional and renewable forms of energy – a case in point being the development of several major hydrogen production hubs in the UAE. As a major importer and re-exporter of ESTs, the UAE and wider Middle East will play a significant role in the energy transition as well as green trade growth in the coming years.

SECTION TWO

TRANSFORMATIVE FORCES OF TRADE

The last few years have demonstrated how quickly unforeseen crises can distort trade.

Structural changes in the world economy and society are deeply interlocked with trade. Technological advances, shifts in manufacturing centres, evolving consumer preferences, demographic trends and geopolitics all play a powerful role. Whilst the future of trade is multifaceted, clear forces stand to transform the trade landscape in years to come. This section covers three of these shifts: increased regionalisation, supply chain restructuring, and the transformative potential of AI.

CHAPTER I: The Future of Trade

First transformative force: **Increasing regionalisation as a response to geopolitics**

Macroeconomic risks and geopolitics will be the strongest driver of regionalisation in the coming years. The COVID-19 pandemic all but arrested the decades-old trend to globalisation, as global lockdowns and transport delays exposed complex supply chains, a lack of alternative suppliers, and the collapse of just-in-time delivery networks.

Sluggish economies in China and Europe have subdued global trade growth. Open conflicts in Europe and the Middle East have disrupted trade, rerouting ships from the Red Sea and adding costs to consumers. Meanwhile, geopolitical factors such as the rise of BRICS11 and trade tensions between the United States and China over semiconductors could further fragment the world into West-East and North-South trade blocs, leading to the rise of multi-polar and regional trade hubs in Asia and North America.

Meanwhile, bilateral and multilateral trade agreements such as the Comprehensive and Progressive Agreement for Trans-Pacific Partnership (CPTPP), Regional Comprehensive Economic Partnership (RCEP) and African Continental Free Trade Area (AfCFTA) will deepen inter-regional trade corridors. These play a crucial role in promoting regionalisation by reducing trade barriers, harmonising regulations, improving infrastructure and connectivity, fostering economic cooperation, strengthening institutional frameworks, and enhancing cultural and social ties within the region.

Second transformative force: **Supply chain reconfiguration as a consequence of regionalisation**

Regionalisation is spurring companies to favour reliability and security over cost savings in their supply chains. Shocks like COVID-19 and Russia's invasion of Ukraine have triggered major supply chain disruptions and price hikes in oil, gas, fertilizers and food. Companies have been forced to look elsewhere to source these goods. Meanwhile tensions remain high between the United States and China, an ongoing effect of the 2016 Trump presidency's punitive cycle of tariffs on Chinese goods that have reduced trade of Chinese exports on electronics and manufactured goods.

Further rerouting of trade away from China is likely as the United States probes Chinese semiconductors and the EU finalises a review into Beijing's subsidies for electric vehicles. Countries like Vietnam and Mexico that can produce similar products while remaining distant from these tensions are likely to see increased trade as a result. Potential escalation of these tensions, as well as the evolving crisis in the Middle East, will lead governments to reassess trade in line with diplomatic objectives, potentially re-routing trade further. Attacks of freight ships in the Red Sea have already resulted in the re-routing of shipping around the Cape of Good Hope resulting in freight fees between Asia and Europe increasing by 173 per cent (see Chapter 2 section 2.2.).

Against this fraught landscape, companies should proactively stress test their supply chains for security and resilience. Producers or sectors that rely on single-source materials are most exposed to volatility and supply chain disruptions and should consider active contingency planning for scenarios of protracted conflict.

Third transformative force: **A surge in digital trade and widespread AI adoption**

Over the past decade technological innovations such as automation, robotics and digitalisation have already revolutionised production processes and supply chain management, leading to changes in trade patterns. Advances in e-commerce and digital trade have facilitated the growth of cross-border online retailing, which remain highly resilient to external shocks, leading to an expansion of trade in services and digital goods.

The growth in trade in services is likely to accelerate in the next decade, driven by a rise in home-working and growing global demand for e-commerce via smartphones. Services that were once traditionally supplied in-person can now be traded over longer distances, contributing to increased globalisation in this space.

The most seismic development is the dawn of artificial intelligence, overtaking blockchain as the most disruptive technology for businesses. There is a sense of a paradigm shift for how business operations, and global trade, are conducted. AI opens up a vast realm of possibilities including enhancing supply-side efficiencies, automating decision-making, powering trade finance solutions, streamlining transactions, and improving buyer side personalisation and customer experiences.

What is less clear is the regulatory framework that will accompany the adoption of AI, and the extent to which global regulators can provide a safe operating environment without stifling innovation. Until then companies looking to harness the full potential of AI should dedicate resources to understanding the technology and its capabilities, as this will grant them the ability to take use cases to market with greater ease and speed.

SECTION THREE

COMMODITY DEVELOPMENTS AND DMCC COMMODITY TRADE INDEX 2024

Despite the rapid advances of services trade, trade in goods still makes up the lion's share of all global trade at roughly three quarters of the total.

The post-pandemic years have been marked by volatile prices in commodity markets, as an initial surge in demand preceded supply chain disruptions, global inflation and high costs. This pattern seems set to continue in the near term as wars in Europe and the Middle East threaten trade routes and commodities output. In this landscape, some regions are more exposed than others, with Europe and China braced for an extended period of economic downturn. However, as the Ukraine crisis revealed, shocks are never uniquely contained and have knock-on effects for commodity prices and supply around the world.

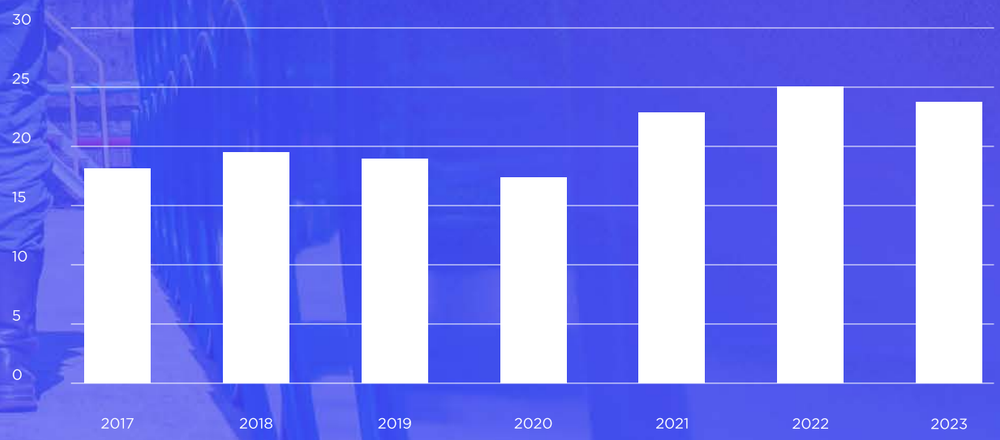
The current trade outlook is premised on the following factors:

Ongoing commodity price volatility

Commodity prices have fluctuated significantly in the past two years, impacting the value of global trade. The value of world merchandise trade grew 12.4 per cent in 2022 and then fell by 5 per cent in 2023.[13] The initial upsurge resulted from high global prices for commodities such as oil and gas following the onset of the Russia-Ukraine war. While prices have fallen from their peak, they remain above pre-pandemic levels.

FIGURE 8

Total global merchandise trade 2017-2023 ($ trillions)



Source: WTO Stats (2023)

[13] WTO 2024

Higher commodity price rises are a boon to mineral and agricultural exporters in developing countries. Despite a slight easing since mid-2022, most commodity prices remain elevated compared to pre-pandemic levels.[14] Fuels and mining products, in particular, surged by an average of 19 per cent annually from 2019 to 2022, surpassing $5 trillion in value in 2022.[15] These dynamics have led to varied impacts on trade balances, with mineral and agricultural-rich countries experiencing boosts, such as Brazil's export surge driving growth, while others, like Indonesia, witnessed rapid growth in key commodities like nickel.[16]

Conflicts and tensions to drive high energy and commodities prices

Oil and gas typically go through multiyear cycles of peaks and troughs, but Russia's invasion of Ukraine has exacerbated these fluctuations. As shown in Figure 9, the prices of many commodities shot up in the aftermath, when supplies were reduced by fallout from the conflict as well as sanctions on Russia. Since then, the escalating crisis in the Middle East and attacks in the Red Sea have impacted approximately 10 per cent of global seaborne trade, which includes key commodities such as grain, oil and liquefied natural gas.[17] Maritime shipping routes have been diverted to the Cape of Good Hope, after which oil prices hit $80 a barrel, raising concerns that the crisis could feed into more volatile commodity prices and inflation.[18]

While oil prices are often volatile, the Russia-Ukraine conflict dramatically magnified market effects by altering supply and demand. Oil prices surged by some 25 per cent between June and September 2022, before falling back to trade around 11 per cent higher.[19] This is partly due to international sanctions placed on Russian oil, a strong U.S. dollar making imported crude more expensive, and supply cuts by OPEC members. The conflict also triggered volatility in food prices since Russia and Ukraine are both major fertilizer and wheat producers. There is a shift towards regionalised commodity trade as nations balance import needs with diplomatic priorities.

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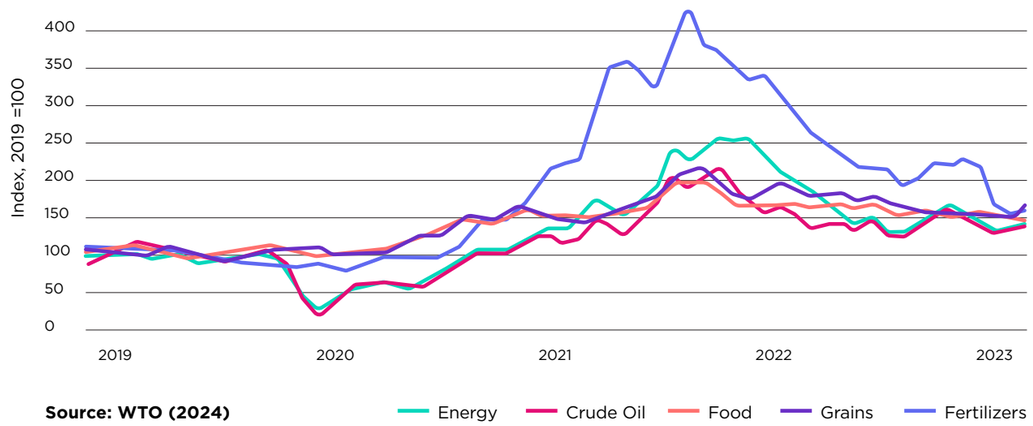
[14] UNCTAD, 2023
[15] WTO, 2023d
[16] UNCTAD, 2023
[17] The Economist, 2023
[18] Partington, 2024
[19] WTO, 2023c

FIGURE 9

Global average primary commodity prices, 2019-2023
Index 2019=100 and US$ per million Btu



Source: WTO (2024)

Sanctions on Russian oil exports by G7, EU, and Australia have led to alternative markets, notably increased oil supply to China. After experiencing significant energy price volatility in 2022 and 2023, Europe has sought alternative suppliers of natural gas to Russia including the United States, Norway, Qatar, and Algeria.[20]

This trade realignment supports bloc building and will reshape shipping routes and downstream production. Expectations for oil pricing have shifted, with $80+ per barrel forecasted as the new norm, impacting OPEC+ dynamics. The energy transition may prompt re-evaluation of renewable sources and increased domestic production, as highlighted in a 2023 McKinsey study projecting hydrogen and ammonia production by the United States, Saudi Arabia, and Australia by 2050.[21]

The longevity and severity of these price fluctuations are uncertain. Much will depend on the duration of these conflicts and any future escalations. Because they make it difficult for businesses to forecast costs and profits, these price effects are likely to have an ongoing negative impact on trade that will only worsen should commodity prices rise again, followed by higher energy and transport costs.[22]

Global climate drive will bring disruptions to commodities markets

As the global climate drive continues, the growth in environmental technologies like renewable energy and power infrastructure, AI, automation, and electric vehicles (EVs) is set to disrupt commodities markets in several ways. There will be increased demand for critical minerals such as lithium, cobalt and rare earth metals – key components of EV batteries and renewable energy infrastructure. Some analysts predict at least 10 million metric tonnes of copper alone will be needed to satisfy demand in these sectors.[23]

[20] WTO, 2023c
[21] McKinsey, 2023a
[22] Donovan & Nikoladze, 2024
[23] Reuters, 2024

The concentration of commodities in a select number of countries poses new geopolitical risks as their strategic importance is heightened. As supply is strained, this could lead to new trade tensions, disruption and pricing dynamics.

A case in point is electric vehicles. In 2022 global automotive exports increased to a value of $1.5 trillion.[24] The United States overtook Japan as the second-largest exporter of automotive products while China recorded a massive 30 per cent annual increase in its car exports.[25] As countries around the world attempt to phase out combustion vehicles, EVs should theoretically be facing a period of growth as they fill a crucial supply gap.

However, the picture is complex. Global EV sales have slowed due to high interest rates that limit purchasing power in big consumer markets like Europe as well as consumer anxiety surrounding EV charging and the lack of battery resiliency at low temperatures.[26] Tesla's shares fell 33 per cent in 2024[27] while China's BYD saw sales drop by 42 per cent in the first quarter of 2024.[28]

EV demand is expected to pick up in line with global climate regulation, but the short-term outlook for the industry remains uncertain and could open up a new chapter of trade turbulence. China's recent dominance has caught the attention of U.S. and European regulators. An EU anti-subsidy investigation opened in October 2023 into Chinese electric vehicle battery imports following a surge of cheap imports.[29] This may lead to increased trade rerouting and regionalisation as China seeks new markets to sell its excess supply. China currently dominates Southeast Asian EV markets, accounting for three-quarters of sales.[30] If imports from China to the EU are restricted, it may need to find new suppliers, especially since retaliatory measures from China could target German automobiles

The concentration of commodities in a select number of countries poses new geopolitical risks as their strategic importance is heightened. As supply is strained, this could lead to new trade tensions, disruption and pricing dynamics.

heavily exposed to the Chinese market.[31] Meanwhile, the United States maintains a high tariff on Chinese automobile imports, aiming to deter cheap EV influx, and is deliberating strategies to bolster domestic EV production as part of the Inflation Reduction Act.

Such moves could trigger a new wave of trade divergence in the global EV market, and bring significant disruptions to the commodities the industry depends on – from lithium, cobalt, nickel and graphite as the primary raw materials in lithium-ion batteries, to rare earths, copper, aluminium and steel.

[24] WTO, 2023d
[25] WTO, 2023d
[26] Carey and White, 2024
[27] Sriram, 2024
[28] Campbell, 2024
[29] European Commission, 2023
[30] Yoon, 2023
[31] Politico, 2023

DMCC COMMODITY TRADE INDEX 2024

In this section, we produce the fourth iteration of the DMCC Commodity Trade Index, to reassess the performance of top trading hubs and compare how their relative rankings have changed over time.

About the Index

The Commodity Trade Index assesses the role of ten key commodities trading hubs within global trade. The index also assesses which global locations can expect to maintain their status as a trading hub. It incorporates ten indicators to produce an index score for the United States, Netherlands, Singapore, the UK, the UAE, Switzerland, Hong Kong, China, South Africa and Nigeria. The Commodity Trade Index was first introduced in the 2018 Future of Trade report.

The Commodity Trade Index looks at three major factors important to commodity trade via ten individual sub-indicators. The data underlying the indicators are taken from sources such as the World Bank or the United Nations.[32]

The ten indicators analysed are:

A. Locational and trading partner factors

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

B. Commodity endowment factors

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

C. Institutional factors

1. Financial services infrastructure
2. Attractiveness of the tax regime
3. Strength of regulatory enforcement
4. Logistics performance

In order to create the index, the data for each indicator were standardised and scaled within the 0% to 100% range. They were also adjusted for outliers and combined to create the composite index. Each of the three sub-categories is given equal weighting. For more detail on how the Commodity Trade Index was created, please refer to the Appendix.

[32] For a detailed methodology and a list of sources and references, please see the annex.

CHAPTER I: The Future of Trade

FIGURE 10 DMCC Commodity Trade Index results 2024

Country	Commodity endowment factors	Locational and trading partner factors	Institutional factors	Index Score 2024	Index Rank 2022
United States	63%	54%	59%	59%	1
United Arab Emirates	77%	8%	66%	50%	2
Switzerland	12%	59%	69%	46%	4
Singapore	2%	52%	78%	44%	7
Hong Kong SAR, China	12%	29%	83%	41%	6
The Netherlands	6%	54%	59%	40%	3
United Kingdom	23%	38%	53%	38%	5
China	28%	34%	42%	34%	8
South Africa	16%	7%	32%	18%	9
Nigeria	28%	3%	0%	10%	10

Source: See Appendix

As shown in the table, the United States is the top trading hub on the 2024 index, with a score of 59%. This is one percentage point (PP) above the United States' score of 58% in the 2022 report. The UAE maintained second place on the 2024 commodity index with a score of 50%, unchanged from 2022.

The United States has now maintained its position at the top since 2020, with robust scores of above 50% across the three pillars. This consistency allowed the United States to achieve the best score without the highest score in any of the individual pillars.

The United States ranked second across commodity factors, improving by 9pp from the 2022 index. The economy accounts for a large share of global soft commodity trade, particularly in soya trade. Notably, in 2024, the United States' share of gold increased compared to the 2022 index. Overall, the trade of gold saw a marked increase in comparison to the other commodities, driven by the flight towards safer assets amidst soaring inflation across 2022 and the first half of 2023. The United States was one of the four countries amongst the ten that the index covers that saw their share in gold trade increase.

The United States also ranked second on the locational index, moving up one position from 2022 and now falling behind only Switzerland. A key factor for this is that many commodities companies are headquartered in the United States. Cargill is in Minnetonka, Minnesota, and Koch Industries is in Wichita, Kansas, for example.

The United States' lowest ranking pillar in the 2024 index was for institutional factors, where it ranked 6th out of our 10 countries of interest. The country's relatively high rate of corporation tax weakens its score. However, it does score well in terms of financial services infrastructure.

The UAE placed second on the Commodity Trade Index, equalling its performance from 2022. In particular, the UAE has the top score for commodity endowment factors, driven by its large natural supply of oil. The UAE has scored top for this pillar of the index in every iteration of the Commodity Trade Index. The UAE also scores relatively well in institutional factors, which is driven by its attractive tax rates and strong performance in trade logistics.

The score for UAE has been impacted by locational and trading partner factors. This pillar did show improvement from the 2022 index, which had a score of 2% but still remains low at 8%. This means that relative to other countries, the UAE tends to export more to countries that are geographically further away, although it has made some improvements in recent years.

Switzerland placed third on the Commodity Trade Index in 2024 with a score of 46%. Switzerland moved up one position from the 2022 report. It holds the highest score for locational and trading partner factors and the third best for institutional factors. While it scores relatively weak on the commodity endowment factors, this pillar did see an improvement from the 2022 score.

CHAPTER I: The Future of Trade

FIGURE 11 **Commodity Trade Index results 2022, 2020 and 2018**

Country	Index Score 2022	Rank 2022	Index Score 2020	Rank 2020	Index Score 2018	Rank 2018
United States	58%	1	53%	1	47%	5
United Arab Emirates	50%	2	53%	2	56%	1
Switzerland	48%	4	47%	4	49%	3
Singapore	41%	7	41%	7	40%	6
Hong Kong SAR, China	44%	6	45%	6	39%	7
The Netherlands	48%	3	48%	3	54%	2
United Kingdom	45%	5	46%	5	49%	4
China	32%	8	33%	8	30%	8
South Africa	21%	9	23%	9	20%	9
Nigeria	16%	10	22%	10	16%	10

Source: See Appendix

Singapore moved up three places from the 2022 report to fourth place with a score of 44% on the Commodity Trade Index in 2024. The improvement was driven by the locational and institutional factors. On the locational pillar, Singapore benefits from low tariffs from trading partners. It has the second-best score on the institutional factors with the strongest performance in the strength of regulatory enforcement and logistics of trade.

Hong Kong came in at fifth place in the 2024 index, up from sixth position in the 2022 report. Being the top performer in institutional factors, particularly with a strong financial services infrastructure leads to Hong Kong's position on the index. However, the lack of commodity endowments drags the score down.

The Netherlands and the UK witnessed the biggest falls in the ranking, falling from third and fifth position in 2022 to sixth and seventh positions, respectively, in the 2024 Commodity Trade Index. For both countries, the commodity endowment remained largely unchanged; however, the rankings were dragged down by locational and institutional factors. The shift in the headquarters of oil company Shell from the Netherlands to the UK caused a big dent in the Netherlands' locational score, while the effect of Brexit on the UK is evidenced in this iteration of the index. This is reflected in the increase in tariffs imposed by trading partners on the UK and the decline in trade conducted with countries it is geographically close to, evidenced by the proximity to the markets pillar and its weak performance in trade logistics. The relatively high corporation tax further weakens the UK's score. The overall score for the UK on the Commodity Trade Index was 38%.

China ranked in eighth place on the Commodity Trade Index. In the 2024 index, China achieved its lowest score on the commodity endowment factor across all iterations of the index, standing at 28%. This decline was primarily attributed to a decrease in its share of global soft commodities. It also recorded low scores of 34% and 42% on the locational and trading partner factors and institutional factors, respectively.

South Africa placed ninth on the index, with an 18% score. It showed improvement in its scores for commodity endowment factors and institutional factors compared to the 2022 index. However, the score on the locational and trading partner factor recorded a 17%-point drop from the 2022 report, dragging its overall score down.

Nigeria came in third place for its commodity endowment factors on the 2024 Commodity Trade Index thanks to its large oil reserves. However, its overall score was dragged down by its locational and trading partner factors and institutional factors.

While the top two and bottom three performers on the commodity trade index remained unchanged from 2022, there were notable shifts among the mid-range performers in 2024. These changes were largely driven by the impacts of geopolitical conflicts, which led to supply chain disruptions and volatile commodity prices. Eight of the ten hubs saw a decline in their index scores. Even the United States and UAE, who were the two exceptions, were not completely immune to these effects. The United States recorded only a modest 1pp improvement, while the UAE's score remained unchanged from the previous assessment.

The gap between the top and bottom performers further widened, with the United States pulling ahead by 9pp, while Nigeria, the lowest scorer, experienced a 6pp decline in its score.

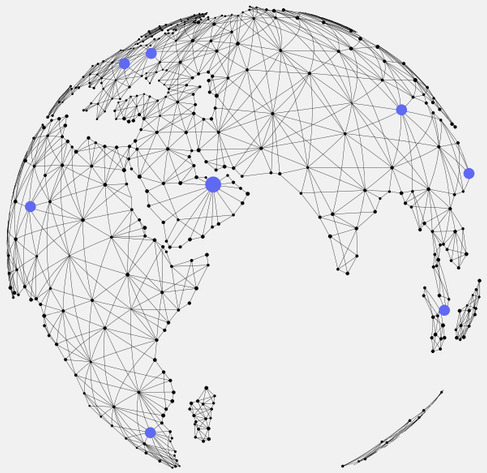
Looking ahead, the heightened geopolitical environment is expected to persist throughout the year. Events such as Russia's withdrawal from the Black Sea grain initiative and ongoing disruptions in shipping routes through the Suez Canal are likely to pose risks, particularly to wheat and maize prices. Additionally, skyrocketing freight rates and adverse weather conditions will continue to influence commodity prices worldwide.

CHAPTER I: The Future of Trade

Appendix: DMCC Commodity Trade Index

The ten commodities trading hubs analysed are:

1. United States
2. United Arab Emirates
3. The Netherlands
4. United Kingdom
5. Switzerland
6. Singapore
7. Hong Kong SAR, China
8. China
9. South Africa
10. Nigeria



Each hub is scored based on its performance as measured by the particular indicator. For each indicator, the same set of steps is followed, allowing us to assign a value between 0% and 100% to each hub:

- In order to account for outliers, each data point is checked to determine if it falls outside of the mean +/- 2 standard deviations range.
- The min-max approach is used to assign an index value to each hub. Specifically, the following formula is used (data point – series min) / (series max – series min).
- For indicators where a lower figure signified a better performance, the inverse of the data point or its negative equivalent is used.

Once scores between 0% and 100% are assigned to each hub within each indicator based on the previous steps, the indicators are assigned to one of three sub-indices (locational and trading partner index, commodity endowment index and institutional index), which are weighted equally to give the overall index score.

FIGURE 12 **Commodity Trade Index data sources**

	Indicator	Summary	Source	Year
Locational and trading partner factors	Headquarter locations of major commodities trading houses	Location of global and regional headquarters of the largest commodities trading companies are analysed and used to assign points to each hub.	Singapore Management University	2024
	Proximity to markets (based on commodity export data)	The sum-product of the share of each hub's commodity exports by trading partner and distance to trading partner is calculated and then assigned an index value.	Comtrade	2022
	Commodity trade partner tariffs on primary goods	The sum-product of the share of each hub's commodity exports by trading partner and each trading partner's average tariff on primary goods is calculated and then assigned an index value.	World Trade Organization	Latest (2021-2022)
Commodity endowment factors	Tons of oil exported annually	Total annual crude oil exports by weight, by hub	Comtrade	2022
	Hub's share of global soft commodity trade for key commodities	Total annual coffee, grain, sugar, gold, diamonds, soya bean, tea, cotton, silver, animals and animal products and plastic trade by value, by hub	Comtrade	2022
	Natural resource rents as a share of GDP	Total natural resources rents are the sum of oil rents, natural gas rents, coal rents (hard and soft), mineral rents, and forest rents. Estimates are calculated as the difference between the price of a commodity and the average cost of producing it.	World Bank	2021
Institutional factors	Financial services infrastructure	The strength of credit reporting systems and the effectiveness of collateral and bankruptcy laws in facilitating lending are used to analyse hubs.	World Bank	2022
	Attractiveness of the tax regime	Analyses the taxes and mandatory contributions that a medium-size company must pay or withhold in a given year, as well as measures the administrative burden in paying taxes and contributions.	Tax Foundation	2023
	Strength of contract enforcement	This indicator looks at the time and cost for resolving a commercial dispute through a local first-instance court, and the quality of judicial processes index.	World Justice Project	2023
	Ease of trading across borders	Measures the time and non-tariff costs associated with documentary compliance, border compliance and domestic transport.	World Bank	2023

SECTION FOUR

DRIVERS AND DYNAMICS OF TRADE RESILIENCE

Trade is expected to grow in the coming years, but at a gradual and uneven rate, with widening divergences. Considering the array of destabilising forces this is still remarkable and a sign of the resilience of trade. The strategies put in place by governments and industry to mitigate risks against this landscape will be vital to ensure trade continuity.

Economic slowdowns in China and Europe will weigh on global trade growth

China is the world's second-largest economy and the top trading partner for 120 countries.[33] Economic slowdown in China hampers growth in the rest of the world. China's property market, which makes up about a quarter of its economic activity, is in crisis and major developers are in default.[34]

Over the next few years, weakness is likely to persist in domestic demand, which remains below the world average. This challenges the country's aim of shifting to consumption-led growth, an increasingly crucial factor as other countries reassess their supply chains and reduce dependency on Chinese imports. Anaemic domestic demand may lead to weakened investment in the private sector, which could have spillover effects on inflation and the housing market.

Meanwhile, Europe's economic stagnation is expected to continue amid high energy prices, costlier credit, constricted shipping through the Suez Canal, and Germany's worst downturn in two decades.[35] The euro has fallen by some four per cent against the dollar since the start of 2024, affecting the buying power of European consumers.[36] The continued slowdown in Europe will have significant implications for global trade through weakened demand, business and investment confidence. Key to maintain global trade resilience will be the extent to which companies diversify their suppliers and export and production markets beyond China and Europe. North America provides a traditionally large consumer base, while the rapidly-urbanising Asia-Pacific region provides an interesting alternative. Meanwhile emerging economies with strong growth prospects such as Vietnam, Thailand and India can enhance the resilience of global supply chains and reduce reliance on single markets for trade.

[33] Green, 2023
[34] Reuters, 2023
[35] AP News, 2024
[36] Reuters, 2024

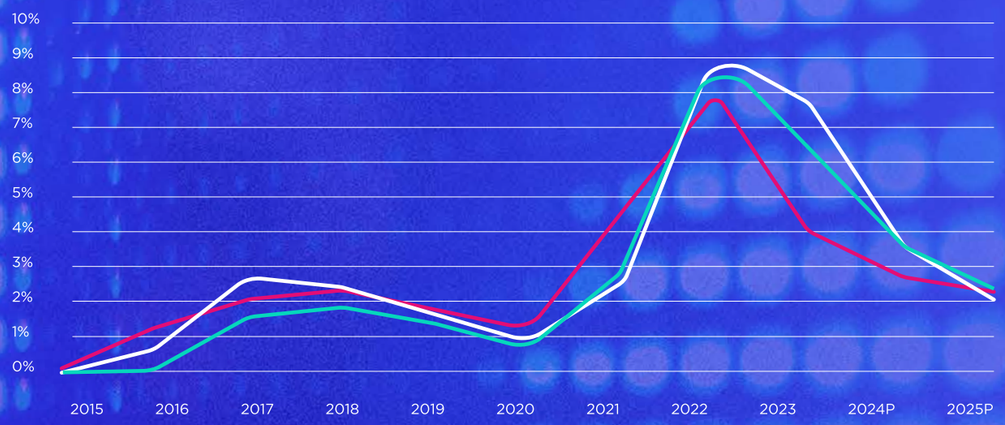
Inflation

Countries worldwide are grappling with soaring prices. The surge in inflation, fuelled by COVID-19's economic shock, supply chain disruptions, and the Ukraine crisis, has hit consumers and businesses hard.

While inflation rates in the UK, United States, and EU spiked in 2021, they're now tapering off. However, forecasts suggest they'll stay above targets until 2025.[37] Global headline inflation is expected to ease from 6.9 per cent in 2023 to 5.8 per cent in 2024 and to 4.6 per cent in 2025.[38]

FIGURE 13

Inflation rate, annual percentage change, 2015-2025P



Source: WTO (2024)

While the improving inflationary environment could weigh on producer margins, it can also lead to price stability, reduced volatility, and bank rate cuts – offering a path to unlock consumer and business spending. This can provide a boost to trade resilience, although the fact that interest rates are expected to remain high will limit the scope of growth this year. Risks remain in the geopolitical landscape and their knock-on effects on commodities and energy prices that can push inflation up. In the face of these challenges, businesses should focus on optimising costs across operations and mitigating supply chain risks such as disruptions in input availability, transportation, and logistics.

[37] IMF, 2023a
[38] IMF, 2023a

Interest rates

Given that inflation remains above most targets, it is likely that interest rates will also stay higher for longer, since "monetary policy has not yet succeeded in taming inflation".[39] The "higher for longer" stance has been echoed by monetary policymakers around the world.[40] The Bank of England and U.S. Federal Reserve have expressed their desire to cut interest rates but they remain high.[41]

This has implications for global trade. Persistently high borrowing costs will dampen investment, reduce consumer spending and can lead to currency appreciation as foreign investors demand more, which will affect the terms of trade between different currency holders. Monetary policymakers will face challenges stemming from recessions and economic downturns in key markets, making it difficult to revive growth without stimulating inflation.

Dollar appreciation

IMF figures show that global trade slowed in 2023, attributing this in part to the lagged effects of U.S. dollar appreciation.

As the leading global trade currency, a higher U.S. dollar weighs on trade due to the invoicing of products in dollars.[42] A strong dollar makes U.S. exports more expensive, reducing demand for those products and services and affecting products that are integrated into U.S. supply chains. A higher U.S. dollar also has a major impact on those countries that have strong reserves of the currency or currencies that are pegged to it.

In 2022, the dollar made up 58.4 per cent of the global foreign exchange reserve, ahead of the euro at 20.5 per cent.[43] In 2022, the U.S. dollar rose to a 20-year high and remains strong against other major currencies (Figure 14). The relative strength of the U.S. dollar is likely to continue into 2024 and persist until the U.S. Federal Reserve cuts interest rates. This could impact the economic output of emerging markets and declined global trade volumes. Exchange rate volatility will make it increasingly difficult for businesses to operate as they will have to consider macroeconomic risks both at home and abroad.

[39] WTO, 2023c
[40] John, 2023
[41] Michael and Howard, 2024
[42] IMF, 2023b
[43] European Central Bank, 2023

FIGURE 14

Exchange rates against the U.S. Dollar, January 2019-February 2023. Indices, 2019=100[44]

Source: WTO (2023c)

Goods trade will remain muted against dollar appreciation, high inflation and interest rates and will remain vulnerable to shocks tied to conflicts and extreme weather events. Trade should pursue carefully calibrated diversification and risk management strategies in their operations and supply chains to reduce single source dependency and foster the growth of alternative production hubs and consumer markets, particularly in the Asia-Pacific and other emerging economies.

Meanwhile, the global rise in carbon consciousness has propelled growth of environmental goods production. This, alongside advances of technology and the enticing scalability of digital services trade offer the most promising avenues for trade expansion. However, new risks are emerging – including trade tensions linked to the production of silicon chips, environmental technology, and the raw minerals needed for their production.

Appropriate policies are needed to ensure continued cross-border trade in goods and services. Accelerated regionalisation means governments should prioritise trade liberalisation, promotion and facilitation in bilateral and regional trade agreements. Ambitious frameworks are also essential to harness the transformative potential of technology, including AI, in a way that provides consumer protection without stifling innovation.

[44] The chart shows the exchange rate between the US Dollar and the Euro, Yen, Pound Sterling and Yuan Renminbi benchmarked to 2019 rates.

KEY TAKEAWAYS

1. Trade is expected to grow but slowly. Following a contraction in merchandise exports in 2023, exports are expected to grow across all regions, demonstrating global trade resilience. Growth will be strongest in Asia, North America and Africa.
2. Services trade will set new records, growing faster than trade in goods for the first time in history. New waves of growth are expected for trade in digital services, underpinned by the dawn of AI that we explore in Chapter 3.
3. Competition will grow between regions, namely the United States and China, around the production of silicon chips and in the race for supremacy in environmental goods and technologies. As a result, the supply of commodities and minerals will become increasingly more strategic and sensitive, further driving regionalisation.
4. Geopolitical tensions will drive a rapid reconfiguration of trade flows. We will see greater regionalisation as new alliances are formed, with opportunities for emerging economies that can provide alternative production and consumer hubs.
5. Macroeconomic conditions such as economic slowdowns in China and Europe, dollar appreciation, persistently high inflation and interest rates will weigh on global trade, subdue consumer demand and hamper potential growth.
6. Businesses will have to navigate an increasingly complex political and policy environment and will need to be agile to seize opportunities as and when they arise.

Recommendations for businesses:

1. **Diversify export markets**: Despite slow growth, there are opportunities for export expansion, particularly in North America and emerging markets in Asia-Pacific and Africa. Businesses should adopt diversification strategies for their export markets to capitalise on growth opportunities in these regions.
2. **Reconfigure supply chains against geopolitical shifts**. Rapid reconfiguration of trade flows due to geopolitical tensions presents both challenges and opportunities. Businesses should be prepared to adapt to these changes by building flexible supply chains and exploring new markets and partnerships. Diversification of suppliers and investing in alternative sourcing strategies can also help mitigate supply chain disruptions.
3. **Mitigate macroeconomic risks**. Against a backdrop of global economic uncertainty, businesses should proactively monitor conditions such as economic slowdowns, currency fluctuations, inflation, and taxation. Strategies should be considered to mitigate risks associated with these factors, including cost optimisation.
4. **Invest in digital transformation and innovation**. Against a tide of technological advancement, the dawn of AI stands to revolutionise trading systems. Companies that invest in understanding AI and how to build use cases stand to benefit. Those that do not run the risk of losing out to competition.

Recommendations for governments:

1. **Build new trade relationships**: Governments should make trade promotion a core policy objective and foster trade partnerships beyond traditional markets. Encouraging exports to regions with strong growth potential can help build new consumer bases, mitigate the impact of slow global trade growth and enhance resilience against economic fluctuations
2. **Invest in digital infrastructure and innovation**: Recognising the growth potential of digital services trade, governments should prioritise investments in digital infrastructure and innovation ecosystems. Supporting the development of AI technologies and digital trade platforms can unlock new opportunities for economic growth and competitiveness.
3. **Strengthen industry supply chain security**: Given the intensifying competition between regions and the strategic importance of commodities and minerals, governments should prioritise measures to strengthen supply chain security. This may include diversifying sourcing locations, promoting domestic production of critical goods, and enhancing collaboration with international partners to ensure reliable access to essential resources.
4. **Facilitate regional integration and cooperation**: Geopolitical tensions are driving a shift towards greater regionalisation in trade flows. Governments should actively promote regional integration and cooperation initiatives to capitalise on emerging opportunities and mitigate risks associated with geopolitical instability. Creating frameworks for cross-border trade facilitation and harmonising regulatory standards can foster economic resilience and sustainable development.

Interview: **Ralph Ossa**, Chief Economist, World Trade Organization

At the start of the pandemic, the WTO forecast that the volume of merchandise trade could fall by up to 32 per cent, but trade fared better than expected. With the benefit of hindsight, why do you think global trade was more resilient than originally feared?

I wasn't at the WTO at the time that this forecast came out, but I shared that pessimism. It really seemed like a perfect storm at the outset with problems on the demand side and the supply side, as well as increases in trade costs because all sorts of trade restrictions were put in place. Quite early on, we realised that COVID was mainly leading to problems in the services sector, whereas we needed a lot of goods to help deal with the pandemic. Therefore, trade became part of the solution to the pandemic and that is why it has recovered so quickly. Within just three quarters of the downturn in the second quarter of 2022, trade had already recovered, marked by huge increases in trade in medical supplies, personal protective equipment and face masks, as well as trade in home office equipment, exercise equipment and TVs because we all ended up working from home. When people think back to the pandemic, they remember the supply chain disruptions at the beginning but what many people don't remember is that trade was a huge part of the solution, and in fact, contributed tremendously to the resilience of the global economy.

We are living in very uncertain times as macroeconomic factors are causing cost of living crises around the world and numerous geopolitical tensions and conflicts continue into 2024. Which factors pose the biggest threat to international trade?

While there will certainly be headwinds in 2024, if you take a step back and look at the big picture, you see that we had a pandemic, we have war in Europe and the Middle East, we had inflation at levels that we haven't seen in decades and extremely restrictive monetary policy, but overall, trade has been resilient. Looking to the future in the near term, it is the weakness of aggregate demand that stems from monetary policy as well as fiscal policy that I'm concerned about, particularly in Europe. People always look to China but China's not doing that badly; the economy is not growing at 8 per cent anymore, but it is still growing within the target set by Chinese authorities. In terms of structural issues, I am most concerned about geopolitical tensions, because I do think that they could really distort international trade.

With the world becoming more fragmented, do you expect to see more regionalisation?

It depends on how geopolitical developments pan out. I think we are at a crossroads when it comes to globalisation, and it depends on the policy choices that are made. I could see us going down a path of fragmentation and regionalisation. But I could also see us going down a path of re-globalisation where we reinvent globalisation and extend it to more countries, people and issues. The latter is certainly the path we advocate for at the WTO.

CHAPTER I: The Future of Trade

> "I think we are at a crossroads when it comes to globalisation, and it depends on the policy choices that are made."

Do you expect that the huge focus on the drive to net zero could create new trade in green products and enable more countries to enter the international trade network?

Absolutely. First, you have exactly what you described: new products, for example, critical minerals, batteries, and so on. The supply and demand patterns are to some extent different than what they were for fossil fuels, so I expect to see a shift there. Trade is also an important factor in making the green transition happen. If a country is abundant in renewable energies but does not have the technology to produce solar panels or wind turbines, then of course you need access to frontier technology from elsewhere, which mostly comes in the form of trade.

At the WTO, we make a point that there are not only economic gains from trade but there are also environmental gains from trade. The economic gains from trade come from countries specialising in what they're relatively good at. The environmental gains from trade come from countries specialising in what they're relatively green at. It's the same idea as comparative advantage but just applied to reductions in greenhouse gas emissions. But the key difference is that the economic gains from trade tend to materialise naturally, whereas the environmental ones need some help in the form of government policy that forces firms and households to internalise the externalities that their choices are causing. This is why it is so important to have carbon prices or other policies that go in that direction to unleash these environmental gains.

Lastly, how do you see the WTO playing a role in these very fast-changing, uncertain times for international trade?

I do think the WTO can help play a key role as more than 75 per cent of all trade is conducted directly on WTO terms. When we think about the challenges that we are facing, I think firstly we need to maintain peace and security, then we need to reduce poverty and inequality. We also need to build a sustainable economy. I think for all these issues, you need a rules-based multilateral trading system with the WTO at its core.

Looking at economic security, for example, we need to ensure households and firms have "outside options" so that if there is a shock to the supply chain, there are ways to mitigate the disruption. And this is exactly why you need multilateral trade. We've seen this in the context of the war in Ukraine. At the onset of the war, there were huge concerns about food security in Africa because a lot of countries imported large quantities of wheat and fertilizer from Ukraine and Russia. Of course, the war made the situation worse, but it wasn't as bad as many of us had feared, since countries swiftly got access to alternative sources of supply through international trade.

REFERENCES
FOR CHAPTER I

Aksoy, C., Barrero, J., Bloom, N., Davis, S.J., Dolls, M. and Zarate, P. (2022). 'Working from Home Around the World', SSRN Electronic Journal, Working Paper No. 9938.

Arora, S., Chu, F., Melnikox, S., and Zhang, L. (2022). 'E-commerce is entering a new phase in Southeast Asia. Are logistics players prepared?' McKinsey & Company. Available at: https://www.mckinsey.com/industries/travel-logistics-and-infrastructure/our-insights/e-commerce-is-entering-a-new-phase-in-southeast-asia-are-logistics-players-prepared

Campbell, P. (2024). 'The big worry for carmakers: what if the EV slowdown is not a blip?', Financial Times. Available at: https://www.ft.com/content/49886479-7312-43f5-a190-94d7586738f7

Carey, N. and White, J. (2024). 'Industry pain abounds as electric car demand hits slowdown', Reuters. Available at: https://www.reuters.com/business/autos-transportation/industry-pain-abounds-electric-car-demand-hits-slowdown-2024-01-30/

Case, J. (2020). 'Zoom, Microsoft Teams, and Slack Have Exploded Due to the COVID-19 Pandemic. Can They Hold onto This Growth?', GLG. Available at: https://glginsights.com/articles/zoom-microsoft-teams-and-slack-have-exploded-due-to-the-covid-19-pandemic-can-they-hold-onto-this-growth/

Cutler, W. (2023). 'US has the trade tools needed for China's EVs — but it must use them', Financial Times. Available at: https://www.ft.com/content/aab661aa-d795-4033-8b57-82bc02512e28

Datta, T. (2023). 'Zoom lifts annual forecasts even as growth slows from pandemic peaks', Reuters. Available at: https://www.reuters.com/technology/zoom-raises-annual-revenue-outlook-2023-05-22/

Digital Journal. (2022). 'Online Retail Market Future Business Opportunities 2022-2028', Digital Journal. Available at: https://www.digitaljournal.com/pr/online-retail-market-future-business-opportunities-2022-2028-amazon-inc-alibaba-group-ebay-inc-otto-gmbh-co-kg-jd-com-inc-groupon-inc-shopify-inc-flipkart-rakuten-inc-and-zalando-s

DMCC. (2020). 'The Future of Trade 2020', Dubai Multi Commodities Centre. Available at: www.futureoftrade.com. Available at: https://www.futureoftrade.com/the-future-of-trade-growth

Donovan, K. & Nikoladze, M. (2024). 'The axis of evasion: Behind China's oil trade with Iran and Russia', Atlantic Council. Available at: https://www.atlanticcouncil.org/blogs/new-atlanticist/the-axis-of-evasion-behind-chinas-oil-trade-with-iran-and-russia/

Duncan, R. D. (2023). 'How Covid Changed The Workplace: It's A Whole New World Out There', Forbes. Available at: https://www.forbes.com/sites/rodgerdeanduncan/2023/07/28/how-covid-changed-the-workplace-its-a-whole-new-world-out-there/

European Central Bank. (2023). 'The international role of the euro' European Central Bank. Available at: https://doi.org/10.2866/063496

European Commission. (2023). 'Commission launches investigation on subsidised electric cars from China', European Commission. Available at: https://ec.europa.eu/commission/presscorner/detail/en/ip_23_4752

Gao, L and Woo, R. (2024). 'China's property market slide worsens despite government support', Reuters. Available at: https://www.bloomberg.com/news/articles/2024-02-09/china-s-real-estate-crisis-is-starting-to-ripple-across-the-world

Gourinchas, P. O. (2023). 'Resilient Global Economy Still Limping Along, With Growing Divergences', International Monetary Fund. Available at: https://www.imf.org/en/Blogs/Articles/2023/10/10/resilient-global-economy-still-limping-along-with-growing-divergences

Green, M. A. (2023). 'China Is the Top Trading Partner to More Than 120 Countries', Wilson Center. Available at: https://www.wilsoncenter.org/blog-post/china-top-trading-partner-more-120-countries#:~:text=China%20is%20the%20largest%20trading

Hale, T., Leng, C., Lockett, H. and Lin, A. (2023). 'How China's property crisis has unfolded, from Evergrande to Country Garden', Financial Times. Available at: https://www.ft.com/content/a387a533-5995-43a9-b472-ce5691969657

HM Revenue & Customs. (2022). 'Pay no import duty and VAT on medical supplies and protective equipment brought in due to coronavirus (COVID-19)', HM Revenue & Customs. Available at: https://www.gov.uk/guidance/pay-no-import-duty-and-vat-on-medical-supplies-equipment-and-protective-garments-covid-19

Hull, D. (2024). 'Tesla's Sales Miss by the Most Ever in Brutal Blow for EVs', Bloomberg UK. Available at: https://www.bloomberg.com/news/articles/2024-04-02/tesla-sales-miss-in-first-year-over-year-drop-since-pandemic

International Trade Administration. (2024). '2024 eCommerce Size & Sales Forecast', International Trade Administration. Available at: https://www.trade.gov/ecommerce-sales-size-forecast

IMF. (2023a). 'World Economic Outlook Database', International Monetary Fund. Available at: https://www.imf.org/en/Publications/WEO/weo-database/2023/October

IMF. (2023b). 'World Economic Outlook, October 2023: Navigating Global Divergences', International Monetary Fund. Available at: https://www.imf.org/en/Publications/WEO/Issues/2023/10/10/world-economic-outlook-october-2023

IMF. (2023c). 'Emerging Market Economies Bear the Brunt of a Stronger Dollar', International Monetary Fund. Available at: https://www.imf.org/en/Blogs/Articles/2023/07/19/emerging-market-economies-bear-the-brunt-of-a-stronger-dollar

Iqbal, M. (2024). 'Netflix Revenue and Usage Statistics', Business of Apps. Available at: https://www.businessofapps.com/data/netflix-statistics/

John, A. (2023). 'Global Central Banks Unite: Higher Longer Credo', Reuters. Available at: https://www.reuters.com/markets/rates-bonds/global-central-banks-unite-higher-longer-credo-2023-09-21/

Kelly, S. (2024). 'The Fast and Furious Rise of the Subscription Economy', Inspire. Available at: https://www.ceros.com/inspire/originals/netflix-spotify-and-the-rise-of-the-subscription-economy/

Lincicome, S. (2023). 'Globalization Isn't Going Anywhere', Cato Institute. Available at: https://www.cato.org/publications/globalization-isnt-going-anywhere

Liang, J., & Marsh, P. (2023). 'China youth unemployment hits high as recovery falters', BBC. Available at: https://www.bbc.com/news/business-66219007

McKeown, J. (2023). 'Resilience giving way to recession', Capital Economics. Available at: https://www.capitaleconomics.com/q3-global-economic-outlook-resilience-giving-way-recession?_gl=11n7qf5v_up*MQ..&gclid=Cj0KCQjwmlCoBhDxARIsABXkXlJRhdaF2uayIFZLFuwILDou9GJqOJiRhDFUaQkZKLts7q5HFcuKW68aAkQVEALw_wcB

McKinsey. (2021). 'The Future of Work After COVID-19', McKinsey & Company. Available at: https://www.mckinsey.com/featured-insights/future-of-work/the-future-of-work-after-covid-19

McKinsey. (2023a). 'The Future of Commodity Trading', McKinsey & Company. Available at: https://www.mckinsey.com/industries/electric-power-and-natural-gas/our-insights/the-future-of-commodity-trading

McKinsey. (2023b). 'Outlook for China Tourism 2023: Light at the End of the Tunnel', McKinsey & Company. Available at: https://www.mckinsey.com/industries/travel-logistics-and-infrastructure/our-insights/outlook-for-china-tourism-2023-light-at-the-end-of-the-tunnel#

Michael, A. and Howard, L. (2024). 'Interest Rates & Inflation: Rate Cut Hopes Dashed As Price Rise Figure Stays At 4%', Forbes. Available at: https://www.forbes.com/uk/advisor/personal-finance/2024/02/14/inflation-rate-update/#:~:text=The%20announcement%20from%20the%20Federal,stood%20since%20August%20last%20year.

Nikkei Asia. (2023). 'Chinese EV Makers Ramp Up European Production Amid Subsidy Row', Nikkei Asia. Available at: https://asia.nikkei.com/Business/Automobiles/Chinese-EV-makers-ramp-up-European-production-amid-subsidy-row

Partington, R. (2024). 'Oil prices hit $80 a barrel as fears grow over Red Sea disruption to trade', The Guardian. Available at: https://www.theguardian.com/business/2024/jan/12/oil-prices-fears-grow-over-red-sea-disruption-to-trade-yemen

Politico. (2023). 'EU's Ursula von der Leyen: China Electric Cars Probe, Trade War', Politico. Available at: https://www.politico.eu/article/eu-ursula-von-der-leyen-china-electric-cars-probe-trade-war/

Snyder. K. (2024) 'E-Commerce Statistics of 2024', Forbes Advisor. Available at: https://www.forbes.com/advisor/business/ecommerce-statistics/

Sriram, A. (2024). 'Tesla quarterly deliveries decline for the first time in nearly four years', Reuters. Available at: https://www.reuters.com/business/autos-transportation/teslas-first-quarter-deliveries-miss-expectations-2024-04-02/#:~:text=Tesla's%20deliveries%20declined%20by%208.5,analysts%20polled%20by%20Visible%20Alpha.

Sun, J. (2023). 'Where Will Alibaba Stock Be in 5 Years?', The Motley Fool. Available at: https://www.fool.com/investing/2023/06/13/where-will-alibaba-stock-be-in-5-years/

Tan, H. (2023). 'The Chinese EV market is exploding. Here are the 5 major Chinese EV brands you should know about', Business Insider. Available at: https://www.businessinsider.com/ev-electric-vehicle-china-brands-byd-nio-wuling-zeekr-geely-2023-5?r=US&IR=T.

The Economist. (2023). 'Attacks on shipping in the Red Sea are a blow to global trade', The Economist. Available at: https://www.economist.com/business/2023/12/19/attacks-on-shipping-in-the-red-sea-are-a-blow-to-global-trade

United Nations. (2023). 'With Highest Number of Violent Conflicts Since Second World War, United Nations Must Rethink Efforts to Achieve, Sustain Peace, Speakers Tell Security Council', United Nations. Available at: https://press.un.org/en/2023/sc15184.doc.htm

UNComtrade Database. (2023). Available at: https://comtradeplus.un.org/

UNCTAD. (2015). 'International Trade in ICT services and ICT-enabled services', United Nations Conference on Trade and Development. Available at: https://unctad.org/en/ PublicationsLibrary/tn_unctad_ict4d03_en.pdf.

UNCTAD. (2021). 'Global e-commerce jumps to $26.7 trillion, COVID-19 boosts online sales', United Nations Conference on Trade and Development. Available at: https://unctad.org/news/global-e-commerce-jumps-267-trillion-covid-19-boosts-online-sales

UNCTAD. (2022a). 'COVID-19 boost to e-commerce sustained into 2021, new UNCTAD figures show', United Nations Conference on Trade and Development. Available at: https://unctad.org/news/covid-19-boost-e-commerce-sustained-2021-new-unctad-figures-show

UNCTAD. (2022b). 'Total trade in services', United Nations Conference on Trade and Development. Available at: https://hbs.unctad.org/total-trade-in-services/

UNCTAD. (2023). 'Trade and Development Report 2023', United Nations Conference on Trade and Development. Available at: https://unctad.org/system/files/official-document/tdr2023_en.pdf

UNCTAD Stats. (2023). Available at: https://unctadstat.unctad.org/datacentre/dataviewer/US.IctGoodsShare

UNESCAP. (2020). 'Trade in Goods Outlook in Asia and the Pacific 2020/2021', United Nations Economic and Social Commission for Asia and the Pacific. Available at: https://www.unescap.org/resources/trade-goods-outlook-asia-and-pacific-20202021

US Treasury. (2023). 'Treasury Releases Proposed Guidance on New Clean Vehicle Credit to Lower Costs for Consumers, Build U.S. Industrial Base, Strengthen Supply Chains', U.S. DEPARTMENT OF THE TREASURY. Available at: https://home.treasury.gov/news/press-releases/jy1379

Reuters. (2023). ‘Why Is China’s Economy Slowing down and Could It Get worse?’, Reuters. Available at: https://www.reuters.com/markets/asia/why-is-chinas-economy-slowing-down-could-it-get-worse-2023-09-01/.
Seong, J. White, O., Birshan, M., Woetzel, L., Lamanna, C., Condon, J., and Devesa, T. (2024). ‘Geopolitics and the geometry of trade’, McKinsey Global Institute. Available at: https://www.mckinsey.com/mgi/our-research/geopolitics-and-the-geometry-of-global-trade#/

Wamda. (2021). ‘How COVID-19 Unlocked the Adoption of E-commerce in the MENA Region’, Wamda Legatum Centre for Development & Entrepreneurship. Available at: https://legatum.mit.edu/wp-content/uploads/2021/03/170321-MIT-Wamda-E-Commerce-COVID19-report-EN-01.pdf

WTO. (2020a). ‘Trade Set to Plunge as COVID-19 Pandemic Upends Global Economy’, World Trade Organization. Available at: https://www.wto.org/english/news_e/pres20_e/pr855_e.htm

WTO. (2020b). ‘World Trade Statistical Review 2020’, World Trade Organization. Available at: https://www.wto.org/english/res_e/statis_e/wts2020_e/wts20_toc_e.htm

WTO. (2022a). ‘TRADE IN MEDICAL GOODS IN THE CONTEXT OF TACKLING COVID-19: DEVELOPMENTS IN 2019-21’ World Trade Organization. Available at: https://www.wto.org/english/tratop_e/covid19_e/med_goods_2019_21_e.pdf

WTO. (2022b). ‘World Trade Statistical Review 2022’, World Trade Organization. Available at: https://www.wto.org/english/res_e/booksp_e/wtsr_2022_e.pdf

WTO. (2023a). ‘REPORT ON G20 TRADE MEASURES’, World Trade Organization. Available at: https://www.wto.org/english/news_e/news23_e/trdev_04jul23_wto_report_e.pdf

WTO. (2023b). ‘Global Trade Outlook and Statistics October 2023’, World Trade Organization. Available at: https://www.wto.org/english/res_e/booksp_e/gtos_updt_oct23_e.pdf

WTO. (2023c). ‘Global Trade Outlook and Statistics April 2023’, World Trade Organization. Available at: https://www.wto.org/english/res_e/publications_e/trade_outlook23_e.htm

WTO. (2023d). ‘World Trade Statistical Review 2023’, World Trade Organization. Available at: https://www.wto.org/english/res_e/publications_e/wtsr_2023_e.htm

WTO. (2023e). ‘Digitally delivered trade – chapter 4’, World Trade Organization. Available at: https://www.wto.org/english/res_e/booksp_e/digital_trade_23_ch4_e.pdf

WTO. (2023f). ‘Digitally delivered trade – chapter 1’, World Trade Organization. Available at: https://www.wto.org/english/res_e/booksp_e/digital_trade_23_ch1_e.pdf

WTO. (2024). ‘Global Trade Outlook and Statistics April 2024’ World Trade Organization. Available at: https://www.wto.org/english/res_e/publications_e/trade_outlook24_e.htm

WTO Stats. (2024). ‘WTO Stats’, World Trade Organization. Available at: https://stats.wto.org/

WHO. (2023) ‘Pandemic prevention, preparedness and response accord’, World Health Organization. Available at: https://www.who.int/news-room/questions-and-answers/item/pandemic-prevention--preparedness-and-response-accord

WTTC. (2023). ‘Travel and tourism economic impact 2022’, World Travel and Tourism Council. Available at: https://wttc.org/Portals/0/Documents/Reports/2022/EIR2022-Global%20Trends.pdf

Yoon, J. (2023). ‘China’s electric vehicles threaten to leave Europe in the dust’, Financial Times. Available at: https://www.ft.com/content/5f385b83-18d6-44da-891d-4c09c1360fff

Zhang, W. (2021). ‘Export Restrictions on Medical Supply Amidst a Pandemic’, Sidley. Available at: https://www.sidley.com/en/insights/publications/2021/02/export-restrictions-on-medical-supply-amidst-a-pandemic

CHAPTER I: The Future of Trade

CHAPTER II

THE GEOPOLITICS OF TRADE

NEW ALLIANCES, NEW TRADE ROUTES

Geopolitics are challenging free and open trade to a greater extent than they have in a generation. The comparatively secure environment that fostered growth in international trade over the past three decades has given way to one fraught with uncertainties as economies adjust to rapidly changing geopolitical and macroeconomic dynamics.

In our survey of 100-plus business leaders, most respondents cited geopolitical tensions as one of the key challenges to trade growth, with 34 per cent stating that China-U.S. tensions posed the greatest threat, followed by nationalism and onshoring (27 per cent). Ideology rather than economic considerations is now driving trade policy in many countries. Economic security is increasingly being cited by policymakers as a driver of trade rules, and industry experts expect this to continue for the foreseeable future.[45]

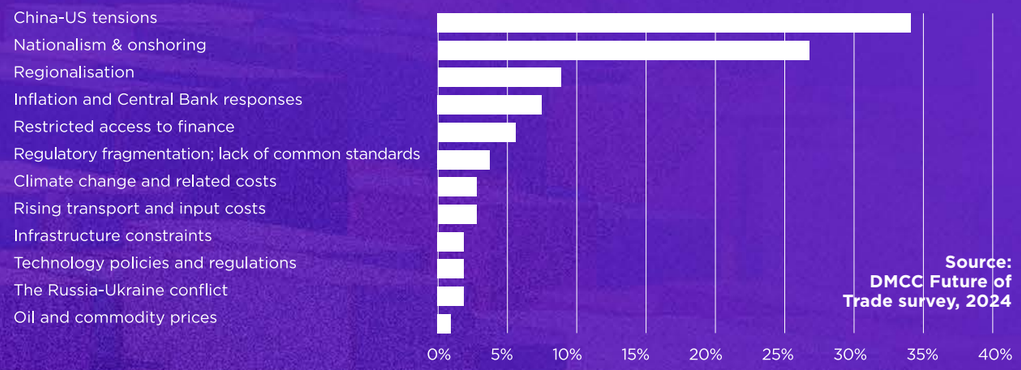
This quest for security is reflected in a shift to longer-term industrial policies around the world, which will have a significant impact on trade as governments take action to reduce their dependency on trading partners, particularly in critical sectors such as healthcare, agriculture and energy.

In our survey of 100-plus business leaders, most respondents cited geopolitical tensions as one of the key challenges to trade growth, with 34% stating that China-U.S. tensions posed the greatest threat, followed by nationalism and onshoring (27%).

[45] DMCC Future of Trade Roundtable participants

FIGURE 15

What do you think is the greatest threat to global trade over the next two years?[46]



Our research showed that the multiple and complicated issues at play on the geopolitical stage are proving challenging for businesses. The ongoing tensions between China and the United States remain a central theme. The Russia-Ukraine conflict and escalating crisis in the Middle East and their repercussions – including attacks on shipping in the Red Sea – are having a tangible and direct impact on trade.

Global elections will drive uncertainty and economic nationalism

Significantly, more than 60 countries representing almost half of the world's population will go to the polls in 2024. This has raised concerns about a rise in protectionist policies, not least in the United States, where Donald Trump has threatened a 10 per cent across-the-board increase in tariffs should he win the presidency. The U.S.-China relationship has become independent of political party and is now being driven by a bi-partisan consensus on national security that overrides the desire for open global trade. Economic nationalism is on the rise, and businesses will need to adapt.

Supply chain restructuring to bolster security and trade resilience

Friendshoring and nearshoring are driving substantial changes in supply chains. This is partly a consequence of the COVID-19 pandemic but is also now driven by a re-evaluation of "geo-economic" strategies. Businesses are restructuring supply chains to bolster resilience and to mitigate disruptions caused by conflicts, uncertainty, and policy shifts. By establishing alternative supply chains and forming new partnerships, businesses are proactively reducing their vulnerability to unexpected shocks to ensure trade resilience. However, there are many sectors for which this is not a viable option, such as those that rely on single-source critical materials, making them the most vulnerable to dislocations.

[46] Note that data collection for the DMCC Future of Trade survey started prior to the conflict in Israel and Gaza and the attacks in the Red Sea, hence why they do not feature in the survey results.

SECTION ONE

REGIONALISATION TO REDRAW TRADE ARCHITECTURE

Transition to a multipolar trade landscape is reshaping global trade dynamics

Our previous Future of Trade 2022 report anticipated a multi-polar landscape dominated by North America, Europe, and a China-centric Asia. This forecast remains accurate, despite the anaemic economies of Europe and China. However, at the core of this transformation is the diversification of trade partners, as countries increasingly engage with a broader range of economies beyond traditional power centres.

This diversification not only opens access to new markets but also reveals a spectrum of trade policies and approaches reflecting the priorities of emerging markets. Rising middle powers, particularly those non-aligned, stand to benefit from expanded trade but must navigate geopolitical fluidity with cautious hedging strategies. Emerging markets face challenges as the United States and China escalate pressure to align, posing dilemmas for their trade strategies.

At the heart of this shift is the divergence in trade integration strategies among economies. For instance, ASEAN nations and Germany are deeply entrenched in regional manufacturing value chains, actively participating in cross-border manufacturing processes.[47] Conversely, the United States has prioritised onshoring and nearshoring, with a lower trade intensity due to its vast domestic economy and resource abundance. Despite this, the United States still relies on international trade for various products, favouring partners like Mexico, which has seen export shares increase in sectors such as agriculture and transport equipment. This shift has resulted in goods travelling over shorter distances.[48] As can be seen in Figure 16, Mexico overtook China in 2023 as the largest goods exporter to the United States.

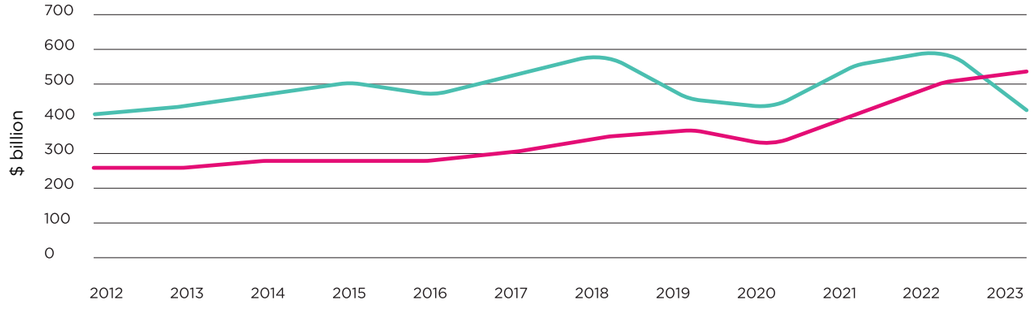
Such a divergence in trade integration strategies will accelerate regionalisation. The formation of distinct trade blocs with varying levels of integration between North America, Europe, and Asia, could alter traditional trade routes and supply chain dynamics. Meanwhile a patchwork of trade agreements, regulatory frameworks, and geopolitical alliances could set up trade integration at different speeds, creating a new set of opportunities and challenges for businesses to navigate.

New centres of gravity to provide trade opportunities

In the Future of Trade survey, 82 per cent of respondents said they expect trade to become more regionalised.[49] As countries strengthen their economic and commercial ties, regionalisation grows, fostering new relationships and markets. New production and consumer hubs will emerge. In the coming years we can expect to see new centres of gravity forming in Asia – centred around ASEAN, China and India – and North America. This is bolstered by relatively new multilateral agreements such as RCEP, CPTPP and USMCA with commitments to reduce tariffs, create a common market and boost regional trade.

FIGURE 16

US total goods imports ($bn) 2012-2023



Source: UN Comtrade Database (2024)

Risks to trade remain in protectionism and economic nationalism

The rise of protectionism is a risk that will grow as a number of key elections take place in 2024. This could have significant implications for trade growth. Protectionist policies such as export restrictions and tariffs on key commodities are designed to protect domestic industries, but can inflate trade costs and disrupt established supply chains, impacting global market trends, commodity prices, and investment flows. More and more countries are adopting protectionist policies. Among the G20, several export restrictions have remained in place post-COVID, including for critical products such as food and fertilizers, highlighting concerns about domestic disruptions.[50]

One example is the Inflation Reduction Act in the United States. Signed into law in 2022, the act sought to curb inflation by reducing the deficit and boosting domestic manufacturing. However it has posed challenges for upstream suppliers, prompting EV manufacturers to establish production facilities in the United States to preserve their market presence.[51] The challenges of key EV producers in Europe and Asia have added to broader concerns of a trade war emerging from these policies.

Protectionist measures shield industries from international competition, which reduces the incentive for companies to optimise operations and innovate.[52] This could eventually lead to a decline in industrial competitiveness, which in turn will prompt a reconfiguration of supply chains that will result in fewer connections within the global network.

[47] Seong et al., 2024
[48] Seong et al., 2024
[49] 12 per cent did not expect that trade would become more regionalised and 6 per cent were not sure.
[50] WTO, 2023b
[51] Banks, 2023
[52] World Bank, 2023

SECTION TWO

CONFLICTS AND TENSIONS TO FUEL INSTABILITY

U.S.- China Relations

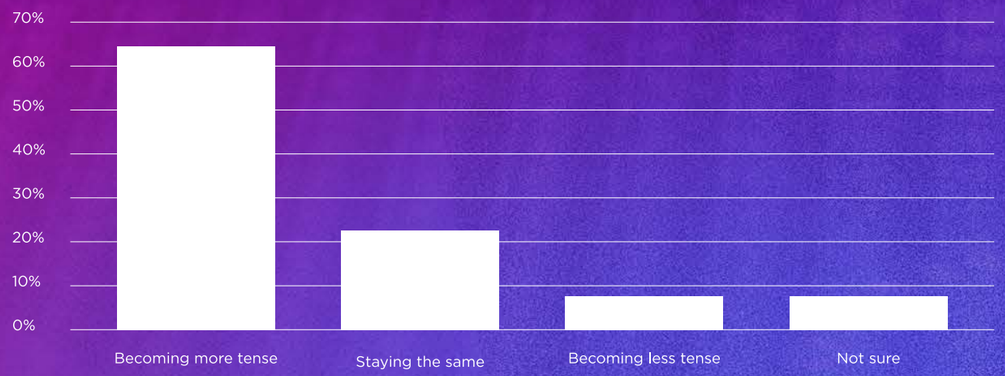
Geopolitical tensions and regional conflicts are having a fundamental impact on global trade, reshaping economic landscapes, and heightening the risk of further supply chain dislocations.

Geopolitical tensions have led to major disruption of vital supply routes. The escalating crisis in the Middle East has notably affected key global shipping lanes, with the disruptions in the Red Sea serving as a clear illustration of this impact.[53]

Relations between the United States and China will remain precarious in the near-term. A focus on risk management by both countries reflects the underlying challenges in resolving core tensions over issues such as trade and technology. In the Future of Trade survey, some two-thirds of respondents said they expect U.S.-China tensions to worsen over the next two years, while only 7 per cent think they will become less tense.

FIGURE 17

How do you see US-China trade tensions evolving over the next two years?



Source: DMCC Future of Trade survey, 2024

[53] Gill and Kose, 2024

CHAPTER 2: The Geopolitics of Trade

Countries with robust trade agreements and significant foreign investment have been able to capitalise on new market opportunities created by geopolitical tensions between the U.S. and China.

Emergence of new production hubs to fill the China gap

Policymakers in Washington and Beijing have taken action to lessen the economic interconnectedness between the two countries. This conscious uncoupling is a consequence of former U.S. President Donald Trump's trade policies, which largely continued under the Biden administration in the form of the U.S. Inflation Reduction Act and the U.S. CHIPS Act, fundamentally aimed at reducing dependence on China.

Ongoing tensions between both powers will have far-reaching implications for global trade and investment, with the volume of bilateral U.S.-China trade forecast to decline even further. In the first half of 2023, trade fell by 14.5 per cent compared to the previous year – a drop China's ambassador to the United States said was a direct consequence of Section 301 tariffs.[54] This decline is part of a broader shift of U.S. trade to other emerging markets.

The silver lining is that many emerging markets have filled the gap as alternative sources of production for goods. This can create benefits to global supply chains and trade in the long term, especially as bystander countries have boosted their exports to the United States and the rest of the world, while their own exports to China have remained largely unaffected.[55,56] Countries like Vietnam, Thailand, South Korea and Mexico have surfaced as major export "winners" in this shift to alternative centres to Chinese exports.[57]

[54] Cheng, 2023

[55] Fajgelbaum at al. 2023

[56] The study measures bystander countries as the 48 largest exporters to China, the United States and rest of the world.

[57] Fajgelbaum at al. 2023

Many businesses have also taken measures to reduce their exposure. An increasing number of U.S. companies are reconsidering decisions to invest in the Chinese market and are looking to diversify into other regions, including ASEAN. As a result, countries with robust trade agreements and significant foreign investment have been able to capitalise on new market opportunities created by geopolitical tensions between the U.S. and China. This has contributed to a gradual reconfiguration of global supply chains. It is important to note that this strategy is not feasible for all sectors and businesses. While many companies have explored moving operations out of China, other markets cannot compete on price and quality. Many factories in Southeast Asia are also owned by Chinese companies or source materials from China, which undermines decoupling efforts.

Technology and climate to emerge as new trade battlegrounds

The United States aims to limit Beijing's dominance in high-tech sectors by boosting domestic innovation, focusing on sectors that offer a competitive advantage.[58] This involves not only substantial investment in R&D, but also export and investment restrictions designed to reduce the transfer of technology to China. These measures have strengthened under the Biden administration, with the goal of furthering Washington's supremacy across several key sectors, including battery technology, biotechnology, semiconductors and clean energy. Other factors, including a push for more diversified import sources and attempts to strengthen supply chain resilience, are intensifying this trend.

The impact of U.S.-China tensions on trade varies by sector

While imports of certain products like semiconductors and consumer electronics from China have declined, those of laptops, phones, and toys surged during and after the COVID-19 pandemic.[59] Selective disengagement between the American and Chinese economies might offer long-term advantages, but it poses immediate challenges like product shortages due to supply chain disruptions and inflationary pressure. Further tariff increases could also lead to higher costs for U.S. consumers.

2024 U.S. elections will test global trade growth

A return of Donald Trump to the U.S. presidency in the 2024 elections could heighten uncertainties in U.S.-China relations and global trade. Increased tariffs would almost certainly reemerge as a central plank of U.S. government trade policy, possibly reigniting a tit-for-tat trade war among partners. Recent comments suggest Trump would impose tariffs in excess of 60 per cent on China.[60] More broadly, Trump's diplomatic approach adds to business uncertainty and long-term planning challenges. Nearshoring of critical supply chains in sectors like electronics, pharmaceuticals and steel, driven by domestic tax reforms and import tariffs, could intensify, signalling a resurgence of protectionist policies. However, even under a second Biden term tensions with China will likely endure, with existing tariffs and trade acts like the U.S. Inflation Act and U.S. CHIPS Act driving trade tensions.

[58] Kelly & McCabe, 2021
[59] Brown, 2022
[60] Hoskins, 2024

Geopolitical tensions and regional conflicts are having a fundamental impact on global trade, reshaping economic landscapes, and heightening the risk of further supply chain dislocations.

The Middle East: A threat to global trade stability

Disrupted shipping and higher prices

The unfolding crisis in the Middle East as a result of the Israel-Gaza conflict threatens global trade. An upsurge in attacks against commercial shipping passing through the Bab el-Mandeb Strait, which connects the Red Sea and Gulf of Aden, have led to disruptions, affecting routes critical for the global shipping industry and global trade and raising transport costs. Prolonged hostilities, or an escalation in the conflict involving one or more regional players, may yet unfold and threaten security and trade stability in the region. But for now the risks to global trade appear more contained and short-term in nature compared to other global conflicts.

Tensions in the region have re-routed trade and increased transport costs

Approximately 10 per cent of global seaborne trade, including key commodities such as grain, oil and liquefied natural gas, passed through the narrow strait of Bab el-Mandeb in 2023.[61] In response to the uptick in attacks against commercial vessels, 13 shipping operators, including Maersk and Hapag-Lloyd, which collectively account for at least 70 per cent of global maritime freight traffic, announced the suspension of journeys through the strategic waterway or the re-routing of services around the Cape of Good Hope – a change that adds an additional 40 per cent to the voyage distance.[62]

[61] The Economist, 2023
[62] Anderson, 2023; S&P Global, 2023

Longer shipping routes are more costly, raising inflationary concerns. Pausing or rerouting vessels around the Cape of Good Hope immediately extends shipping times, leading to higher fuel consumption and operational costs for companies, impacting their profitability and efficiency. Freight rates have surged due to the attacks, with carriers beginning to accrue war risk surcharges on passages through the Red Sea. As of January 2024, ocean spot rates (the one-time freight fee) for shipping goods from Asia to northern Europe increased by 173 per cent to $4,000, compared with the period prior to diversions in mid-December.[63] Following the UK and U.S. air strikes in January 2024, oil prices rose by four per cent, with Brent crude hitting $80 per barrel.[64] The UK Treasury has modelled conflict scenarios, and forecasts that oil prices could rise by more than $10 a barrel and natural gas up 25 per cent (ibid). This raises inflationary concerns in the short-to-medium term. As we've seen, higher inflation rates can have pronounced effects on trade balances and overall economic stability.

The re-routing of commercial shipping may impact the efficiency of global supply chains

Industries that depend on timely arrival of products or components, such as electronics, are particularly vulnerable to disruptions. Perishable food items could be severely impacted too. The ripple effect of these delays has the potential to create production slowdowns, inventory shortages and, ultimately, financial losses for businesses.

Russia - Ukraine: A conflict with broad trade implications

Continuing escalation of the Russia-Ukraine conflict will pose some of the biggest risks for global trade and the global economy.

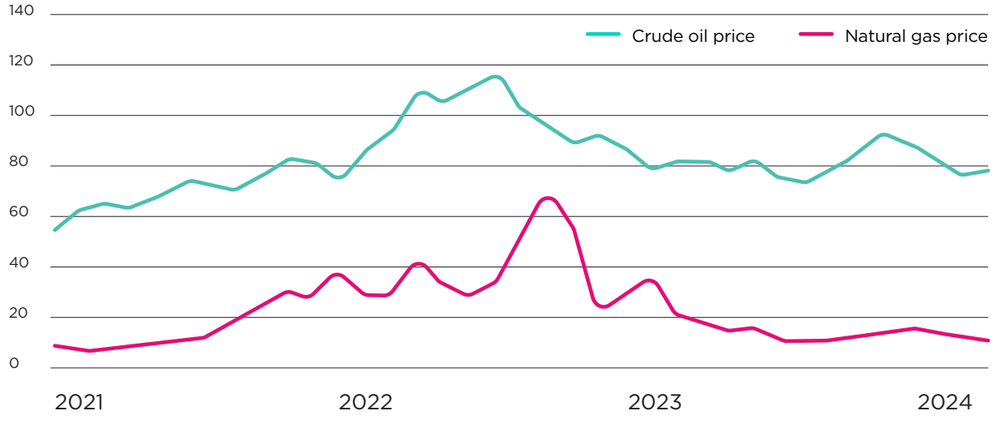
Oil and gas prices have become more volatile since the conflict began

As is shown in Figure 18, these commodity prices have fluctuated considerably since the invasion began in February 2022. If the conflict intensifies or remains unresolved, exacerbated by tensions in the Middle East, it may prompt further fluctuations in oil prices. This could pose a significant risk to global economic expansion and compound inflationary pressure despite emerging signs of a slowdown.

[63] Murray, 2024
[64] Mason, 2024

FIGURE 18

Crude oil and natural gas prices, Jan 2021 - Jan 2024 ($)[65]



Source: IMF, 2024

The war has reduced agricultural exports and has worsened global food insecurity

Ukraine, long known as "the breadbasket of Europe", is a crucial player in the agricultural sector as a major exporter of products such as barley and wheat.[66] As a result, the conflict caused a substantial surge in prices of agricultural commodities, but these have mostly stabilised to pre-invasion levels.

Nevertheless, food price inflation is still a worldwide issue.[67] The collapse of the Black Sea Grain Initiative, vital for sustaining global grain supply, could inflict considerable harm on food trade and exacerbate insecurity. This might further disrupt agricultural supply chains, affecting global food availability and pushing up prices.

Moving forward, the prolonged impact of the conflict on international trade could lead to additional changes in supply chains and trade partnerships. The resilience of the multilateral trade system is under scrutiny as countries adapt to evolving trade dynamics and diversify sources of imports in response to geopolitical changes.

[65] Footnote 65: Chart presents Crude Oil (petroleum), Price index, 2016 = 100, simple average of three spot prices; Dated Brent, West Texas Intermediate, and the Dubai Fateh and Natural Gas, EU/Netherlands TTF Natural Gas Forward Day Ahead, $ per Million Metric British Thermal Unit

[66] Aronson, 2023
[67] WTO, 2023a

SECTION THREE

SECURING GLOBAL SUPPLY CHAIN RESILIENCE

Shifting dynamics of global supply chains

The shifting dynamics of supply chains, especially in Asia, are an important and topical issue for the global economy and trade. In 2023, Mexico overtook China as the largest source for U.S. goods imports, while trade between China and ASEAN continued to increase at a record pace.[68] Energy supply routes have also altered drastically since the start of the conflict in Ukraine, with Asia becoming a top recipient of Russian energy.[69] Additionally, terms such as "de-risking" and "reshoring" have become more prevalent in discussions about international trade and economy among both policymakers and businesses.[70]

China's value chain transformation

China has gradually moved up the value chain, creating new trade opportunities for other Asian countries. As globalisation gained momentum in the 1990s, China's emergence as the "factory of the world" was fuelled by its abundant and cheap labour force. However, as wages have crept higher, Chinese firms have increasingly focused on higher value-added activities, leveraging advanced factories, technology adoption and enhanced workforce skills. This transformation has led to adjustments in the region's supply chains, with multinational corporations adopting alternative sourcing approaches. For instance, the "China Plus One" strategy involves diversifying business operations by establishing a presence outside China while still maintaining a footprint within the country. This has benefitted nearby countries with relatively low labour and production costs such as Vietnam and the Philippines.

[68] Liu et al. 2023 [69] Maguire, 2024 [70] Aiyar and Ilyina, 2023

CHAPTER 2: The Geopolitics of Trade

In sensitive technological sectors, businesses are seeking alternative production locations, creating more efficient supply chain models, and adopting technologies to enhance the agility of their logistics networks.

Diversified suppliers mitigate supply chain risks

To address geopolitical challenges, businesses are seeking to mitigate supply chain risks by diversifying their supplier bases. In sensitive technological sectors, businesses are seeking alternative production locations, creating more efficient supply chain models, and adopting digital technologies to enhance the agility of their logistics networks. This transition, which is a strategic response to the evolving geopolitical environment and economic imperatives, is boosting their ability to withstand and quickly recover from supply chain disruptions. However, supply chain reconfiguration often takes time and is not possible for all sectors. Industries that rely on critical materials that can only be sourced from a single market will be unable to change suppliers, leaving them relatively more vulnerable to shocks.

In the near-term, global trade routes and supply chains are likely to reshape along geographic and political lines, with businesses favouring partnerships with familiar and reliable suppliers. This approach to global trade emphasises the importance of certainty. As a result, businesses are focusing on mitigating risks within their supply chains as well as enhancing their resilience, adaptability and sustainability by establishing more local production centres.

Nearshoring emerges as a key strategy to boost supply chain security

While nearshoring is not new, it has gained considerable traction since the COVID-19 pandemic exposed chronic vulnerabilities in existing global supply chains. It is expected that this trend will continue to pick up steam in the coming years, although the pace and scope will depend on a variety of economic and geopolitical factors, changes in labour costs and consumer preferences. By relocating production and sourcing activities to countries closer by, businesses can benefit from reduced transportation costs and quicker response times.

Governments are strategically adopting nearshoring due to national security considerations. National security in the supply chain context encompasses more than just traditional military and defence concerns, but also the need for uninterrupted access to essential goods and services, ranging from raw materials to advanced technological components. For governments, being overly dependent on single countries for critical materials and products poses considerable risks, particularly given the current heightened level of geopolitical tensions. This is evidenced by the impact of U.S.-China strategic competition, which has triggered a rethink of supply chain dependencies. Similarly, the increase in energy and food prices sparked by the conflict in Ukraine and related supply chain dislocations encouraged a re-routing of trade and logistics. All of this has helped to accelerate the adoption of nearshoring and supply chain diversification strategies by businesses and governments. Economic security will become increasingly important to trade strategy, a change reflected in recent government rhetoric.

Gradual reconfiguration of supply chains could affect international trade in two interlocking ways:

- First, the shift in trade partners is a notable consequence of nearshoring. As businesses move operations closer to their main markets, the realignment of supply chains can lead to the development of stronger regional trade relationships. For example, a U.S. company nearshoring from China to Mexico will increase bilateral U.S.-Mexico trade, affecting U.S.-China trade dynamics.

- Second, as supply chains relocate to a specific region, this can stimulate the development of new regional trade agreements or the expansion of existing ones, facilitating easier and more efficient trade. That said, while greater trade at the regional level offers numerous benefits, such as improved transportation networks and logistics, it can also lead to challenges since increased economic interdependence can make companies vulnerable to regional economic fluctuations.

Despite its growing popularity, several factors might hinder a large-scale adoption of nearshoring strategies in the short term:

- **Entrenched supply chains prevent quick changes.** Supply chains are shaped over decades, creating deep-rooted structures that include long-standing relationships, contracts and specialised infrastructure. Altering these patterns is a complex process that demands meticulous planning and negotiation.

- **Significant capital is required for reconfiguration.** Supply chain reconfiguration necessitates substantial financial resources, with businesses needing to accumulate the necessary capital to fund such changes.

- **Compliance issues could delay supply chain shifts.** Adapting supply chains to new regions involves navigating different regulatory and compliance landscapes. This can prolong the timeline for reorganising supply chains as businesses must align with new legal and regulatory requirements.

- **It takes time to properly assess supply chain risks.** Adjusting supply chains also means evaluating and addressing potential risks associated with the process, including political instability and changes in consumer preferences. These factors are dynamic and require businesses to adopt a gradual, strategic approach to minimise risks and uncertainties.

These factors increase the cost and time associated with supply chain reconfiguration. Businesses will need to carefully weigh these risks against the potential benefits of adopting nearshoring as a strategy. Given the dramatic increase in geopolitical tensions over the last few years, businesses will need to adopt effective risk-management strategies and long-term planning to ensure supply chain resilience.

Asian supply chains undergo major structural changes

China's share of U.S. and Japanese imports has declined. In the five years between 2017 and 2022, China's share of U.S. imports declined from 22 per cent to 16 per cent – evidence of a decoupling in certain products, including semiconductors, IT hardware and consumer electronics.[71] China's share of imports to Japan also dropped between 2018 and 2022, showcasing Japan's commitment to reducing dependency risks. Japan joined other G7 leaders in Hiroshima in May 2023 in saying they would coordinate their "approach to economic resilience and economic security that is based on diversifying and deepening partnerships and de-risking, not de-coupling".[72] Specifically, Japan established a $20 billion fund to encourage investment in the semiconductor industry and imposed export restrictions on more than 20 types of semiconductor manufacturing equipment, bringing its technology trade regulations in line with those of the United States.[73] This has created new trade opportunities for emerging Asian economies that can provide substitutes for Chinese products.

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[71] Freund et al., 2023
[72] Toyoda and Dolan, 2023
[73] Reuters, 2023
[74] Suzuki, 2021

ASEAN is benefitting from new trading opportunities with China and the United States

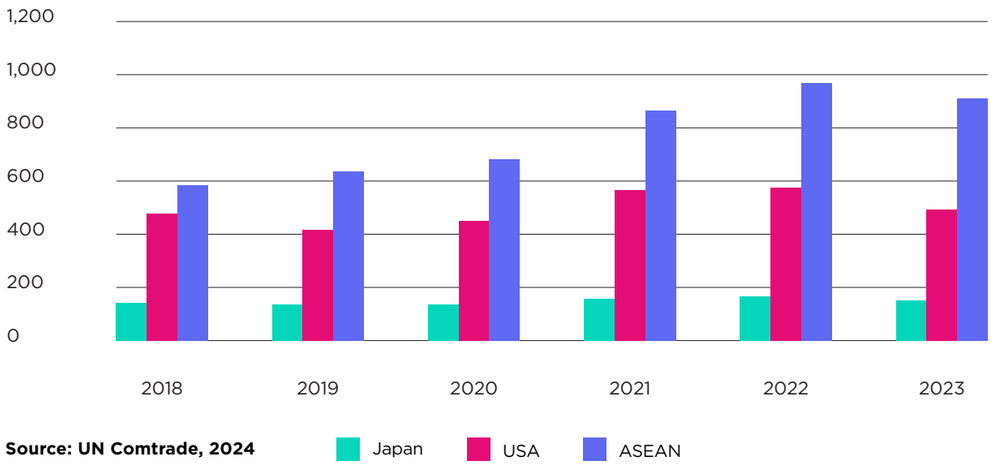
Southeast Asia is accelerating as an attractive destination for export-oriented foreign direct investment as businesses adjust for higher costs of doing business in China.[74] The increase of U.S. tariffs on Chinese imports and further signs of a decoupling of trade have also played a crucial role in this trend. But it is not only the United States that is increasing trade with the region. China, too, is re-focusing on trade with ASEAN as exports of certain products to the United States decline.

A number of structural changes favour the shift to ASEAN:

- **First**, downstream activities such as manufacturing are moving out of China because of two main pressures: the increase in labour costs and the need to avoid higher U.S. tariffs and sanctions on products originating in China.
- **Second**, there has been a strategic shift in supply chain management among multinational businesses to prioritise risk mitigation and supply chain resilience, which in turn has increased investment in production capabilities in countries other than China.

FIGURE 19

China's merchandise exports ($bn) 2018-22



Source: UN Comtrade, 2024

Vietnam and India are emerging as key regional players

As Asia's supply chains evolve, this has led to the rise of new locations in the region's supply chain landscape. Countries that had historically been central to Asia's supply chains, namely China, South Korea and Japan, are being joined by new entrants. Vietnam, for instance, has emerged as a significant manufacturing and export hub, especially in electronics. Attracted by the country's competitive labour costs and relatively stable political environment, companies such as Samsung and Intel have made significant investments. Samsung alone accounted for approximately 20 per cent of Vietnam's total exports in 2022, making Vietnam a crucial node in the global electronics supply chain.[75] Another notable hotspot is India, which is increasingly positioning itself as an alternative to China in sectors such as pharmaceuticals, software services and automobiles.

Over the next few years, it is unlikely that we will witness a reduction in trade, but rather a shift in where trade takes place. While not a wholesale displacement of China, this reconfiguration of global supply chains, driven by a combination of economic and geopolitical factors, offers multinational corporations opportunities to fortify and optimise their logistics networks.

Over the next few years, it is unlikely that we will witness a reduction in trade, but rather a shift in where trade takes place. While not a wholesale displacement of China, this reconfiguration of global supply chains, driven by a combination of economic and geopolitical factors, offers multinational corporations opportunities to fortify and optimise their logistics networks.

[75] Sheldon & Kwon, 2023

Interview: **Dr Robert Yap**, Executive Chairman, YCH Group

COVID-19 significantly disrupted global supply chains and led many businesses to reconsider their operating models. What are the main changes you expect to see regarding global supply chains over the next few years?

Post-COVID, I think there have been a lot of changes in the mindset of stakeholders and, as a result, logistics and supply chain management have become ever more important. One of the key things stakeholders want to achieve is to maintain good connectivity, but this doesn't happen overnight.

What you need to do is look at the infrastructure. One way that we are seeing the supply chain changing is through the China Plus One shift, because of the U.S.-China tensions. Countries such as Vietnam, Cambodia, Indonesia, the Philippines, Malaysia and even Thailand are currently benefitting from this supply chain shift. There is almost a scramble for building logistics and infrastructure. The whole idea is to increase connectivity all over ASEAN.

In many ways, it is an ASEAN connectivity game that we are putting in to raise the bar, so that connectivity for intra-ASEAN trade is seamless. At the same time, this also provides us with security and sustainability in case there's another pandemic. During COVID, there was a disconnect: borders were closed, and companies could not move their products from one place to another. The lack of connectivity then resulted in a lack of trust because even if you had good connectivity, a lot of countries closed their borders. We are trying to build a smart logistics infrastructure across ASEAN so that even if there are disruptions, goods can still flow with a high level of trust. We are focusing on long-term scenarios that ensure supply chains remain stable.

> "We are trying to build a smart logistics infrastructure across ASEAN so that even if there are disruptions, goods can still flow with a high level of trust."

Given the complexity of supply chains, is it possible to completely restructure them and what are the main challenges in doing so?

The complexity surrounding supply chains will always be there. Everybody is stocking up more inventory than necessary and because of the geopolitical tensions, this is further adding to the complexity. I think regarding the supply chain, businesses like us are the solution. People come in when they are facing complexity issues and because of that it allows us to use the art and science of supply chain management to solve their problems. This may be through optimisation, scheduling, planning or network design to ensure that if one source is down, there is another source to take over.

All these competitive challenges augur well for the industry. Every government today is calling for ways to build up the talent pool in the countries to build smart infrastructure.

Over the next few years, we can expect to see ongoing U.S.-China tensions, as well as the likely continuation of conflicts in Ukraine and the Middle East. What impact do you think this will have on global trade?

I think that war is never good for anybody. The agility in most industries, businesses or within countries is now enhanced because of all the uncertainties. The ability of supply chains to reconfigure is by far becoming a winning factor for most countries. The impact we are seeing now is that the manufacturing drifts to other countries. For instance, India is becoming a strong beneficiary of the geopolitical tensions.

In other parts of Asia, I would think that the wars would not significantly stop the development of the fast-growing Asian economies. In fact, the impact will influence the direction of evolving manufacturing supply chains. The trouble with all these wars is we cannot predict what will happen. So far, today, I don't think there is a major impact.

As well as the geopolitical risks, the ongoing Red Sea crisis is emerging with increasing attacks on commercial vessels. What impact will this have on international trade and supply chains over the next few years?

Of course this will have an impact. The international community is looking at how to contain these attacks on ships. Although I believe it's temporary, this will lead to longer lead times and longer supply chains and this is going to have some impact on trade. This will result in higher prices that will probably be transferred to the consumer, resulting in inflation, which we are already experiencing. However, I don't think this will last.

The agility in most industries, businesses or within countries is now enhanced because of all the uncertainties. The ability of supply chains to reconfigure is by far becoming a winning factor.

And what strategies can businesses involved in international trade adopt to mitigate against these future geopolitical risks?

For businesses, they can mitigate against these future geopolitical risks by staying agile. For instance, this could be related to training your employees. Businesses should upskill their workers so that they are "ready" for any kind of situation. This could be in the form of digitisation. At YCH, we are staying agile by reskilling our talent pool. We are doing this so that we can pivot towards the opportunities that present themselves. For example, we can move into any country. We have helped customers to move their entire supply chain into Vietnam or Indonesia from China. Despite today's uncertainties, my biggest advice for companies is to hold down a job. The ability to hold a job comes with a lot of preparation.

How do you expect YCH will evolve over the next few years in response to increasing geopolitical tensions and tough macroeconomic conditions?

In the short term, the external shocks will not affect us as we have planned for the long term. We have invested in countries that will continue to grow and whilst their growth will be slow now, we are confident it will increase. Our strategy has always been investing in the network. We believe in connectivity. For example, if you are one of our customers, you can leverage our network all over Asia and move your products in the Asia Pacific region. At the same time, we have a lot of depth in each of the countries. At YCH, we have a lot of people to handle the operations. We have thousands of people in Indonesia, India, and Vietnam etc. and so we have the depth and distribution needed to stay agile in response to the tough macroeconomic conditions and geopolitical tensions.

SECTION FOUR

THE FUTURE OF THE WORLD TRADE ORGANIZATION

The World Trade Organization (WTO) faces a number of challenges that have put its future role in the global trade landscape under scrutiny. Amidst rising protectionism, geopolitical tensions, and the evolving nature of trade dynamics, the WTO confronts significant obstacles in fulfilling its mandate to facilitate international trade and resolve trade disputes.

Scepticism of the WTO's remit and abilities to function became especially pointed during Donald Trump's presidency, ultimately leading to threats by the United States to withdraw from the WTO altogether. Whilst these were part of Washington's wider hostility to multilateralism and China, the criticisms shone a light on wide held concerns surrounding the WTO's role in the world. Even among its champions, many believe the WTO is outdated and lacks the authority, flexibility and effectiveness needed to regulate complex modern trade issues such as digital trade and environmental concerns. This underscores the urgency for reforms to enhance its relevance and responsiveness. Moreover, the organisation's dispute settlement mechanism has encountered setbacks due to the paralysis of its Appellate Body, limiting its ability to enforce trade rules effectively.

The WTO's future hinges on its ability to adapt to the changing global trade environment. It must find a way to bridge its duty to multilateralism in an increasingly divided world. In doing so, political leadership and innovation must be found to drive consensus and ambition among its diverse membership. Against a tide of rising protectionism, conflicts and regionalisation, the challenges faced by the WTO to regain credibility as the preeminent institution for governing international trade relations are significant and a further risk to stability in the global trade landscape.

Navigating modern challenges

The WTO confronts numerous hurdles in its efforts to promote open and fair trade. Recent global crises have triggered the introduction of protectionist policies by various WTO members. From 2009 to 2023, governments worldwide launched 25,000 subsidies as protectionist measures.[76] The annual average of export restrictions was 21 between 2016 and 2019, rising to 139 in 2022.[77]

In response, the WTO has warned that such protectionist measures could strip the global economy of 5 per cent of its total income.[78] The paralysis of the WTO's Appellate Body and dispute settlement mechanism is a fundamental issue which remains unresolved. Since the early 2000s, the United States has been voicing its concerns about the Appellate Body engaging in judicial overview, exceeding its mandate, and having a non-justifiable national security exception. In 2016, then U.S. President Barack Obama vetoed the appointment of arbiters, and subsequently President Donald Trump intensified these actions by blocking appointments of judges. In effect, by 2019 the Appellate Body was no longer functioning.[79] Current U.S. President Joe Biden has not reversed this measure, and there are 29 unresolved cases worth billions of U.S. dollars that threaten the credibility of the WTO and its future role in shaping trade policy.

[76] Dyvik, 2023
[77] Blenkinsop, 2023
[78] ibid
[79] Aarup, 2023

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Appellate Body impasse

The WTO appears stifled by the U.S.'s unwillingness to resolve the dispute resolution body impasse. During the 13th WTO Ministerial Conference in Abu Dhabi in March 2024, members agreed that by the end of the year there must be a well-functioning dispute settling system in place. WTO Director-General, Dr Ngozi Okonjo-Iweala confirmed proposals for reform would be readied by the summer. However, there is an insufficient number of members on the Appellate Body to unanimously hear appeals and approve amendments. Consequently, the Appellate Body cannot effectively address and adopt proposed reforms, hindering the WTO's ability to solve trade disputes.

Most WTO members agree on the need for Appellate Body reform, but there's disagreement on timing. The United States wants reform discussions after the 2024 Presidential election.[80] Regardless of the outcome, neither a Democrat nor Republican administration is likely to prioritise the WTO over national security. In addition, successive U.S. administrations have maintained that the Appellate Body has overstepped its jurisdiction by engaging in judicial activism through the creation of new rules, negatively impacting U.S. jobs and industries. Consequently, the Biden Administration has kept various American protectionist duties from the Trump era, including the paralysis of the WTO's Appellate Body.

The United States wants individual countries to decide whether they can invoke a national security exception to trade rules. Article 21 of the WTO's General Agreement on Tariffs and Trade asserts that members can adopt protectionist policies when trade threatens national security, times of war, or emergency, a decision which is usually made by the Appellate Body. America's ability to influence what it believes is a national security threat has promoted a rise in the use of protectionist measures in a time of tense U.S.-China relations – and will likely be continued regardless of the outcome of the U.S. elections in 2024.

Little progress in key multilateral negotiations

The required consensus among the 146 members to promote free trade and prevent unilateral measures is difficult to achieve. During the conference, no progress on agricultural trade was made. Negotiations on the elimination of fishing subsidies that would have reduced illegal fishing, overfishing, and overcapacity, were blocked by India. A deal for investment facilitation was also blocked by India and South Africa.[81] Whilst an agreement was reached not to extend customs duties on electronic transmissions, the failure to reach agreement on longstanding trade issues such as fisheries and agriculture cast further doubt on the WTO's ability to regulate more modern trade challenges such as digital and environmental trade.

[80] Aarup, 2023
[81] Council of Foreign Relations, 2024

What is the future for the WTO?

The role of the WTO in promoting, shaping, and facilitating international trade is in decline. The election of either Biden or Trump in 2024 is likely to exacerbate this trend. Looking ahead, further regionalisation can be expected, facilitated by bilateral and multilateral agreements that enable trading nations to lower tariffs and diverge from the WTO's Most Favoured Nation rule.

As a case in point, countries in the GCC such as the UAE have expanded their bilateral ties, particularly with Asian nations. The GCC has signed Comprehensive Economic Partnership Agreements with India, Indonesia, Israel, Turkey, and Cambodia, and there are 26 others in progress.[82]

Some of these agreements, namely the UAE-India CEPA, have resulted in positive net trade increases. These have undeniable trade benefits, reducing tariffs and trade barriers whilst increasing inter-regional market access. However, they do little to further the WTO's multilateralist agenda and, in the wider fragmentation of the trade landscape, could further corrode the WTO's abilities to regulate.

The WTO's evolving role: A facilitator of global green and digital trade?

For the first time in the WTO's history, at the end of 2021 the organisation adopted three ministerial decisions that emphasised combatting climate change as global trade's priority. These included the Trade and Environmental Sustainability Structured Discussions, Informal Dialogue on Plastics Pollution and Environmentally Sustainable Trade, and the Fossil Fuel Subsidy Reform. 81 countries signed at least one of the declarations, representing 86 per cent of global trade.[83]

This demonstrated that the WTO's role in shaping and facilitating global trade may be shifting towards global sustainability challenges. Its Investment Facilitation for Development Agreement could be applied to climate-aligned capital flows, which would facilitate climate FDI into various economies that are trailing on their climate strategies.[84] Member states could also collaborate to phase out fossil fuel subsidies through initiatives such as the Trade and Environment Sustainability Structured Discussions, which consists of 76 WTO members that collaborate on how to create sustainable supply chains.[85] Therefore, the WTO can become a vital forum, particularly given the urgent need for global climate action, in which its members collaborate to address climate change through trade.

Meanwhile, against the rapid advances of technology, the WTO also has a crucial opportunity to lead discussions and policymaking on innovation and technology which are also important for the green transition. Developing permanent rules on digital services is essential to facilitate the free flow of trade, fostering economic growth through technology and innovation.[86]

[82] Aarup, 2023
[83] Council of Foreign Relations, 2024
[84] Council of Foreign Relations, 2024
[85] Aarup, 2023
[86] Council of Foreign Relations, 2024

KEY TAKEAWAYS

1. Geopolitics will drive a rerouting of trade. Ongoing conflicts and the realignment caused by U.S.-China tensions have already triggered a shift in trading patterns.
2. Countries including Mexico, Vietnam and other ASEAN members are likely to benefit as countries shift activities to counter China.
3. Supply chain strategies will change because of geopolitical tensions. Business models will move away from cost-saving towards resilience and economic security.
4. Middle powers such as the UAE and ASEAN will see a boost in trade with multiple trading partners as they will be less constrained by political tensions.
5. Nearshoring will become a key strategy for governments and businesses on the basis of economic security and supply chain resilience. The result will be new trade routes and a reshaping of supply chains along geographic and political lines.
6. The WTO faces a number of existential challenges that threaten its role in the global trade landscape. In an increasingly polarised world, the WTO must find solutions to the dispute resolution body impasse and drive new consensus among its divided members, or face a drift into irrelevance.

Recommendations for businesses:

1. **Elevate geopolitical risk awareness**. Geopolitical risk should be a top-level concern, addressed by both the board and executive committee. Regular scenario planning sessions, involving key decision-makers, are essential to anticipate potential geopolitical developments and their implications for business operations. This proactive approach enables businesses to develop contingency plans and mitigate risks effectively.
2. **Monitor economic security policies to maintain operational resilience**. Economic security considerations are increasingly shaping domestic government policies. Businesses should stay vigilant and continuously monitor potential shifts in government policies, and their impacts on business operations. Analyse the potential consequences of policy changes, both intended and unintended, to adapt strategies accordingly and maintain operational resilience.
3. **Communicate supply chain risks to key stakeholders**. Proactively engage with authorities and other critical stakeholders to communicate the risks facing supply chains. By fostering open dialogue and sharing insights, businesses can contribute to informed decision-making on trade policy and negotiations.
4. **Prepare for regulatory changes**. Businesses should anticipate an increasingly protectionist regulatory environment and be prepared to adapt accordingly. This may involve restructuring operations, establishing new legal entities, or relocating business activities to align with evolving regulations.
5. **Regularly assess supply chain vulnerabilities**. Continuously review supply chains to identify vulnerabilities and assess potential disruption risks from regional shocks. Conducting regular risk assessments allows businesses to proactively address weak points in their supply chains and implement mitigation strategies to minimize the impact of unforeseen events.
6. **Develop regional expertise and local intelligence**. As supply chains are restructured in response to geopolitical shifts, understanding diverse national laws, regulations, data restrictions, and trade barriers becomes increasingly important. Businesses should invest in resources and capabilities that facilitate effective risk management, such as developing regional expertise and local knowledge.

Recommendations for governments:

1. **Develop trade diversification strategies to mitigate geopolitical risk**. By diversifying trade partners and markets, governments can reduce dependence on volatile regions and enhance economic resilience. Trade policymakers should prioritise strategic trade diversification initiatives to adapt to the rerouting of trade driven by geopolitical tensions. This includes fostering partnerships with fast-growing emerging markets like Mexico, Vietnam, and ASEAN.
2. **Consider financial support for critical import supply chain resilience**. Recognising the changing dynamics of supply chain strategies, governments should incentivise businesses to boost resilience and economic security. This may involve providing financial incentives, tax breaks, or subsidies to encourage investment in local manufacturing capabilities, diversification of suppliers, and adoption of resilient supply chain practices.
3. **Build partnerships with the UAE and other global trade facilitators**. Countries like the UAE and ASEAN member states are poised to benefit from their geopolitical neutrality and diverse trade relationships. Governments should foster partnerships and trade agreements with these powers to facilitate increased trade flows and investment opportunities. By leveraging their strategic geographic locations and trade-friendly policies, they can serve as key hubs for regional trade and economic integration.
4. **Support efforts to reform the WTO**. The World Trade Organization fulfils a critical role in the global trade landscape. Governments must actively engage with reform efforts to address the existential challenges facing the WTO and ensure its relevance and effectiveness in the future. Most urgently, this includes finding solutions to the dispute resolution mechanism impasse.

CHAPTER 2: The Geopolitics of Trade

REFERENCES
FOR CHAPTER II

Aarup, S.A. (2023). 'Reform or die? If the US Gets Its way, the WTO Might Do Both.' POLITICO. Available at: https://www.politico.eu/article/reform-die-usa-washington-world-trade-organization-wto-ngozi-okonjo-iweala-joe-biden/

Aiyar, Y., & Ilyina, A. (2023). 'Geo-Economic Fragmentation: What It Means for Multilateralism', Centre for Economic Policy Research. Available at: https://cepr.org/voxeu/columns/geo-economic-fragmentation-what-it-means-multilateralism

Anderson, J. (2023). 'Troubled Waters: Impact of the Red Sea Crisis on the Economies of Egypt, Israel, and Jordan', Jane's Defence News. Available at: https://www.janes.com/defence-news/news-detail/troubled-waters-impact-of-the-red-sea-crisis-on-the-economies-of-egypt-israel-and-jordan

Aronson, C. (2023). 'Putin's War Is Slowly Destroying Europe's Breadbasket', Politico. Available at: https://www.politico.com/news/magazine/2023/07/21/ukraine-grain-harvest-00107212

Banks, A. (2023). 'How Inflation Reduction Act Electric Vehicle Incentives Are Driving a U.S. Manufacturing Renaissance', Center for American Progress. Available at: https://www.americanprogress.org/article/how-inflation-reduction-act-electric-vehicle-incentives-are-driving-a-u-s-manufacturing-renaissance/#:~:text=More%20than%20a%20dozen%20new,the%20first%20year%20of%20implementation.

Blenkinsop, P. (2023). 'At WTO, growing disregard for trade rules shows world is fragmenting.' Reuters. Available at: https://www.reuters.com/business/wto-growing-disregard-trade-rules-shows-world-is-fragmenting-2023-10-02/
w
Botwright, K. (2024). 'The WTO is our best bet for building a global green economy.' World Economic Forum. Available at: https://www.weforum.org/agenda/2024/03/world-trade-organization-wto-green-economy/

Brown, N. (2022). 'Four Years into the Trade War: Are US and China Decoupling?', Peterson Institute for International Economics. Available at: https://www.piie.com/blogs/realtime-economics/four-years-trade-war-are-us-and-china-decoupling

Cheng, L. (2023). 'China Says Drop in Trade with US Is Direct Consequence of US Moves', CNBC. Available at: https://www.cnbc.com/2023/08/31/china-says-drop-in-trade-with-us-is-direct-consequence-of-us-moves.html

Council of Foreign Relations (2024). 'The WTO at a Crossroads: What the Failed Ministerial Conference Means.' Council of Councils. Available at: https://www.cfr.org/councilofcouncils/global-memos/wto-crossroads-what-failed-ministerial-conference-means

Dyvik, E.H. (2023). 'Most often used anti-trade liberalization policies 2020.' Statista. Available at: https://www.statista.com/statistics/912064/most-often-used-trade-protectionism-measures-worldwide/

Gill, S., & Kose, M. (2024). '5 Risks to the Global Economy in 2024', Brookings Institution. Available at: https://www.brookings.edu/articles/5-risks-global-economy-2024/

IMF. (2024). 'IMF Primary Commodity Prices', International Monetary Fund. Available at: https://www.imf.org/en/Research/commodity-prices

Freund, C., Mattoo, A., Mulabdic, A., and Ruta, M. (2023). 'Is US Trade Policy Reshaping Global Supply Chains?', World Bank. Available at: https://openknowledge.worldbank.org/server/api/core/bitstreams/bac39b6e-90ef-442a-959a-83d5d6cc7b48/content

Hoskins, J. (2024). 'Oil prices hit seven-year high as US warns on Russia energy', BBC News. Available at: https://www.bbc.co.uk/news/business-68201370

Kelly, E., & McCabe, T. (2021). 'Biden unveils historic $325B research and innovation plan', Science Business News. Available at: https://sciencebusiness.net/news/biden-unveils-historic-325b-research-and-innovation-plan

Lim, A.H., Ramos, D. and Kiskinova, G. (2022). 'Where Do WTO Trade and Environmental Sustainability Initiatives Stand Today?' International Institute for Sustainable Development. Available at: https://www.iisd.org/articles/policy-analysis/where-do-wto-trade-and-environmental-sustainability-initiatives-stand

Liu, K., Koo, S., and Shi, S. (2023). 'How Covid-19 may change global trade forever', Commonwealth Magazine. Available at: https://english.cw.com.tw/article/article.action?id=3543

Maguire, L. (2024). 'Oil demand in Asia, Africa boosted by cheap Russian crude', Reuters. Available at: https://www.reuters.com/markets/commodities/oil-demand-asia-africa-boosted-by-cheap-russian-crude-2024-01-24/

Mason, C. (2024) 'What the Red Sea shipping crisis could mean for energy and fuel prices', inews. Available at: https://inews.co.uk/inews-lifestyle/money/bills/red-sea-shipping-crisis-energy-fuel-prices-2850871

Nair, D. and Kamel, D. (2023). 'UAE working on 26 comprehensive economic partnership agreements, minister says.' The National. Available at: https://www.thenationalnews.com/business/economy/2023/03/02/uae-working-on-26-comprehensive-economic-partnership-agreements-minister-says/

Palmer, D. (2022). 'WTO says Trump's steel tariffs violated global trade rules.' POLITICO. Available at: https://www.politico.com/news/2022/12/09/wto-ruling-trump-tariffs-violate-rules-00073282

Picciotto, R. (2024). 'Trump floats 'more than' 60% tariffs on Chinese imports.' CNBC. Available at: https://www.cnbc.com/2024/02/04/trump-floats-more-than-60per cent-tariffs-on-chinese-imports.html

Reuters. (2023). 'Japan ramps up efforts to strengthen its chip industry', Available at: https://www.reuters.com/markets/asia/japan-ramps-up-efforts-strengthen-its-chip-industry-2023-06-26/

S&P Global. (2023). 'Global trade at risk as shippers shun Red Sea over Houthis' attacks', S&P Global. Available at: https://www.spglobal.com/commodityinsights/en/market-insights/latest-news/shipping/121523-global-trade-at-risk-as-shippers-shun-red-sea-over-houthis-attacks

Seong, J., White, O., Birshan, M., Woetzel, Lamana, C., Condon, J., and Devesa, T. (2024). 'Geopolitics and the Geometry of Global Trade', McKinsey & Company. Available at: https://www.mckinsey.com/mgi/our-research/geopolitics-and-the-geometry-of-global-trade#/

Sheldon, P., & Kwon, S.H. (2023). 'Samsung in Vietnam: FDI, Business–Government Relations, Industrial Parks, and Skills Shortages', The Economic and Labour Relations Review, 34(1), pp. 66-85.

Suzuki, H. (2021). 'Building Resilient Global Supply Chains: The Geopolitics of the Indo-Pacific Region', Centre for Strategic & International Studies. Available at: https://www.csis.org/analysis/building-resilient-global-supply-chains-geopolitics-indo-pacific-region

The Economist. (2023). 'Attacks on shipping in the Red Sea are a blow to global trade', The Economist. Available at: https://www.economist.com/business/2023/12/19/attacks-on-shipping-in-the-red-sea-are-a-blow-to-global-trade

Toyoda, Y., & Dolan, D. (2023). 'G7 pledge to de-risk China reflects concerns in Europe, Japan', Reuters. Available at: https://www.reuters.com/world/g7-pledge-de-risk-china-reflects-concerns-europe-japan-2023-05-22/#:~:text=Biden%20also%20said%20the%20%22de,Canon%20Institute%20for%20Global%20Studies

UN Comtrade Database. (2024). 'Trade Data', UN Comtrade Database. Available at: https://comtradeplus.un.org/TradeFlow?Frequency=A&Flows=M&CommodityCodes=TOTAL&Partners=0&Reporters=156&period=2023&AggregateBy=none&BreakdownMode=plus
Uppsala Conflict Data Program. (2024). 'Uppsala Conflict Data Program', Department of Peace and Conflict Research. Available at: https://ucdp.uu.se/

Wolff, A.W. (2023). 'Discarding a Utopian Vision for a World Divided: The Effect of Geopolitical Rivalry on the World Trading System', Peterson Institute for International Economics. Available at: https://www.piie.com/commentary/speeches-papers/discarding-utopian-vision-world-divided-effect-geopolitical-rivalry

World Bank. (2023). 'Protectionism Is Failing to Achieve Its Goals and Threatens the Future of Critical Industries', World Bank. Available at: https://www.worldbank.org/en/news/feature/2023/08/29/protectionism-is-failing-to-achieve-its-goals-and-threatens-the-future-of-critical-industries

WTO (2020). 'Trade and environmental sustainability.' WTO. Available at: https://www.wto.org/english/tratop_e/tessd_e/tessd_e.htm
WTO. (2023a). 'One year of war in Ukraine: Assessing the impact on global trade and development', World Trade Organisation. Available at: https://www.wto.org/english/res_e/publications_e/oneyukr_e.htm

WTO. (2023b). 'Report shows many G20 export restrictions remain in place, including on food and fertilizers', World Trade Organisation. Available at: https://www.wto.org/english/news_e/news23_e/trdev_04jul23_e.htm

WTO (2024). MC13 ends with decisions on dispute reform, development; commitment to continue ongoing talks. WTO. Available at: https://www.wto.org/english/news_e/news24_e/mc13_01mar24_e.htm

Zahoor, N., Wu, J., Khan, H., & Khan, Z. (2023). 'De-globalization, International Trade Protectionism, and the Reconfigurations of Global Value Chains', Management International Review, 63(5), pp. 823-859.

CHAPTER 2: The Geopolitics of Trade

CHAPTER III

THE DAWN OF AI

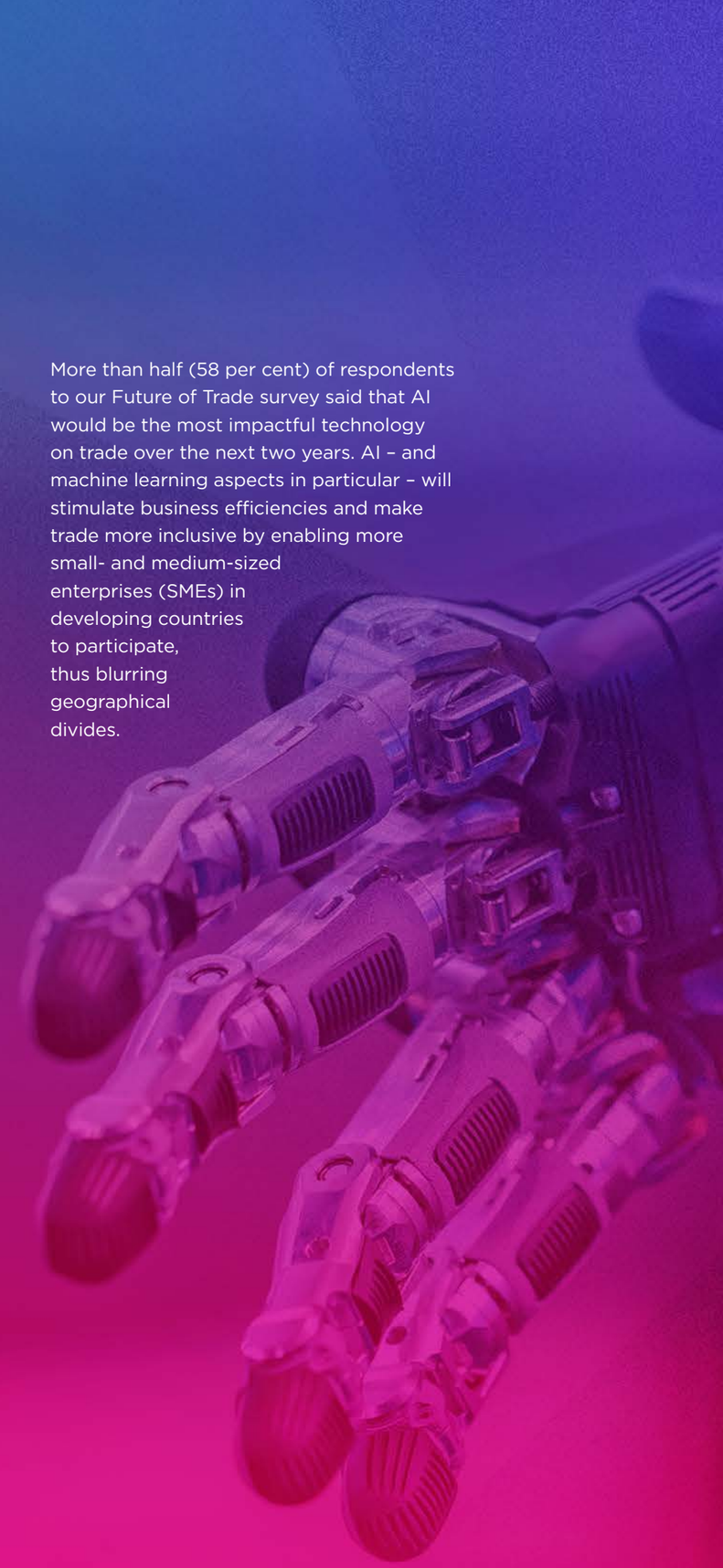
A TECHNOLOGY TO REVOLUTIONISE GLOBAL TRADE

The transformative impact of technology on global trade is set to increase dramatically over the next two years. Artificial Intelligence (AI), alongside other existing and emerging technologies, will be a key driver in increasing efficiencies and reducing costs.

Semiconductor chips will remain central to AI advancement and an integral component across the digital economy. However, the semiconductor industry will be forced to contend with mounting geopolitical tensions, particularly the U.S.-China battle for technological leadership. The rapid digitalisation of economies and burgeoning e-commerce growth will catalyse far-reaching alterations to trade. Such growth faces key risks from fragmented regulations and a lack of common standards for cross-border data flows.

This chapter examines AI, the semiconductor industry, cryptocurrencies and Central Bank Digital Currencies (CBDCs), and the potential of blockchain technology to increase e-commerce, track shipping, reduce costs and bring more transparency to supply chain operations. We will also examine the inclusion of digital chapters in trade agreements, including the Comprehensive and Progressive Trans-Pacific Partnership (CPTPP) and the Regional Comprehensive Economic Partnership (RCEP), and examine how governments are approaching policies to facilitate digital trade and data flows.

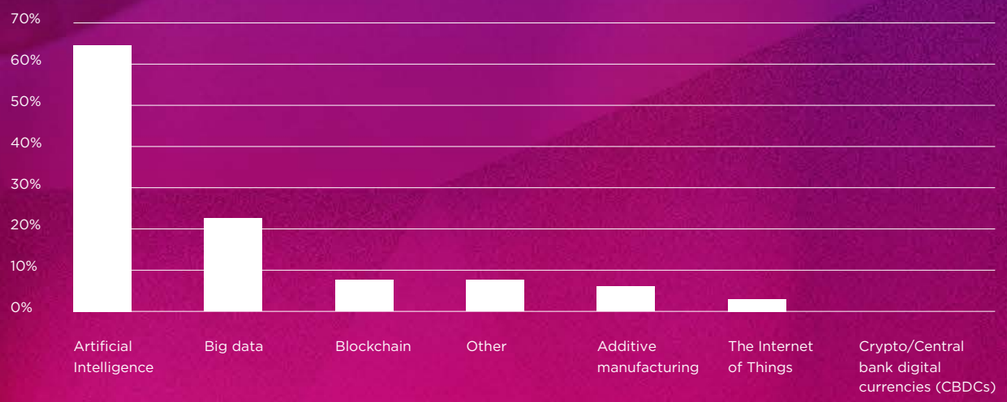
More than half (58 per cent) of respondents to our Future of Trade survey said that AI would be the most impactful technology on trade over the next two years. AI – and machine learning aspects in particular – will stimulate business efficiencies and make trade more inclusive by enabling more small- and medium-sized enterprises (SMEs) in developing countries to participate, thus blurring geographical divides.



In our previous Future of Trade 2022 report, blockchain was viewed as having huge potential to enhance cross-border trade through reducing transaction times, increasing traceability and overall improving efficiencies. However, industry experts agree that the advantages of blockchain have not come to fruition due to slow adoption and a lack of international regulation and data standardisation. In this report's Future of Trade survey, only 9 per cent of respondents identified blockchain as the innovation that would have the greatest impact on trade.

FIGURE 20

Which technology will have the greatest impact on global trade over the next two years?[87]



Source: DMCC Future of Trade survey, 2024

[87] Respondents who answered "other" also mentioned electrification of transport, robotics, green tech and technologies enabling low carbon.

SECTION ONE

TECHNOLOGIES THAT WILL TRANSFORM TRADE

Artificial Intelligence – new trade frontier

AI is already revolutionising trade, but it is still in its infancy with further far-reaching implications for trade, businesses and society that have yet to emerge.

AI is projected to add $15 trillion to the global economy by 2030, with far-reaching implications for international trade.[88] Amongst AI technologies, which use machine and computer systems to perform tasks and produce intelligence rather than humans, generative AI has gained traction. Whereas traditional AI was designed for specific tasks and generated calculations based on data as opposed to "new" outputs, generative AI models are trained on existing, real-world content until they can produce "original", creative outputs, including text, images, video and synthetic data. ChatGPT, for instance, draws upon a large language model to generate text responses that are hard to distinguish from human-created output.

[88] ITA, 2023a

CHAPTER 3: The Dawn of AI

AI is projected to add $15 trillion to the global economy by 2030, with far-reaching implications for international trade.

The impact of generative AI advances will be most prominent in highly tradeable sectors.

More than 90 per cent of AI-related patent filings are concentrated in five industries: computer and electronics, machinery, IT services, transport equipment and electrical equipment.[89] IT services and computer and electronics jointly account for about 70 per cent of AI-related trademarks.[90] Most of these sectors are deeply embedded in international trade, suggesting AI innovation will have a significant impact on the future of trade.

[89] Ferencz et al., 2022
[90] Ferencz et al., 2022

AI's transformative role on trade

AI will optimise supply chains by making their management more efficient and reducing trade costs.

The increased automation of cognitive tasks, using algorithms and data to make predictions, will allow for more streamlined "smart manufacturing". This will enable more accurate forecasting of consumer demand, more effective inventory management and improved supply chain logistics. Greater logistical efficiency and accuracy will in turn reduce costs and increase trade productivity.

AI will boost supply chain resilience and reduce the risk of disruptions.

Real-time AI-generated data and insights will enable more extensive supply chain monitoring. This will underpin better risk management strategies, mitigating supply chain disruptions and making global trade more resilient. AI will be indispensable in managing future supply chain shocks, such as those seen during the COVID-19 pandemic.

AI will automate more trade services and operations, increasing accuracy.

For example, the automation of e-invoicing and customer service via document processing and chatbots will reduce administrative processes in trade. This will boost sustainability, create efficiencies and reduce operational costs.

Automated services will increase trust in trade finance.

AI can better identify fraud, counterfeiting and illicit activities by interrogating financial records, transaction data and shipping information, allowing businesses to identify suspicious patterns or anomalies. This increases accuracy and trust, including in risk assessment and credit scoring.

AI will enhance market analysis and competitive intelligence, including in e-commerce.

Its ability to process and analyse large quantities of data quickly from multiple sources, including trade databases, market reports and social media, as well as to generate new data on emerging trends in consumer preferences and market demands, will enable businesses to make better decisions and to respond more quickly to changes in the economic landscape. This will help boost trade volumes.

AI will reduce global trade barriers and enable better compliance, increasing market access.

AI's large language models will enable real-time translation, breaking down language barriers between buyers and sellers across borders. AI can also help businesses navigate international trade regulations and compliance requirements, making cross-border trade more inclusive, particularly for SMEs. E-commerce retailers in particular will benefit

Obstacles to AI's impact on global trade

While AI offers extensive opportunities, there are also challenges that need to be addressed if trade is to feel the full effects of its transformative potential. Standardised regulations across countries are needed.

Regional trade agreements (RTAs) increasingly feature provisions relating to AI, but there is still a dearth of globally harmonised regulation, with divergent rules across jurisdictions on data privacy and intellectual property rights. This regulatory divergence poses challenges to deploying AI on a global scale, while conflicting rules also require businesses to invest more in ensuring compliance, potentially slowing down AI's adoption. While the United States had traditionally set the global standard for regulation of technology, rules related to AI are emerging at different speeds across the world, making the regulatory terrain increasingly difficult for businesses that trade internationally to navigate.

AI's high associated costs will lead to uneven adoption, exacerbating global trade inequalities.

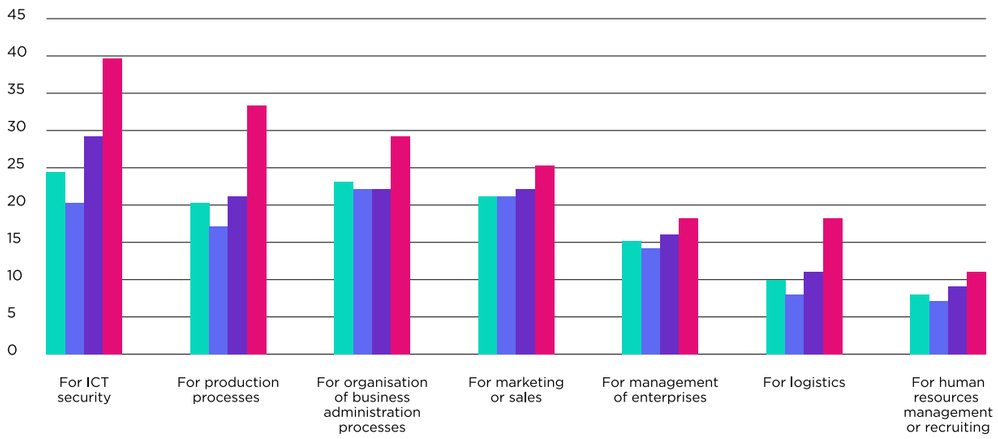
Adopting any new technology requires knowledge and expertise, resources and infrastructure. With prices of Graphical Processing Units (GPUs) high and rising and supplies of these vital chips scarce, the cost of training an AI model can be astronomical.[91] These costs may limit AI adoption to large companies and developed countries. Large enterprises currently dominate the industry, particularly in production (see Figure 21). This means developed countries with advanced digital infrastructure can more effectively leverage AI than developing countries. AI's global uptake will depend on its accessibility to all players along the supply chain, including SMEs and developing countries. This challenge may subside as more GPU options come to the market and at lower prices.

AI requires high-quality and reliable data to be effective.

The value of outputs generated by AI and its algorithms depends on the quality of its input data. This is also critical in avoiding so-called "hallucinations" where generative AI platforms try to fill in the gaps in data sets to provide an answer to a prompt. This means greater investment in digitalisation, data-driven processes and data infrastructure will be needed.[92] Again, this may limit AI adoption to large companies and developed countries. In the long term, AI will make data more valuable, since it is the most important input for the technology's functionality.

FIGURE 21

Enterprises using AI software and systems by type of purpose and economic activity, EU, 2021, percentage of enterprises using at least one AI technology



Source: Eurostat, 2023

[91] Smith, 2023
[92] Zamani et al., 2022

The current state of AI regulation

Despite international appeals for the ethical and responsible use of AI, regulation remains a patchwork that varies among countries, and there has been limited progress towards developing a global AI policy.

Disparities in AI regulation exist even among jurisdictions with similar levels of development (e.g. the United States and EU).[93]

The cornerstone of the EU's AI governance strategy is the implementation of extensive legislation such as its new AI Act – the world's first sweeping AI law.

As the first jurisdiction to regulate AI, the EU has set bloc-wide AI governance precedents and a regulatory framework that foreign companies must comply with to access EU markets. Launched in December 2023, the Act adopts a risk-based framework, categorising AI applications into tiered risk levels, imposing stricter regulation for its use in high-risk, high-impact sectors such as education, healthcare and policing. It bans AI tools deemed to carry unacceptable risks.[94] The EU also passed the Digital Services Act and Digital Markets Act and is working on the AI Liability Directive, which will allow individuals harmed by AI technology to claim financial compensation.

[93] Krummenacher, 2023
[94] Engler, 2023; Heikkilä, 2023

China has also been steadily introducing AI legislation and is moving toward a comprehensive regulatory approach.

In 2023, China issued regulations for AI that attempted to strike a balance between oversight and innovation. These include mandating conspicuous labels on AI-generated content like photos and videos, and requiring companies to use 'legitimate data' to train their models and to disclose that data to regulators.[95] China's state council also announced it has a comprehensive AI law on its legislative agenda – legislation potentially akin to the EU's AI Act. This suggests the emergence of a consolidated approach to AI governance.[96] Chinese AI companies such as SenseTime and Baidu trail American companies such as OpenAI and Google, which are subject to a far lighter regulatory burden.

The United States, in contrast, has taken a cautious approach to regulating AI and technology in general, focusing on risk-based and sector-specific rules.[97]

AI competitiveness is important for the domestic economy and national security of the United States, which is home to the world's largest tech companies, including Microsoft, Google and Meta. The White House has announced guidance on AI's responsible use, including in federal agencies, adopting safeguards, and improving public transparency,[98] However, it has yet to enact serious federal legislation and any regulations that have been proposed remain in the early stages.[99] This hands-off approach has enabled Silicon Valley companies to thrive. It does, however, carry risks for AI and presents an obstacle to the development of global standards.

[95] Zheng and Zhang, 2023
[96] Ryan-Mosley et al., 2024
[97] Engler, 2023
[98] The White House, 2024b
[99] Zheng and Zhang, 2023

Considering current disparities in AI regulation, a cohesive international framework remains elusive.

A patchwork of domestic legislation will continue to govern AI over the short to medium term. This has implications for global trade. Strong regulatory frameworks in jurisdictions such as the EU and China will encourage trade of AI-related products and encourage trust in AI applications. The failure of the United States to take a similarly robust approach will obstruct the evolution of a unified global regulatory framework, particularly since some of the central players in the AI space are based there.

AI regulatory instruments will increase as countries grapple with AI's rapid evolution.

AI regulation will necessitate collaboration between governments and the private sector. As the dominant AI innovators, technology companies will need to be directly involved in its governance.

AI regulation will need to address risks without stifling innovation and opportunities for trade.

AI will develop rapidly in the coming years. Given that regulation is trailing its progress, striking this balance is crucial but challenging.[100] Reforms will need to be responsive to innovation, embrace benefits for trade and minimise risks. Technology companies will be watching the progress of regulation intently. Startups in Europe have already expressed concern that heavier legislation in the EU will hinder innovation, create new barriers to entry and slow down AI deployment.[101] By stifling innovation, over-regulation could place Europe at a competitive disadvantage with higher operational costs compared to the United States. With greater regulatory freedom and a head start on global competition, American tech companies could find themselves leading the way when it comes to AI deployment in the future of trade.

The use of AI in trade will need specific and targeted regulation.

AI will have an impact on sectors across the global economy, necessitating different regulations, depending on where and how it is applied. For example, the familiar problem of distinguishing between digital goods and services already exists; consensus on which trade provisions apply in which situation will be essential as AI becomes more embedded in production with the use of tools such as self-driving vehicles and AI robotics.[102]

[100] Ferencz et al., 2022
[101] Callahan, 2023
[102] Krummenacher, 2023

CHAPTER 3: The Dawn of AI

Semiconductors: A tech battleground with broad trade implications

Supply chain dynamics for semiconductor chips sit at the confluence of global trade, innovation and geopolitics. These chips are integral to the digital economy, powering consumer electronics, industrial machinery, weapons production, supercomputers and AI systems. As a key component of renewable energy systems and electric vehicles, semiconductors are integral to the net-zero transition.[103]

The U.S.-China chip war places semiconductors at the heart of geopolitics.

Policymakers are increasingly tying semiconductors to national security risks because of their applications to military systems and critical infrastructure, along with their links to economic security, supply chains and global strategic competition. Given the decline in the U.S. share of the globe's semiconductor manufacturing capacity – it fell from 37 per cent of global supply in 1990 to 12 per cent in 2023 – the United States has doubled down on its battle for dominance with China's semiconductor industry. The 2022 CHIPS and Science Act aims to strengthen domestic production and counter China's technological and military advances by providing $52.7 billion in federal subsidies to U.S.-based chip manufacturers.[104] In October 2023, it further tightened export controls on semiconductor manufacturing equipment and AI chips, significantly curtailing China's access to technologies critical for advancing its semiconductor capabilities.[105] U.S. efforts have also had a negative impact on China's AI industry, since semiconductors are essential to powering AI systems.[106] The United States is expected to continue its strategy of trying to undercut China's ability to specialise in high value activities such as chip production, technology and AI.

[103] Schröder and O'Sullivan, 2023
[104] The White House, 2022
[105] Van Sloun, 2023
[106] Palmer, 2023

China responded to U.S. restrictions by investing heavily in its domestic semiconductor industry to reduce dependence on foreign chips. In 2023, China implemented export restrictions on gallium and germanium, two raw materials vital for chipmaking, though the impact of this may be mitigated by the exploitation of alternative sources.[107] The chip war plays into the escalation of U.S.-China tensions in technology as both countries race to secure their supply chains and maintain global competitiveness.

Other countries are shoring up domestic chip manufacturing to increase resilience and de-risk.

Given semiconductor supply chain uncertainties and the importance of chips to digital economies and national security, countries are ramping up domestic production efforts to reduce dependence on foreign production. As a case in point, Singapore is receiving huge inward investment for its semiconductor industry, reinforced by key collaborations with neighbours like Malaysia which it has partnered with on the Johor-Singapore Special Economic Zone.

The EU's European Chips Act, which came into force in September 2023, aims to "ensure supply chain resilience and reduce external dependencies" for semiconductors and to double the EU's global market share to 20 per cent by 2030.[108] In 2023, the UK government released its 20-year national semiconductor strategy, pledging more than $1.27 billion to domestic semiconductor design and manufacturing, while acknowledging the UK is unable to fully rely on its own semiconductor industry.[109] However, this funding commitment is limited compared with what the United States and EU are providing. Despite all these efforts, few of these jurisdictions are likely to build up enough domestic production to free them entirely from dependence on foreign supply, which will leave them susceptible to semiconductor supply chain disruptions in the future

A pioneering role for lab-grown diamonds

Lab-grown diamonds will play a key role in the accelerated production of semiconductor chips. This is because lab-grown diamonds have the potential to address critical limitations posed by current materials such as silicon, which face challenges in keeping pace with demand. Lab-grown diamonds allow for the development of semiconductor chips that can operate at higher speeds, with greater power and cost efficiencies, and offer improved heat dissipation, even as device sizes continue to shrink.[110] This technological edge is expected to significantly increase demand for lab-grown diamonds within the technology industry, as manufacturers seek to overcome the physical limitations of current materials and meet the growing demands for semiconductor chips and their applications.

[107] Yang, 2023
[108] European Commission, n.d.
[109] Schröder and O'Sullivan, 2023
[110] DMCC, 2023

Case Study: Taiwan as a semiconductor powerhouse

Taiwan plays a critical role in the production and supply of semiconductors around the world.

Taiwan accounts for more than 60 per cent of global production of semiconductors, including 90 per cent of advanced semiconductors. A major strategic sector for the country, semiconductors are worth 15 per cent of its GDP.[111] Taiwan Semiconductor Manufacturing Corporation (TSMC) is the world's largest semiconductor chip manufacturer and holds a more than 50 per cent share of the global semiconductor production market, supplying major technology firms such as Apple and Nvidia.[112]

COVID-19 exposed the world's reliance on Taiwan's semiconductor industry.

The shutdown of chip production facilities triggered supply shortages, delays and global price increases. To hedge against potential disruptions, TSMC's chip manufacturing has diversified, by building facilities in Japan, Germany, and Arizona. Despite delays, the latter is expected to be operational by 2028.[113]

In April 2024, TSMC announced it would increase its U.S. investment by 60 per cent to over $65 billion (up from $40 billion) and produce the world's most advanced chips in the United States, which will "underpin all artificial intelligence [demand]."[114]

TSMC's investment has been supported by a U.S. federal grant of $6.6 billion – the government's largest financial grant to a foreign chipmaker to date – and is tied to the CHIPS and Science Act.[115] TMSC's increased investment will also put the United States on track to produce around 20 per cent of the world's most advanced chips by 2030.[116]

Taiwan is drawing closer to the United States, irking China.

TSMC will reap rewards from its expansion in North America, including greater proximity to clients and access to U.S. subsidies and tax incentives. But the move has come with costs. In 2019 it was forced to suspend business with Huawei – its second-largest client – following the U.S. ban on companies using American technology in their chip manufacturing from doing business with Huawei.[117]

Meanwhile, China's goal to end its semiconductor dependence on Taiwan remains a long-term prospect. It remains an important market for Taiwanese semiconductors, while TSMC still has operations in Nanjing, China, and is exempted from U.S. trade sanctions on China.[118] With the mood febrile between Washington and Beijing, TSMC – and Taiwan – will be forced to navigate U.S.-China tensions in the long term.

[111] The Economist, 2023
[112] Kelter, 2022; Schröder and O'Sullivan, 2023
[113] Toh, 2024
[114] Moriyasu, Ting-Fang, and Li, 2024
[115] Moriyasu, Ting-Fang, and Li, 2024; Ngo and Clark, 2024
[116] Moriyasu, Ting-Fang, and Li, 2024
[117] Shattuck, 2021
[118] Cheng, 2023

Beyond AI: Not the only transformative technology

Other technologies will also deliver benefits and opportunities to global trade.

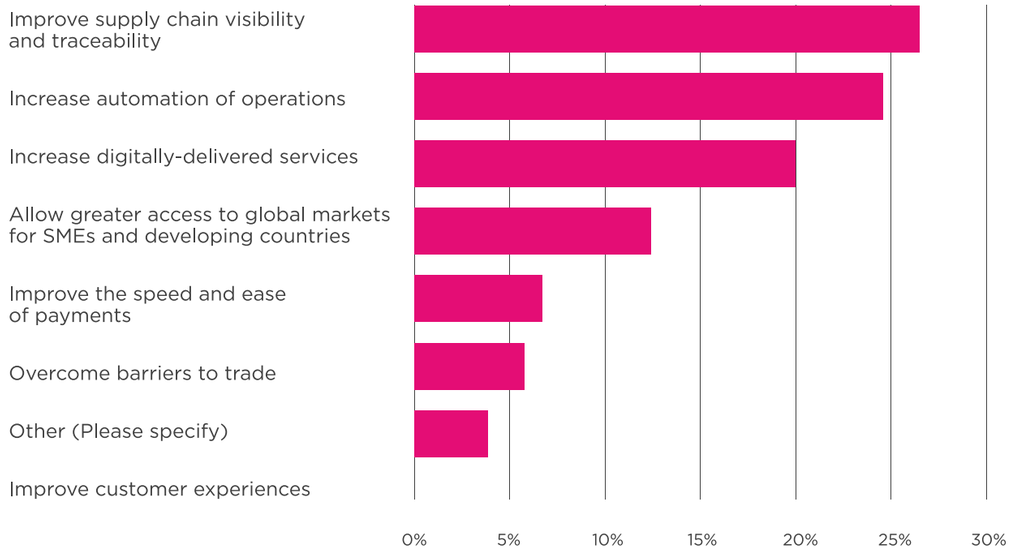
Collectively, the following promise to transfigure trade as they evolve and are integrated into the system:

- **The Internet of Things (IoT)** connects physical objects to the internet, enabling real-time collection and exchange of data. In trade, IoT will improve supply chain management by improving goods tracking and storage condition monitoring and by enabling the predictive maintenance of transport vehicles. This will lower costs, reduce waste and optimise inventory levels, creating more responsive and flexible supply chains capable of adjusting to shocks.
- **5G networks** provide ultra-fast, reliable and low-latency communication in the digital economy. They will continue to support large-scale IoT applications, enabling real-time data exchanges across supply chains globally. 5G will enable increased automation of shipping and logistics, enhancing port operation efficiencies. Increased connectivity and bandwidth will also support e-commerce platforms, making cross-border transactions more accessible to a wider range of enterprises.
- **Cloud computing** is already changing business operations and engagement in international trade. By offering scalable and flexible computing resources via the internet, cloud computing allows businesses, including SMEs, to access advanced software and storage capabilities without significant upfront investment in physical infrastructure. It also enhances supply chain visibility and efficiency by providing real-time, cross-border data exchange – a boon for e-commerce.
- **Quantum computing**, with its ability to perform intricate calculations at unprecedented speed, will significantly optimise supply chain logistics. Quantum computers can use calculations to optimally stack goods and pallets in shipping containers in less time, reducing costs and environmental impacts. However, the technology remains under development and its widespread adoption is a longer-term prospect.
- **Additive manufacturing** will revolutionise the manufacturing sector and, by extension, trade. 3D printing allows for decentralised manufacturing, bringing production closer to end users. Shifts towards localised production networks will reduce dependence on international shipping and inventory holdings, which will reduce trade costs, time scales and the carbon footprints of long international shipping routes. Additive manufacturing will also enable rapid prototyping and innovation meaning new products will come to market faster.

In the Future of Trade survey, we asked participants: "What is the greatest impact that technology will have on global trade?". The most frequently cited effects were an improvement in supply chain visibility and traceability (27 per cent), increased automation of operations (25 per cent) and an increase in digitally delivered services (20 per cent). It is evident that technology will accelerate and complement trade over the next few years, particularly in supply chain restructuring and a surge in services trade.

FIGURE 22

What is the greatest impact that technology will have on global trade?[119]



Source: DMCC Future of Trade survey

[119] Respondents who selected "other" noted additional points such as the potential for more cross-border flows and the transformation in the way people trade, turning gradually from B2B to B2C.

Case Study:
Port of Singapore (PSA)

PSA applies AI, IoT and 5G in its operations, enhancing the efficiency, safety, and sustainability of the port. Its innovative approach to integrating these technologies in port operations is reflective of Singapore's broader mission to enhance its status as a leading global maritime hub by aligning with global trends towards automation and digitalisation in the maritime industry.

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With its five container terminals, the port is the busiest container transhipment hub in the world and its second-busiest port. PSA has integrated AI and automation into its port operations, including digitalPORT@SG, a one-stop port clearance and regulatory portal, and Just-In-Time System, which matches vessels with available berths upon arrival.[120] Streamlining vessel clearance processes increases the efficiency of its operations, reduces shipment turnaround times and provides greater transparency.[121] The Maritime and Port Authority of Singapore, owner of PSA, is also developing the Next Generation Vessel Traffic Management System, intended to provide accurate, real-time situational awareness of shipping traffic to avoid congestion and improve operational logistics.[122]

Tuas Port at PSA is expected to become the world's largest fully automated port terminal, leveraging these technologies to revolutionise its operations.

Although it has a targeted completion date in the 2040s, a portion of its operations officially opened in 2022 and showcased advanced technologies already implemented.[123] Developed in four phases, the port will incrementally build its capacity and capabilities. Tuas Port will be solely operated by PSA and have a handling capacity of 65 million twenty-foot equivalent units (TEUs) – almost double the volume of the 37.5 TEUs PSA handled in 2021.[124]

Tuas Port already uses AI and automated processes to seamlessly coordinate its operations, including port clearance and vessel traffic management.[125]

Beyond digitalPORT@SG and Just-In-Time System, Tuas Port uses fully automated systems, including 5G-enabled driverless automated guided vehicles and cranes to transport containers within the facility.[126] These automated systems are coordinated using AI and are managed remotely in real time, improving port efficiencies and freeing up resources. This digitalisation of operations is predicted to save 100,000 man-hours.[127] Tuas Port also aims to achieve net zero emissions by 2050 through such technologies as automated guided vehicles which will reduce carbon emissions by 50 per cent compared with the current diesel movers. It will also use a smart grid management system and green buildings.[128]

[120] MPA, n.d.
[121] MPA, n.d.
[122] MPA, n.d.
[123] MPA, 2019
[124] MPA, 2019
[125] Min, 2022
[126] MPA, 2019
[127] MPA, 2019
[128] MPA, n.d.

SECTION TWO

CRYPTOCURRENCIES AND BLOCKCHAIN TECHNOLOGY

Digital currencies and their impact on global commerce

Cryptocurrencies serve as an alternative payment method for international trade and pose a challenge to traditional payment methods.

Digital currencies are no longer regarded solely as investment instruments. They are becoming integral to global finance. While the decentralised nature of the technology makes it difficult to quantify the growth in the use of cryptocurrencies as a medium of exchange, the increase in the number of transactions, growth in user adoption and the expanding ecosystem of financial services that have incorporated digital assets indicate substantial growth over the past decade. The integration of cryptocurrencies into global trade processes offers numerous benefits.

Central Bank Digital Currencies (CBDCs) will become more important for global trade.

There are two types of CBDCs: wholesale CBDCs, primarily used by financial institutions, and retail CBDCs, which are government-backed and used by businesses and consumers. As of February 2024, 11 countries have introduced CBDCs, 21 have launched pilot programmes and 130 are exploring the possibility of introducing them. This is a dramatic increase from 2020, when only 35 countries were considering issuing CBDCs.[129]

[129] Kumar et al., 2024

CHAPTER 3: The Dawn of AI

Digital currencies offer significant benefits to global trade

Digital currencies will expedite trade processes and lower transaction costs.

Compared with traditional bank transfers, the speed of digital currency transactions will accelerate trade processes, improve cash flow and lower currency exchange risks for businesses. These near-instantaneous transactions are not bound by traditional banking hours, enabling constant flows. Digital currencies can also reduce banking and currency exchange fees and fluctuations associated with trade, making cross-border transactions near-immediate, more cost-effective and less volatile. Lower transaction costs will also facilitate greater SME access to trade.

Digital currencies can offer more secure trade transactions.

Due to the tamper-proof, decentralised nature of the blockchain technology used by digital currencies, they can offer a more secure alternative for trade transactions compared with traditional financial systems. Because of its traceability, blockchain technology could also enable improved anti-money laundering and counter-terrorism financing (AML/CTF) compliance. Challenges do remain, including susceptibility to hacking (see Section 2.1.2).

[130] Asian Development Bank, 2023

Digital currencies will enable greater financial inclusion.

The distributed ledgers used within blockchain networks could provide alternative sources of credit information for trade finance. Public blockchain ledgers would enable a shared payment/financial history to underwrite, import and export loans, potentially helping to address the global trade finance gap, which stood at $2.5 trillion in 2022.[130] Alternative sources of trade finance would particularly benefit SMEs, which are most affected by the trade finance gap.[131] CBDCs could also facilitate financial access for SMEs in unbanked and underbanked populations that may struggle to secure affordable trade finance. In 2022, 1.4 billion people worldwide were unbanked, and in 2021, 19 per cent of Americans (63 million) were either unbanked or underbanked.[132] Greater SME access to the global economy will also foster more participation in international trade. Finally, CBDCs could reduce the world's dependency on the U.S. dollar in international trade

[131] Global Trade Review, 2024
[132] The World Bank, 2022; Federal Reserve Board, 2021

Cryptocurrencies' dynamic surge

High volatility in cryptocurrency markets reflects strong growth opportunities for investors and trade finance.

The long-awaited approval by the Securities and Exchange Commission (SEC) of U.S. spot Bitcoin exchange-traded funds (ETF) has bolstered the cryptocurrency market further in 2024.

The high-profile collapse of cryptocurrency exchange FTX in November 2022, which at its peak was worth more than $30 billion, sent shockwaves through cryptocurrency markets.[133] In the aftermath, Bitcoin fell to its lowest level since 2020 amid widespread mistrust in digital currencies.[134]

Since then, the cryptocurrency market has recovered sharply, with Bitcoin now trading close to record levels – as of March 2024, Bitcoin prices rose nearly 160 per cent.[135] Following price drops in 2022, overall cryptocurrency market capital increased from $871 billion at the end of 2022 to over $2.3 trillion as of March 2024.[136] Bitcoin continues to possess the largest share of the total cryptocurrency market, growing to over 53 per cent in 2024 from 38 per cent in 2022 (see Figure 24).[137]

There are other signs of growing interest and maturity in cryptocurrencies, which will encourage future use in the global trading system:

In January, the SEC approved 11 applications, including those from Wall Street behemoths Blackrock and Fidelity, to offer ETFs tied to Bitcoin.[138] While there are similar instruments in other regions, including Europe, SEC approval was seen as a turning point since the regulator had long been reluctant to see them introduced in the United States.

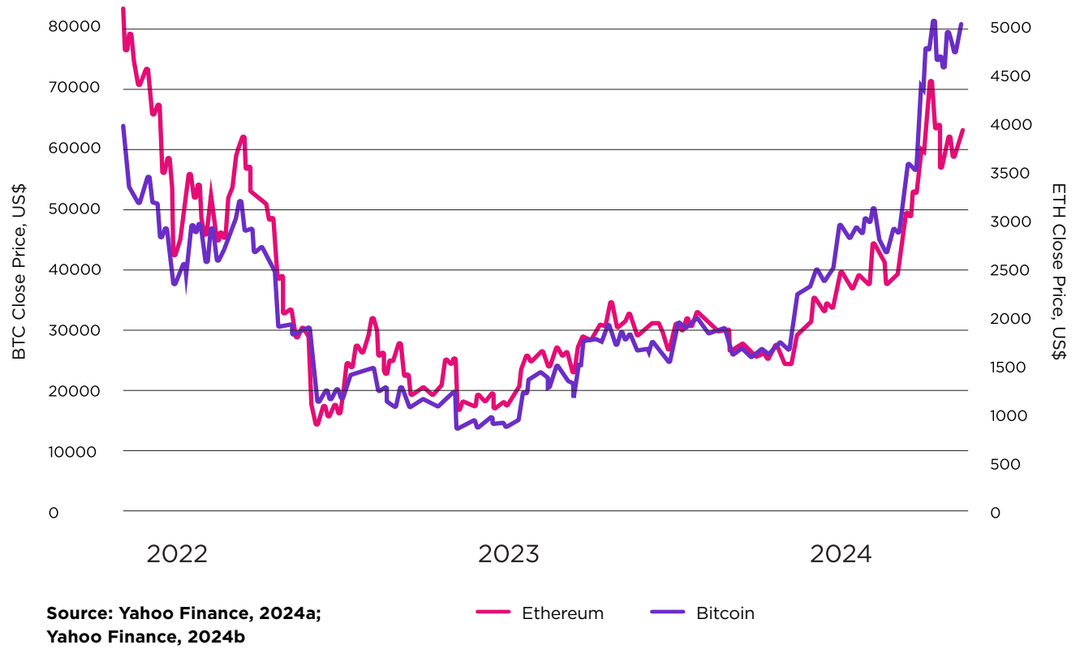
[133] Davis, 2023
[134] Lang, Howcroft, and Wilson, 2023
[135] Lang, Cooper, and Banerjee, 2024
[136] CoinMarketCap, 2024; Singh and Mattackal, 2023
[137] CoinMarketCap, 2024; Singh and Mattackal, 2023
[138] Yaffe-Bellany, 2024a

These ETFs are part of the increasing appeal of cryptocurrencies for mainstream investors. They offer access to digital assets on platforms like Nasdaq, bolstering the cryptocurrency market's liquidity and stability. In March 2024, the price of Bitcoin topped $69,000 for the first time since 2021 (see Figure 23).[139]

The launch of spot Bitcoin ETFs shows that major financial firms still have faith in the future of digital currencies, despite past market crashes.[140] They also signal a greater maturity in the cryptocurrency market more generally, which will encourage more confidence in the use of cryptocurrencies in global trade transactions. A wave of applications for next-generation Bitcoin ETFs as well as ETFs tied to Ether, the native cryptocurrency of the Ethereum blockchain network, are awaiting SEC approval.[141]

FIGURE 23

Price of Bitcoin and Ethereum, December 2021 to April 2024, $

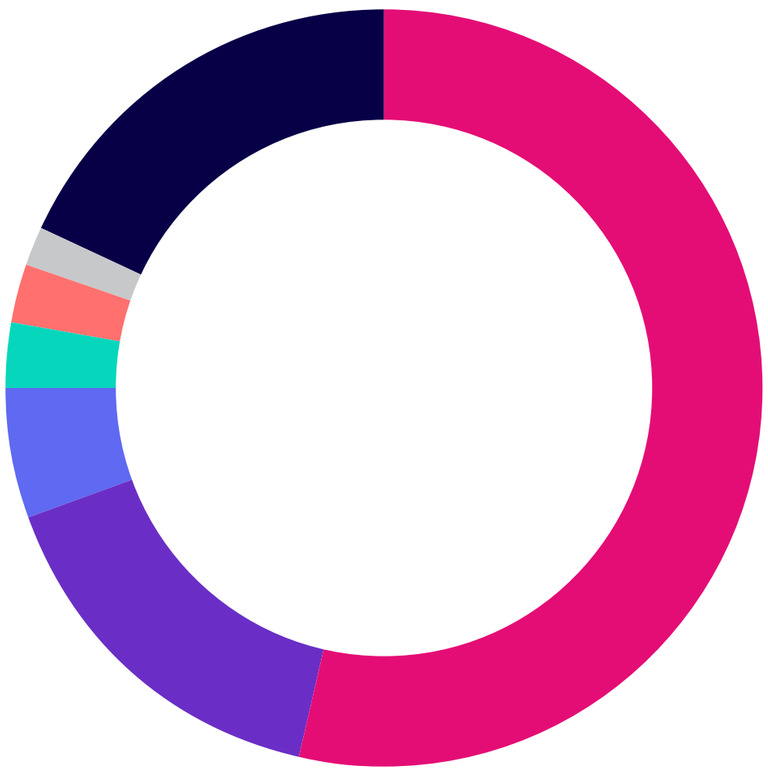


Source: Yahoo Finance, 2024a; Yahoo Finance, 2024b

[139] Yaffe-Bellany, 2024b
[140] Yaffe-Bellany, 2024a
[141] Lang and McGee, 2024

FIGURE 24

Cryptocurrency by market capital, January 2024, per cent



Source: CoinMarketCap, 2024

Challenges to the adoption of digital currencies in international trade.

The adoption of digital currencies in international trade is facing growing pains, requiring consistent regulatory frameworks.

Cryptocurrency regulation varies widely by jurisdiction, with discrepancies acute in areas like taxation on transactions. These create uncertainty for businesses and make compliance a challenge. Clear and consistent regulatory frameworks would generate greater trust and mainstream use of cryptocurrencies as an asset, but this remains a long-term prospect. Simultaneously, overly strict or inconsistent regulation can create barriers to cryptocurrency use as the lack of regulation in many jurisdictions also forms part of the appeal for those who value privacy or those with nefarious intentions.

Greater stability of cryptocurrencies is necessary.

Cryptocurrencies are subject to rapid fluctuations in value. Following the 2022 collapses of FTX and stablecoin Terra, Bitcoin's value plummeted by more than 65 per cent.[142] This volatility has caused understandable hesitance among investors and businesses. Widespread adoption will also be essential for cryptocurrencies to have an appreciable impact on trade. Because CBDCs are backed by central banks and tied to fiat currencies, these can reduce volatility risks and may provide a less risky alternative.[143]

Security concerns hinder the adoption of cryptocurrencies.

Although blockchain technology is largely considered secure, frequent hacks of cryptocurrency exchanges and wallets has led to reluctance amongst users. In 2023, cryptocurrency users lost $1.8 billion to hacks and scams.[144] The technology also necessitates tighter money laundering and fraud measures to avoid criminal exploitation and fraudulent activity, but applying these measures is challenging due to the technology's pseudonymous nature. Tighter cybersecurity and steps to address market manipulation, fraud and volatility would contribute to stability in cryptocurrency markets and foster wider use of digital currencies.

[142] Land, Howcroft, and Wilson, 2023
[143] Seth, 2023
[144] Shewale, 2024

There are negative spillover effects associated with CBDCs.

The possibility of flight to foreign CBDCs and stablecoins may increase currency substitution risk, undermine monetary stability and potentially increase capital flow volatility.[145] For example, Malaysia plans for cross-border use of its Ringgit-denominated CBDC.[146]

Digital currencies have a large carbon footprint.

This is because digital currencies, and the decentralised networks and data centres that enable them to function, require vast amounts of computing power. This may be viewed as an obstacle to blockchain and digital trade more generally (see Section 2.2.3).

The potential benefits of digital currencies for international trade are undeniable, but significant obstacles remain.

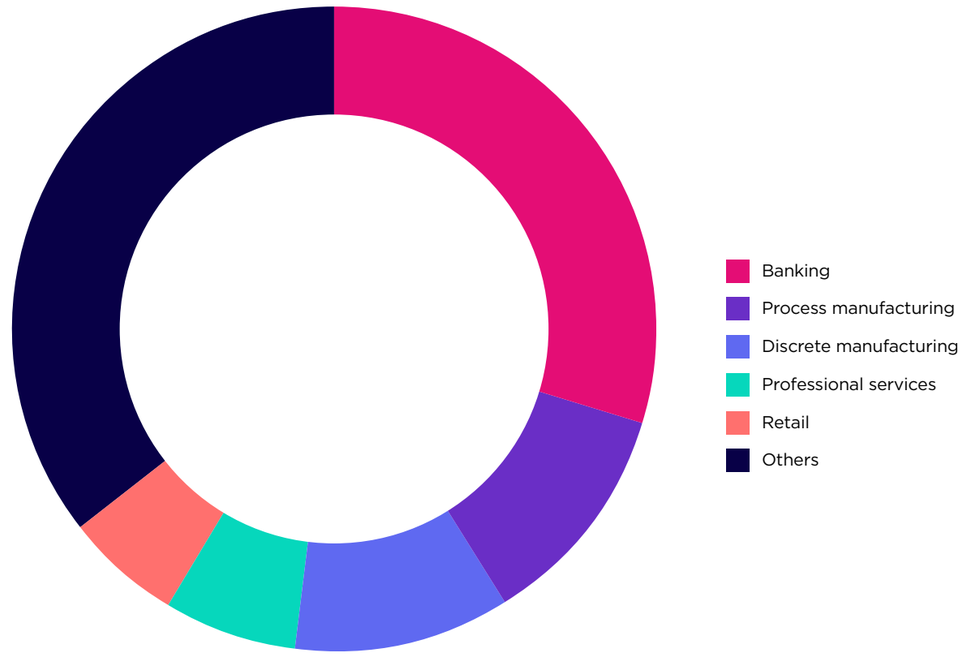
Widespread adoption and realised impact on international trade will depend on how these challenges are addressed and how the technology continues to evolve. Its application will require businesses and governments to solve the conundrum of how to integrate such currencies into existing trade processes while managing regulatory compliance and security concerns. Given the scale of the challenge, the integration of cryptocurrencies into international trade on a large scale remains a long-term prospect.

[145] Asia House, 2024
[146] Asia House, 2024

Blockchain technology – can it deliver on its early promise?

FIGURE 25

Use cases of blockchain technology



Source: Shewale, 2024

Blockchain technology offers avenues to overcome current challenges to trade, but it has not proven as transformative as predicted.

Blockchain is a shared, immutable and distributable database or ledger that facilitates the processing and recording of transactions and the tracking of assets. While distributed infrastructure plays a crucial role in the use of cryptocurrencies by maintaining secure and decentralised transaction records (Bitcoin was the first application of blockchain), it can also be used to make data immutable, secure, and decentralised across many other industries, including manufacturing and retail (see Figure 25).

The benefits of adopting blockchain technology

Expectations for blockchain stem from the technology's potential to digitise, streamline and secure supply chain processes.

Blockchain's value to global supply chains was estimated at $360.75 million in 2021 and is projected to reach $13.45 billion by 2030, implying a compound annual growth rate of 49.75 per cent.[147]

Blockchain will increase trade efficiencies by reducing the need for intermediaries.

This includes through self-executing smart contracts, where the terms of agreements are written into computer code. In trade, smart contracts automate and streamline various processes, including customs clearance, compliance checks and payment settlements, thereby reducing the need for manual administration and paperwork.

Blockchain can increase supply chain transparency and reduce fraud risks.

Blockchain technology provides a transparent and immutable ledger of goods as they move along a supply chain. Each transaction or transfer of ownership is recorded on the blockchain, allowing all parties involved to have real-time visibility into the status of goods. This could help businesses solve long-standing difficulties with identifying, tracking and tracing elements along supply chains, and spotting counterfeit and fraudulent goods.[148] Because blockchain's immutable ledger is tamper-proof, the technology could help reduce both fraud and counterfeiting.[149]

Increased supply chain transparency and security enabled by blockchain could enhance international trade relationships.

Greater supply chain transparency and reduced third-party participation can streamline supplier onboarding, as blockchain can provide immutable records of new vendor details for business network participants. This greater trust and security would enhance the quality of cross-border trade relationships and networks.

[147] Verified Market Research, 2023
[148] European Parliament, 2020
[149] Consensys, n.d.

Case Study: Global Shipping Business Network

For several years, the global shipping industry has sought to leverage blockchain technology on an industry-wide scale to solve trade inefficiencies, which became especially pronounced during COVID-19. Industry players acknowledge the cost and time-saving incentives of using decentralised technology. However, fragmentation within the industry continues to pose difficulties for the adoption and agreement on new technologies and standards, including blockchain.[150]

Hong Kong-based Global Shipping Business Network (GSBN) is a non-profit consortium focused on leveraging blockchain technology to enhance global trade.[151] Founded in 2021, GSBN is one of the world's largest blockchain-based shipping platforms.[152]

Although GSBN's operations remain limited to Asia, its blockchain-powered system facilitates greater digital connection and collaboration between industry stakeholders, enabling the exchange of real-time, secured logistics data. This data is fully encrypted to ensure security and access is only granted to authorised parties.

Still, while the neutral and non-profit nature of GSBN's operations is intended to incentivise shipping industry players to share data, achieving greater cooperation among industry stakeholders remains a significant challenge.[153]

GSBN is an example of the increasing applications of blockchain technology in international trade, signalling the potential for greater integration over the long term. GSBN CEO Bertrand Chen said: "I think for a lot of people, the clear understanding is this industry has digitised. There's just no way 10 years down the road in 2032, global trade is still using pen and paper."[154]

[150] Haldane, 2023
[151] EGSBN was founded by shipping companies Cosco, OOCL and Hapag-Lloyd, terminal operators Hutchison Ports, SPG Qingdao Port, PSA international, Shanghai International Port Group and Cosco Shipping Ports, as well as shipping software solutions provider Cargosmart.
[152] Balci & Surucu-Balci, 2021
[153] Hutchison Ports, 2022
[154] As cited in Haldane, 2023

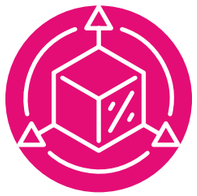
Challenges to the adoption of blockchain in international trade

While blockchain has the potential to revolutionise trade, its practical application has not been as transformative as predicted due to maturity issues and challenges.

There are multiple barriers that must be overcome before blockchain can be widely implemented in trade.

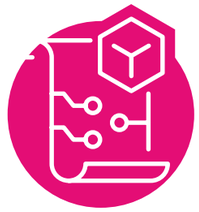
Lack of interoperability and standardisation of protocols among blockchain networks

These will be essential for its adoption in trade because multiple parties along the supply chain may implement different blockchain solutions that are incompatible.



Blockchain necessitates widespread adoption and scalability to maximise its benefits

This would require an adaptation of existing operations and processes, not only by one state but by all participants in global trade. However, integrating blockchain into legacy systems can be costly, complex and disruptive. Although states have expressed interest in implementing the technology, acknowledging the significant potential returns on investment, its full integration will require time, cooperation and global will, which is so far absent.



Legal and regulatory concerns must be addressed

The decentralised nature of blockchain technology, particularly when implemented in trade, necessitates globally harmonised regulation. This seems a long way off, given the considerable regulatory differences among countries. Diverging regulations can lead to compliance challenges and legal ambiguities – for example, the difficulty of confirming the legal validity of smart contracts and blockchain signatures in trade processes.[155] Cybersecurity measures will also be necessary

The substantial carbon footprint of the decentralised computer networks and data centres that power blockchain networks may deter adoption

The complex mathematical calculations needed to run and secure blockchain networks consume a large amount of energy. According to the U.S. Energy Information Administration, cryptocurrency mining accounts for between 0.6 per cent and 2.3 per cent of all U.S. electricity consumption each year.[156] This computational power is often fuelled by non-renewables, which has raised environmental concerns. Such concerns may hamper blockchain's adoption, particularly with pressure growing around the world for companies to adopt sustainable practices in the transition to net zero.

[155] Ganne, 2018
[156] EIA, 2024

CHAPTER 3: The Dawn of AI

Case Study:

IBM and Maersk's termination of TradeLens

In 2018, IBM, the U.S. technology giant, and GTD Solution, a division of Danish logistics firm Maersk, introduced TradeLens – a blockchain-based supply chain platform aimed at digitising and enhancing the efficiency of international supply chain practices by facilitating data flows and document workflow handling.[157] Using the platform, supply chain operators could securely track and process real-time supply chain data and documentation of shipments, creating a distributed and immutable record that all parties could access and validate.

During its operations, TradeLens onboarded more than 300 companies, including 10 ocean carriers, and data from more than 600 ports and terminals.[158] The platform successfully facilitated international trade flows for more than 65 per cent of containerised trade, saving users 20 per cent in documentation costs and cutting shipping times by 40 per cent.[159]

However, in November 2022, Maersk and IBM terminated TradeLens, citing a lack of "global industry collaboration" as a main reason for the decision.[160] This speaks to the challenges of adopting blockchain-based solutions in supply chains, including high transaction, implementation and maintenance costs, privacy concerns, scalability issues and the slow pace of industry-wide adoption. These challenges made it impossible to attain the level of commercial viability necessary to continue operations, which fell short of financial expectations. Some, including Bertrand Chen, the CEO of TradeLens's rival GSBN, attribute TradeLens's failure not to blockchain-specific problems but to the fact that TradeLens was seeded by Maersk, deemed a competitor by some users of the platform.[161]

TradeLens's termination was a setback for blockchain's wider adoption in global trade processes, particularly considering IBM and Maersk's industry dominance.[162] It joins other examples of failed enterprise blockchain projects, such as the Australian Securities Exchange and Microsoft's Azure blockchain service. Other enterprise blockchain initiatives that shuttered early include another IBM project, the trade finance outfit we-trade, and the B3i blockchain insurance consortium.

Nevertheless, blockchain remains a promising technology for the future of trade and supply chains. Since the closing of TradeLens, other blockchain shipping initiatives have emerged, including Hong Kong-based GSBN, Japan's TradeWaltz and Thailand's National Digital Trade Platform. TradeLens may be deemed a failure, but it provided lessons for other blockchain initiatives about the challenges inherent in the adoption of blockchain in trade.

Despite these challenges, blockchain has the potential to be an enabler of global trade and an optimiser of supply chains over the long term.

Events such as the COVID-19 pandemic exposed vulnerabilities in the current international trade system and the need for more resilient solutions, which afforded blockchain's potential greater attention. Maturity in the technology, and its potential integration with other evolving technologies, would enable blockchain to have a substantial and lasting positive impact on international trade, although its promise has yet been realised.

[157] USAID, 2018

[158] IBM, 2021
[159] Lindra, 2022; USAID, 2018; Wragg, 2022
[160] Maersk, 2022
[161] Haldane, 2023
[162] Cecere, 2022

SECTION THREE

DIGITAL TRADE AGREEMENTS AND FREE FLOW OF DATA

Cross-border data flows and e-commerce

Digitalisation will continue to increase the speed, scale and scope of international trade, as it has done for the past several years.

Increased adoption of digital technologies has already reduced the cost of engaging in international trade, facilitated the coordination of global value chains and connected greater numbers of suppliers, businesses and consumers globally.[163]

Greater cross-border data flows will be integral to boosting trade efficiencies and reducing costs.

An estimated 221 zettabytes of data – the equivalent of roughly 110.5 trillion movies – will exist in the world by 2026.[164] Underpinning this will be greater cross-border data flows, which will be integral to the future of trade.

[163] OECD, n.d
[164] Arasasingham and Goodman, 2023
[165] IMF et al., 2023
[166] IMF et al., 2023

Cross-border data flows will streamline trade processes.

This includes e-invoicing, customs documentation, tracking of goods and supply chain management, which will reduce the time required for trade operations. Digitalising these processes will enable real-time analytics, optimise supply chains and reduce manual errors.

Cross-border data flows will reduce costs.

Digitalisation of trade processes will reduce storage and administrative costs for businesses as paperwork and manual handling capabilities will become redundant. Data sharing across borders will also enable businesses to better predict demand and manage logistics and inventory, leading to untold efficiencies and cost reductions.

Greater cross-border data flows will enhance market access, especially for SMEs.

This includes e-commerce, which will allow SMEs to operate globally without incurring substantial cost. Developing countries will also benefit from digitally delivered services due to sometimes poor transport infrastructure and inefficient border crossing procedures.[165] The WTO estimates that greater use of digital technologies in Africa could result in an increase of more than $70 billion in digital service exports between 2023 and 2040.[166] All of this will result in a more inclusive global trade landscape.

E-commerce will facilitate processes, increasing the volume of trade.

E-commerce applications will ease interactions between consumers and sellers, reducing the need for geographic proximity for both electronically transferred and physical products.[167] It will also enable digital transfers of services, including activities that have been historically non-tradable, such as R&D, marketing and banking.[168]

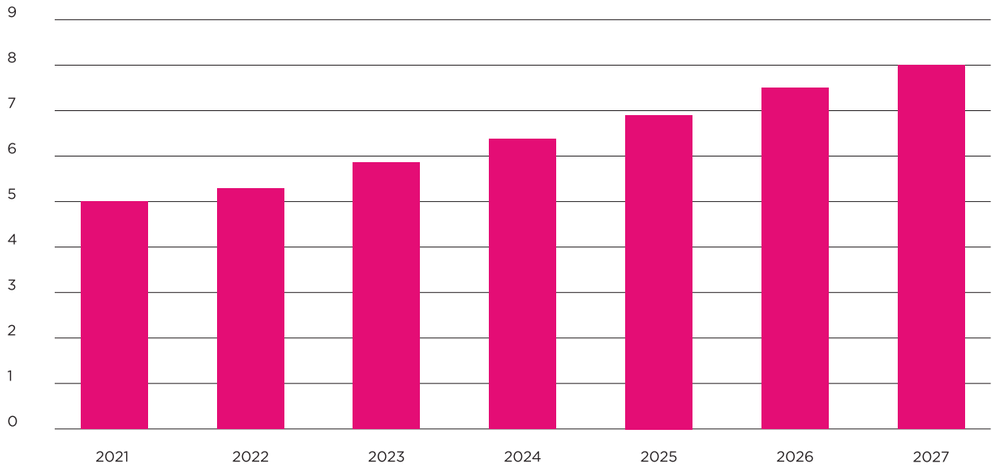
E-commerce, enabled by cross-border data flows, will continue to grow strongly.

By forcing consumers online and encouraging retailers to accelerate digitalisation, COVID-19 prompted a significant and lasting increase in global e-commerce sales. The sector is expected to grow 9.4 per cent in 2024. Retail e-commerce sales are predicted to reach $8 trillion by 2027 and to account for 41 per cent of global retail sales by 2027, versus just 18 per cent in 2017 (see Figure 26).[169]

[167] Terzi, 2011
[168] Terzi, 2011
[169] BCG, 2023; Lin, 2024

FIGURE 26

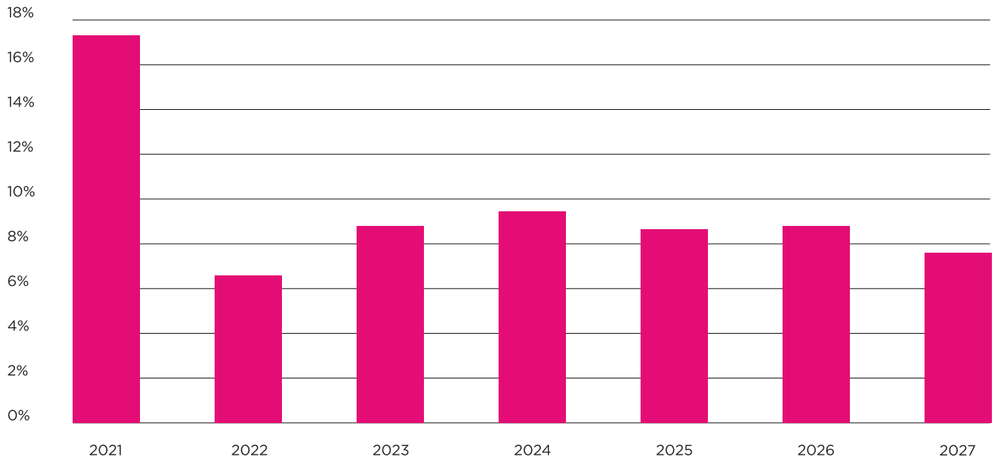
Global e-commerce sales forecast, 2021-2027, $ trillions



Source: Lin, 2024

FIGURE 27

Global e-commerce sales growth, 2021-2027, per cent



Source: Lin, 2024

Case Study:

E-commerce growth in Southeast Asia

Southeast Asia is one of the fastest growing e-commerce markets globally, and sales volumes are expected to surge through 2030 (see Figure 28) with the value of the e-commerce markets of Indonesia, the Philippines, Thailand and Vietnam more than doubling.[170]

Southeast Asia's expected e-commerce growth will be a result of several factors, including:

- Demographically, Southeast Asia's working population is projected to grow by 24 million individuals by 2030, with an expanding middle and upper class.[171] The greater purchasing powers of a larger number of consumers will contribute to increased consumption and economic activity, including in e-commerce.

- With greater internet and mobile penetration regionally, there will be more potential users for e-commerce, contributing to the increased digitalisation of trade more generally (see Figure 29 and 30).

- Regional integration efforts will contribute to greater cross-border e-commerce. These include the evolution of the ASEAN Economic Community, which envisions ASEAN as a single market, alongside initiatives by individual Southeast Asian countries to promote their own digital economies through investments in digital infrastructure and regulatory frameworks that support digitalisation and e-commerce.

- Southeast Asia is attracting increased local and international investment into e-commerce, driving growth and innovation in the sector. In 2022, the region attracted a record $222.5 billion in foreign investments.[172]

- Manufacturing and supply chains, particularly for apparel, consumer electronics and home and living products, will migrate increasingly towards Southeast Asia. This is in part because of favourable trade agreements such as RCEP, along with low labour and operational costs relative to those in China, where much of this production is currently located.

AI will also help facilitate e-commerce. Chatbots are already being used to provide uninterrupted customer support as well as after-sales assistance for customers. In 2023, the Southeast Asian e-commerce giant Lazada launched LazzieChat, the first e-commerce AI chatbot, powered by OpenAI's ChatGPT technology in Azure OpenAI Service.[173] The chatbot answers customers' queries and aims to provide a personalised shopping experience on the platform.

[170] ITA, 2023b
[171] Bain & Company, 2023
[172] Akama and Nitta, 2023
[173] Lazada, 2023

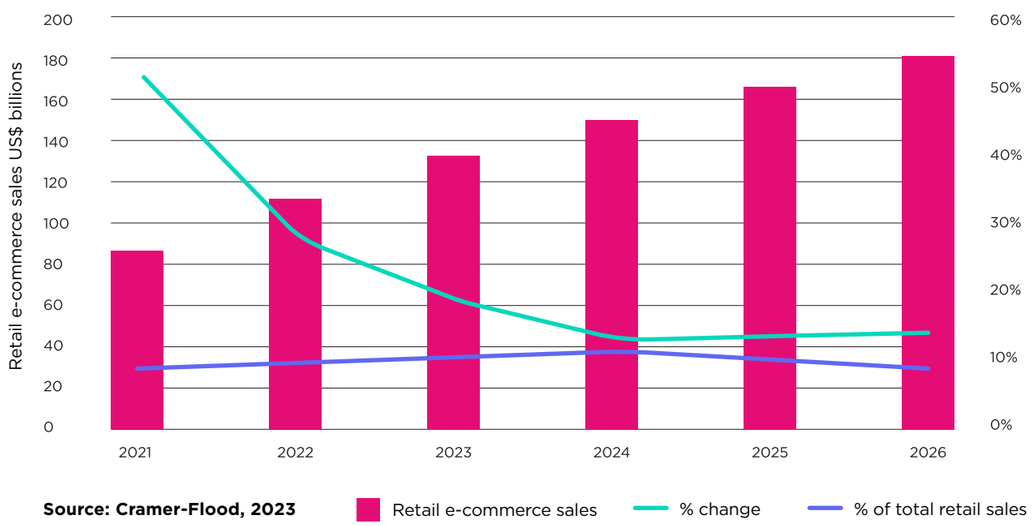
FIGURE 28

E-commerce market volume of Southeast Asian countries, 2021-2030, $ billions

Source: Lin, 2024

FIGURE 29

Retail e-commerce sales in Southeast Asia, 2021-2026, $ billions, per cent



Source: Cramer-Flood, 2023

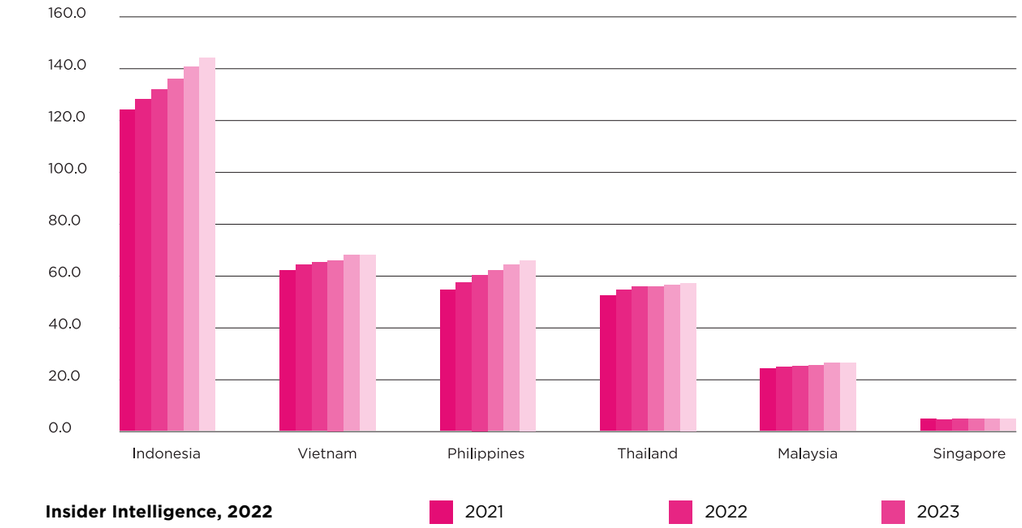
FIGURE 30

The number of internet users in Southeast Asia will continue to grow

Insider Intelligence, 2022

FIGURE 31

The number of smartphone users in Southeast Asia will continue to increase



Insider Intelligence, 2022

Interview:
Daryl Teo, Strategic Advisor at Lazada and Chief Investment Officer & Co-Founder, CoinClan OÜ

It is becoming more challenging to forecast the future of trade following the unprecedented shock of COVID-19 as well as the recent macroeconomic issues and geopolitical tensions that are prevalent around the world. What does seem to be consistent, though, is the rapid advancements in digital technologies. Which technology do you think will have the greatest impact on global trade over the next couple of years?

I believe it's going to be artificial intelligence. With the wealth of information and data that has been created over the past decade, through major e-commerce and trade-enabling platforms, the next decade will be about what we do with all this data, how we make sense of it and how we analyse it and come up with insights. I think artificial intelligence will be at the core of distilling, crystalising and understanding all this data, and making sure existing platforms are interoperable.

E-commerce is one of the few industries that thrived during the pandemic, driven by a surge in consumer demand. Which technologies will help fuel future growth in e-commerce specifically?

We are already starting to see big advances in what I call AR and VR – augmented reality and virtual reality – which are starting to come up strongly. This is also fuelled by the continued rise of live streaming, for example – the ability for someone to be pitched to, the ability to market to a customer that is somewhere halfway across the globe. These are two characteristics of future technologies that have started to become successful on platforms. Moving forward, we will probably start to see more advanced formats of AR and VR, overlapping with technologies that are already available. For instance, what colour of shoes would match this dress best, or how can I match my latest pair of jeans to a new polo shirt? In the future, I think it's going to be a lot more immersive because of more realistic technology, making it more seamless as well.

What are the main barriers to e-commerce and digital trade more generally?

Trust continues to be an issue across both e-commerce and wider digital trade. Regarding e-commerce specifically, counterfeit items and scams will probably continue, and perpetrators will continue to exploit increasing digitalisation. The byproduct of going digital is that cybersecurity now becomes very important, not just as an afterthought but as a pre-emptive measure for a lot of these platforms, different stakeholders participating in e-commerce, and the global trade economy. In digital trade, we are starting to see a lot more fake invoices, including those financing products and items that are perhaps non-existent. Trust is a very big challenge, especially as people will be trading without meeting in person, and one of the largest hurdles we all need to overcome as an industry.

> "Blockchain has several characteristics that I'm bullish about. It is highly unique, scalable and is also an open ledger. That means the blockchain allows us a higher degree of transparency across the supply chain."

How do you think blockchain and cryptocurrency will enhance supply chains in the future?

Blockchain has several characteristics that I'm bullish about. It is highly unique, scalable and is also an open ledger. That means the blockchain allows us a higher degree of transparency across the supply chain. To me, that's a massive improvement on the very opaque nature of trade these days. Why is it currently opaque? Because of the nature of commerce and trade in the first place. With greater transparency along the supply chain, I think middlemen will lose a lot of the margins that they are getting today. Blockchain can help build a future in which there will be less pilferage within the lifecycle of a transaction. Blockchain is also decentralised, meaning no one can edit the information, which reduces counterfeit products. From the source of origin of raw materials into the manufacturing process, goods can be tracked. Blockchain technology has several characteristics that would improve transparency and communication, including timeliness of updates.

When we consider larger cryptos, like Bitcoin and Ethereum, digital currencies solve a big problem in developing countries, which is volatility in the local currency. When a currency is very volatile, traders avoid using the currency in the first place. This is why the U.S. dollar, the euro, the pound are still being used even in countries that are far away. Similarly, cryptocurrencies may play an important role as stable currencies that host value preservation as they now seem to be stabilising and having somewhat of a price floor to them. Stablecoins such as USDT also minimise seepages in foreign exchange – there would be less foreign exchange in transactions, which would save on commissions, which would mean a value reduction as a transaction goes through multiple changes in forex settlements.

Over the next few years, which types of companies do you think will use technology most successfully to reap the benefits of international trade?

The front runners will be the existing largest e-commerce companies in the world, like Amazon and Alibaba, because they already have a large community of buyers and an equally large community of sellers. They also have transactions that they can analyse to spot trends, meaning they have their own community to use to identify how the market is moving and which key products are starting to trend.

The second are the social media companies. Companies like TikTok are trying to move into digital commerce. In comparison to the e-commerce front runners, they may not have as many buyers, but they do have an existing community that they are serving from a social media point of view. Instead of understanding and reacting to trends, social media companies are able to dictate trends. In some ways, they are one step ahead in the psychology of a consumer's purchasing decision – instead of understanding what they are already doing from their actions, they can influence the intent of purchase. When they successfully do this, and we are already seeing TikTok successfully do this in some markets, people start buying items related to that trend.

Companies like Shein are also starting to look at disrupting the supply chain, industry by industry, by cutting out the middleman and passing on faster speeds and lower costs to consumers. This is making trade and commerce industry very interesting.

Which regions around the world do you expect will benefit most from trade over the next few years?

Southeast Asia will continue to increase its visibility as a manufacturing hub. For example, we are already starting to see Vietnam and Myanmar participate more in garment manufacturing; and Indonesia, Malaysia and Vietnam starting to produce more EVs. I think Africa will also be a big market in the next decade. We are also seeing some of the more developed European nations moving higher up the supply chain, and quickly as well. More generally, there is the potential to leverage technology so that production of a particular product can be allocated to a country where it has the highest competitive advantage.

Digital trade agreements – the 'must have' for future deals

The growing inclusion of digital regulation and a harmonisation of standards in trade agreements will facilitate greater digital trade.[174]

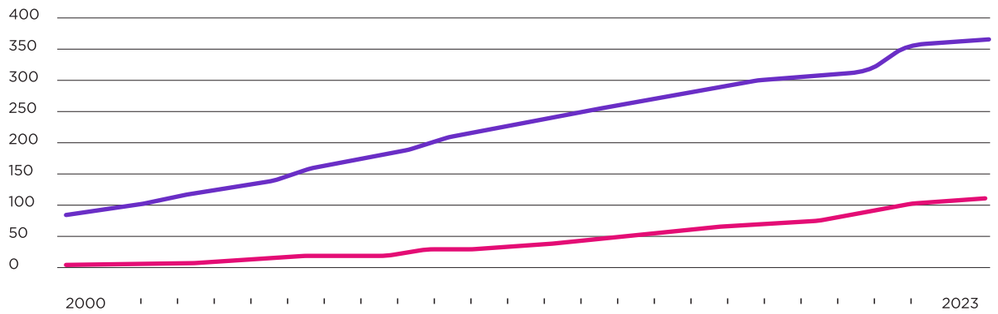
However one of the major challenges to international trade regulation has been addressing cross-border data flows, data storage and digital information issues such as data privacy and cybersecurity.

Just as the number of RTAs is growing, so too are the number of trade agreements that include digital chapters.
(See figure 32)

The main purpose of digital trade regulatory chapters is to manage cross-border data flows under a common legal framework, and RTAs are considered the most effective forum to promote digital trade liberalisation.[175] Digital chapters standardise customs procedures for digital products and establish common standards for electronic transactions. This creates a more secure, trustworthy digital environment globally, and will help combat digital piracy and counterfeit digital goods and ensure IP rights. Standard and simplified regulation will also encourage more participation in trade, lowering barriers to entry for SMEs and allowing access to digital value chains and greater international operations.

FIGURE 32

A growing number of trade agreements have digital trade or e-commerce chapters



Source: WTO, 2024; Burri, 2023

[174] Burri, 2022

[175] Mitchell and Gyanchandani, 2023

Digital trade chapters: recent examples in regional pacts

Recent agreements reflect efforts by major economies to establish comprehensive digital trade regulation.

This is aimed at addressing barriers to trade in digital goods and services as well as cross-border data flows.[176] Two major examples of digital chapters are those in the CPTPP and RCEP, due to their large number of partners and diverse membership.

Comprehensive and Progressive Trans-Pacific Partnership

CPTPP pioneered digital trade issues in its digital chapter, which addresses various aspects of the digital economy and its integration into global trade. The partnership, which succeeded the Trans-Pacific Partnership following the withdrawal of the United States, was signed in 2015 by 11 countries[177] – a group that collectively constitutes 13 per cent of the global economy and a population of some 500 million (see Figure 33).[178]

The agreement's digital chapter is a notable inclusion and has set a precedent for digital regulations in trade agreements. It provides regulatory requirements concerning digital transfers of information, including free cross-border data flows amongst members, a limit on members' ability to impose data localisation requirements, a reduction of barriers to online trade and the adoption of digital standards to ease online transactions. It also prohibits members from imposing customs duties on digital transmissions and from requiring the transfer or access to software – important for IP rights protection.

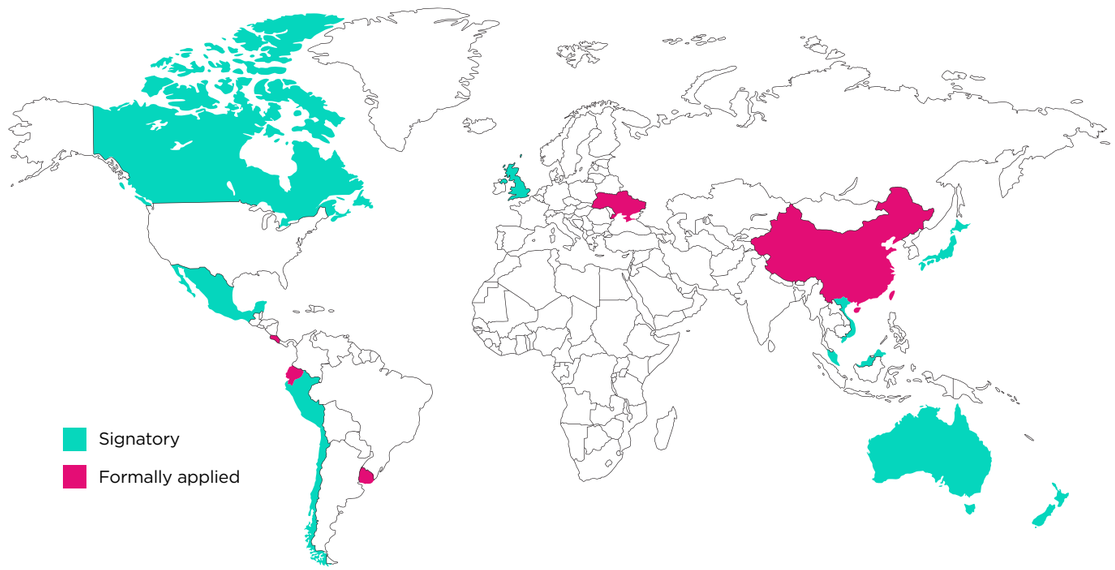
CPTPP members have signed additional trade agreements that incorporate e-commerce provisions, including the Singapore-Australia FTA, the Chile-Uruguay FTA, the Chile-Argentina FTA and the Digital Economy Partnership Agreement between Chile, New Zealand and Singapore.[179] Some of these pacts are more ambitious in their aims to facilitate trade, and CPTPP will need to adapt as the global digital economy evolves.

Since CPTPP's initial signing, it has expanded to include the United Kingdom, which became a member in July 2023, and has received formal applications from China, Costa Rica, Ecuador, Ukraine, Uruguay and Taiwan (see Figure 33). Thailand, the Philippines and South Korea have also expressed an interest in joining.[180] If these additional countries become formal signatories, existing members will see greater benefits to their digital trade.

[176] Schweitzer et al., 2023
[177] Australia, Brunei Darussalam, Canada, Chile, Japan, Malaysia, Mexico, Peru, New Zealand, Singapore and Vietnam
[178] Mitchell and Gyanchandani, 2023
[179] Suominen, 2021
[180] Kane, 2023

FIGURE 33

CPTPP signatories and formal applicants



Regional Comprehensive Economic Partnership

Signed in 2020, RCEP includes Australia, Brunei Darussalam, Cambodia, China, Indonesia, Japan, Korea, Lao PDR, Malaysia, Myanmar, New Zealand, the Philippines, Singapore, Thailand and Vietnam. Together, these signatories comprise about 30 per cent of both global GDP and the world's population.[181] This makes it the largest free trade area in terms of GDP and market size (see Figure 34).

[181] Mitchell and Gyanchandani, 2023

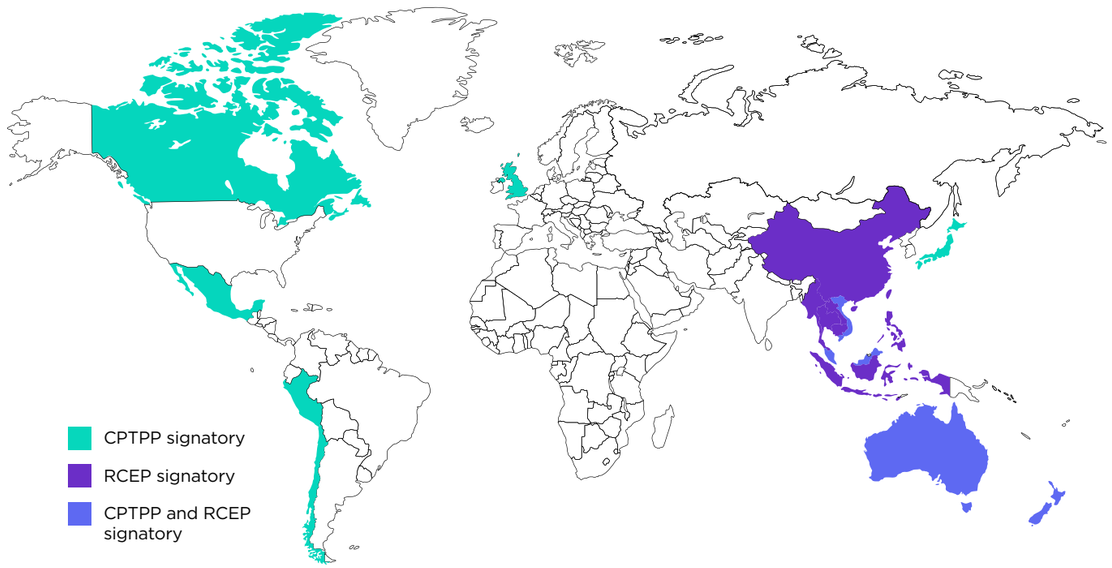
FIGURE 34

RCEP signatories

At present, RCEP encompasses a greater membership base than CPTPP but the two share seven signatories. However, should China, Taiwan and South Korea's CPTPP applications be approved, the membership market size of both agreements will be relatively at par (see Figure 35).

FIGURE 35

CPTPP and RCEP signatories



The digital chapter in RCEP aims to "(a) promote electronic commerce among the Parties and the wider use of electronic commerce globally; (b) contribute to creating an environment of trust and confidence in the use of electronic commerce; and (c) enhance cooperation among the Parties regarding development of electronic commerce."[182]

RCEP's digital trade chapter was built on CPTPP's framework. Both chapters address similar issues and share similar language on cooperation, digital trade, electronic signatures, consumer and personal data protection, customs duties and cybersecurity. They diverge on more specific provisions, and CPTPP's digital chapter is deemed more comprehensive and prescriptive, including in the areas of IP data flows, data localisation and IP rights, in which RCEP generally offers greater flexibility for member states. For example, RCEP allows for national regulatory restrictions as long as they are applied in a non-discriminatory manner.

The less comprehensive nature of RCEP reflects the diversity of its members and their varied stages of digital development. Nevertheless, both agreements demonstrate significant steps towards integrating digital regulation into regional trade frameworks.

[182] RCEP, 2020

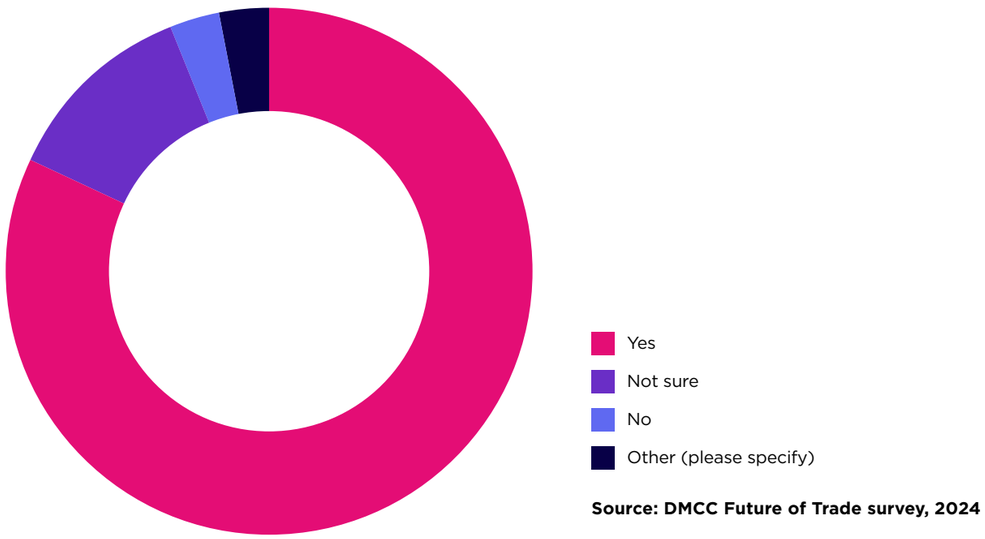
Other significant examples of the inclusion of digital regulation in agreements and partnerships include:

- **UK-Singapore Digital Economy Agreement (signed in 2022)**
- **Digital Economy Partnership Agreement (DEPA) (signed in 2020)**
- **United States-Mexico-Canada Agreement (USMCA) (signed in 2018)**
- **European Union-Japan Economic Partnership Agreement (EU-Japan) (signed in 2018)**
- **Joint Initiative on E-Commerce (JSI) (initiated by the WTO and signed in 2017)**

In our Future of Trade survey, the majority of respondents (82 per cent) thought that businesses would benefit from digital policies in trade agreements, while 12 per cent were not sure and 3 per cent did not think businesses would benefit. While these results are positive overall, a resounding consensus may be lacking because of concerns over regulation, with one respondent stating "technologies such as generative AI are not very well regulated and therefore unlikely to be well defined in trade deals".[183] For businesses to effectively adopt emerging technologies, they also need to work closely with governments to inform them of what they need from regulation and trade agreements.

FIGURE 36

Do you think that businesses will benefit from digital policies in trade agreements?



Source: DMCC Future of Trade survey, 2024

[183] Survey response from a respondent that answered "other".

The state of digital trade policy today

Progress on developing digital trade regulations remains varied.

As in the case of AI regulation, the United States has neither a comprehensive, unified federal data privacy legislation nor an overarching privacy strategy. U.S. privacy regulation remains characterised by sector-specific laws and state-level regulations, such as the California Consumer Privacy Act. This forces the United States to negotiate specific agreements with trade partners, such as the now-invalidated Privacy Shield Framework with the EU. The U.S. case illustrates the broader challenge of crafting global digital trade regulations: the difficulty of striking a balance between facilitating and encouraging digital trade and addressing legitimate concerns around data privacy and security.

In February 2024, the Biden administration issued an Executive Order aimed at protecting Americans' sensitive personal data.[184] However, this lacks concrete rules requiring explicit documentation showing how data is used and stored, and details on enforcement are still to be determined.

The EU has undergone the most ambitious attempt to establish cross-border data flows.

Through its General Data Protection Regulation (GDPR), the EU has established mandatory rules for how companies can process personal data.[185] This has enabled trusted, standardised data-processing regulations across all countries in the European Economic Area.[186] In 2023, the EU enacted its Data Governance Act, which regulates the processing of all electronic data, harmonising data governance among EU member states to ensure cross-border data flows.[187] The EU is also partnering with other large digital economies, including Japan. In 2023, the EU and Japan concluded a deal to make cross-border data flows and digital trade more efficient, less costly and to provide a "predictable legal environment in which to prosper", including legalising e-signatures.[188]

[184] The White House, 2024a
[185] OECD, 2022
[186] OECD, 2022
[187] OECD, 2022
[188] European Commission, 2023

Cross-border data flows must navigate a maze of rules that irritate digital trade.

There are a number of rules and frameworks which are not conducive to freely flowing digital trade.[189] Unilateral measures on cross-border data flows, enacted by individual countries, can vary widely, creating a patchwork of regulations that complicate compliance for international businesses. For example, India is pursuing a strategy of restricting the flow of data to other countries which increases its negotiating power when dealing with other countries that want to access that data. China and Hong Kong's cybersecurity law imposes strict data localisation and transfer requirements, complicating international transfers. Bilateral agreements that attempt to simplify these complexities by establishing common terms can also lead to inconsistent obligations when countries engage in multiple bilateral agreements.

While multilateral agreements offer a broader approach, their reach and enforceability outside their jurisdictions are often limited. One clear example of this is the EU's GDPR, which faces enforcement challenges outside of the bloc. Another example is the Data Free Flow with Trust (DFFT) initiative, endorsed by the G20 in 2019, which aims to promote the free flow of data while ensuring trust in data privacy, security and IP rights. While DFFT has the potential to foster a global governance system that promotes cross-border data flows, it remains a lofty concept that lacks operationalisation.[190] Despite recognition that standardised regulation is necessary, the fragmented global regulatory landscape remains a significant barrier to achieving efficiencies in cross-border data flow, restricting the full realisation of benefits of digital trade.

Case Study:

The United Kingdom and digitisation

The UK's Electronic Trade Documents Act, passed in 2023, marks progress towards digitalising trade practices.

By legally recognising electronic trade documents as equivalent to paper documents, this legislation will streamline trade processes, reducing transaction times and administrative burdens while enhancing the efficiency of trade operations and access to trade finance. By removing time and cost barriers associated with paper documents, it is expected to boost the UK economy by more than GBP 1 billion over the next decade.[191] The Act positions the UK as a pioneer in such regulation and is expected to increasingly influence other countries. However, other countries will need to enact similar legislation for it to enable greater efficiencies in international trade.

[189] Arasasingham and Goodman, 2023 [190] Arasasingham and Goodman, 2023; Cory, 2023 [191] Eldred and van der Vos, 2023

The UK National Security and Investment Act seeks to achieve a balance between national security and digital innovation.

The National Security and Investment Act, introduced in 2021, represents the UK's commitment to safeguarding national security interests associated with foreign investments and business transactions, particularly in technology and digital sectors. The Act provides a framework for the UK government to scrutinise and potentially intervene in transactions deemed a national security risk. It aims to ensure the protection of sensitive technologies and digital infrastructure while still attempting to maintain the UK's attractiveness as a destination for foreign investment.

The UK's approach to regulating digital trade is an attempt to both encourage and regulate digital trade.

While the Electronic Trade Documents Act is likely to catalyse a broader shift towards digitalisation in global trade practices, potentially opening the UK up to new markets and trade opportunities, the National Security and Investment Act provides a mechanism to address security concerns in the UK's digital and technology sectors. Balancing efficient trade practices with security measures will be crucial for a global landscape in which digital technologies will play an increasingly important role in international trade. Such efforts should serve as a guide for global trade norms over the long-term that foster a trade environment that must be both dynamic and secure.

Risks to global digital trade

There are complex challenges to trade policy and risks to digital trade that will need to be addressed to realise the full potential benefits of technology to international commerce. Robust and effective domestic regulations will be essential to the creation of a secure and stable environment in which digital trade can prosper.

Clear and strong regulations will ensure trust and confidence among businesses and consumers. However, given the rapid pace of technological evolution, it is likely to outstrip the development of trade policy, increasing risks for inefficiencies. This may stifle innovation and create regulatory gaps.

A global, harmonised approach to digital trade policy is still needed.

Although digital trade is being increasingly regulated through digital chapters in trade agreements, growth in cross-border data flows raises issues surrounding privacy, consumer protection, competition, cybersecurity and national security that require further oversight.[192] While many governments highlight the need to regulate digital trade, their approaches are fragmented – some seek to liberalise digital trade while others want to limit it by restricting data movement or mandating domestic storage, viewing this as an opportunity to raise government revenue and adopt a more protectionist stance. This complex regulatory landscape not only causes uncertainty, administrative burdens and other costs, it undermines both data protection and international digital trade. Cooperation in such areas as digital infrastructure, skills development and access to financing is also necessary to help developing countries address challenges relating to digital trade.[193]

The digitalisation of trade will necessitate enhanced cybersecurity.

The digitalisation of the global economy will be accompanied by a substantial increase in the flow of sensitive data, including personal customer information, payment details and proprietary business data. As trade operations become more reliant on digital networks, they will become increasingly tempting targets for cybercriminals and cyberattacks, which can cause significant financial losses and reputational damage. To maintain trust in digital trade, it will be essential to protect against data breaches and ensure the integrity of digital transactions. If properly implemented, robust cybersecurity measures can instead encourage trade by instilling confidence in consumers and businesses.

There is a need to address barriers to the free flow of data.

Data localisation remains an obstacle to cross-border data flows. China, for example, imposes strict limits on cloud computing services and data flows, which means that foreign-invested enterprises cannot directly offer cloud computing services within the country.[194] China also filters its cross-border internet data flows, requiring all traffic to be routed through a national firewall.[195] An overemphasis on protectionist measures will restrict trade in services.

[192] IMF et al., 2023
[193] IMF et al., 2023
[194] USTR, 2017
[195] USTR, 2017

The WTO will need to develop permanent rules on digital services.

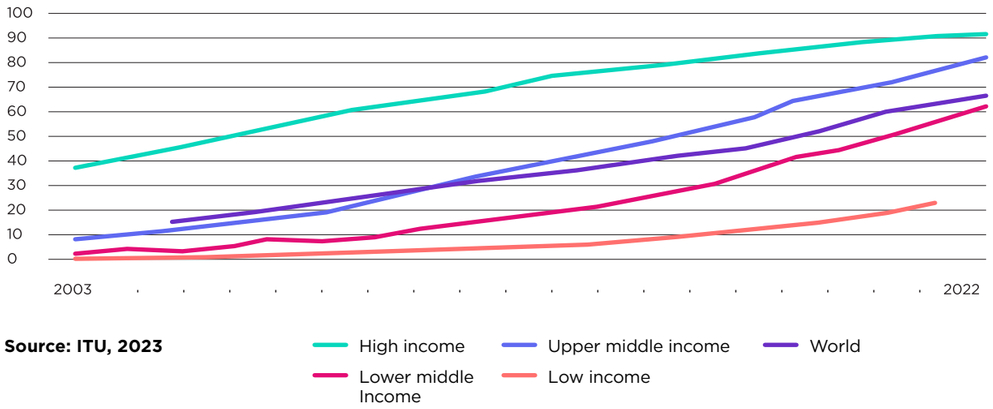
Since 1998, the WTO Work Programme on Electric Commerce has kept members from imposing customs duties on cross-border electronic transmissions, effectively allowing digital trade and e-commerce to proceed tariff-free.[196] This moratorium has since been periodically extended, but WTO members have expressed mixed opinions about its renewal.[197] Recently, opposition from certain WTO members, including India, Indonesia and other developing nations, has hardened. At the WTO's 13th Ministerial Conference in early 2024, these members threatened to block an extension of the moratorium, contending it deprives them of tax revenue, although it was ultimately renewed and extended for two years. As the only organisation with a near-global mandate on trade regulation, and given the growth of digital technologies, permanent rules from the WTO would provide greater regulatory certainty.

Limited access to digital connectivity, infrastructure and skills will limit the potential benefits of digital trade

This is particularly the case in less developed and developing countries, which can also further global inequality. Despite growing digital access worldwide, approximately 2.6 billion people – or one-third of the world's population – still do not have viable access to the internet. Most are in less developed countries with lower digital connectivity rates (see Figure 37).[198] Considering the global digital divide remains wide, these inequalities will need to be addressed for the benefits of digital trade to be universally reached.

FIGURE 37

The digital divide remains wide: Individuals using the internet, per cent



Source: ITU, 2023

[196] Winslett, 2023
[197] IMF et al., 2023
[198] IMF et al., 2023

come

SECTION FOUR

THE IMPACT OF DIGITALISATION: THE DMCC INDUSTRY DIGITALISATION INDEX 2024

In light of the global shifts in trade and technology described in this chapter, this section of the report will focus on quantifying changes in technology and how they have affected world trade.

CHAPTER 3: The Dawn of AI

DMCC INDUSTRY DIGITALISATION INDEX 2024

The world is more connected than ever, and the spread of technology and data is making an ever more significant impact on GDP. Studying the ways in which businesses across different sectors can take advantage of digital progress is important to all economies as well as global trade.

The Industry Digitalisation Index (IDI) tracks businesses' digitalisation progress across sectors and spans four separate pillars of digitalisation in the processes of trade and general business activities. These four pillars are:

- **Upstream**: This component studies how much businesses are digitalising their practices when it comes to connecting with external suppliers.
- **Production**: This measures the extent to which businesses are digitalising their internal processes.
- **Downstream**: This measures how much businesses are digitalising their practices when it comes to connecting with their clients—be they consumers or other businesses.
- **Digital infrastructure**: This final component looks at businesses' progress in setting up a digital infrastructure to support the digitalisation of the production phases covered in the rest of the index. Specifically, measures of connectivity are studied, such as broadband access and the share of employees who are provided with a portable device to access the internet.

Data for the IDI was sourced from Eurostat, and then corroborated with OECD data to ensure digitalisation is considered on a global scale. OECD e-commerce data was analysed to compare EU countries with non-EU countries.

The results of this analysis validated our assumption that the variation in digitalisation across industries is broadly consistent worldwide. Rather, digitalisation varies between countries based on their economic development. For example, although companies in the professional, scientific and technical activities industry have an above-average online presence in both Colombia and Denmark compared with other industries, Colombia has a lower share online compared with Denmark. This suggests that, although the relative variation between industries is consistent globally, the country's level of development affects its absolute level of digitalisation.

It should also be noted that the IDI has seen a significant update since its last edition in 2020. In this period, the United Kingdom officially exited the EU on 31 December 2020, following the completion of its transition period. As a result, the latest available data from Eurostat refers to the remaining 27 countries.

Many variables have also been updated to consider new advances, such as AI technologies and big data analytics. Including these new variables will alter the index initially, but it is important to begin to consider these new technologies as their presence increases over time. That said, together, these factors may cause difficulty when comparing the 2024 IDI against previous editions.

Results for the 2024 IDI show a significant variation between the four components of the index. Digital infrastructure is the most digitalised function across firms, scoring 56 out of 100, while production holds the lowest score at 20.

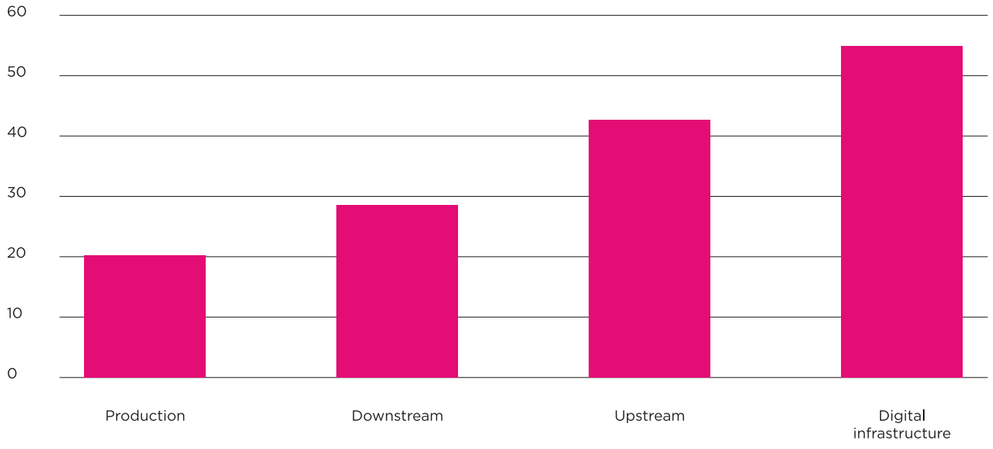
The strength in the digital infrastructure component comes from the high share of businesses reporting a lack of security-related incidents within their information and communication technology (ICT) and having a broadband download speed of at least 30 megabits per second. However, this share drops sharply from 85 per cent to 13 per cent when reporting a download speed of 1 gigabit per second and above, which is the speed typically recommended for larger businesses with over 30 employees.[199]

Meanwhile, the index score for production was lowered considerably by the low share of businesses adopting new technologies. Indeed, only 8 per cent and 5 per cent of firms use AI technology and 3D printing, respectively. These singular factors were amongst the lowest reported across the sub-components, highlighting their infancy regarding adoption within the industry. However, we expect a substantial rise in the AI subcomponent in the coming years will lead to increases in the production index score.

[199] Morrison, 2023

FIGURE 38

Score on DMCC Industry Digitalisation Index (IDI), average across all industries, by index component (1-100, where 100 is fully digitalised), 2024 score



Source: Eurostat, OECD Cebr analysis

The upstream pillar has a score of 41 on the IDI. Upward pressures on the index come from the high percentage of businesses sending or receiving orders via computer networks. Downward pressures stem from the low share of businesses with guidelines favouring online meetings instead of business travelling at 26 per cent.

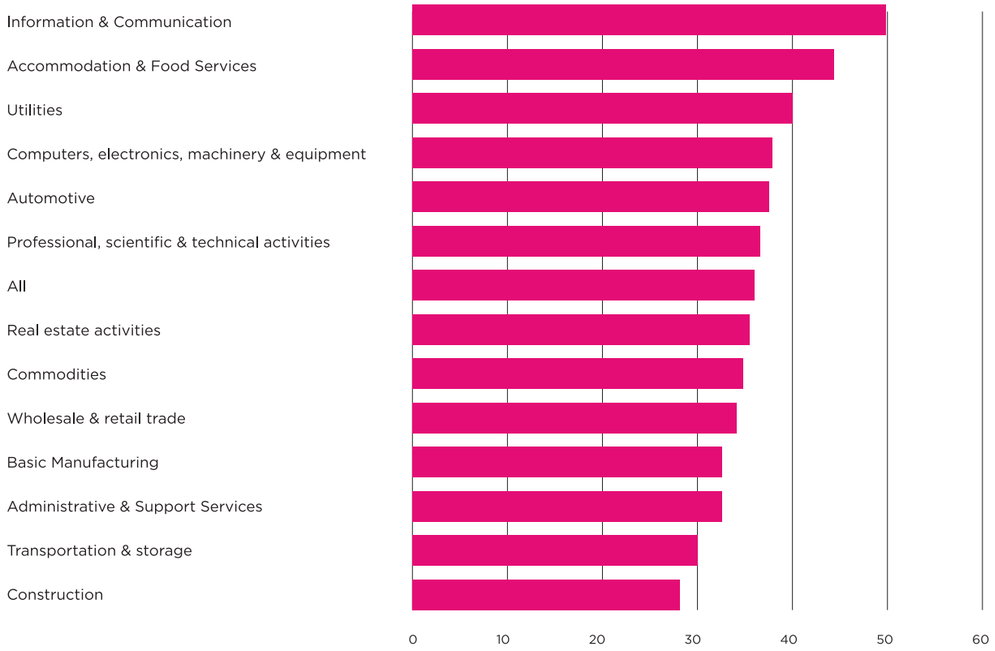
The downstream pillar score is relatively weak, with a score of 29. This is mainly due to the small percentage of firms with a mobile app for clients (10 per cent) and have received orders placed via an electronic data interchange message (6 per cent).

At the sector level, IDI results also vary significantly. The top-scoring sector on the index is information and communication, with 50. Despite a significant change to the methodology, this has remained the case since the index began in 2016. Accommodation and food services have the second highest IDI score, which was largely boosted by the sector's uptake of e-commerce and online processes. This is of little surprise, given that systems such as online booking are commonplace within the hospitality industry.

On the other end, construction continues to be the least digitalised sector since the index began after scoring 20 out of 100. The sector is most notably poorly digitised within the downstream pillar. This can be largely attributed to a low number of online orders, which suggests the sector may still be reliant on phone calls or in-person sales.

FIGURE 39

Score on DMCC/Cebr Industry Digitalisation Index (IDI), by industry group (1-100, where 100 is fully digitalised), 2024 scores



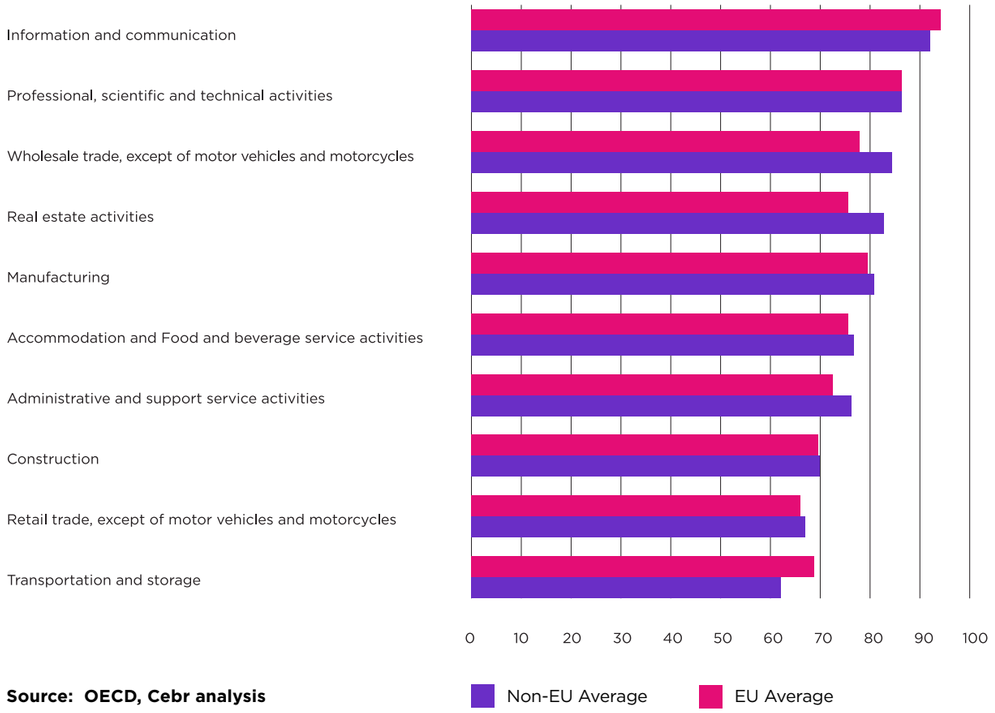
Source: Eurostat, OECD, Cebr analysis

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

For example, the share of businesses with a website or homepage is very similar for EU and non-EU countries that report data to the OECD. Across the sectors, 76 per cent of firms in non-EU OECD countries on average report having a website or homepage, compared with 77 per cent of EU countries. Between the sectors, the EU significantly leads in online presence with regards to real estate. Indeed, 82 per cent of firms in EU countries have a website, compared to 75 per cent in non-EU countries. There is a similar point difference between EU and non-EU businesses within the wholesale trade industry, at 84 per cent and 77 per cent, respectively.

FIGURE 40

Businesses with a website or home page, per cent, 2019



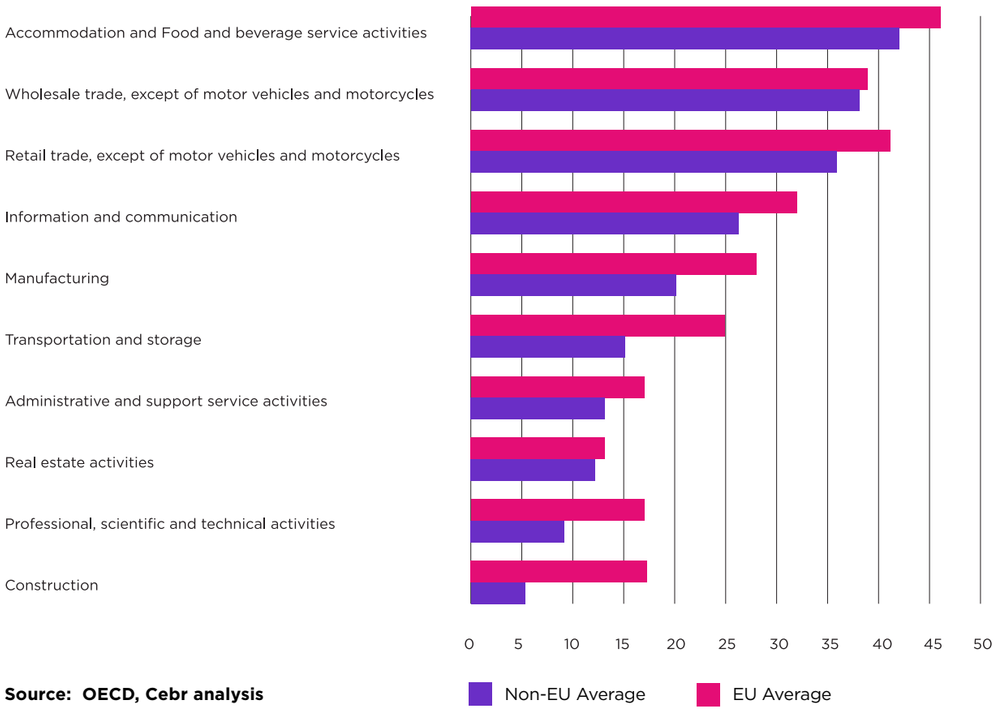
Source: OECD, Cebr analysis

Although the difference in online presence is relatively small, it is clear that non-EU businesses are more likely to receive orders over computer networks across all industries. This is most notable within the construction sector, where 17 per cent of non-EU businesses take computer network orders, compared with 5 per cent of EU construction firms.

Despite the differences in absolute levels, the OECD data suggests that both non-EU and EU countries continue to follow similar trends regarding digitisation across sectors, with the ICT and hospitality sectors leading.

FIGURE 41

Businesses receiving orders over computer networks, per cent, 2020



Source: OECD, Cebr analysis

Assessing the impact of digitalisation on trade

In the rapid advances of digitalisation and technology, several factors will be key to transforming the global trade landscape.

AI

AI has caught global attention like no other technology in recent years. Estimates suggest the AI market was worth $240 billion in 2023. In 2030, it is expected to reach $738 billion.[200]

Whereas some regions have been slower to embrace its potential than others (only 8 per cent of EU businesses reported using AI technologies in 2023) its significant potential across sectors, including trade, indicates that there is substantial opportunity for growth. Indeed, a 2023 survey of large businesses by Cebr and Moore Global found that 77 per cent of businesses across 12 major markets had increased investment or usage of AI in the past four years.

The advent of consumer generative AI programmes, including open-source platforms, has been particularly impactful for the adoption of the technology across various industries. It has also shifted perceptions of how AI will impact the labour market, being seen increasingly as a job enhancer rather than a job destroyer. This was borne out in the Cebr/ Moore Global survey, where the most commonly perceived benefit of AI was productivity improvement, and the least frequently selected option was reducing headcounts.

AI has caught global attention like no other technology in recent years. Estimates suggest the AI market was worth $240 billion in 2023. In 2030, it is expected to reach $738 billion.[200]

It is also likely that the aforementioned survey data regarding AI usage is an underestimate, as many people will use AI in their day-to-day roles without realising it. Indeed, some of the most widely used computing software that has existed for decades now comes with AI algorithms used to improve existing features or create new ones.

Already, countless new software products featuring AI have been created and used for anything from profiling the personality of potential customers to web scraping and photo editing. Many more new uses for AI will be created in the coming years, further increasing the opportunities for AI adoption across all businesses.

[200] Statista Market Insights, 2023

In supporting trade specifically, the foremost improvement brought about by AI is in forecasting demand and managing inventory. By inputting historical sales data, market trends, and even weather data, algorithms can optimise inventory levels and, therefore, reduce excess costs. This would improve overall supply chain efficiency across goods-based sectors such as retail and commodities.

The technology can also enhance trade finance and the assessment of credit risk. Businesses in emerging markets, as well as small-to-medium enterprises, stand to benefit from streamlining the loan approval process. Algorithms could analyse data on transaction histories and credit reports to objectively assess the suitability of firms and individuals.

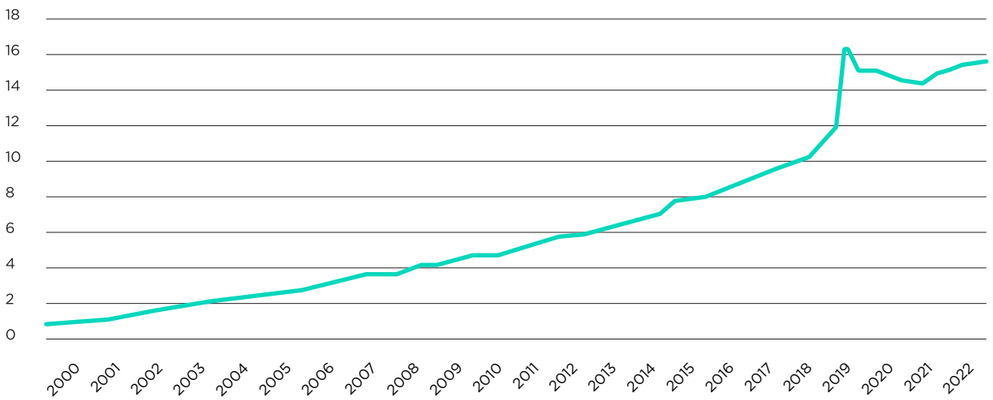
AI is also a boon for improving the customer or client experience, including real-time customer support around the clock to help resolve issues and assist through the purchasing process. Another area could be in faster and improved translation services, which could reduce barriers to trade for smaller firms with less resources. For a longer-term strategy, natural language processing (NLP) enables enterprises to analyse customer feedback from sources such as social media and reviews in order to identify key areas for improvement.

E-commerce and digital marketplaces

Digitalisation offers firms of all sizes an opportunity to achieve rapid growth. E-commerce allows access to global markets and the ability to sell directly to consumers rather than through intermediaries such as retailers. Although e-commerce is not a new technology, it continues to represent an increasing share of total sales across many key markets.

FIGURE 42

E-commerce as a total share of U.S. retail sales (S.A, per cent)



Source: US Census Bureau of the Department of Commerce

This can be seen in the sharp rise in e-commerce as a share of U.S. retail sales, which increased by four percentage points between Q1 and Q2 2020. Interestingly, although the rate of growth in e-commerce has since slowed, it is still broadly in line with the pre-pandemic trend. This suggests that the growth potential for e-commerce has yet to reach a ceiling and will continue to grow in the long term. It is estimated that global retail sales will reach $6.4 trillion this year, which, for scale, is more than double the UK's annual GDP in 2021.

There are several reasons for this surge in online sales. The main one is that at points in time during the pandemic, many consumers could only buy certain goods online. While this is no longer the case, it no doubt accelerated consumer behaviour changes by making more people comfortable with online shopping.

The cost-of-living crisis may also have accelerated online spending, as people find it easier to track prices using the internet rather than in person. This feature has become more important as people struggle financially.[201]

Societal developments, such as the increased importance of social media marketing and drop shipping platforms, have also likely played a role. Many retailers are offering augmented reality (AR) try-on experiences to customers for products such as clothing and make-up. This has also been extended to product visualisation, whereby customers can use AR apps to see how furniture would look in their home without purchasing the item first.

Trade facilitation and supply chain management

New technologies can increase the efficiency of customs processing when trading across borders. One such example is electronic documentation, whereby the replacement of paper-based trade documents has led to a streamlining in customs clearance processes and a reduction in bureaucracy.

Digitalisation can also be applied to the supply chain through real-time tracking and traceability. This can be seen clearly within the logistics industry, where radio frequency identification (RFID) tags are placed on cargo to allow companies to track the movement of inventory without manual scanning.

RFID tags are also placed on transportation to ensure there is visibility of movement throughout the entire supply chain. This can aid in identifying bottlenecks and optimising trade routes in the future. RFID tags are becoming increasingly cheaper as the technology improves. Once between 10 to 20 cents per passive tag, it is now possible to purchase such tags for five cents. This has driven demand, notably within the logistics industry. However, demand has also been partially driven by increased usage from households, with popular RFID products such as the Apple Airtag coming into the market in the past three years. These factors will continue to contribute to the long-term growth of the technology. The RFID market is expected to grow from $15.8 billion in 2023 to $40.9 billion by 2032.[202]

[201] Stewart, 2022

[202] Marketsandmarkets.com, 2023

KEY TAKEAWAYS

1. AI stands to have a profound impact on international trade. From operational efficiencies to engaging customers and trading in services, the impact of AI will be far-reaching and transformative.

2. Semiconductors have the potential to be a flashpoint between the United States and China, but the need for them will only grow. There is potential for supply chain shocks should semiconductors not be available in sufficient quantities, which will have a negative impact on trade and industry.

3. Alongside AI, advances are being made in other technologies which will deliver widespread positive benefits to trade including efficiencies, cost savings and protection against fraud.
The technologies to watch include IoT, 5G, cloud computing and additive manufacturing. In the longer term, quantum computing is a technology which could have a significant impact on trade.

4. To date, blockchain has not realised its potential. But adoption may increase if regulation demands greater security of information and protection from fraud.

5. A major risk is the lack of harmonisation and regulation globally across technologies and data flows. Any progress on this front, including through digital chapters in trade agreements, will be seen as positive for trade and will enable more rapid adoption of new technologies.

Recommendations for businesses:

1. **Embrace comprehensive digital transformation**. Businesses should continue to embrace digital transformation, incorporating advanced technologies such as AI into their operations. This entails not only adopting these technologies but also fostering a culture of innovation and digital literacy across the organisation.

2. **Invest in R&D and pilot programmes**. Digital transformation may require additional investment in research and development or multiple pilot programmes to identify the best use cases for new technologies or combinations thereof. Investing in experimentation and iterative testing allows businesses to refine their digital strategies and maximise the value derived from emerging technologies. Those that do this stand to gain a significant competitive advantage on those that do not.

3. **Engage proactively on technology regulation**. Businesses should actively engage with regulators and policymakers, especially in the early stages of regulatory framework development for emerging technologies. Given the widening gap between digital development and related regulation, businesses must participate in shaping regulatory frameworks to ensure they are conducive to innovation while addressing societal concerns and risks.

4. **Advocate for common standards and harmonisation**. Making the case for more efficient markets and increased economic growth can help persuade policymakers to adopt standardised approaches, particularly benefiting digital SMEs engaged in trade. Businesses should advocate for common and harmonised standards across geographies to reduce costs and complexity associated with fragmented legislative frameworks.

5. **Leverage data analytics for business insights**. Businesses should use data analytics provided by new technologies to gain actionable insights into market trends, consumer behaviour, and supply chain operations. By leveraging advanced analytics tools, businesses can make informed decisions, optimise operations, and identify opportunities for growth and efficiency improvements.

6. **Invest in e-commerce capabilities**. E-commerce offers opportunities for businesses to reach new markets, engage with customers more effectively, and streamline transaction processes, thereby enhancing competitiveness and agility in the digital economy. Businesses should invest in e-commerce capabilities to expand sales channels and optimise inventory and logistics operations.

7. **Monitor and push for blockchain progress**. Despite not fully realising its promise, there remain huge potential benefits of blockchain technology. Businesses should continue to observe progress in regulation and technological development and advocate for advancements in standards to facilitate widespread adoption of blockchain for secure, transparent, and efficient transactions.

CHAPTER 3: The Dawn of AI

Recommendations for governments:

1. **Foster AI adoption and regulation**. Governments should prioritise policies that encourage the adoption and responsible use of AI. This includes investing in AI research and development, supporting AI education and workforce training programmes and establishing regulatory frameworks to ensure ethical AI deployment. By fostering innovation and addressing concerns related to privacy, bias, and accountability, governments can unlock the transformative potential of AI in driving operational efficiencies, enhancing customer engagement, and facilitating trade.

2. **Ensure semiconductor supply chain resilience**. Recognising the critical importance of semiconductors in global trade and industry, governments should implement measures to safeguard semiconductor supply chains. This includes fostering collaboration between industry stakeholders, investing in domestic semiconductor manufacturing capabilities, and diversifying semiconductor sourcing to mitigate supply chain shocks. Proactive measures to address potential shortages will help maintain trade continuity and support economic resilience.

3. **Promote adoption of emerging technologies**. Governments should promote the adoption of emerging technologies such as IoT, 5G, cloud computing, additive manufacturing and quantum computing, through supportive policies and incentives. This includes investing in infrastructure development, fostering public-private partnerships, and providing financial incentives for technology adoption. By leveraging these technologies, businesses can realise efficiencies, cost savings, and enhanced fraud protection, thereby driving positive impacts on international trade.

4. **Address blockchain adoption barriers**. Governments should address regulatory barriers hindering the adoption of blockchain technology. This may involve updating existing regulations to accommodate blockchain applications, providing legal clarity on blockchain-based transactions, and promoting interoperability standards. Additionally, enhancing security measures and fraud protection in regulation can increase blockchain adoption by improving trust and reliability in digital transactions.

5. **Harmonise global regulation and data flows**. Governments should prioritise efforts to harmonise global regulation and data flows across technologies to facilitate international trade. This includes negotiating digital chapters in trade agreements to establish common standards and rules for cross-border data flows, privacy protection, and intellectual property rights. By promoting regulatory coherence and interoperability, governments can reduce barriers to technology adoption, foster innovation, and promote inclusive and sustainable economic growth on a global scale.

REFERENCES
FOR CHAPTER III

Akama, K., and Nitta, Y. (2023). 'U.S. and China butt heads over investment in Southeast Asia', Nikkei Asia. Available at: https://asia.nikkei.com/Spotlight/Datawatch/U.S.-and-China-butt-heads-over-investment-in-Southeast-Asia

Arasasingham, A. and Goodman, M.P. (2023). 'Operationalizing Data Free Flow with Trust (DFFT)', Center for Strategic and International Studies. Available at: https://www.csis.org/analysis/operationalizing-data-free-flow-trust-dfft

Asia House. (2024). 'Annual Outlook 2024: Asia – The world's growth engine in a turbulent year', Asia House. Available at: https://ejf-chm2yh8j.exactdn.com/wp-content/uploads/2024/01/The-Asia-House-Annual-Outlook-Report-2024.pdf

Asian Development Bank. (2023). 'Global Trade Finance Gap Expands to $2.5 Trillion in 2022', Asian Development Bank Available at: https://www.adb.org/news/global-trade-finance-gap-expands-25-trillion-2022

Bain & Company. (2023). 'Report: Southeast Asia consumer confidence on track for rebound as value-seekers embrace new "needs"', Bain & Company. Available at: https://www.bain.com/about/media-center/press-releases/sea/bold-moves-leading-southeast-asias-next-wave-of-consumer-growth/#:~:text=According%20to%20the%20report%2C%20Southeast,the%20trajectory%20of%20consumption%20growth.

Balci, G. and Surucu-Balci, E. (2021). 'Blockchain adoption in the maritime supply chain: Examining barriers and salient stakeholders in containerized international trade', Elsevier. Available at: https://doi.org/10.1016/j.tre.2021.102539

Boston Consulting Group. (2023). 'E-Commerce Poised to Capture 41% of Global Retail Sales by 2027—Up from Just 18% in 2017', Boston Consulting Group. Available at: https://www.bcg.com/press/31october2023-ecommerce-global-retail-sales

Burri, M. (2022). 'Digital Trade Rulemaking in Free Trade Agreements', Forthcoming in Collins, D. and Geist, M. (eds.). Handbook on Digital Trade. Cheltenham: Edward Elgar. Available at: https://ssrn.com/abstract=4281650

Burri, M. (2023). 'TAPED A Dataset on Digital Trade Provisions', University of Lucerne. Available at: https://www.unilu.ch/en/faculties/faculty-of-law/professorships/burri-mira/research/taped/

Cecere, L. (2022). 'Tradelens Discontinues Operations. Why You Should Care.', Forbes. Available at: https://www.forbes.com/sites/loracecere/2022/12/05/tradelens-discontinues-operations-why-you-should-care/

Cheng, T.F. (2023). 'TSMC seeks permanent U.S. approval to supply China chip plant', Nikkei Asia. Available at: https://asia.nikkei.com/Business/Tech/Semiconductors/TSMC-seeks-permanent-U.S.-approval-to-supply-China-chip-plant#:~:text=%22TSMC%20has%20been%20authorized%20to,the%20world's%20largest%20chipmaker%20said.

CoinMarketCap. (2024). 'Today's Cryptocurrency Prices by Market Cap', CoinMarketCap. Available at: https://coinmarketcap.com/
Consensys. (n.d.). 'Blockchain for Global Trade and Commerce', Consensys. Available at: https://consensys.io/blockchain-use-cases/global-trade-and-commerce

Cory, N. (2023). 'How the G7 Can Use "Data Free Flow With Trust" to Build Global Data Governance', Information Technology & Innovation Foundation. Available at: https://itif.org/publications/2023/07/27/how-g7-can-use-data-free-flow-with-trust-to-build-global-data-governance/

Cramer-Flood, E. (2023). 'Southeast Asia Retail Ecommerce Forecast 2023', Insider Intelligence. Available at: https://www.insiderintelligence.com/content/southeast-asia-retail-ecommerce-forecast-2023

Davis, D. (2023). 'What Happened to FTX? The Crypto Exchange Fund's Collapse Explained.', Forbes. Available at: https://www.forbes.com/sites/darreonnadavis/2023/06/02/what-happened-to-ftx-the-crypto-exchange-funds-collapse-explained/

DMCC. (2023). 'The Future of Trade: Special Lab-Grown Diamond Edition', DMCC. Available at: https://www.futureoftrade.com/lab-grown-diamond-edition-2023

Donnelly, J. (2023). 'Tianjin Port transformed by Huawei autonomous driving software', Port Technology International. Available at: https://www.porttechnology.org/news/tianjin-port-transformed-by-huawei-autonomous-driving-software/

EIA. (2024). 'Tracking electricity consumption from U.S. cryptocurrency mining operations', U.S. Energy Information Administration. Available at: https://www.eia.gov/todayinenergy/detail.php?id=61364

Eldred, G. and van der Vos, E. (2023). 'The Electronic Trade Documents Act 2023 – The future is now?', Penningtons Manches Cooper. Available at: https://www.penningtonslaw.com/news-publications/latest-news/2023/the-electronic-trade-documents-act-2023-the-future-is-now

Engler, A. (2023). 'The EU and U.S. diverge on AI regulation: A transatlantic comparison and steps to alignment', Brookings. Available at: https://www.brookings.edu/articles/the-eu-and-us-diverge-on-ai-regulation-a-transatlantic-comparison-and-steps-to-alignment/#anchor3

European Commission. (2023). 'EU and Japan conclude landmark deal on cross-border data flows at High-Level Economic Dialogue', European Commission. Available at: https://ec.europa.eu/commission/presscorner/detail/en/ip_23_5378

European Commission. (n.d.). 'European Chips Act', European Commission. Available at: https://commission.europa.eu/strategy-and-policy/priorities-2019-2024/europe-fit-digital-age/european-chips-act_en

European Parliament. (2020). 'Blockchain for supply chains and international trade', European Parliament. Available at: https://www.europarl.europa.eu/thinktank/en/document/EPRS_STU(2020)641544

Eurostat. (2023). 'Artificial Intelligence by activity', Eurostat. Available at: https://ec.europa.eu/eurostat/databrowser/view/isoc_eb_ain2/default/table?lang=en

Federal Reserve Board, 2022: https://www.federalreserve.gov/publications/2022-economic-well-being-of-us-households-in-2021-executive-summary.htm

Ferencz, J., López-González, J., and Oliván García, I. (2022). 'Report on the Economic Well-Being of U.S. Households in 2021 - May 2022', The Federal Reserve. Available at: https://www.oecd.org/publications/artificial-intelligence-and-international-trade-13212d3e-en.htm

Ganne, E. (2018). 'Can Blockchain revolutionize international trade?', World Trade Organization. Available at: https://www.wto.org/english/res_e/publications_e/blockchainrev18_e.htm

Global Trade Review. (2024). 'The trade finance gap – a new solution?', Global Trade Review. Available at: https://www.gtreview.com/news/global/the-trade-finance-gap-a-new-solution/#:~:text=This%20gap%20is%20usually%20most,continue%20to%20be%20most%20affected.

Haldane, M. (2023). 'Blockchain-based logistics looks increasingly Chinese after exit of Maersk, but Hong Kong's GSBN has global ambitions', South China Morning Post. Available at: https://www.scmp.com/tech/tech-trends/article/3216365/blockchain-based-logistics-looks-increasingly-chinese-after-exit-maersk-hong-kongs-gsbn-has-global

Heikkilä, M. (2023). 'Five things you need to know about the EU's new AI Act', MIT Technology Review. Available at: https://technologyreview.com/2023/12/11/1084942/five-things-you-need-to-know-about-the-eus-new-ai-act/

Hutchison Ports. (2022). 'Has blockchain's golden age arrived?', Hutchinson Ports. Available at: https://hutchisonports.com/en/media/stories/has-blockchains-golden-age-arrived/

IBM. (n.d.). 'What is blockchain technology?', IBM. Available at: https://www.ibm.com/topics/blockchain

IBM. (n.d.). 'Blockchain for supply chain solutions', IBM. Available at: https://www.ibm.com/blockchain-supply-chain

IBM. (2021). 'Hapag-Lloyd and Ocean Network Express Complete TradeLens Integration, Join Rapidly Expanding Shipping Ecosystem to Further Enhance Trade Digitization', IBM. Available at: https://newsroom.ibm.com/2021-06-24-Hapag-Lloyd-and-Ocean-Network-Express-Complete-TradeLens-Integration,-Join-Rapidly-Expanding-Shipping-Ecosystem-to-Further-Enhance-Trade-Digitization

Insider Intelligence. (2022). 'Smartphone Users in Southeast Asia, by Country, 2021-2026 (millions, percentage change, and per cent of internet users)', Insider Intelligence. Available at: https://www.insiderintelligence.com/chart/255527/smartphone-users-southeast-asia-by-country-2021-2026-millions-change-of-internet-users

International Monetary Fund (IMF), the Organisation for Economic Co-operation and Development, the United Nations, The World Bank and the World Trade Organization. (2023). 'Digital Trade for Development', World Trade Organization. Available at: https://www.wto.org/english/news_e/news23_e/dtech_07dec23_e.htm

International Trade Administration (ITA). (2023a). 'Artificial Intelligence', International Trade Administration. Available at https://www.trade.gov/artificial-intelligence

International Trade Administration (ITA). (2023b). '2024 Southeast Asia Region eCommerce Forecast', International Trade Administration. Available at: https://www.trade.gov/southeast-asia-region-forecast#:~:text=Southeast%20Asia%20eCommerce%20Markets%20Are,USD%2482%20billion%20in%202023.

ITU. (2023). 'The world's richest source of ICT statistics and regulatory information', ITU. Available at: https://datahub.itu.int/

Kane, J. (2023). 'Comprehensive and Progressive Agreement for Trans-Pacific Partnership (CPTPP)', Institute for Government. Available at: https://www.instituteforgovernment.org.uk/explainer/comprehensive-and-progressive-agreement-trans-pacific-partnership

Kelter, F. (2022). 'The Battle Over Semiconductors Is Endangering Taiwan', Foreign Policy. Available at: https://foreignpolicy.com/2022/11/09/tsmc-taiwan-battle-semiconductors-water-resource-scarcity/

Krummenacher, P. (2023). 'International Trade and Artificial Intelligence: Is trade policy ready for Chat GPT?', International Institute for Sustainable Development. Available at: https://www.iisd.org/articles/policy-analysis/international-trade-artificial-intelligence-chatgpt

Kumar, A., Chhangani, A., Brownstein, G., and Meng, P. (2024). 'Central Bank Digital Currency Tracker', Atlantic Council. Available at: https://www.atlanticcouncil.org/cbdctracker/

Kuo, M.A. (2023). 'US and Taiwan: Semiconductor Supply Chain Partnership', The Diplomat. Available at: https://thediplomat.com/2023/08/us-and-taiwan-semiconductor-supply-chain-partnership/

Lang, H., Cooper, A., and Banerjee, A. (2024). 'Bitcoin soars to record high, then tumbles', Reuters. Available at: https://www.reuters.com/technology/bitcoin-surges-past-68000-sight-record-high-2024-03-05/

Lang, H., Howcroft, E., and Wilson, T. (2023). 'The crypto market bears the scars of FTX's collapse', Reuters. Available at: https://www.reuters.com/technology/crypto-market-still-bears-scars-ftxs-collapse-2023-10-03/

Lang, H. and McGee, S. (2024). 'US SEC approves bitcoin ETFs in watershed for crypto market', Reuters. Available at: https://www.reuters.com/technology/bitcoin-etf-hopefuls-still-expect-sec-approval-despite-social-media-hack-2024-01-10/

Lazada. (2023). 'What is LazzieChat?', Lazada. Available at: https://www.lazada.sg/helpcenter/what-is-lazziechat-16192.html?hybrid=1

Lin, Y. (2024). 'Global Ecommerce Sales Growth Report', Shopify. Available at: https://www.shopify.com/blog/global-ecommerce-sales

Lindrea, B. (2022). 'Blockchain-based supply chain platform canned by IBM and Maersk', Cointelegraph. Available at: https://cointelegraph.com/news/blockchain-based-supply-chain-platform-canned-by-ibm-and-maersk

Maersk. (2022). 'A.P. Moller - Maersk and IBM to discontinue TradeLens, a blockchain-enabled global trade platform', Maersk. Available at: https://www.maersk.com/news/articles/2022/11/29/maersk-and-ibm-to-discontinue-tradelens#:~:text=Copenhagen%20%2D%20A.P.,open%20and%20neutral%20industry%20platform.

Marketsandmarkets.com. (2023). 'RFID Market', Marketsandmarkets.com. Available at: https://www.marketsandmarkets.com/Market-Reports/rfid-market-446.html

Min, A.G. (2022). 'NDR 2022: Tuas Port will be world's largest fully automated port when completed in 20 years', Channel News Asia. Available at: https://www.channelnewsasia.com/singapore/tuas-port-worlds-largest-fully-automated-port-20-years-ndr-2022-greater-southern-waterfront-2891291

Ministry and Port Authority of Singapore (MPA). (n.d.). 'Tuas Port – A Smarter and Greener Port', Ministry and Port Authority of Singapore. Available at: https://www.mpa.gov.sg/maritime-singapore/port-of-the-future#:~:text=Tuas%20Port%20was%20officially%20opened,mil%20TEUs%20handled%20in%202021.

Ministry and Port Authority of Singapore (MPA). (2019). 'Constructing a Resilient Port of the Future Singapore's Next Generation Port', Ministry and Port Authority of Singapore. Available at: https://sustainableworldports.org/wp-content/uploads//gravity_forms/3-bd84b5b5f37889d5e2375dc98f054b49/2019/12/IAPH-Award-Submission_v6_v31.pdf

Mitchell, A.D. and Gyanchandani, V. (2023). 'Convergence & Divergence in Digital Trade Regulation: A Comparative Analysis of CP-TPP, RCEP, and EJSI', The South Carolina Journal of International Law & Business 19(2), pp.98-150. Available at: https://scholarcommons.sc.edu/scjilb/vol19/iss2/6

Moriyasu, K., Ting-Fang, C., and Li, L. (2024). 'TSMC expands U.S. investment to $65bn after securing $6.6bn grant', Nikkei Asia. Available at: https://asia.nikkei.com/Business/Tech/Semiconductors/TSMC-expands-U.S.-investment-to-65bn-after-securing-6.6bn-grant?utm_campaign=GL_one_time&utm_medium=email&utm_source=NA_newsletter&utm_content=article_link&del_type=3&pub_date=20240408010000&seq_num=3&si=13198b6c-ce44-4b9c-99e7-e5959cc1a52b

Morrison, S. (2023). 'What Is the Best Internet Speed for Your Business?', Business. Available at: https://www.business.com/internet/bandwidth/

Ngo, M. and Clark, D. (2024). 'TSMC Will Receive $6.6 Billion to Bolster U.S. Chip Manufacturing', The New York Times. Available at: https://www.nytimes.com/2024/04/08/us/politics/tsmc-taiwan-chips-grants.html?campaign_id=51&emc=edit_mbe_20240409&instance_id=119689&nl=morning-briefing%3A-europe-edition&regi_id=224269964&segment_id=162968&te=1&user_id=b5c5f8062ce6c0ffe18a0a04e42fad96

OECD. (2022). 'Cross-border Data Flows: Taking Stock of Key Policies and Initiatives', OECD Publishing. Available at: https://doi.org/10.1787/5031dd97-en

OECD. (n.d.). 'The impact of digitalisation on trade', OECD. Available at: https://www.oecd.org/trade/topics/digital-trade/

Palmer, A.W. (2023). ''An Act of War': Inside America's Silicon Blockade Against China', The New York Times Magazine. Available at: https://www.nytimes.com/2023/07/12/magazine/semiconductor-chips-us-china.html

RCEP. (2020). 'RCEP text', Australian Government: Department of Foreign Affairs and Trade. Available at: https://www.dfat.gov.au/trade/agreements/in-force/rcep/rcep-text

Ryan-Mosley, T., Heikkilä, M., and Yang, Z. (2024). 'What's next for AI regulation in 2024?', MIT Technology Review. Available at: https://www.technologyreview.com/2024/01/05/1086203/whats-next-ai-regulation-2024/?utm_source=google&utm_medium=search&utm_campaign=acq_UKBLOW&utm_content=DSAWEB&gad_source=1&gclid=Cj0KCQiAzoeuBhDqARIsAMdH14FXvN6s1KKuglyppT-DGqtk3VsGqffqHSCyaU8x5GQATJ6F4Ebj_c50aAheLEALw_wcB

Schweitzer, F., Saccomanno, I., and Saika, N. (2023). 'The Rise of Artificial Intelligence, Big Data, and the Next Generation of International Rules Governing Cross-Border Data Flows and Digital Trade', White & Case. Available at: https://www.whitecase.com/insight-our-thinking/rise-artificial-intelligence-big-data-next-generation-international-rules

Seth, S. (2023). 'What Is a Central Bank Digital Currency (CBDC)?', Investopedia. Available at: https://www.investopedia.com/terms/c/central-bank-digital-currency-cbdc.asp

Shattuck, T.J. (2021). 'Stuck in the Middle: Taiwan's Semiconductor Industry, the U.S.-China Tech Fight, and Cross-Strait Stability', Orbis 65(1), pp.101-117. Available at: https://doi.org/10.1016/j.orbis.2020.11.005

Shewale, R. (2024). 'Blockchain Statistics of 2024 (Market Size & Users)', Demandsage. Available at: https://www.demandsage.com/blockchain-statistics/
Singh, M. and Mattackal, L.P. (2023). 'Cryptoverse: Bitcoin defies its doubters in 2023', Reuters. Available at: https://www.reuters.com/technology/cryptoverse-bitcoin-defies-its-doubters-2023-2023-12-12/

Smith, C.S. (2023). 'What Large Models Cost You – There Is No Free AI Lunch', Forbes. Available at: https://www.forbes.com/sites/craigsmith/2023/09/08/what-large-models-cost-you--there-is-no-free-ai-lunch/

Statista Market Insights. (2023). 'Artificial Intelligence – Worldwide', Statista Market Insights. Available at: https://www.statista.com/outlook/tmo/artificial-intelligence/worldwide#market-size

Stewart, T. (2022). 'Cost-of-living crisis increasing reliance on ecommerce', Ecommerce Age. Available at: https://ecommerceage.co.uk/customer-experience/uk-online-purchases-cost-of-living-inflation-digital-river-opinium/

Suominen, K. (2021). 'The CPTPP's Impacts on Digital Trade and the Path Forward', Centre for Strategic and International Studies. Available at: https://www.csis.org/analysis/cptpps-impacts-digital-trade-and-path-forward

Terzi, N. (2011). 'The impact of e-commerce on international trade and employment', Procedia Social and Behavioral Sciences 24, pp.745-753. Available at: https://doi.org/10.1016/j.sbspro.2011.09.010

The Economist. (2023). 'Taiwan's dominance of the chip industry makes it more important', The Economist. Available at: https://www.economist.com/special-report/2023/03/06/taiwans-dominance-of-the-chip-industry-makes-it-more-important

The Office of the United States Trade Representative (USTR). (2017). 'Key Barriers to Digital Trade', Office of the United States Trade Representative. Available at: https://ustr.gov/about-us/policy-offices/press-office/fact-sheets/2017/march/key-barriers-digital-trade

The White House. (2022). 'FACT SHEET: CHIPS and Science Act Will Lower Costs, Create Jobs, Strengthen Supply Chains, and Counter China'. The White House. Available at: https://www.whitehouse.gov/briefing-room/statements-releases/2022/08/09/fact-sheet-chips-and-science-act-will-lower-costs-create-jobs-strengthen-supply-chains-and-counter-china/

The White House. (2023). 'Executive Order on the Safe, Secure, and Trustworthy Development and Use of Artificial Intelligence', The White House. Available at: https://www.whitehouse.gov/briefing-room/presidential-actions/2023/10/30/executive-order-on-the-safe-secure-and-trustworthy-development-and-use-of-artificial-intelligence/

The White House. (2024a). 'FACT SHEET: President Bexiden Issues Executive Order to Protect Americans' Sensitive Personal Data', The White House. Available at: https://www.whitehouse.gov/briefing-room/statements-releases/2024/02/28/fact-sheet-president-biden-issues-sweeping-executive-order-to-protect-americans-sensitive-personal-data/

The White House. (2024b). 'FACT SHEET: Vice President Harris Announces OMB Policy to Advance Governance, Innovation, and Risk Management in Federal Agencies' Use of Artificial Intelligence', The White House. Available at: https://www.whitehouse.gov/briefing-room/statements-releases/2024/03/28/fact-sheet-vice-president-harris-announces-omb-policy-to-advance-governance-innovation-and-risk-management-in-federal-agencies-use-of-artificial-intelligence/#:~:text=Today%2C%20Vice%20President%20Kamala%20Harris,Biden%27s%20landmark%20AI%20Executive%20Order

The World Bank. (2022). 'COVID-19 Boosted the Adoption of Digital Financial Services', The World Bank. Available at: https://www.worldbank.org/en/news/feature/2022/07/21/covid-19-boosted-the-adoption-of-digital-financial-services

Toh, M. (2024). 'TSMC says its $40 billion chip project in Arizona faces a further delay', CNN. Available at: https://edition.cnn.com/2024/01/19/tech/tsmc-taiwan-arizona-project-delay-intl-hnk/index.html

USAID. (2018). 'Blockchain for Trade: Select Case Studies and Lessons Learned', USAID. Available at: https://pdf.usaid.gov/pdf_docs/PA00TKX9.pdf

Van Sloun, S. (2023). 'U.S. Investment in Semiconductor Manufacturing: Building the Talent Pipeline', Council on Foreign Relations. Available at: https://www.cfr.org/blog/us-investment-semiconductor-manufacturing-building-talent-pipeline#:~:text=Currently%2C%20the%20United%20States%20manufactures,from%2037%20per cent%20in%201990.

Verified Market Research. (2023). 'Blockchain In Supply Chain Finance Market Size And Forecast', Verified Market Research. Available at: https://www.verifiedmarketresearch.com/product/blockchain-in-supply-chain-finance-market/

Winslett, G. (2023). 'Digital Trade in Services: Globalization's Exciting New Frontier', CATO Institute. Available at: https://www.cato.org/publications/digital-trade-services-globalizations-exciting-new-frontier

World Economic Forum. (2020). 'Data Free Flow with Trust (DFFT): Paths towards Free and Trusted Data Flows', World Economic Forum. Available at: https://www.weforum.org/publications/data-free-flow-with-trust-dfft-paths-towards-free-and-trusted-data-flows/

World Trade Organization (WTO). (2024). 'Regional Trade Agreements Database', World Trade Organization. Available at: https://rtais.wto.org/UI/PublicMaintainRTAHome.aspx

Wragg, E. (2022). 'Maersk and IBM pull the plug on TradeLens', Global Trade Review. Available at: https://www.gtreview.com/news/fintech/maersk-and-ibm-pull-the-plug-on-tradelens/

Yaffe-Bellany, D. (2024a). 'Regulators Approve New Type of Bitcoin Fund, in Boon for Crypto Industry', The New York Times. Available at: https://www.nytimes.com/2024/01/10/technology/sec-bitcoin-approval-exchange-traded-funds.html?campaign_id=51&emc=edit_mbe_20240111&instance_id=112222&nl=morning-briefing%3A-europe-edition&regi_id=224269964&segment_id=154843&te=1&user_id=b5c5f8062ce6c0ffe18a0a04e42fad96

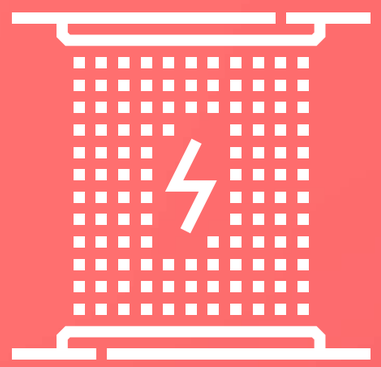
Yaffe-Bellany, D. (2024b). 'Bitcoin Hits Record High, Completing a Stunning Comeback', The New York Times. Available at: https://www.nytimes.com/2024/03/05/technology/bitcoin-price-record-high.html?campaign_id=51&emc=edit_mbe_20240306&instance_id=116868&nl=morning-briefing%3A-europe-edition&regi_id=224269964&segment_id=159980&te=1&user_id=b5c5f8062ce6c0ffe18a0a04e42fad96

Yahoo Finance. (2024a). 'Bitcoin USD (BTC-USD)', Yahoo Finance. Available at: https://finance.yahoo.com/quote/BTC-USD/history

Yahoo Finance. (2024b). 'Ethereum USD (ETH-USD)', Yahoo Finance. Available at: https://finance.yahoo.com/quote/ETH-USD/history
Yang, Z. (2023). 'China just fought back in the semiconductor exports war. Here's what you need to know.', MIT Technology Review. Available at: https://www.technologyreview.com/2023/07/10/1076025/china-export-control-semiconductor-material/

Zamani, E. D., Smyth, C., Gupta, S., and Dennehy, D. (2022). 'Artificial intelligence and big data analytics for supply chain resilience: a systematic literature review', Annals of Operations Research 327, pp.605-623. Available at: https://doi.org/10.1007/s10479-022-04983-y

Zheng, S. and Zhang, J. (2023). 'China Wants to Regulate Its Artificial Intelligence Sector Without Crushing It', Time. Available at: https://time.com/6304831/china-ai-regulations/



CHAPTER IV

SUSTAINABILITY AND THE FUTURE OF TRADE

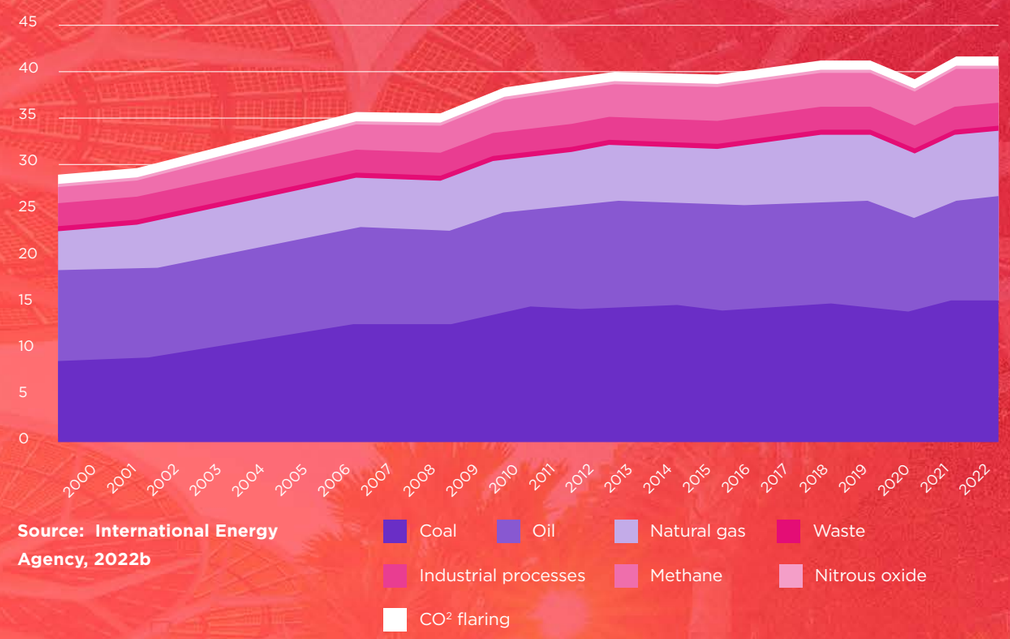
INTRODUCTION

Climate change is an urgent and escalating global crisis that has far-reaching consequences for our planet, its ecosystems and the future of humanity. At COP28 in Dubai in December 2023, global leaders agreed to transition away from fossil fuels. Greenhouse gas emissions have been steadily increasing over time, barring a slight dip during pandemic lockdowns, as shown in Figure 43 below. But the world's capacity to produce renewable energy is growing rapidly, putting renewables on track to surpass coal as the world's largest electricity source in the next few years.[203] Trade will be a crucial tool to supply renewable energy and the technologies required for its production.

International trade and climate change are inextricably linked. While trade has been a contributing factor to emissions growth by enabling mass global consumption, it will also be key in alleviating issues by facilitating the spread of renewable energies and green technologies crucial to meeting net-zero targets. Trade agreements have increasingly broadened to include environmental provisions, moving beyond traditional objectives of simply lowering tariffs to facilitate trade.

FIGURE 43

Global energy-related greenhouse gas emissions



Source: International Energy Agency, 2022b

[203] International Energy Agency, 2022a

CHAPTER 4: Sustainability and the Future of Trade

Sustainability's influence on global trade is borne out in three key trends:

- **Carbon markets –** The emergence of carbon pricing and emissions trading systems will force companies to pay more for carbon-intensive imports, so trade patterns will change as companies seek out greener producers.
- **Increased trade of renewable energy and environmental technologies –** In the pursuit of net-zero targets, companies and countries will look to reduce their demand for fossil fuels and increase their imports of renewable energy and related technologies. Some countries will emerge as dominant global suppliers.
- **Changing government priorities –** Foreign policy has traditionally been a trade-off between economic gains and national security concerns. Climate worries have entered that equation and will become more heavily weighted in the future as governments assess their resilience to energy needs.

Companies that invest in greening their supply chains and technologies that help to reduce carbon footprints will reap the rewards in the long run, particularly as we can expect more jurisdictions to implement net-zero targets and carbon pricing and trading. There is increasing pressure to ensure that future economic growth will have to be more sustainable. This will require a shift away from cost-saving business models towards sustainable operations that account for the environmental cost of production.

Companies that invest in greening their supply chains and technologies that help to reduce carbon footprints will reap the rewards in the long run, particularly as we can expect more jurisdictions to implement net-zero targets and carbon pricing and trading.

Carbon pricing and different trading models will disrupt trade. There is a risk that some carbon trading regimes will be seen as protectionist, costly and as obstacles to free trade. The EU's Carbon Border Adjustment Mechanism which comes into force in 2026 has already been criticised for the increased tariff that exporters into the EU will have to pay. Various governments are looking at a range of carbon pricing and carbon market models to help combat climate change and businesses are already concerned that a patchwork of regulatory regimes will be complex and costly to navigate.

SECTION ONE

HOW CLIMATE POLICY IS CHANGING GLOBAL TRADE

COP28 in Dubai: A global agreement to transition away from fossil fuels.

The 2022 edition of the Future of Trade report was published following COP26, where progress was made on carbon trading, but where crucially, "efforts to agree a complete ban on investment in new fossil-fuel projects ultimately failed".[204]

COP28 marked new progress as 130 governments launched the Global Renewables and Energy Efficiency Pledge, committing to triple the world's installed renewable energy generation capacity and double the global average annual rate of energy efficiency by 2030.[205] There was speculation surrounding whether COP28 would achieve an agreement to "phase out" fossil fuels. Instead, the outcome agreed to a slightly less restrictive commitment to "transition away from fossil fuels".[206]

The importance of trade to climate change was highlighted at the gathering, with COP28 designating December 4th "Trade Day", the first of its kind at a COP event. This featured discussions on how trade can be used to facilitate "climate-smart development", how developing countries can emerge as major exporters of minerals critical to the energy transition and the importance of these value chains.

The increasing emphasis placed on net-zero commitments will lead to changes in consumption and global trade. The major shifts we can expect to see in the next few years are:

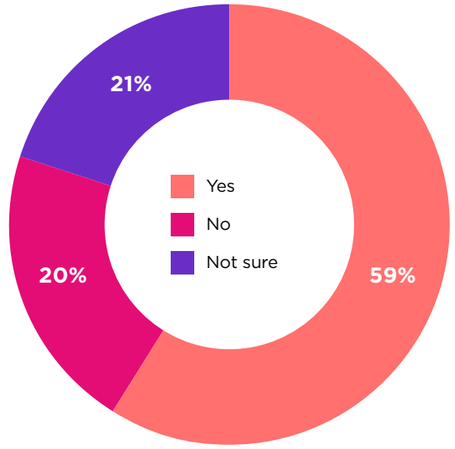
- **Higher demand for renewable energy and related technologies and materials.** The energy transition will encourage countries and companies to reduce fossil fuels and increase their reliance on renewable energy. This will result in a re-routing of trade, with declining exports from large oil and coal producers, and an increase in exports from countries with large renewable energy potential.[207] This re-routing of trade will be partly influenced by economic forces, namely competitiveness and the price mechanisms, but also by geopolitical interests. It is likely that some countries will emerge as monopolies – becoming the sole supplier of critical raw materials that are required in renewable energy technologies. China, for example, produces 70 per cent of the world's graphite, a key component in solar panels and electric vehicle batteries, so will benefit from growing demand.[208] The terms of trade for many countries will change as this reshaping of the global demand map establishes new winners and losers. For some countries with both high fossil fuel capacity and renewable energy potential, such as the UAE and Saudi Arabia, the rise in demand for renewables could help offset the reduction in oil exports.

- **Greening of supply chains.** As more companies adopt net-zero commitments, they will increasingly scrutinise their supply chains to secure the most environmentally sustainable components, potentially leading to a restructuring of supply chains. This will form part of wider strategies to address environmental, social and governance (ESG) objectives. Such action will be necessary to phase out emissions, as a study found that on average, more than 90 per cent of an enterprise's greenhouse gas emissions – and 50 per cent to 70 per cent of its operating costs – are attributable to supply chains.[209] In our Future of Trade survey, most respondents (59 per cent) expected firms to remove poor ESG performers from their supply chains, while only a fifth thought that would not be the case. Large global companies are already incorporating ESG considerations into their operations and this approach is increasingly being adopted further down the supply chain. However, greening entire supply chains is challenging, given the lack of relevant data and transparency. In the long term, the push for greener supply chains will lead to a rerouting of trade whereby businesses will not only seek out the most cost-effective supplies but will also demand more data on environmentally friendly producers. This will be particularly prevalent among EU manufacturers, who will pay a higher price for carbon-intensive imports under the EU emissions trading system.

- **Increasing regionalisation** In the longer term, the impacts of climate change could accelerate the existing trend toward regionalisation of trade. This will partly be driven by consumer preferences as increasing awareness of climate change may lead them to purchase more locally sourced products. One study found that 60 per cent of global consumers prefer to purchase food from their own country than imported food, and that the preference for buying local food is some 10 per cent higher among consumers concerned about climate change than among those who are not.[210] A trend towards increasing regionalisation may also be driven by companies seeking greater supply chain resilience, making adjustments to minimise exposure to climate-related risks such as floods, hurricanes, typhoons or fires. This could involve onshoring or nearshoring production in regions that are less exposed to climate risks.

FIGURE 44

Do you expect firms will remove poor ESG performers from their supply chains?



Source: DMCC Future of Trade survey, 2024

[204] DMCC, 2022
[205] COP28, 2023a
[206] UN Climate Change, 2023
[207] Jaeger, 2023
[208] International Energy Agency, 2023a
[209] EY, 2022
[210] EY, 2022

SECTION TWO

CARBON PRICING TO TRANSFORM BUSINESS MODELS

SYSTEMS OR MECHANISMS TO REDUCE CARBON EMISSIONS

Many governments have introduced carbon pricing to incentivise companies to reduce emissions.

Carbon taxes and Emissions Trading Systems are the two main types of carbon pricing systems. In 2022, government revenues from these sources reached a record $95 billion, up by $10 billion from the previous year, extending a sharp upward trend.[211] Briefly, this is how the two systems work:

- **Carbon taxes -** Governments set a price per tonne of carbon emitted. Businesses and individuals then pay this tax based on the amount of carbon they release into the atmosphere.

- **Emissions Trading Systems (ETS) –** Governments set a cap on total allowable emissions and distribute emission allowances among businesses. This establishes a market whereby emissions allowances can be traded: i.e. firms that can reduce emissions more cost-effectively can sell their excess allowances to those facing higher costs in reducing emissions. Over time, governments can lower the emissions cap to help achieve net-zero targets.

[211] Tan, 2022

CHAPTER 4: Sustainability and the Future of Trade

At present, a total of 46 countries have introduced 70 carbon pricing initiatives, covering 23 per cent of global greenhouse gas emissions.[212] However, there is huge variation in price, ranging from less than $1 to more than $130 per tonne of CO2, which creates challenges when allowances are traded internationally. The price difference also distorts incentives as businesses may be motivated to emit greenhouse gases in countries where they do not incur a cost to do so. Moreover, there are both mandatory and voluntary systems in existence. This lack of international standardisation undermines the incentive to reduce emissions, which can lead to so-called carbon leakage – whereby carbon-intensive industries are relocated from countries with stringent climate change rules to those that are lax. It can also create competitive disadvantages.

Border carbon adjustment mechanisms are a complementary policy measure that can be used to overcome the challenges of variations in carbon pricing systems. They work by introducing a charge on the carbon embedded in products imported from a jurisdiction with a lower level of carbon pricing than in the importing country.[213]

FIGURE 45

Countries that have implemented carbon pricing systems[214]

Source: World Bank (2023b)

[212] WTO, 2022a

[213] WTO, 2022a

[214] Note this chart displays national, not subnational or regional, carbon pricing schemes. The United States does not have a federal carbon tax; however, many state and federal programs to reduce carbon emissions effectively price carbon—for example, through cap-and-trade systems or regulations (Aldy et al. 2022). Data was last updated in March 2023 (World Bank, 2023b).

THE EUROPEAN UNION'S CARBON BORDER ADJUSTMENT MECHANISM

Case Study:

The European Union's Carbon Border Adjustment Mechanism

The EU launched the world's first Emissions Trading Systems (ETS) in 2005 and later introduced the Carbon Border Adjustment Mechanism (CBAM)

The ETS initially only covered carbon emission from power generators and energy-intensive industries and has since expanded to include more sectors and gases. CBAM will be phased in from 2026 until 2034 at the same speed as the free allowances in the EU ETS are being phased out.

CBAM applies to all EU member states and European Free Trade Association countries (Iceland, Liechtenstein and Norway) as well as to Northern Ireland for electricity generation. CBAM was legislated as part of the European Green Deal, which aims to reduce net greenhouse gas emissions by at least 55 per cent by 2030 and to achieve climate neutrality by 2050 (compared to 1990 levels).[215]

- **October 2023** marked a monumental milestone as the CBAM entered the transitional phase. During this period, businesses will have to report data on their imports of aluminium, cement, iron and steel, electricity, hydrogen and fertilisers.
- **In January 2026,** CBAM will enter into force. EU importers will buy CBAM certificates corresponding to the carbon price that would have been paid if a given good had been produced under the EU's carbon pricing rules. Conversely, if a non-EU producer has already paid a carbon price in a third country on the embedded emissions for the production of the imported goods, the corresponding cost can be deducted.[216]

[215] Tan, 2022
[216] Tan, 2022

CHAPTER 4: Sustainability and the Future of Trade

It is expected that CBAM will result in reduced carbon emissions.

In the absence of CBAM, EU companies would be able to import products from countries with less stringent climate policies without incurring a penalty. This would simply shift emissions elsewhere, undermining global efforts to tackle climate change. Since CBAM equalises the price of carbon across countries, businesses will be forced to comply with the EU's carbon price, which should create incentives to cut emissions. A risk to CBAM stems from the volatility of the EU carbon price because of market forces. Following COP28 and the failure to agree on plans for carbon trading, the price fell to its lowest level in 14 months.[217] Inevitable changes arising from geopolitical tensions or government policy in the future will affect the price – and thus business incentives.

CBAM will increase the cost of importing certain products, which may re-shape trade.

EU companies may experience higher import costs for goods such as steel and cement as well as secondary goods that contain components covered by CBAM. When respondents in our Future of Trade survey were asked how carbon pricing will affect international trade, most said it would increase costs (Figure 47). This may lead businesses to re-assess their inputs and potentially import products from countries that can produce the same goods at a lower emissions rate, as opposed to the traditional business model of seeking out the lowest production cost – a change that may alter supplier choices and therefore trade routes. This will have a negative impact on countries such as Turkey, Russia and India, which typically export carbon-intensive products to the EU.[218] Businesses may also be incentivised to invest in technologies that help to reduce emissions, increasing demand for such products.

[217] Tan, 2022
[218] Baker, 2021

Critics have highlighted protectionist concerns, saying CBAM will result in higher barriers to trade.

To work effectively, there will need to be an international understanding of regulatory requirements as businesses that export to the EU will need to report emissions data on products covered. As well as paying higher tariffs for carbon-intensive products, companies will face additional administrative processes which can also hinder trade. It is expected that $1.4 billion of extra taxes will be applied to UK exports to the EU under CBAM.[219] This has led some EU members, including Denmark and the Netherlands, to raise concerns that CBAM could be interpreted as a protectionist policy, which is particularly significant since the EU is a global advocate for free trade. The United States is using the threat of renewed tariffs on steel and aluminium to coax the EU into exempting it from CBAM, alongside bilateral negotiations on these carbon-intensive products.[220]

OTHER MANDATORY AND VOLUNTARY CARBON TRADING SYSTEMS ALSO AIM TO REDUCE EMISSIONS

Various national or subnational Emissions Trading Systems are also operating or being developed in Canada, China, Japan, New Zealand, South Korea, Switzerland and the United States. This section will present an example of a mandatory (or compliance) system and a voluntary one and will assess their progress.

China

China is set to have the largest Emissions Trading System in the world, but it will take a long time to cover all polluting sectors given the complexities of introducing new regulation and collecting required data.

China launched its Emissions Trading System in July 2021, following years of planning and a joint project with the European Commission to help with design and capacity building.[221] The Chinese ETS is a compliance system that covers emissions in the power generation sector, including coal- and gas-fired power plants. In terms of emissions covered, the ETS is set to be the world's largest, estimated to cover more than four billion tCO2 and accounting for more than 40 per cent of the country's carbon emissions, which will make it three times larger than the EU's CBAM.[222]

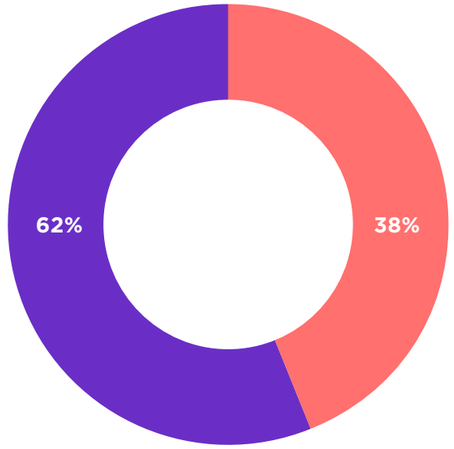
Two years after its implementation, Li Gao, director-general of the Ministry of Ecology and Environment, announced that China's ETS had largely met its initial goals of building market awareness and implementing a functioning trading mechanism.[223] However, teething problems involving data integrity and a lack of effective legislation have occurred, including a landmark fraud case whereby a power plant emitting roughly 10 million tonnes of CO2 a year was caught doctoring its emissions data.[224] These kinds of issues are to be expected in such a new policy space and will provide crucial learning opportunities for the rest of the world. If regulation keeps pace with the growing market for carbon trading, China's ETS system could have a huge positive impact on curbing global emissions, given that China is the world's largest polluter. However, progress is likely to be slow, given the legislation's complexity and the requirements for data collection.

The Chinese government has launched studies to examine the possibility of extending coverage to further sectors, including iron and steel, non-ferrous metals, building materials, petrochemicals, chemicals and aviation, but has not announced timelines for market expansion. Alongside the ETS, China also has a voluntary carbon market, the China Certified Emission Reduction (CCER) scheme, which relaunched at the beginning of 2024.[225] The CCER is a carbon-offsetting programme where projects that reduce or capture carbon emissions can earn credits, complementing the ETS.

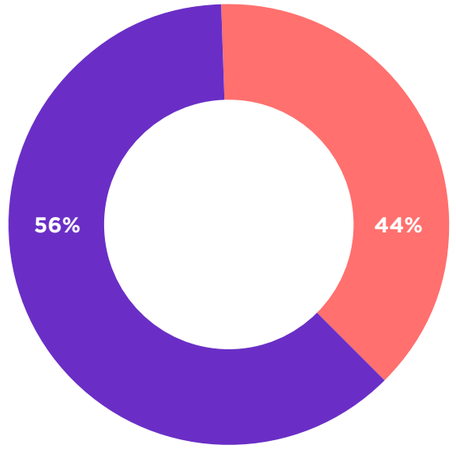
As is shown in Figure 46 below, China's ETS, which in 2021 had a cap of 4,500 MtCO2, covered 44 per cent of emissions, exceeding the 38 per cent covered by the EU's ETS International Carbon Action Partnership (2023).

FIGURE 46

Emissions that are covered under the EU's ETS (%)



Emissions that are covered under the China's ETS (%)



Covered emissions
Remaining emissions

Covered emissions
Remaining emissions

Source: International Carbon Action Partnership (2023)

[219] Baker, 2021
[220] Beattie, 2023
[221] European Commission, 2023c
[222] International Carbon Action Partnership, 2023 and Busch, 2022
[223] Xiaoying, 2023
[224] Xiaoying, 2023
[225] Xue, 2024

Australia

Australia's voluntary emissions trading system is experiencing growing demand, but the lack of binding targets will limit incentives to reduce emissions significantly.

Following various changes in government priorities and the abandonment of a carbon tax, Australia has introduced the Emissions Reduction Fund (ERF), which involves a voluntary market for carbon offset projects. The ERF supplies Australian Carbon Credit Units (ACCUs), where one ACCU represents one tonne of carbon dioxide equivalent emissions stored or avoided by a project, and these can be sold either to the Australian government or to companies in the secondary market.[226]

Like compliance ETS systems, the voluntary system is designed to motivate companies to reduce emissions. Although participation is optional, there has been progress: by 2020 more than 80 million tonnes of emissions had been reduced.[227] Since 2011, more than 100 million ACCUs have been issued, the majority of which have been purchased by the Australian government, but demand from voluntary buyers is increasing.

The voluntary system has received some serious criticism. Professor Andrew Macintosh, a leading environmental scholar, has stated that the ERF results in "environmental and taxpayer fraud" since up to 80 per cent of the ACCUs issued to environmental projects do not represent real additional abatement in emissions.[228] He cited the example of individuals receiving ACCUs for not clearing forests that were never going to be cleared. This highlights the issues that stem from voluntary systems in general since they lack legal enforcement mechanisms and regulations. Unlike compliance ETS systems such as the EU's, there are no binding emissions reduction targets, which is unlikely to create a large enough incentive to convince businesses to act on reducing emissions. Since the effective functioning of market systems depend importantly on influencing consumer and business behaviour, it is unlikely that voluntary systems will drive emissions reductions at the necessary pace and scale to meet net-zero ambitions.

[226] Clean Energy Regulator, 2023a
[227] Clean Energy Regulator, 2023b
[228] Australia National University, 2022

CHAPTER 4: Sustainability and the Future of Trade

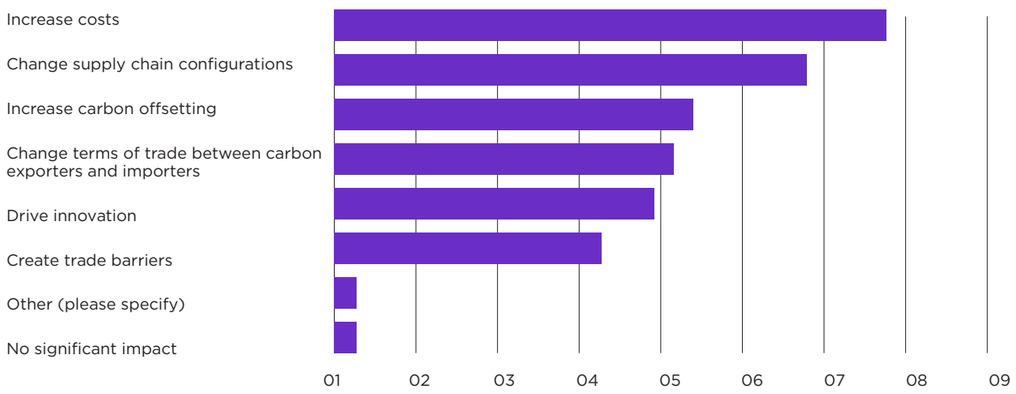
CARBON TRADING SYSTEMS WILL INCREASE COSTS AND TRIGGER SHIFTS IN SUPPLY CHAINS

Business experts forecast that carbon trading will result in increased costs, supply chain reconfigurations and an increase in carbon offsetting.

As shown in Figure 47, we asked participants in our Future of Trade survey how they anticipate carbon pricing will affect international trade. While most said it would increase costs, the answers were wide-ranging, and suggest there will be implications for businesses, consumers and the environment. Some respondents elaborated on their responses, saying it is too early to tell and that supply chain visibility will remain a key challenge to implementation.

FIGURE 47

How do you anticipate carbon pricing policies will affect international trade?



Source: DMCC Future of Trade survey, 2024

Carbon trading will re-route trade, reconfigure supply chains and create winners and losers.

Countries that can efficiently produce goods at a lower carbon intensity, such as those that are rich in renewable energy technology or resources, will benefit from a higher demand for their exports. The DMCC Future of Trade Energy report, published in 2023, explores how the Middle East, in particular the UAE and Saudi Arabia, as well as the U.S. Gulf of Mexico, Permian Basin, offshore Brazil and the Guyana Basin, are attracting project investment due to their energy potential.[229] Contrastingly, countries that depend upon the importation of carbon-intensive products such as cement and steel will pay higher prices, damaging their terms of trade. Polluters that exceed their permitted emissions must buy permits in the Emissions Trading System, creating a sustained market for the future which will grow as more countries enter ETS implementation phases. Supply chains will also shift as downstream producers seek out less carbon-intensive suppliers to lower the overall carbon intensity of their products. This will require increased supply chain transparency and reporting from all levels of production.

As well as reducing carbon emissions, carbon trading will encourage increased investment in green technologies.

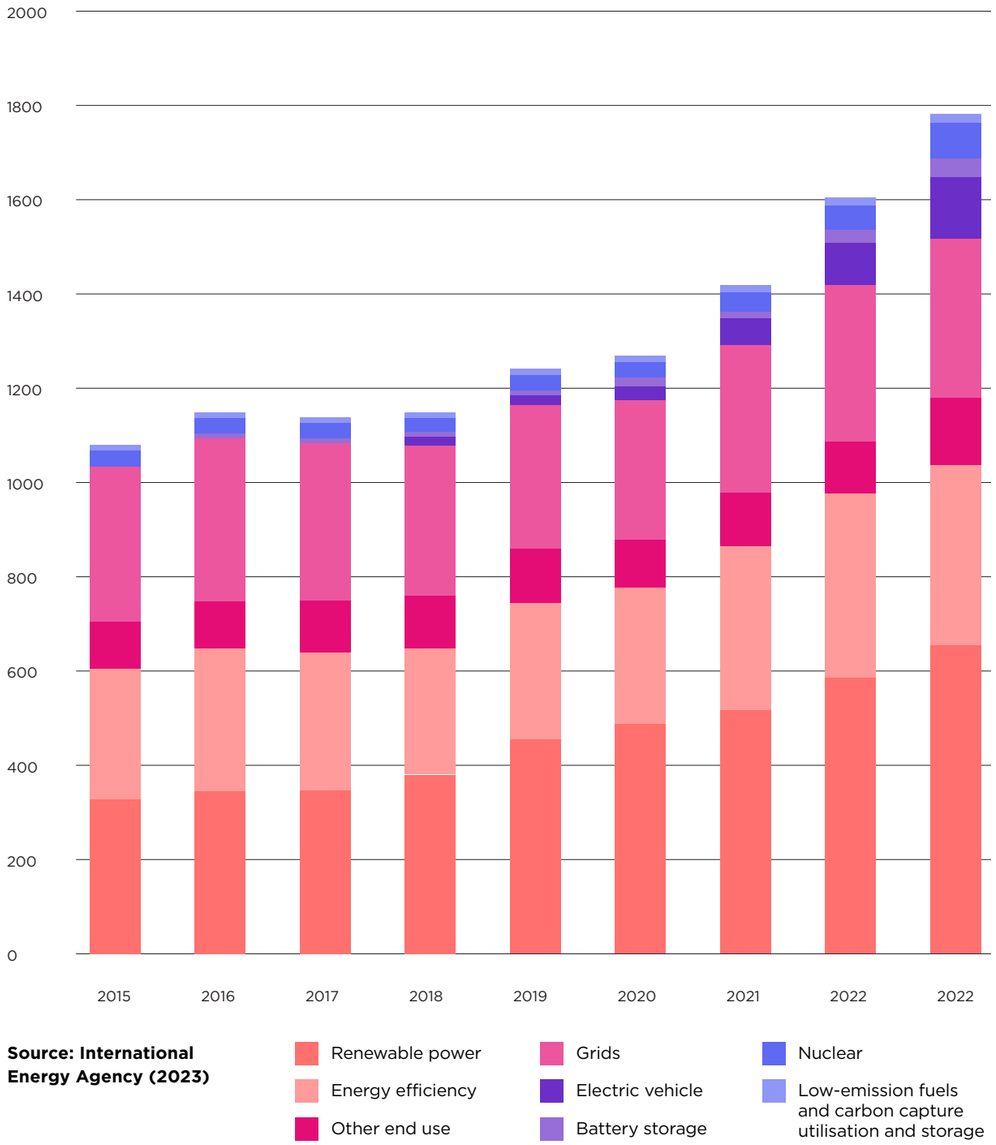
Carbon trading will disrupt traditional profit-based business models by forcing companies to account for the equivalent cost of emissions. This will incentivise companies to invest in research and development and find innovative ways to reduce their carbon footprints. Analysis by the International Energy Agency (IEA) finds that, since 2016, investment in clean energy has surpassed investment in fossil fuels and that this gap has been widening over time.[230] Renewables, led by solar energy, are driving the rise in clean energy investment. The greatest amount of investment has occurred in China and the EU, but investor activity is also picking up in India, Brazil, Saudi Arabia, the United Arab Emirates and Oman.[231] While most of this can be attributed to already established climate goals and industrial strategies, we can expect that Emissions Trading Systems will accelerate investment in countries with high green energy potential.

[229] DMCC, 2023
[230] IEA, 2023b
[231] IEA, 2023b

CHAPTER 4: Sustainability and the Future of Trade

FIGURE 48

Annual clean energy investment, 2015-2023, US$bn



Source: International Energy Agency (2023)

Carbon trading systems are relatively new and will inevitably face initial challenges. If badly managed, trade barriers and tensions could arise.

The EU's CBAM has caused concerns around protectionism. Businesses operating under CBAM will need to collect and report data on emissions, adhere to new regulations and potentially pay higher tariffs, all of which pose new obstacles to trade. Developing countries have questioned if tariffs will be implemented in a discriminatory fashion, which would limit their market access.[232] There is a risk that uncoordinated emissions reduction policies could create trade tensions. Another concern is that the divergence in progress in carbon trading systems across the world could lead to carbon leakage, whereby business moves to countries with less stringent regimes. The EU's CBAM aims to address this, but many less-developed systems lack a border adjustment mechanism, and so leakage can still occur, undermining global climate commitments. Lastly, as the lengthy development of both the EU's and China's ETS has demonstrated, it takes a long time to collect data on the carbon content of goods. Until all businesses are upskilled and well-functioning regulatory bodies are in place, issues such as double counting emissions reductions and greenwashing will limit the impact of emissions trading.[233] There have been recent cases whereby voluntary carbon markets have been shown to overestimate their carbon impact or have had unintended negative consequences for communities and/or biodiversity, which could damage the confidence in these systems.

[232] Yu, 2009
[233] UNDP, 2022

Interview:
Ram Ramachander, Chief Executive Officer, Hitachi ZeroCarbon Ltd., and Executive General Manager, Global EV Value Chain Business, Hitachi Europe Ltd.

How does Hitachi approach sustainability in its operations and trade practices?
There are several things that Hitachi has implemented around climate change and at COP26 we announced our ambition to be a climate change innovator. The energy transition story lies at the heart of what Hitachi does, whether it's around mobility, through our rail business or the renewable energy transition. Our plan is to work with our customers to fundamentally transform how they deliver services to the public. A good example is the work that we're doing with EV buses. We've done a £124 million deal with First Group to help them move to a zero-carbon bus fleet to be one of the largest public transportation providers for road transport.

A few years ago, we made an acquisition with Global Logic and that gave us the capacity to combine energy, mobility and digital recourses in our operations to build green infrastructure. Our aim is to be a climate change innovator and to help customers "go green". At Hitachi, our goal is to become carbon neutral by 2050. We are also introducing an internal carbon price mechanism framework and renewable energy proliferation into our business operations. We aim to help build future solutions to help customers transition to zero carbon.

You mentioned that one key element to reaching net zero is to make supply chains carbon neutral. What actions can businesses take to ensure that sustainability is achieved throughout supply chains?

This is a complex subject and getting transparency across the supply chain is really complicated because your immediate suppliers tend to be 20 per cent of your supply chain. There's a very large supply chain that sits outside of your core supply. Firstly, you need to ensure your own policies around what you expect is very clear to your suppliers and to make sure that your procurement, contracting and business teams are adhering to that policy effectively.

In addition, businesses need to ensure that they are cognisant. We are a global conglomerate, so we work across virtually every country in the world. I think organisations need strong commitment from the top down to enforce consistent company policies and balance the motive for profit against the carbon issue that they are dealing with.

Carbon pricing and border adjustment mechanisms are emerging at different paces under different jurisdictions. How does Hitachi plan to navigate the new and changing rules on carbon trading?
We are a global trading organisation and therefore we know how to deal with multiple legislations across several regions. I think it is important that you remain consistent in your policymaking even if a particular country is not acting upon it as part of their legislation. At Hitachi, we are educating our employees to ensure everyone is part of the process. Having the mechanism of internal carbon pricing is a good measure for performance on sustainability. But it's also about bringing your company with you, so that every employee can help achieve the goal.

How would you expect carbon trading to impact the global trade landscape?
Carbon trading has been around for a long while. We know with the EU ETS that it has had a positive impact on the global trade landscape. But it's not been the only thing. We need organisations to move towards decarbonisation being good for business. I think that is far more important than carbon taxing and/or carbon trading mechanisms.

At Hitachi we deliver green infrastructure, products and services, that are profitable for business. Businesses and government need to move to a thought process where being green equates to business as usual. I think carbon trading mechanisms have an impact, but they're only a component of what the future of business is.

What action needs to be taken at a government or international level to enable the transition to a green economy?
A million things. What we should be doing is making sure that climate change becomes a measure of success for all future economies. The challenge we've got is that every country oscillates, depending on which political party happens to be coming in. For example, what Biden has done in the United States around the IRA scheme has given so much momentum to the business of climate change, which has never happened before. We need consistency in implementing an action plan on a global basis.

We need to lean into climate change as the future, not "a future". It's not a scenario A and scenario B. There's only one scenario, which is a future of mitigation and adaptation to climate. It sounds one-dimensional but that is what every government and every business needs to be focused on and I believe that this will be really good for business and the future economy.

CHAPTER 4: Sustainability and the Future of Trade

> "There's only one scenario, which is a future of mitigation and adaptation to climate. It sounds one-dimensional but that is what every government and every business needs to be focused on."

The trade outlook for 2024 is likely to be impacted by ongoing geopolitical tensions and macroeconomic difficulties. How would you expect that these factors could impact sustainability efforts?
When the Ukraine situation happened, countries moved to renewable energy because they realised their dependency on imported energy was now reaching a point where they were going to have a real problem with energy security. But what they did not factor in is the fact that if you generate your own renewable energy, then your dependency on other countries falls.

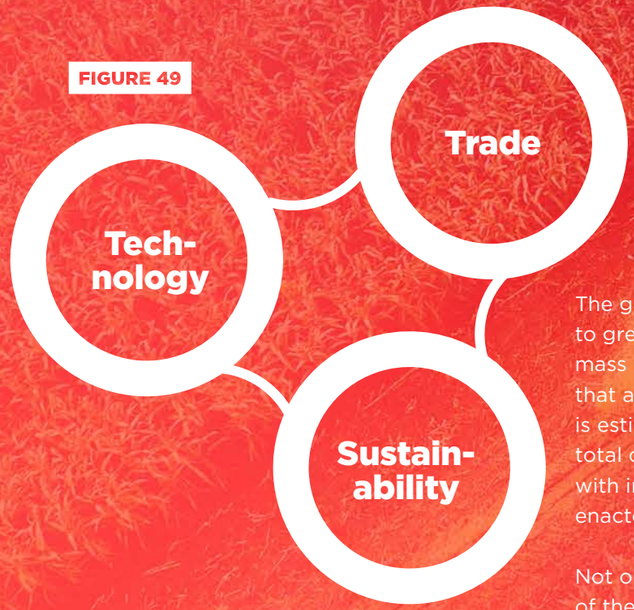
The issues around geopolitical instability reinforce the requirement for self-generation and self-dependency on energy. And that is feasible. If you look at where the UK is heading on renewable energy offshore and how much energy we are bringing into the grid, together with the increased investment, we are making progress. Geopolitical tension increases the real need for self-sufficiency. Self-sufficiency can only be gained through renewable energy. It might be a horrible reason to do it, but any burning platform that pushes us towards stopping our ever-increasing race towards two degrees warming is worth it.

SECTION THREE

THE RELATIONSHIP BETWEEN TRADE, SUSTAINABILITY AND TECHNOLOGY

AN INTERDEPENDENT RELATIONSHIP

FIGURE 49



The growth in global trade has contributed to greenhouse gas emissions by enabling the mass consumption of goods and services that are transported over long distances. It is estimated that some 20-30 per cent of total carbon dioxide emissions are associated with international trade, but change is being enacted as awareness grows.[234]

Not only are consumers increasingly aware of the carbon footprint associated with their consumption, trade will also become an increasingly essential tool to help achieve sustainability targets. Trade and sustainability are interdependent.

[234] Yu, 2009
[235] UNDP, 2022

CHAPTER 4: Sustainability and the Future of Trade

Trade can help to address climate change by enabling flows of critical minerals.

Trade allows for access to larger markets, which can help address geographical disparities in clean energy sources, such as solar and wind power. This will enable countries that are relatively non-endowed in clean energy sources to reduce their reliance on fossil fuels through imports. Crucially, international trade enables producers to lower costs and achieve the economies of scale essential to making renewable energy affordable. Solar energy is a clear illustration of this. The cost of solar panel systems has fallen by 97 per cent since 1990 and the WTO estimates that about 40 per cent of the cost decline is attributable to economies of scale made possible by global trade and value chains.[235]

In developing countries, a 1°C temperature rise decreased exports of agricultural and light manufacturing products by between 2 and 5.7 per cent.

If climate change continues at its current pace, it will have huge consequences for trade.

Higher temperatures, rising sea levels, and extreme weather events pose threats to productivity, supply chains and infrastructure. This could make it harder for some countries to compete economically, which would in turn limit their exports. One study found that in developing countries, a 1°C temperature rise decreased exports of agricultural and light manufacturing products by between 2 and 5.7 per cent.[236]

Climate change is already affecting numerous sectors, with agriculture bearing a particularly heavy impact. A reduction in groundwater, for example, has created challenges for coffee production while environmental stresses in West Africa have disrupted cocoa supply. Climate-induced disruptions can cause serious damage to heavily concentrated global value chains – for example, where multiple producers are affected by the same extreme weather event – which may become more serious in the long term as the world shifts towards greater regionalisation. Lastly, maritime transport, which accounts for 80 per cent of world trade by volume, is particularly vulnerable to climate change risks.[237] In 2023, severe drought sharply reduced water levels in the Panama Canal, forcing authorities to limit the number of ships permitted to transit through.[238]

[236] Yu, 2009
[237] WTO, 2022b
[238] The Economist, 2023

Preventing the climate crisis giving rise to a trade crisis.

To do this the global trade community must take active steps to address climate change. These include exploring alternative fuels and technologies to power global transport and drawing upon the power of trade to accelerate the dissemination of green technologies and renewable energy around the world. The 176 member states of the International Maritime Organization agreed in July 2023 to a revised Strategy on Reduction of GHG Emissions from Ships. Under the strategy, members committed to "peak GHG emissions from international shipping as soon as possible and to reach net-zero GHG emissions by or around 2050, taking into account different national circumstances."[239]

Digital technologies will be crucial component to trade and sustainability.

Trade will facilitate widespread use of adaptation technologies, such as climate resistant crop varieties, early warning systems and water conservation systems.[240]Additionally, trade openness provides wider access to services crucial for climate preparedness and responses, such as weather forecasting, insurance, logistics and healthcare services. Elements vital to technological development, such as specific expertise and supplies of critical raw materials, are often concentrated in a small number of countries, so trade allows for the establishment of global value chains and widens business and consumer access.[241]The environmental technology market, estimated at $552.1 billion in 2021, is projected to reach $690.3 billion by 2026, underlining the economic significance of trade in environmental products.[242]Moreover, the Paris Agreement commits members to "technology development and transfer in order to improve resilience to climate change and reduce greenhouse gas emissions."[243]

[239] IMO, 2023
[240] WTO, 2022b
[241] Garsous and Worack, 2021
[242] MarketsandMarkets, 2022
[243] UN, 2023a
[244] IEA, 2022c

TRADING SOLAR TECHNOLOGY TO MEET CLIMATE GOALS

Case Study:

China's rise as the world's solar powerhouse

Global adoption of solar technology will be essential to reduce the world's reliance on fossil fuels.

Photovoltaic (PV) cells, commonly known as solar cells, convert light to electricity. Solar power, along with other renewable energy sources, will be crucial to national efforts to reduce reliance on fossil fuels and lower greenhouse gas emissions. According to forecasts from the International Energy Agency (IEA), the global number of annual solar PV installations would need to nearly quadruple over the next decade to be consistent with the IEA Net Zero Scenario.[244] Thus far, the development of a multitude of technologies – and the trade in those technologies – has resulted in lower costs and higher efficiency of solar energy production. However, the production of solar power technology has become highly concentrated in China, which creates supply chain vulnerabilities.

China dominates every segment of the solar supply chain.

China has invested heavily in an industrial strategy targeted at advancing solar photovoltaic production and has developed an unparalleled expertise in every segment of the supply chain, ranging from raw materials to cells, modules and wafers. China has invested more than $50 billion in new PV supply capacity – 10 times more than Europe. The size of this commitment has enabled economies of scale and price declines of more than 80 per cent.[245]Other markets, including Europe, the United States and India, have developed PV capacity but are reliant on Chinese imports due to their competitive costs. In 2021, China exported more than $30 billion in solar PVs. The country has also outsourced production to regional partners, such as Vietnam and Malaysia, which has led to the development of a concentrated regional supply chain.

China is the global leader in cell and module solar technology.

Technological advancements have enabled a shift from multi-crystalline silicon back surface field (BSF) technology to Passivated Emitter and Rear Cell (PERC) cells. These more efficient cells allow for a higher capacity while keeping the module area the same, which reduces the overall cost of solar PV generation. China is the dominant cell manufacturer, accounting for 80 per cent of global production in 2021, up from 60 per cent in 2010. Chinese manufacturers have invested in creating a regionally concentrated supply chain through establishing plants in the ASEAN region, seeking to reduce costs and circumvent U.S. import tariffs on Chinese solar PV cells and modules.

In 2022, Southeast Asia and Korea made up 18 per cent of the global cell market, leaving only 2 per cent of production to the rest of the world.[246] This has resulted in a China-dominated Asian supply chain of PV cells – a component essential to increasing the efficiency and reducing the cost of solar power.

China has also devoted large-scale R&D to PV module technology, including to bifacial modules which produce power from both sides of a solar panel, making them up to 30 per cent more efficient than traditional monofacial panels.[247] In 2021 China made up 70 per cent of production and again outsourced manufacturing to nearby Asian markets including Vietnam, Malaysia, Korea and Thailand. Countries such as the United States, Germany and India have high module capacity but mainly produce for the domestic market, so need to rely on solar module component imports from China and the wider Asia Pacific region.

[245] IEA, 2022c
[246] IEA, 2022c
[247] Institute for Energy Research, 2022

China is a global export leader, but risks could emerge from high supply chain concentration.

China is expected to continue to dominate solar technology advancements and exports in the mid- to long-term. Supply bottlenecks already exist for key components, such as polysilicon, which triggered the quadrupling of prices in the last year.

Even within China, there is significant regional concentration. Xinjiang province accounts for 40 per cent of global polysilicon manufacturing and one out of every seven panels produced worldwide is manufactured by a single facility.[248] This raises concerns about supply chain vulnerability, as a disruption to the region, whether due to natural disasters or government policy, could lead to an interruption to the supply of components that the rest of the world relies on to boost renewable energy production. A clear example of this came in 2020, when four Chinese polysilicon plants closed due to explosions, flooding or technical issues, which caused a 4 per cent decline in production and a near tripling of prices.[249]

As climate risks become more urgent and more countries commit to reducing their emissions, the risks posed by supply chain disruptions could hamper global efforts to switch to renewables.

Renewable energy products are not immune to geopolitics.

In 2018, the United States introduced tariffs on solar cell and module imports, which the Biden administration since extended. However, the United States introduced a temporary exemption for Southeast Asian imports, noting "the United States has been unable to import solar modules in sufficient quantities to ensure solar capacity additions necessary to achieve our climate and clean energy goals."[250]

This has led to tariffs of up to 254 per cent being levied on Southeast Asian companies linked to China and accused of circumventing the tariffs.[251] Tensions come at a time when researchers are collaborating to achieve record-breaking improvements in solar power efficiencies, as measured by the conversion of sunlight to electricity. Moreover, the Chinese company LONGi, the world's biggest producer of solar cells, announced they had reached efficiency of 33.5 per cent in tests, which surpasses the current record of 24.5 per cent.[252]

Whilst the world recognises the need to switch to renewable energy, protectionist measures may undermine these efforts. In the future, it is likely that sustainability concerns will join the growing list of policy trade-offs, alongside security and economic growth.

[248] IEA, 2022c
[249] IEA, 2022c
[250] The White House, 2022
[251] Dlouhy and Ma, 2023
[252] Carrington, 2023

CHAPTER 4: Sustainability and the Future of Trade

SUSTAINABLE TECHNOLOGIES TRADE

Trade, although often associated with environmental challenges like reliance on fossil fuels, also serves as a pivotal catalyst for transitioning towards an inclusive green economy. Trade improves innovation through increased competition, specialisation and knowledge spillovers. Fostering innovation will be vital to ensure we can create the sustainable technologies needed to meet global climate targets.

World leaders are increasingly understanding the interconnectedness of sustainability, trade, and innovation. Global superpowers such as China, the United States, and the EU are putting significant resources into attracting investment into their green industries, knowing that gaining an advantage in this area could lead to economic opportunities through exporting these technologies across the world.

As society takes a more holistic approach to judging a country's emission profile, exporting green technologies will not only bring economic benefits but will also lead to a greater positive impact on climate change. This will help to reduce carbon emissions while also providing the country with soft power on the international stage.
This section delves into the evolution of trade in such technologies and analyses the key countries actively engaged in both procurement and dissemination of clean technologies.

What are environmentally sound technologies?

The United Nations (UN) defines environmentally sound technologies (ESTs) as technologies that "protect the environment, are less polluting, use all resources in a more sustainable manner, recycle more of their wastes and products, and handle residual wastes in a more acceptable manner than the technologies for which they were substitutes."[253] ESTs are pivotal instruments in combating climate change by mitigating greenhouse gas emissions, fortifying climate resilience, and curtailing air pollution, among a spectrum of other benefits. An increase in the trade of these goods suggests that more businesses and institutions are using technologies that can improve or mitigate damage to the environment.

Previous UN research has identified a list of 144 EST goods based on the above definition.[254] Cebr collated data on each of these goods from various sources to group together the total trade flows of ESTs by country.

[253] United Nations Division for Sustainable Development (1992). Agenda 21, the Rio Declaration on Environment and Development.
[254] United Nations Environment Programme (2018). Trade in environmentally sound technologies: Implications for Developing Countries.

Trade in environmentally sound technologies

Cebr has analysed trade in ESTs to understand which economies are driving the acquisition and diffusion of green technologies worldwide. According to UN Comtrade data, China is the largest exporter of ESTs, followed by Germany and the United States. Given these are three of the biggest economies in the world, it comes as little surprise that they rank among the primary producers of ESTs.

FIGURE 50

Largest exporters of environmentally sound technologies, 2022

1	China
2	Germany
3	United States
4	Italy
5	Japan
6	Mexico
7	South Korea
8	The Netherlands
9	United Kingdom
10	France

Source: Comtrade Database, Cebr analysis

However, beyond sheer economic size, there are also more nuanced factors that make these three nations key exporters of ESTs. China's rapid industrialisation, coupled with significant investment in renewable energy production, underscores its ascent as a significant exporter of green technologies. Similarly, Germany's longstanding emphasis on environmental sustainability and its robust manufacturing sector contribute to its position in the global EST market.

The top ten largest exporters remain relatively unchanged compared to the "Future of Trade 2020" report that analysed EST exportation in 2018. Indeed, the top five countries are identical except for Italy, which overtook Japan for fourth place. Further down the list, Mexico, the Netherlands, and the United Kingdom have all gained a position compared to 2018.

Given that the scale of an economy is a crucial determinant of whether a country is included among the top ten largest exporters of ESTs, Cebr analysed exports of ESTs as a share of GDP.

Trinidad and Tobago held the largest share of EST exports to GDP in 2022, at 5.9%. This may come as a slight surprise given the Caribbean nation is the region's leading exporter of oil and gas and, in 2022, had the sixth highest CO2 emissions per capita worldwide. However, there are several potential reasons behind this. Perhaps the most important is the diversification efforts undertaken by Trinidad and Tobago to invest funds generated from fossil fuels into renewable energy. This policy trend may have been partially in response to the decision by surrounding Caribbean Community and Common Market (CARICOM) countries to introduce a minimum threshold for the amount of the energy mix that is generated by renewables.

FIGURE 51

Largest exporters of environmentally sound technologies as a share of GDP, 2022

1	Trinidad and Tobago
2	Hungary
3	Slovakia
4	Singapore
5	Czech Republic
6	Slovenia
7	Hong Kong SAR, China
8	Serbia
9	Malaysia
10	Germany

Source: Comtrade Database, Cebr analysis

Germany is the only country to feature as a top ten largest EST exporter in both absolute value and GDP share terms, highlighting its prominence as an EST exporter. In 2022, EST exports as a share of GDP were 2.4% in Germany.

Out of the countries identified as trade hubs in the Commodity Trade Index, two -Singapore and Hong Kong- were identified as a trade hub and analysed on the feature on the list of the top ten largest exporters of environmentally sound technologies as a share of GDP. Hong Kong is a special administrative region in China, the world's third-largest importer of ESTs in absolute terms.

Eastern European countries make up half of the top ten largest exporters of ESTs in GDP share terms. This is likely reflective of their robust manufacturing industries and investment in renewable energy. Additionally, these countries have strong access to the European market, which contains several large EST importers.

The United States, China, and Germany are the largest importers and exporters of ESTs. After these countries, Mexico emerges as the fourth largest importer. Notably, it is the sole developing nation to rank within the top ten importers globally outside of China. European countries feature heavily on the list, representing four of the top ten EST importers.

The top four largest importers of ESTs remain unchanged compared to the "The Future of Trade 2020" report, which analysed EST importation in 2018. Elsewhere, France and Canada had the strongest movements up the table, both rising by two positions. In contrast, Japan fell by three places.

FIGURE 52

Largest importers of environmentally sound technologies, 2022

1 United States
2 China
3 Germany
4 Mexico
5 France
6 United Kingdom
7 Canada
8 Japan
9 South Korea
10 The Netherlands

Source: Comtrade Database, Cebr analysis

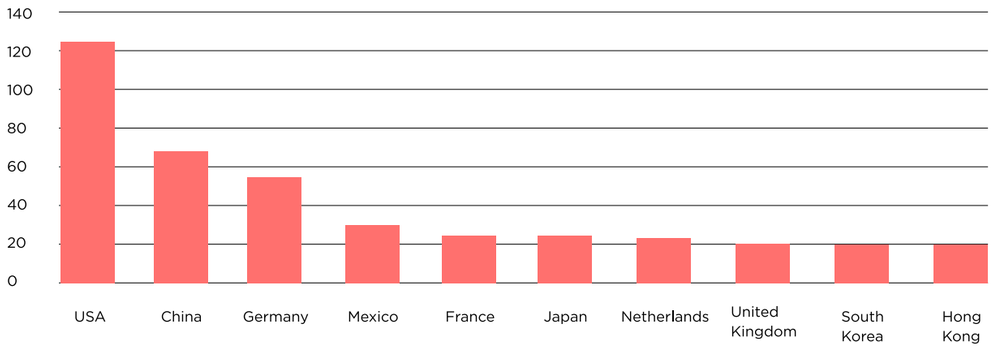
Even among the top ten largest importers of ESTs in value terms, significant variations exist. In 2022, the United States imported ESTs valued at $124.9 billion, while China's imports amounted to $70.5 billion.

Germany imported $56.2 billion worth of such technologies in 2022. Despite being ranked as the world's third-largest importer of ESTs, this figure is 55.0% less than that of the United States and 20.2% less than China's imports during the same period.

Meanwhile, Mexico, France, Japan, the Netherlands, the United Kingdom, South Korea, and Hong Kong each imported between $20 billion to $35 billion worth of ESTs in 2022.

FIGURE 53

Value of imports of environmentally sound technologies, 2022, top 10 importers

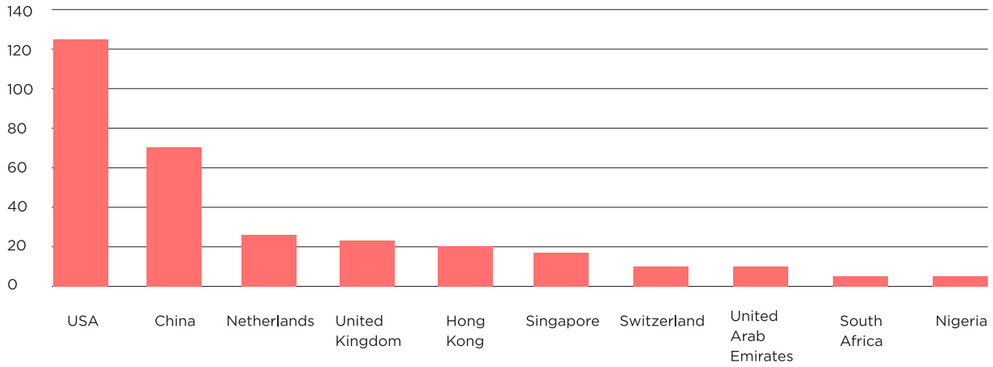


Source: UN Comtrade Database, Cebr analysis

As well as analysing data on the top ten countries for importing ESTs, Cebr has studied the ten trade hubs identified in this report as being of strategic importance to world trade. Four of the trade hubs referenced in the Commodity Trade Index are also among the top ten importers of ESTs globally. After this, it was found that Hong Kong beat Singapore, Switzerland, and the United Arab Emirates to fifth place. Hong Kong imported $20.7 billion of ESTs in 2022. Singapore imported $17.1 billion of ESTs in 2022, while Switzerland and the United Arab Emirates imported $9.0 billion and $8.9 billion, respectively. The final two trade hubs of strategic importance, South Africa and Nigeria, imported ESTs in 2022 with a value of $3.6 billion and $3.1 billion, respectively.

FIGURE 54

Value of imports of environmentally sound technologies, 2022, trade hubs



Source: UN Comtrade Database, Cebr analysis

Cebr's analysis of UN Comtrade data also reveals the fastest-growing importers and exporters of ESTs in 2022. Timor-Leste and the Maldives – two relatively small island economies in Asia – are the fastest-growing exporters. Moreover, they are part of several different regional trading agreements, giving them access to numerous major economies.
Asia and Africa are the two most represented continents among the fastest-growing exporters of environmentally sound technologies, with three exporters each in the top ten.

FIGURE 55

Fastest growing exporters of environmentally sound technologies, 2022 annual growth

1	Timor-Leste
2	Maldives
3	Niger
4	Sao Tome and Principe
5	Mauritius
6	Andorra
7	Suriname
8	Armenia
9	Bermuda
10	Jamaica

Source: Comtrade Database, Cebr analysis

Lebanon and Timor-Leste are the fastest-growing importers of ESTs. Notably, the continents of Asia and Africa are once again highly represented, accounting for more than half of the top ten fastest-growing importers of ESTs. Meanwhile, South America accounts for three more nations in the top ten fastest-growing importers of ESTs.

FIGURE 56

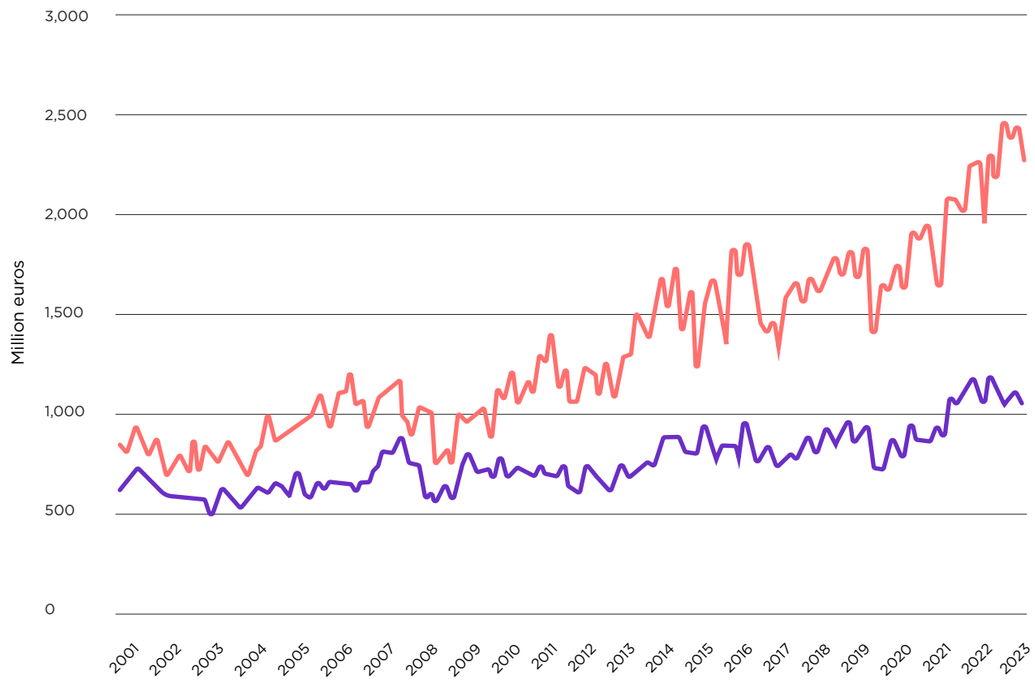
Fastest growing importers of environmentally sound technologies, 2022 annual growth

1	Lebanon
2	Timor-Leste
3	Niger
4	Kyrgyzstan
5	Guyana
6	Antigua and Barbuda
7	Sao Tome and Principe
8	Suriname
9	Zambia
10	Argentina

Source: Comtrade Database, Cebr analysis

FIGURE 57

EU/USA trade in environmentally sound technologies

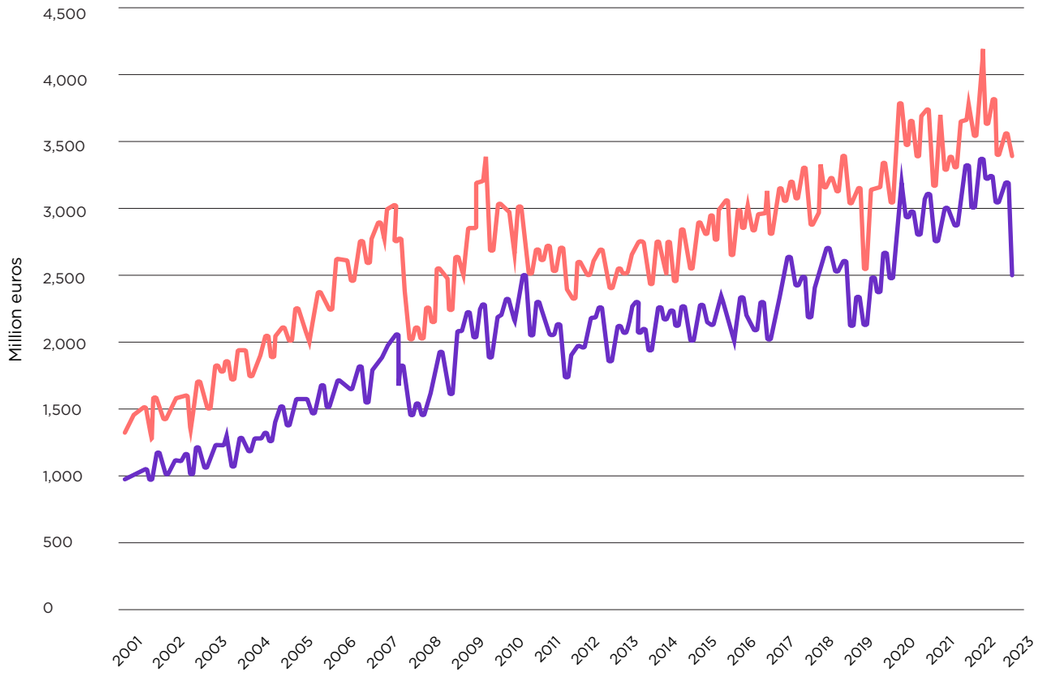


Source: Eurostat, Cebr analysis

Trade dynamics between Germany and the remaining EU member states exhibit slightly more volatility on a month-to-month basis. Nevertheless, Germany consistently operates as a net exporter of ESTs to the other 26 EU nations. March 2023 marked the highest recorded imports to other EU countries from Germany, reaching 4.2 billion. Concurrently, exports to Germany from the rest of the EU amounted to 3.6 billion in the same period. Over the span of the past decade, trade flows from Germany to the rest of the EU witnessed a 43.2% increase in value, whereas EST exports from other EU countries to Germany experienced a 58.5% growth.

FIGURE 58

Germany/rest-of-EU trade in environmentally sound technologies



Source: Eurostat, Cebr analysis

THE FUTURE OF SUSTAINABLE TRADE

In recent years, global trade has faced significant challenges stemming from multiple geopolitical and macroeconomic risks. Nevertheless, trade in ESTs has demonstrated resilience. The largest question mark remains in trade between the West and China, given security concerns and tensions mounting over a number of issues including Taiwan.

With growing awareness among companies and consumers regarding the importance of sustainability, the trade in ESTs is expected to continue its upward trajectory. International trade serves as a facilitator for inclusive economic growth and sustainable development.

To achieve climate targets, countries are likely to implement a mix of policies aimed at mitigating climate change and promoting investment in low-emission, climate-resilient infrastructure. Trade can play a crucial role in facilitating the green economy transition by disseminating environmental technologies to more countries and enabling less-developed nations to access technologies they may not have the resources to develop independently. The fact that a majority of the fastest-growing importers and exporters of ESTs are from developing and less-developed countries indicates this process may have already begun.

Various factors will influence the evolution of trade in ESTs in the coming decades. The resolution and lasting impact of geopolitical disruptions will be pivotal in the near term. Additionally, shifting patterns of global demand, changes in supply chains, the emergence of new trade blocs, and transformations in the financial system will all play significant roles in determining the extent to which sustainable technologies are effectively disseminated worldwide in the long run.

SECTION FOUR

INTEGRATING CLIMATE AND ENVIRONMENT INTO TRADE AGREEMENTS

Most trade agreements now include environmental provisions and while a minority of these include climate provisions, these are increasing.

Free trade agreements (FTAs) have evolved over time to incorporate a range of measures beyond goods, including services, non-tariff barriers, intellectual property, regulatory harmonisation and, more recently, sustainability. The number and level of detail of environmental provisions has increased substantially to the extent that 97 per cent of all Regional Trade Agreements (RTAs) now include at least one environmental provision.[255] These can include stipulations related to conservation of biodiversity, the sustainable management of natural resources and the prevention of pollution.

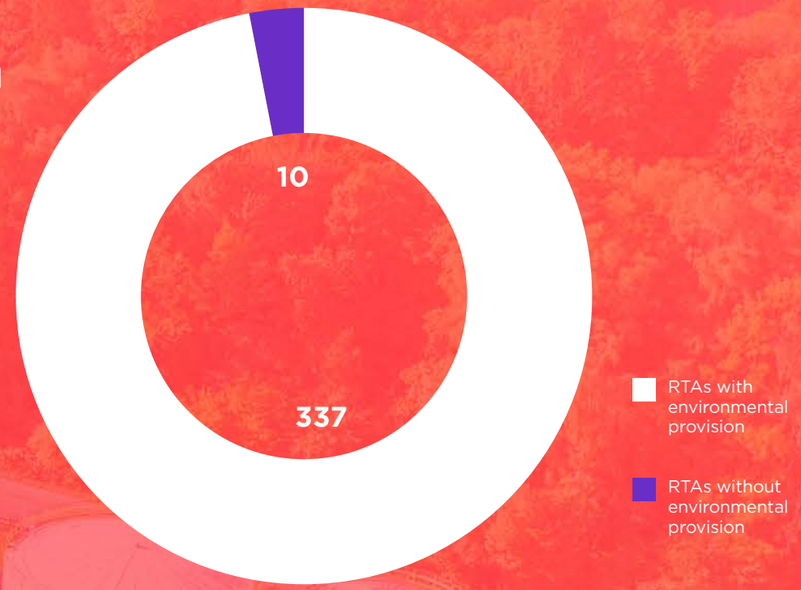
A smaller proportion of RTAs have provisions specifically related to climate change, although they too are increasing. Sixty-four agreements (18 per cent of RTAs) include at least one referring explicitly to climate change, global warming, reducing greenhouse gases or creating a low-emission economy.[256] This is important given that trade agreements are tools that can be used to help enforce Paris Agreement commitments. As a result of the EU's proposed FTA with Mercosur, for instance, Brazil accepted an obligation to "effectively implement" the Paris Agreement, which included proposals for zero illegal deforestation and the restoration of 12 million hectares of forests by 2030.[257]

[255] IEA, 2022c
[256] IEA, 2022c
[257] The White House, 2022

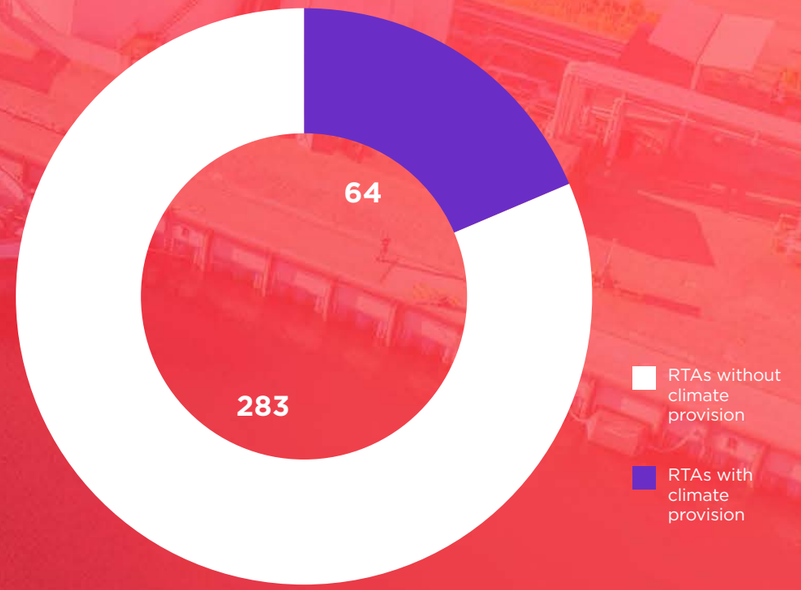
CHAPTER 4: Sustainability and the Future of Trade

FIGURE 59

Environmental provisions in RTAs



Climate provisions in RTAs



Source: WTO, 2021b

[258] IEA, 2022c

ENVIRONMENTAL AND CLIMATE CHANGE PROVISIONS IN TRADE AGREEMENTS

A number of multilateral and regional trade agreements now include provisions on the environment. For example, the Comprehensive and Progressive Agreement for Trans-Pacific Partnership (CPTPP), a trade agreement with 12 members, has an entire chapter dedicated to environmental questions covering conservation of biodiversity, the sustainable management of fisheries and the illegal trade in wildlife. This section will assess two trade agreements that go further on environmental or climate change provisions.

The EU's recent trade agreement with New Zealand goes furthest by introducing enforcement measures.

Since the EU signed an FTA with South Korea in 2009, all EU trade deals have included a dedicated trade and sustainable development (TSD) chapter covering environmental protection, labour rights and climate change. Thus far, a total of 11 "modern" trade agreements have included TSD chapters, including pacts with Central America, Singapore and the UK, amongst others.[259]

The EU agreements have evolved in response to reviews and criticism, but the bloc still falls short of consistently enforcing climate commitments under all trade agreements. Whilst ambitious and broad, the EU TSD chapters have been criticised for being toothless as they were based on a promotional approach rather than a sanctions-based approach, making compliance difficult to enforce.[260] When the EU launched its first FTA partner dispute settlement against Korea, which it said failed to fulfil its obligation to ratify core International Labour Organization (ILO) conventions, the dispute panel rejected the complaint since Korea did not commit to any specific timeframe for ratification. This demonstrates the limited value of the promotional approach, which cannot penalise shortfalls in commitments, and raises concerns that climate commitments in trade deals may be ignored.

The EU-New Zealand trade agreement, signed in July 2023, took a tougher approach. It was the first EU agreement to include sanctions whereby trade preferences can be suspended for TSD breaches that affect trade. The threat of sanctions should theoretically work to incentivise parties to meet their climate commitments. Notably, however, two other agreements, with Chile and Kenya, do not put forward sanctions as an enforcement mechanism. Therefore, whilst the climate provisions are ambitious, they are not applied uniformly and their success will depend on parties' willingness to comply.

[259] European Commission, 2023d
[260] Bronckers and Gruni, 2021

The United States-Mexico-Canada Agreement (USMCA) has increased trade and enforcement of environmental and climate commitments.

As the successor to NAFTA, the USMCA came into force in July 2020, and included additional provisions on labour and the environment. From 2019 to 2022, U.S.-Mexico and Canada-Mexico trade increased by around 27 per cent and 22 per cent respectively.[261] Some of these increases were attributed to domestic policies targeted at supply chain reconfiguration, and "de-risking" from China. [262]

USMCA includes an environment chapter that sets provisions for air quality, marine litter and the conservation of biological diversity, amongst other requirements. Furthermore, the agreement uses a sanctions-based approach to enforce climate provisions and offers a dispute settlement mechanism distinct from that of the WTO, which is currently not functioning due to issues with the appellate body.

Members have used the USMCA to force each other to comply with environmental and climate commitments. In February 2022, the United States sought consultations with Mexico on illegal totoaba fishing. By May 2023, it had determined that Mexico's efforts to conserve the endangered fish were insufficient, and imposed a wildlife product trade embargo that aligns with Mexico's obligations under the Convention on International Trade in Endangered Species of Wild Fauna and Flora, which is also acknowledged in the USMCA.[263] In July 2022, the United States and Canada requested consultation under the Dispute Settlement, arguing that several of Mexico's energy policies favour domestic firms and undermine climate commitments.[264] If unresolved through consultations, the United States and Canada may request that a dispute settlement panel examine the measures – a potentially lengthy process. No dispute settlement involving environmental provisions has yet been used, but the mechanism's existence, along with the consultation and pre-ratification processes that proceed it, work to incentivise partners to pursue environmentally friendly policies to avoid retaliatory measures.

[261] Mora, 2023
[262] Mora, 2023
[263] Mora, 2023
[264] Bond, 2022

SEEKING GREENER GLOBAL FREE TRADE

Environmental provisions in free trade agreements are on the rise. This is likely to continue, particularly as regional agreements learn from one another through capacity building and reviews.

The EU now has six trade agreements that include trade and sustainable development chapters awaiting ratification, including New Zealand, Chile, Kenya, Mexico, China and Mercosur.

The proposed agreement between the EU and Mercosur provides an interesting example of how environmental concerns are being prioritised in free trade negotiations.[265] After more than 20 years of negotiations, the parties finally reached agreement in July 2020, but as of 2024 the deal is not yet ratified."[266] There are serious concerns that Brazil is not meeting its commitments under the Paris Agreement, particularly regarding deforestation. Other concerns over the trade agreement have arisen because the dispute settlement rulings in the sustainable development chapter are not binding, so the EU could not impose sanctions if climate commitments were not met. Meanwhile, polls show that EU citizens oppose the EU-Mercosur agreement and the national parliaments of Austria, Belgium, Ireland and the Netherlands have passed motions against ratification.[267] One recent study concluded that the deal will actually fuel deforestation and that the expected environmental costs are likely to exceed the economic gains.[268]

Crucially, what this case demonstrates is that an assessment of future environmental damage – essentially a valuation of the externality that would be caused – is being prioritised alongside the potential economic gains that would arise from trade liberalisation. This represents a remarkable shift in trade negotiations and decision-making.

[265] Venezuela is a full member but has been suspended since December 2016.
[266] European Parliament, 2023a.
[267] European Parliament, 2020
[268] European Parliament, 2020

CHAPTER 4: Sustainability and the Future of Trade

The future of the EU-Mercosur FTA is hinges on environmental progress.

In April 2023, new EU legislation banned the import of soy, beef, coffee and wood linked to deforestation, which Brazilian officials said complicated negotiations.[269] Yet, the latest European Parliament publication on the topic stated that President Lula da Silva's victory in the Brazilian 2022 election "raised hopes in the EU of completing the long-standing negotiations on an EU-Mercosur association agreement", since the new president has prioritised polices that protect the Amazon.[270] A clear demonstration of Brazil's progress towards its Paris Agreement target of zero illegal deforestation by 2030 will be crucial to appeasing the EU and prompting further negotiations for the RTA. This case highlights the huge impact that specific politicians and political alliances can have on the future of the environment and trade.

[269] Boadle, 2023
[270] European Parliament, 2023b

KEY TAKEAWAYS

1. An increasing number of countries and companies are making net-zero pledges which will require significant investment to deliver. This will provide opportunities for trade and further demand for sustainable finance initiatives.
2. Environmental policy will have multiple effects on global trade and will drive a significant change to supply chains. This includes increasing the speed at which companies green their supply chains and stimulating demand for renewable energy and related technologies.
3. Climate concerns will also drive regionalisation as companies seek to boost resilience against extreme-weather events.
4. These shifts will re-route trade and create winners and losers. Companies which do not green their supply chains are likely to come under commercial and policy pressure.
5. Carbon pricing and trading systems are emerging around the world. We can expect to see the implementation and scaling up of large emissions trading systems in China, wider Asia and the EU.
6. There's a risk that a patchwork of different carbon pricing/trading regimes will make trade more complex and costly.
7. Sustainability, trade and technology are interdependent. While trade has contributed to global emissions, it will be a key tool to enable the dissemination of technologies that are crucial in the production of renewable energy.
8. Environmental provisions in trade agreements are rising and will rise further. The EU and CPTPP are examples of blocs that include environmental-related chapters in trade agreements.

Recommendations for businesses:

1. **Prioritise sustainability at the board level**. Companies that fail to prioritise sustainability risk being at a significant competitive disadvantage in the long term. Businesses should elevate sustainability to the top of the board agenda and integrate ESG considerations into strategic decision-making to ensure alignment with overall objectives.
2. **Review and optimise supply chains**. Implementing sustainable sourcing practices not only reduces environmental impact but also contributes to long-term profitability by mitigating risks associated with resource scarcity and regulatory compliance. Businesses should conduct a comprehensive review of supply chains to identify opportunities for sustainability improvements and seek out suppliers and vendors that align with sustainability goals.
3. **Mitigate climate-related supply chain risks**. Businesses should proactively plan for supply chain disruptions resulting from climate-related events and other shocks, assess climate risks to key supply chain nodes and operations, and implement risk mitigation strategies such as securing property and casualty insurance coverage tailored to climate-related risks. Businesses should regularly review and update climate risk assessments to adapt to changing environmental conditions and ensure business continuity.
4. **Engage in voluntary carbon markets**. Participating in voluntary carbon markets allows businesses to proactively manage their carbon footprint, demonstrate environmental stewardship, and position themselves for compliance with future carbon and sustainable business regulations. Businesses should increase engagement in voluntary carbon markets as part of preparations for regulatory changes and the wider adoption of mandatory carbon trading schemes. As part of this they should also collaborate with industry partners and carbon market stakeholders to explore opportunities for carbon offsetting and emissions reduction initiatives.
5. **Invest in regulatory expertise and data collection**. To stay informed about emerging sustainability regulations and standards at national and international levels, businesses should invest in expertise capable of providing timely information on fast-changing regulatory landscapes, evolving emissions reporting requirements, and potential tariffs arising from carbon border adjustment mechanisms. Businesses should enhance data collection capabilities to track and report emissions data, enabling informed decision-making and strategic planning.

CHAPTER 4: Sustainability and the Future of Trade

Recommendations for governments:

1. **Invest in green infrastructure and technology**. Governments should prioritise investment in green infrastructure and technology to support the transition to net-zero. This includes funding renewable energy projects, upgrading transportation networks and supporting research and development of green technologies. By investing in green initiatives, governments can create opportunities for trade and stimulate demand for green finance initiatives, driving sustainable economic growth.

2. **Harmonise regional carbon pricing mechanisms**. Whilst carbon pricing and trading systems can incentivise emissions reductions and facilitate the transition to a low-carbon economy, the patchwork of different regimes between Europe, North America, Australia, China and Asia-Pacific will result in a fragmented environment that will increase the risk of trade barriers. Governments should prioritise compatibility and harmonisation between different systems to avoid trade complexities and costs. By creating a unified approach to carbon pricing, governments can enhance market efficiency and promote fair competition while addressing climate concerns.

3. **Promote sustainable supply chains**. Governments should enact policies to encourage companies to green their supply chains and reduce their carbon footprint. This includes incentives for adopting sustainable practices, such as tax breaks or subsidies for investments in renewable energy and energy-efficient technologies. Additionally, governments can leverage trade agreements to include environmental provisions that promote sustainable production and trade practices, ensuring that companies prioritise environmental sustainability in their operations.

4. **Facilitate technology transfer and dissemination**. Governments should leverage trade agreements and partnerships to facilitate the transfer and dissemination of green technologies essential for renewable energy production. This includes promoting collaboration on research and development, reducing trade barriers for clean energy products, and providing financial assistance for technology transfer initiatives. By enabling the global dissemination of green technologies, governments can accelerate the transition to a low-carbon economy and address climate change on a global scale.

5. **Enhance climate resilience and regional cooperation**. Governments should prioritise efforts to enhance climate resilience and regional cooperation to mitigate the impacts of extreme weather events and promote sustainable development. This includes investing in climate adaptation measures, such as infrastructure upgrades and disaster preparedness initiatives, and fostering regional partnerships for knowledge sharing and resource pooling. By building climate-resilient economies and fostering regional cooperation, governments can promote stability, prosperity, and sustainability in the face of climate change challenges.

REFERENCES
FOR CHAPTER IV

Aldy, J. E., et al. (2022). 'How Is the U.S. Pricing Carbon? How Could We Price Carbon?', Resources for the Future. Available at: https://www.rff.org/publications/working-papers/how-is-the-us-pricing-carbon-how-could-we-price-carbon/#:~:text=The%20United%20States%20does%20not,and%2Dtrade%20systems%20or%20regulations

Australia National University. (2022). 'Australia's Carbon Market Fraud', ANU College of Law. Available at: https://law.anu.edu.au/news-and-events/news/australia%E2%80%99s-carbon-market-fraud-environment

Boadle, A. (2023). 'Brazil Says EU Deforestation Rules Hamper Mercosur Trade Deal Negotiation', Reuters. Available at: https://www.reuters.com/world/americas/brazil-says-eu-deforestation-rules-hamper-mercosur-trade-deal-negotiation-2023-11-08/

Bond, J. (2022). 'United States and Canada Request Consultations Over Mexico's Energy Policies', White & Case. Available at: https://www.whitecase.com/insight-alert/united-states-and-canada-request-consultations-over-mexicos-energy-policies-under

Baker, T. (2021). 'EU Monitor The Carbon Border Adjustment Mechanism (CBAM) and its effects on trade with third countries', Europeum Monitor. Available at: https://europeum.org/data/articles/tom-baker-eumonitor-2.pdf

Beattie, A. (2023). 'The 'Global South' is a pernicious term that needs to be retired', Financial Times. Available at: https://www.ft.com/content/7f2e0026-56be-4f3d-857c-2ae3a297daab

Busch, C. (2022). 'China's Emissions Trading System Will Be the World's Biggest Climate Policy: Here's What Comes Next', Forbes. Available at: https://www.forbes.com/sites/energyinnovation/2022/04/18/chinas-emissions-trading-system-will-be-the-worlds-biggest-climate-policy-heres-what-comes-next/

Bronckers, M., & Gruni, G. (2021). 'Retooling the Sustainability Standards in EU Free Trade Agreements', Journal of International Economic Law, Volume 24, Issue 1, Pages 25–51

Bryan, A. (2023). 'UN predicts 9% rise in greenhouse gas emissions by 2030', Financial Times. Available at: https://www.ft.com/content/5c9fbecc-4eed-4e95-a133-1aef2011c490

Bryan, K. (2023). 'Carbon price tumbles as investors fret over 'weak' impact of COP28 deal', Financial Times. Available at: https://www.ft.com/content/c01d1a97-2b06-4e45-abf4-f2eb9b663833

Carbon Brief. (2024). 'Analysis: Trump election win could add 4bn tonnes to US emissions by 2030', Carbon Brief. Available at: https://www.carbonbrief.org/analysis-trump-election-win-could-add-4bn-tonnes-to-us-emissions-by-2030/

Carrington, D. (2023). ''Revolutionary' solar power cell innovations break key energy threshold', The Guardian. Available at: https://www.theguardian.com/environment/2023/jul/06/revolutionary-solar-power-cell-innovations-break-key-energy-threshold

Clean Energy Regulator. (2023a). 'About the Emissions Reduction Fund', Australian Government. Available at: https://www.cleanenergyregulator.gov.au/ERF/About-the-Emissions-Reduction-Fund

Clean Energy Regulator. (2023b). 'Emissions Reduction Fund achieves record 80 million tonnes in carbon abatement for Australia', Australian Government. Available at: https://www.cleanenergyregulator.gov.au/ERF/Pages/News%20and%20updates/News-item.aspx?ListId=19b4efbb-6f5d-4637-94c4-121c1f96fcfe&ItemId=807

COP28. (2023a). 'GLOBAL RENEWABLES AND ENERGY EFFICIENCY PLEDGE', COP28. Available at: https://www.cop28.com/en/global-renewables-and-energy-efficiency-pledge

COP28. (2023b) 'First Global Stocktake High-level Committee Summary of High-level events', COP28. Available at: https://unfccc.int/sites/default/files/resource/GST_HLE%20branded%20V2.pdf

Dlouhy, J., & Ma, S. (2023). 'Chinese Solar Makers Face New Tariffs After US Says They're Dodging Duties', Bloomberg. Available at: https://www.bloomberg.com/news/articles/2023-08-18/chinese-solar-makers-face-new-tariffs-after-us-says-they-re-dodging-duties

DMCC. (2022). 'The Future of Trade 2022', Dubai Multi Commodities Centre. Available at: https://www.futureoftrade.com/

DMCC. (2023). 'The Future of Trade. Special Energy Edition', Dubai Multi Commodities Centre. Available at: https://www.futureoftrade.com/energy-edition-2023#:~:text=Key%20Recommendations%20for%20the%20Future%20of%20the%20Energy%20Industry&text=Firms%20should%20develop%20an%20awareness,better%20manage%20their%20supply%20chains.

Energy and Climate Intelligence Unit. (2023). ' Net Zero Scorecard', Energy and Climate Intelligence Unit. Available at: https://eciu.net/netzerotracker

European Commission. (2023a). 'European Green Deal', European Commission. Available at: https://commission.europa.eu/strategy-and-policy/priorities-2019-2024/european-green-deal_en

European Commission. (2023b). 'Carbon Border Adjustment Mechanism', European Commission. Available at: https://taxation-customs.ec.europa.eu/carbon-border-adjustment-mechanism_en

European Commission. (2023c). 'International carbon market', European Commission. Available at: https://climate.ec.europa.eu/eu-action/eu-emissions-trading-system-eu-ets/international-carbon-market_en#:~:text=The%20number%20of%20emissions%20trading,Switzerland%20and%20the%20United%20States.

European Commission. (2023d). 'Sustainable development in EU trade agreements', European Commission. Available at: https://policy.trade.ec.europa.eu/development-and-sustainability/sustainable-development/sustainable-development-eu-trade-agreements_en

European Parliament. (2020). 'Amazon deforestation and EU-Mercosur deal', Think Tank European Parliament. Available at: https://www.europarl.europa.eu/thinktank/en/document/EPRS_ATA(2020)659311

European Parliament. (2023a). 'European Parliament resolution of 7 October 2020 on the implementation of the common commercial policy – annual report 2018', European Parliament. Available at: https://www.europarl.europa.eu/doceo/document/TA-9-2020-0252_EN.html

European Parliament. (2023b). 'Amazon deforestation and the EU-Mercosur deal', Think Tank European Parliament. Available at: https://www.europarl.europa.eu/RegData/etudes/ATAG/2023/751415/EPRS_ATA(2023)751415_EN.pdf

EY. (2022). ' How sustainable supply chains are driving business transformation', EY. Available at: https://www.ey.com/en_uk/supply-chain/supply-chain-sustainability-2022

Garsous, G., and Worack, S. (2021). 'Trade as a Channel for Environmental Technologies Diffusion: The Case of the Wind Turbine Manufacturing Industry', OECD Trade and Environment Working Papers No. 2021/01.

Global Forest Watch. (2023). 'Brazil', Global Forest Watch. Available at: https://www.globalforestwatch.org/dashboards/country/BRA/

IMO. (2023). '2023 IMO Strategy on Reduction of GHG Emissions from Ships', International Maritime Organization. Available at: https://www.imo.org/en/OurWork/Environment/Pages/2023-IMO-Strategy-on-Reduction-of-GHG-Emissions-from-Ships.aspx

Institute for Energy Research (2022). 'Biden Helps China Again, Exempting Bifacial Solar Panels From Tariffs', American Energy Alliance. Available at: https://www.americanenergyalliance.org/2022/02/biden-helps-china-again-exempting-bifacial-solar-panels-from-tariffs/

International Carbon Action Partnership. (2023). 'China National ETS', International Carbon Action Partnership. Available at: https://icapcarbonaction.com/en/ets/china-national-ets#:~:text=China's%20national%20ETS%20is%20the,of%20the%20country's%20carbon%20emissions

International Energy Agency. (2022a). 'Renewable Power's Growth Is Being Turbocharged as Countries Seek to Strengthen Energy Security', International Energy Agency. Available at: https://www.iea.org/news/renewable-power-s-growth-is-being-turbocharged-as-countries-seek-to-strengthen-energy-security

International Energy Agency. (2022b). ' CO2 Emissions in 2022', International Energy Agency. Available at: https://www.iea.org/reports/co2-emissions-in-2022

International Energy Agency. (2022c). 'Solar PV Global Supply Chains', International Energy Agency. Available at: https://www.iea.org/reports/solar-pv-global-supply-chains

International Energy Agency. (2023a). 'Critical Minerals', International Energy Agency. Available at: https://www.iea.org/topics/critical-minerals

International Energy Agency. (2023b). 'World Energy Investment 2023: Overview and Key Findings', International Energy Agency. Available at: https://www.iea.org/reports/world-energy-investment-2023/overview-and-key-findings

IPCC. (2022). 'Summary for Policymakers'. In: Climate Change 2022: Impacts, Adaptation and Vulnerability, Intergovernmental Panel on Climate Change. Cambridge University Press, Cambridge, UK and New York, NY, USA, pp. 3–33.

Jaeger, D. (2023). 'These 8 Countries Are Scaling Up Renewable Energy the Fastest', World Resources Institute. Available at: https://www.wri.org/insights/countries-scaling-renewable-energy-fastest

Jones, B. F., & Olken, B. A. (2010). 'Climate Shocks and Exports', American Economic Review, 100(2), 454-459.

Klotz, C., & Hulliger, I. (2023). 'EU deal reached on the CBAM', PwC. Available at: https://www.pwc.ch/en/insights/tax/eu-deal-reached-on-the-cbam.html

Kozul-Wright, R. (2023). 'A climate finance goal that works for developing countries'. UNCTAD. Available at: https://unctad.org/news/climate-finance-goal-works-developing-countries

Mao, Z. (2023). 'China's voluntary carbon market set to relaunch as registration begins', Asia House. Available at: https://asiahouse.org/research_posts/chinas-voluntary-carbon-market-set-to-relaunch-as-registration-begins/

MarketsandMarkets. (2022). 'Environmental Technology Market – Global Forecast to 2026', MarketsandMarkets. Available at: https://www.marketsandmarkets.com/Market-Reports/environmental-technology-market-109682606.html

Milman, O. (2024). 'Climate crisis ignored by Republicans as Trump vows to 'drill, baby, drill', The Guardian. Available at: https://www.theguardian.com/us-news/2024/jan/18/trump-republican-rivals-climate-crisis

Mora, J. (2023). 'A midterm report card for Mexico's USMCA progress', Atlantic Council. Available at: https://www.atlanticcouncil.org/blogs/new-atlanticist/uscma-review-mexico/#:~:text=In%20labor%20and%20environmental%20affairs,their%20own%20domestic%20political%20agendas

Net Zero Stocktake. (2023). 'Net Zero Stocktake 2023 Assessing the status and trends of net zero targetsetting across countries, sub-national governments and companies', Net Zero Stocktake. Available at: https://ca1-nzt.edcdn.com/Reports/Net_Zero_Stocktake_2023.pdf?v=1689326892

OECD. (2023). 'Climate Finance and the USD 100 Billion Goal', OECD. Available at: https://www.oecd.org/climate-change/finance-usd-100-billion-goal/#:~:text=At%20the%2015th%20Conference%20of,actions%20and%20transparency%20on%20implementation

Peters, G. P., Minx, J. C., Weber, C. L., and Edenhofer, O. (2011). 'Growth in emission transfers via international trade from 1990 to 2008', Proceedings of the National Academy of Sciences, 108(21), 8903-8908.

PwC. (2021). 'The economic realities of ESG', PricewaterhouseCoopers. Available at: https://www.pwc.com/gx/en/issues/reinventing-the-future/take-on-tomorrow/download/sbpwc-2021-10-28-Economic-realities-ESG.pdf

Science Media Centre. (2023). 'Expert reaction to pledges emerging from COP28', Science Media Centre. Available at: https://www.sciencemediacentre.org/expert-reaction-to-pledges-emerging-from-cop28/

CHAPTER 4: Sustainability and the Future of Trade

Tan, J. (2022). 'Global: Most consumers want to eat local food – but how do climate change beliefs affect appetites?', YouGov. Available at: https://business.yougov.com/content/42811-global-poll-buy-eat-local-food-climate-change

The Economist. (2023). 'Severe drought is constraining the Panama Canal', The Economist. Available at: https://www.economist.com/the-americas/2023/11/23/severe-drought-is-constraining-the-panama-canal

The White House. (2022). 'Declaration of Emergency and Authorization for Temporary Extensions of Time and Duty-Free Importation of Solar Cells and Modules from Southeast Asia', The White House. Available at: https://www.whitehouse.gov/briefing-room/statements-releases/2022/06/06/declaration-of-emergency-and-authorization-for-temporary-extensions-of-time-and-duty-free-importation-of-solar-cells-and-modules-from-southeast-asia/

UN. (2023a). 'The Paris Agreement', United Nations. Available at: https://unfccc.int/process-and-meetings/the-paris-agreement

UN. (2023b). 'For a livable climate: Net-zero commitments must be backed by credible action, United Nations. Available at: https://www.un.org/en/climatechange/net-zero-coalition

UN. (2023c). 'All About the NDCs', United Nations. Available at: https://www.un.org/en/climatechange/all-about-ndcs#:~:text=So%20far%2C%20all%20193%20Parties,some%20cases%2C%20insufficient%20political%20commitment.

UN Climate Change. (2023). 'COP28 Agreement Signals "Beginning of the End" of the Fossil Fuel Era", United Nations Climate Change. Available at: https://unfccc.int/news/cop28-agreement-signals-beginning-of-the-end-of-the-fossil-fuel-era

UNDP. (2022). 'What Are Carbon Markets and Why Are They Important', United Nations Development Programme. Available at: https://climatepromise.undp.org/news-and-stories/what-are-carbon-markets-and-why-are-they-important

UN Environment Programme. (2023). 'Plastic Treaty Progress Puts Spotlight on Circular Economy', UN Environment Programme. Available at: https://www.unep.org/news-and-stories/story/plastic-treaty-progress-puts-spotlight-circular-economy

Velut, J., Baeza-Breinbauer, D., Bruijne, D., Garnizova, M., Jones, E., Kolben, M., Oules, K., Rouas, L., Pittet, T. and Zamparutti, F. (2022). 'Comparative Analysis of Trade and Sustainable Development Provisions in Free Trade Agreements', London School Economics. Available at: https://www.lse.ac.uk/business/consulting/assets/documents/TSD-Final-Report-Feb-2022.pdf

World Bank. (2023a). 'State and Trends of Carbon Pricing 2023', World Bank. Available at: http://hdl.handle.net/10986/39796

World Bank. (2023b). 'Carbon Pricing Dashboard', The World Bank. Available at: https://carbonpricingdashboard.worldbank.org/map_data

World Resource Institute. (2023). 'Interactive Chart Shows Changes in the World's Top 10 Emitters', World Resource Institute. Available at: https://www.wri.org/insights/interactive-chart-shows-changes-worlds-top-10-emitters

WTO. (2021a). 'Trade and Climate Change Information Brief No. 4 Carbon Content of International Trade', World Trade Organisation. Available at: https://www.wto.org/english/news_e/news21_e/clim_03nov21-4_e.pdf

WTO. (2021b). 'Trade and Climate Change Information Brief No. 2 Climate Change in Regional Trade Agreements', World Trade Organisation. Available at: https://www.wto.org/english/news_e/news21_e/clim_03nov21-2_e.pdf

WTO. (2022a). 'World Trade Report 2022', World Trade Organisation. Available at: https://www.wto.org/english/res_e/publications_e/wtr22_e.htm

Xiaoying, L. (2023). 'As China's carbon market turns two, how has it performed?', China Dialogue. Available at: https://chinadialogue.net/en/climate/china-carbon-market-turns-two-how-has-it-performed/

Xue, Y. (2024). 'Climate change: China's voluntary carbon-credit market reboots in 'milestone' for emissions goals', South China Morning Post. Available at: https://www.scmp.com/business/article/3249349/climate-change-chinas-voluntary-carbon-credit-market-reboots-milestone-emissions-goals

Yu, H. (2009). 'Developing Country Perspectives on Carbon-Based Competitiveness, Trade and Climate Change Linkages', Chatham House. Available at: https://www.chathamhouse.org/sites/default/files/public/Research/Energy,%20Environment%20and%20Development/1109pp_yu.pdf

CHAPTER 4: Sustainability and the Future of Trade

CHAPTER V

GLOBAL TRADE AND FINANCE GAPS

SECTION ONE

THE GROWING TRADE FINANCE GAP

The global trade finance gap is growing, worsened recently by macroeconomic stresses, geopolitical tensions and regulatory compliance requirements. In 2022, it reached a record $2.5 trillion, reinforcing a growing global crisis in the ability to finance trade.

[271] WTO, 2023a

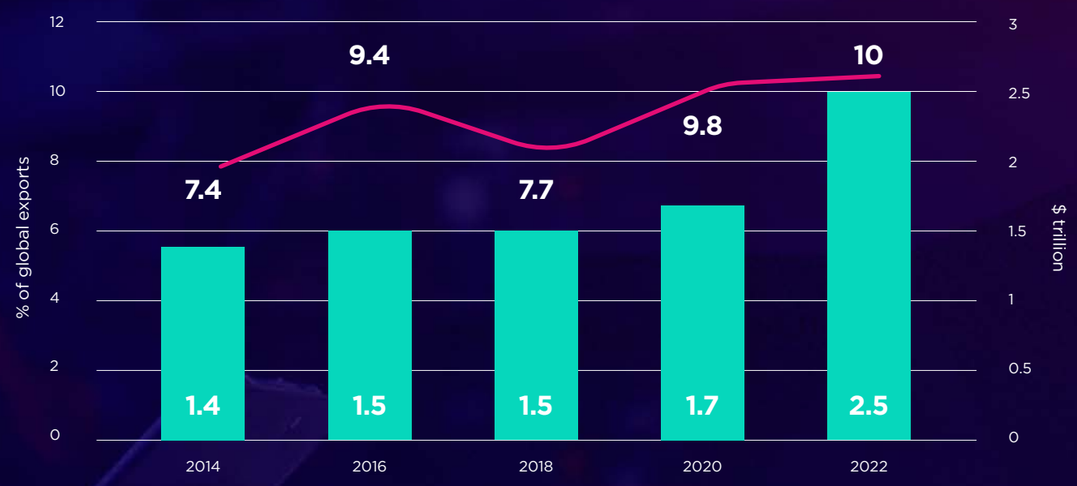
Around 80 to 90 per cent of world trade relies on trade finance, mostly of a short-term nature.[271] It serves a crucial function in facilitating trade to flow smoothly by providing funding and financial instruments to support transactions between importers and exporters. By mitigating risks associated with cross-border trade, such as payment defaults, currency fluctuations, and political instability, effective trade finance underpins business confidence in the global trade landscape.

The trade finance gap has been growing for years. At over $2.5 trillion today, this represents an increase of some 47 per cent from $1.7 trillion in 2020. It points to a major structural failing in the trade landscape that will continue to frustrate growth the longer it continues to get worse.

Many factors have contributed to the delays between requests and approval for financing to support importers and exporters.[272] Lenders are often unwilling to approve financing due to perceptions that a given country or enterprise is a lending risk, lacking collateral or providing poorly presented documentation. It has also been driven by rising borrowing costs and inflation rates, a weakened economic outlook and geopolitical turmoil. In an ADB survey, banks said the surge in recent rejections arose in part due to Russia's invasion of Ukraine, which led to currency fluctuations, as well as high interest rates and a lack of U.S. dollar liquidity.[273]

FIGURE 60

Global Trade Finance Gap



Source: ADB (2023). Their analysis draws on WTO data.

[272] ADB, 2023
[273] ADB, 2023

It is likely that the trade finance gap will widen over the next few years, leading to greater exclusion for developing markets perceived to be high risk.

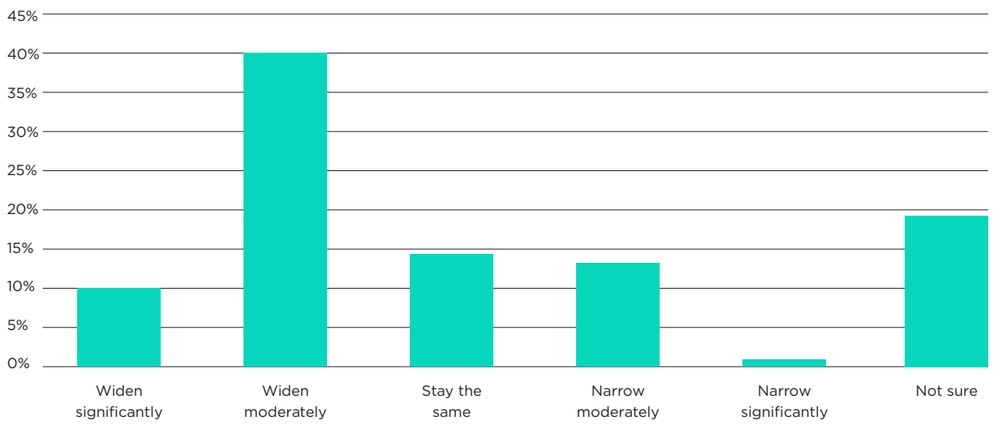
In our Future of Trade survey, more than half of respondents (a total of 52 per cent) expect that the finance gap will widen with most of these (40 per cent) expecting that it will widen moderately, as shown in Figure 61. A smaller proportion of 14 per cent thought that the trade finance gap would either stay the same or narrow.

The next few years are expected to pose macroeconomic challenges including persistently high prices, high interest rates and weak growth, creating unfavourable conditions for financial markets. Moreover, since e-commerce and digital services trade are expected to increase, the number of small online retailers will grow at a faster rate than available finance, thus widening the gap further.

High inflation rates tend to increase the requirement for trade finance, while higher sales result in higher requirements for funding.[274] When interest rates are high, lenders tend to become more risk averse as repayment becomes more difficult to afford. This may result in a smaller amount of funding being approved to meet higher demands – worsening the gap. This will be particularly problematic for SMEs in developing countries. Ngozi Okonjo-Iweala, Director-General of the WTO, recently stressed the need to increase access for small businesses to global supply chains.[275] Yet, ongoing geopolitical tensions are likely to create further uncertainties and volatility, which will also weigh on macroeconomic growth and make financial conditions more challenging.

FIGURE 61

How do you anticipate the global trade financegap (estimated at US$2.5 trillion in 2022) will change over the next two years?



Source: DMCC Future of Trade survey, 2024

[274] Shibli, 2023
[275] WTO, 2023b

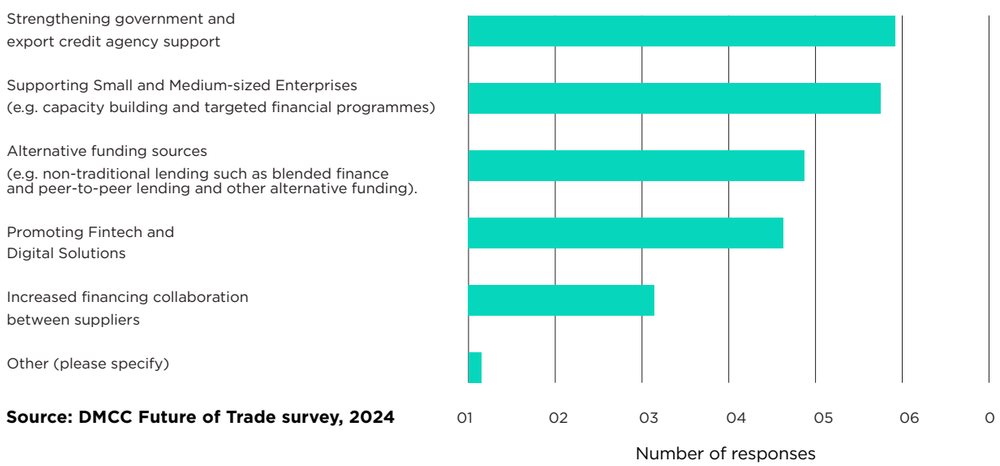
Solutions to the global trade finance gap

Banks and financial institutions, even supported by non-traditional finance solutions, cannot raise enough capital to meet demand alone. The response to the trade finance gap, therefore, must come from a multitude of actors to serve the huge range of businesses that have the potential to export.

This will not be an easy task. Even industry leaders appear divided on the best way forward. When asked how the trade finance gap could be bridged, respondents to the Future of Trade survey advocated strengthening government and export credit agency support and supporting SMEs (e.g. through capacity building and targeted financial programmes), both of which were selected by just under half of the respondents. Alternative funding sources (e.g. non-traditional lending such as blended finance, peer-to-peer lending and other alternative funding) as well as promoting fintech and digital solutions were selected by over a third of respondents. Others said there needs to be a better regulatory framework and more transparency, which are frequently cited as barriers to technological progress more generally.

FIGURE 62

How can the global trade financing gap be addressed? Select the two most important answers.



Source: DMCC Future of Trade survey, 2024

While this chapter explores methods that could be used to address the finance gap, including emerging fintech technology, it is unlikely that these will be adopted at scale to have a significant impact, at least in the near term. Among other challenges, this will leave emerging markets and firms that are deemed to be at high risk of default excluded from access to trade finance.

THE IMPACT OF FINANCE GAPS ON GLOBAL TRADE

The trade finance gap limits the economic potential of certain businesses and regions and harms global competitiveness by posing barriers to exports, leading to an opportunity cost in terms of relatively lower competition and constrained supply.

The trade finance gap has a disproportionate impact on small businesses and developing countries.

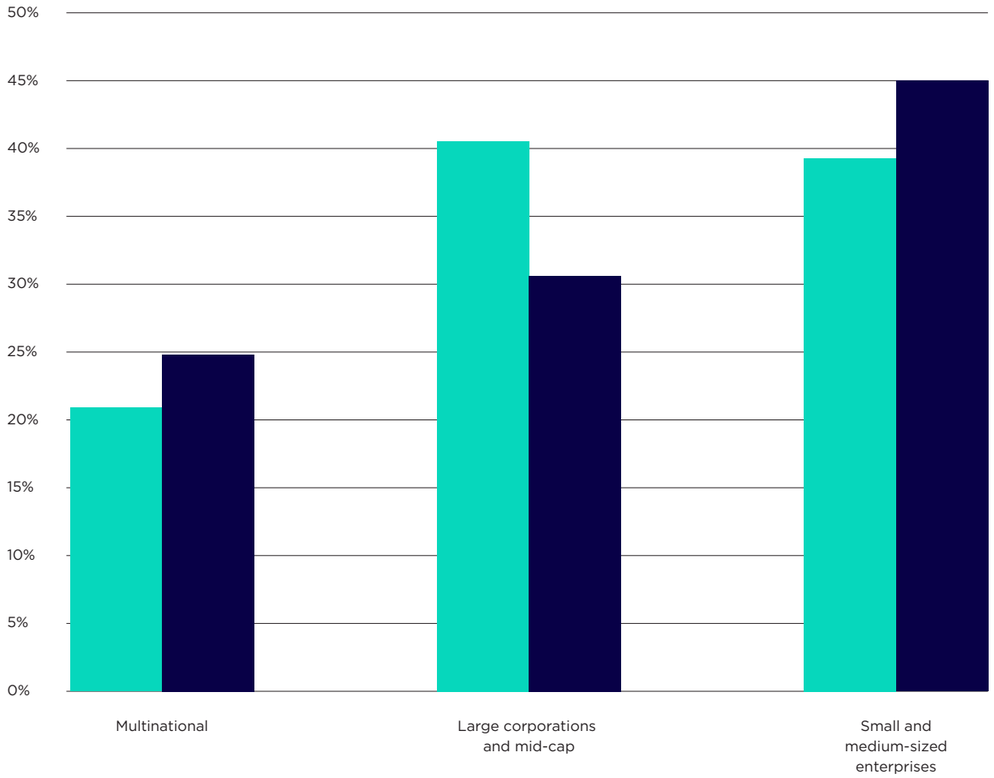
The ADB survey found that in 2022, 38 per cent of the applications received by banks were from small and medium-sized enterprises (SMEs), yet such enterprises received an even larger share of rejections (45 per cent), as shown in Figure 63 below.

This makes it harder for SMEs to acquire adequate funding to export, with knock-on effects for small traders including many women-led businesses, which can limit the developmental potential of countries with larger informal economies. Many developing countries are perceived to carry higher risks on investment returns, leading to a divergence in regional financing. The estimated value of unmet demand for trade finance in Africa and developing Asia is $120 billion and $700 billion, respectively.[276, 277] In these regions, there is a "disconnect between perceived and actual commercial risk", leading to prohibitive interest rates of up to 70 per cent on some loans.[278] New frontier countries with substantial global trade potential encounter the most significant trade financing gaps. The challenge arises from the limited financial support available both in their domestic markets, where local banks lack services to assist exporters, and from international banks, which exercise caution when dealing with these emerging markets.

[276] WTO, 2016
[277] Note that these figures are based on a 2016 study, so the financing gap is likely greater now.
[278] WTO, 2016

FIGURE 63

Trade Finance Application and rejection 2022 (%)



Source: ADB (2023)

The trade finance gap hampers the integration and effectiveness of global supply chains

The sale of a final product often involves the combinations of tens, if not hundreds or thousands, of upstream components, ranging from raw materials to advanced technologies. If one segment of the supply chain is disrupted due to an inability to access finance, the entire supply chain is disrupted, as was demonstrated by COVID-19. Companies may be forced to work with a smaller pool of suppliers, which reduces the flexibility and diversity of supply chains, making them more vulnerable to future dislocations. When companies face difficulties in securing trade finance, they may resort to more expensive financing options, such as higher-interest loans or alternative financial instruments. This can increase the overall costs and reduce the efficiency of international trade.

SECTION TWO

ALTERNATIVE FINANCING SOLUTIONS

NON-TRADITIONAL FINANCE

A number of initiatives are working to narrow the trade finance gap by increasing access to finance for enterprises encountering obstacles in securing funding through traditional channels. These often work by reducing the perceived risk of lending to businesses, thereby paving the way for easier borrowing experiences. The following section outlines some of these solutions, although this list is not exhaustive.

Multilateral Development Banks (MDBs)

These aim to narrow the finance gap in the poorest developing countries by mitigating the perceived risk of lending to exporters. They work by providing a guarantee that ensures that the bank (typically the bank of the exporter) will agree to confirm that a letter of credit (typically issued by the bank of the importer) will be paid even if the issuer defaults, thus reducing the perceived risk.[279] MDBs bridge the trust gap and have the potential to transform the access to finance for businesses in developing countries that often face the highest barriers to credit.

The Asian Development Bank (ADB), the European Bank for Reconstruction and Development (EBRD) and the Inter-American Development Bank (IDB) offer such programmes. It is estimated that MDBs have supported $168 billion worth of trade finance over a decade.[280] While this is to be welcomed, it is only equivalent to a small proportion of the total trade finance gap and many scholars and institutions propose that more should be done, particularly to address financing shortfalls during periods of economic shocks.

[279] WTO, 2016
[280] ICC, 2018

CHAPTER 5: Global Trade and Finance Gaps

The G20 published a review of MDB investment capacity and proposed that action needed to be taken to adapt the approach to risk tolerance, to work closely with credit rating agencies and to give more credit to callable capital — a financial backstop from shareholders that can be used in a crisis.[281] The report concluded MDB lending capacity should be increased over the next 12-24 months by several hundred billion dollars.

Export credit

Export credit agencies (ECAs) provide export credit loans, insurance and guarantees to protect exporters against the risk of non-payment by foreign buyers, which also mitigates against perceived risk. Another benefit is that ECAs often provide longer repayment terms compared with commercial lenders, which can benefit exporters facing cash flow challenges or longer production cycles. They are another key tool to facilitate exports for businesses, and often those that are typically excluded due to their size or operating in high-risk markets.

There are currently 39 official ECAs that work to offer financing unavailable in the private market. UK Export Finance (UKEF), for example, insures exporters against buyer default and provides attractive financing capital loans.[282] UKEF's Bond Support Scheme offers partial guarantees to banks covering up to 80 per cent of the value of contract bonds that are often required for exporters to win a contract. This scheme has supported the exports of numerous UK businesses, such as Power Jacks, a manufacturing company which has won £9.5 million worth of export contracts and has entered new markets in Asia and the Middle East.[283] ECAs are collaborating at a global level to extend finance coverage for sustainable exports as was demonstrated by the Net-Zero Export Credit Agencies Alliance, launched at COP28. Some members have already committed upwards of $2 billion to $6.5 billion each towards green technologies.[284] As well as the core founding members, the UAE's and Spain's export agencies have joined as affiliate members and will benefit from peer knowledge sharing regarding net-zero related export credit.

ECAs are collaborating at a global level to extend finance coverage for sustainable exports as was demonstrated by the Net-Zero Export Credit Agencies Alliance, launched at COP28.

[281] G20, 2022
[282] UKEF, 2023
[283] UKEF, 2020
[284] UNEP, 2023

Microfinancing

Microfinancing is a non-traditional form of banking that provides small-scale loans and financial services to individuals and small businesses unable to access bank loans. Traditional banks may be reluctant to extend credit due to perceived risks or smaller transaction volumes, particularly in developing countries. Microfinance bridges that finance gap by increasing access to financial resources that are needed to export. Globally there are more than 10,000 microfinance institutions processing more than $120 billion in lending. Most microfinance is used to support domestic-focused businesses, but many local entrepreneurs use loans to help enter foreign markets too. In Peru, a traditional handbag producer has used loans to export products to Europe and Australia, while in Kyrgyzstan, brick producers have been able to establish supply chains by using microfinance loans to source processing lines in China and then export to neighbouring countries.[285]

Microfinance is effective at providing credit to those that are typically most underrepresented; often family-owned, micro businesses and women-led businesses. Over the short-to-medium term, microfinance is seen as a key tool to increase financial inclusion among women, and particularly in the Middle East and Africa where only 35 per cent of women have a bank account, compared with 52 per cent of men.[286] It is expected that there is huge potential for further uptake, but regulatory frameworks and a strong legal system are touted as key obstacles that need to be addressed.[287]

While microfinance achieves the goal of supporting finance requests, it cannot be guaranteed that all finance will support exported goods rather than domestically focused businesses, so it is unlikely to facilitate a narrowing of the trade finance gap on a global scale. However, knowledge sharing and relationship building between creditors and businesses can help to ensure that successful businesses build the knowledge and networks that can help them to export.

Digitalisation may provide solutions

Despite the array of financing options available, including traditional bank loans and non-traditional microfinancing, the trade finance gap persists and is susceptible to global shocks. With ongoing geopolitical tensions and economic uncertainty forecasted, the status quo is unlikely to close this gap. A substantial overhaul in financing methods is necessary to significantly enhance access to finance. Emerging digital technologies offer a promising avenue to address this challenge effectively.

[285] Rosales, 2009 and IFC, 2015
[286] Triodos, 2018
[287] Triodos, 2018

Digitalisation of trade finance could increase access for SMEs and emerging markets and result in cost savings and increased efficiency. Every year, some 4 billion documents are created to support global trade.[288] Each cross-border transaction requires up to 36 documents, fewer than 1.5 per cent of which are digitalised.[289] This can make international trade very time-consuming, costly, and onerous for businesses. Moreover, prior to trading, businesses must deal with the often lengthy bureaucracy of sourcing finance to export. Digitalisation could help to streamline processes and increase access. Automation of corporate digital identity, for example, could reduce the cost of identifying and verifying a company, reducing administrative procedures that banks undertake to meet regulatory requirements.[290]

Credit assessments that use alternative data and trade document digitisation could also make it faster and easier to access credit. This would be particularly impactful for SMEs and emerging markets, which often lack rich datasets and so suffer from a perceived high risk of default. Both businesses and banks agree that there are huge benefits to digitalisation. An ADB survey finds that 73 per cent of surveyed firms recognise that significant productivity and efficiency gains can be achieved through digitalisation and standardisation of trade documentation, while 63 per cent of banks agree that digitalisation would enable better client profiling and risk management.[291]

Digitalisation can also pose challenges and risks to businesses

Many businesses lack the know-how or resources to implement digital technologies, and costs can be high. This hurdle is greatest for SMEs in developing markets, which further exacerbates the issue of financial and trade exclusion. In the ADB survey, 25 per cent of businesses cited high costs as a barrier to digitalising trade.[292] Crucially, for digitalisation to be effective in enhancing trade, it requires transformation and adoption across the whole value chain and across multiple borders. Yet, a lack of standardisation in digital platforms and technologies has resulted in “digital islands” whereby trade within the same system is advanced but trade across different regulatory systems faces additional barriers and differing levels of regulatory complexity.[293]

The United Nations has attempted to address this by introducing the Model Law on Electronic Transferable Records (MLETR), which aims to enable the legal use of electronic transferable records across borders. So far, eight jurisdictions have transposed MLETR into national laws, including the Abu Dhabi Global Market and the UK’s Electronic Trade Documents Bill in 2023.[294] Recognition of the opportunities and challenges of digitalisation is increasing but more needs to be done globally to harmonise efforts.

[288] Global Trade Review, 2023
[289] Global Trade Review, 2023
[290] Bank for International Settlements, 2023
[291] ADB, 2023
[292] ADB, 2023
[293] Trade Finance Global, 2023a
[294] UN, 2017 and Gov UK, 2022

Case Study:
Fintech

Fintech is not a lending tool, but its advancement provides lenders with new and efficient technologies that streamline processes and which can help to reduce the trade finance gap.

Fintech services are used to digitalise banking systems, develop mobile banking apps and employ AI algorithms for analysis and decision making. A study by PwC found that 48 per cent of financial services organisations have embedded fintech fully into their strategic operating model and 37 per cent have incorporated emerging technologies into the products and services they sell.[295] It is estimated that the implementation of distributed ledger technology reduces the trade finance processing times from 20 days to a few hours since digital agreements can be automatically executed when all parties have accepted conditions.[296]

The increasing adoption of fintech by financial organisations will lead to further cost reductions and faster processing times, thereby boosting banks' capacity to handle lending requests, a critical factor in narrowing the finance gap.

[295] PwC, 2019
[296] Pereira da Silva, 2018

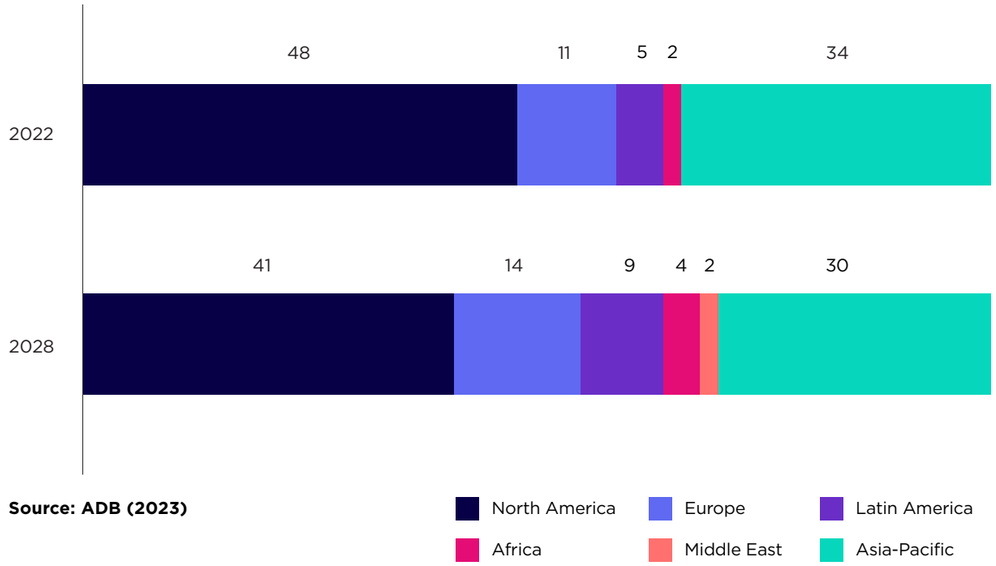
The growing use of fintech will be particularly beneficial for SMEs in emerging markets

Fintech has enabled millions of people to access financial services that were previously out of reach, partly due to rapid mobile phone penetration and "leapfrogging" the payment infrastructure used in the developed world.[297] A key benefit to SMEs in emerging markets stems from the use of alternative data sources and big-data analytics that provide financers with additional information to complement risk-assessment processes, allowing SMEs that were once unable to obtain finances to gain access.[298]

In 2022, fintech accounted for 5 per cent ($150 billion to $205 billion) of the global banking sector's net revenue, yet many analysts believe it has huge growth potential, with some estimates suggesting revenues could increase to more than $400 billion by 2028, growing three-times faster than the overall banking industry.[299] Many developing regions are forecast to make up this growing share of fintech revenue, including Latin America, the Middle East and Africa, as shown in Figure 64.

FIGURE 64

Global fintech net revenue by region, %



Source: ADB (2023)

[297] Huber, 2021
[298] Istuk, 2023
[299] McKinsey, 2023

Fintech could help to reduce the trade finance gap through:

- **Digital platforms and data.** Fintech platforms can connect exporters directly with financiers, cutting out intermediaries and streamlining the trade finance process. Trade Finance Global, for instance, connects companies with more than 300 financial institutions.[300] This can help businesses source alternative funding, which is particularly beneficial when domestic local banks cannot lend to them. Greater access also allows for more data collection, which in turn will inform policy to help target typically underrepresented businesses.

- **Blockchain technology.** Blockchain can enhance transparency and security in trade finance transactions by providing a decentralised ledger. This reduces the risk of fraud, which can be problematic in traditional document-based trade procedures.[301] Smart contracts on blockchain platforms can automate and enforce contract terms, reducing the need for manual intervention in the trade finance process and saving enterprises time and money spent on previously manual tasks.

- **Artificial Intelligence (AI).** The combination of AI and data analytics could be used by lenders to more quickly assess the creditworthiness of exporters. This helps in making faster and more informed lending decisions. AI can also be used to quickly identify patterns and analyse shipping documents to ease the time-burden associated with the traditionally manual trade process.[302]

While fintech has great promise, hurdles will limit its adoption at scale

A major obstacle stems from fintech providers running out of capital, restricting their ability to lend. As of the second quarter of 2023, 43 per cent of U.S. fintech firms had less than a year's worth of capital on hand.[303] Further challenges stem from heavy regulation faced by the industry, which is seen as curtailing innovation, as well as SMEs' lack of data on business performance. For fintech to be more effective, there needs to be an intergovernmental push for standardisation of data and more providers need to partner with banks.

However, fintech is one of many tools that must be pushed for industry-wide adoption. While it is an innovative solution that provides SMEs with alternative sources of finance, the finance gap of $2.5 trillion is at this point so vast that significant efforts will need to be made across the finance industry to ensure that capital is available to all firms that have the potential to export, ranging from small family-owned businesses to large multinational conglomerates.

[300] Trade Finance Global, 2023
[301] Deutsche Bank, 2023
[302] Global Trade Review, 2022
[303] Guillot, 2023

Interview: **Zoë Knight**, Group Head, Centre of Sustainable Finance and Head of Climate Change MENAT at HSBC

What role do you see green finance playing in addressing environmental challenges?

The key consideration is the sheer size of the capital required for the transition to net zero. Given this scale, it's important that green finance reliably demonstrates to investors that capital is being deployed in a way that will get emissions on track.

There's a whole variety of products that are labelled green finance that help to deliver that. There is a "green suite" of products where activities are ring-fenced for a particular use, and then there's the "sustainability-linked financing" of loans and bonds where the capital deployed might have a target to meet, such as an emissions reduction target or, in the case of renewables, a capacity scale-up target.

The concept of sustainable finance has a few different features but the heart of it is to signal that investment is being put in the right place for climate outcomes.

Are there any specific initiatives or projects that HSBC has supported?

Climate change and supporting the transition is critically important to HSBC. In 2020, HSBC set an ambition to align our financing portfolio to net zero by 2050 and to achieve net zero in our operations and supply chain by 2030. As this is an ongoing effort, we have recently published our net-zero transition plan, which brings together, for the first time, the steps we intend to take to deliver this ambition. It sets out our vision and activities in one place, aiming to provide clarity on our approach for all our different stakeholders.

> "We are trying to get investment moving faster through appropriate risk profiles, risk adjustment, blended finance and innovation in capital structures."

We've been an active participant with regard to funding solutions but we're also creating an enabling environment. For example, we were heavily involved in the original ICMA (International Capital Markets Association) green bond principles working groups. We also join in regular engagement with central banks and regulators to talk through what's working well, what could be improved and how to create consistency across markets to make capital flow faster.

How can the private sector, the public sector, governments and multilateral organisations all work together to ensure that green finance is delivered as effectively as possible?

The first thing is to make sure that we have the right regulatory environment. Back at COP21 in Paris, the focus was on risk, which triggered work from the Taskforce on Climate-Related Financial Disclosures (TCFD) assessing how material climate risks are for financial markets. That highlighted that there's a material issue here, with both an opportunity and risk across the market. We want to make sure that financial institutions are talking about that more effectively.

And that, of course, then spreads into different areas like climate stress-testing. The Network for Greening the Financial System looks at how to do that. There's an important role for central banks in maintaining financial stability and setting the risk framework across the economy to be able to support climate activities. There's a whole variety of initiatives that are out there trying to drive the same outcome, which is to get investment flows to move faster.

We as a bank are trying to get investment moving faster and into the right projects so we are creating that enabling environment through appropriate risk profiles, risk adjustment, blended finance and innovation in capital structures, for example. Second, we focus on how we become a net-zero bank ourselves and how other financial institutions can do so too. This comes from managing our operational carbon emissions linked to power usage and transport, for example, but it's also about measuring the emissions that are associated with our financing activities. The financial sector is moving from having only a "risk and reward-based approach" to an approach where there is a greater focus on aligning financial decision-making to downward emissions curves.

How do you see green finance influencing the decision-making processes of businesses, particularly regarding their supply chains?

Over the last few years, there's been a massive push to greener supply chains from a variety of stakeholders, whether it's investors, shareholders or governments. That push means that companies that are not regulated in a particular country, for example, may still feel stakeholder pressure from their customers in that country to reduce their emissions.

This means that if you can help the supply chain decarbonise faster, as either a financial institution or a customer of their product, then you're in a better position to be able to get more competitive finance access and keep your own market.

CHAPTER 5: Global Trade and Finance Gaps

"If you can help the supply chain decarbonise faster, as a financial institution or a customer, then you're in a better position to get more competitive finance access and keep your own market."

We had a few interesting products a while ago between Asia and the United States. We used the size of companies to apply the credit rating of the buyer of the good to the credit rating of the suppliers of the good based on sustainability metrics. This kind of innovation helped to de-risk the cost of capital to the smaller supplier. So, there's a lot of innovation that can happen in the supply chain between financial institutions and the companies themselves. That could be a massive opportunity to both decarbonise and finance growth for companies at the same time.

Do you think COP28 went far enough to achieve the global ambition of limiting the temperature increase to 1.5 degrees above pre-industrial levels?

COP28 was a milestone moment because of the global stocktake and it was the first time that countries were coming together to look at the scorecard against Paris. Of course, there's a lot of work still to do on transitioning the energy system, which is what we know we need to do to be able to address the goal.

But the key presidency goals of overseeing the negotiating framework, helping the public sector, and driving the private sector through the three pillars of climate finance – energy transition, inclusiveness, and nature -- were all part of the end package. COP28 went a long way to building bridges between all the different stakeholders that need to come together to drive emissions down as fast as we possibly can. By delivering that, it sets a really strong foundation for more work in future COPs, but also more commitment from the enablers in-country to deliver country plans.

Now the next step is to work alongside countries and our clients in helping them accelerate their climate ambition so that again can be rolled up into a country plan. This acceleration point is the mission-critical focus over the next few years.

KEY TAKEAWAYS

1. The trade finance gap currently stands at an estimated $2.5 trillion and is expected to widen in the coming years, representing a major structural risk in global trade resilience.
2. SMEs, particularly those in developing countries, will continue to struggle to access trade finance as banks remain risk-averse and other forms of finance are limited.
3. Macroeconomic conditions and the trade finance gap are closely linked. Weak growth and high interest rates increase banks' sensitivity to risk, which reduces the issuance of trade finance.
4. Persistently high inflation and tight monetary policy may lead to a widening of the trade finance gap.
5. Digitally delivered services are expected to surge and SMEs in this space will increase their demand for finance which may also contribute to a widening of the trade finance gap.
6. There are numerous forms of non-traditional finance that can increase access to trade finance. These include multilateral development bank funds, blended finance, export credit and microfinance. However, these are not available on a scale that can significantly address the finance gap.
7. Technologies such as AI, blockchain and digital platforms can support the effectiveness of fintech by reducing the time spent on decision-making for businesses requesting access to finance.

Recommendations for businesses:

1. **Increase data collection to boost attractiveness and ESG ratings**. Businesses should prioritise the collection of comprehensive data on their activities and outcomes. This includes data on environmental, social, and governance (ESG) factors, which are increasingly important for investors and financiers. By collecting rich data, businesses can enhance transparency, demonstrate their commitment to sustainability, and improve their ESG ratings. This, in turn, can support financing requests by providing investors with the information they need to make informed decisions about allocating capital.
2. **Engage with non-traditional finance sources**. Businesses, particularly SMEs, should explore alternative sources of funding beyond traditional bank loans. This includes venture capital, private equity, crowdfunding, and impact investing. SMEs can increase awareness of these alternative funding options to diversify their financing sources and access capital more efficiently. Larger businesses can collaborate with development banks on blended finance initiatives, where public and private funds are combined to support projects in emerging markets. By participating in blended finance initiatives, businesses can benefit from de-risked lending and access new markets and opportunities.
3. **Collaborate with governments on investment protection**. Businesses should seek opportunities to collaborate with governments of consumer markets to promote investment protection. This includes identifying areas of mutual benefit, such as highly demanded products that require additional financing to export. By working with governments to create a supportive investment climate, businesses can mitigate risks and enhance market access, leading to increased trade and investment opportunities.
4. **Consider fintech options to drive finance efficiency**. Businesses should consider adopting fintech solutions in their operations to streamline time-intensive administrative processes, reduce costs, and increase efficiency. This includes implementing digital payment systems, automated accounting software, and blockchain-based supply chain management solutions. By leveraging fintech, businesses can optimise their operations, improve cash flow management, and free up resources for strategic investments and growth initiatives.
5. **Regularly review risk ratings and data collection**. Banks should regularly review risk ratings and collect more data on underrepresented markets, particularly in emerging economies. By improving data collection and analysis, financial institutions can better assess creditworthiness and manage risks associated with lending to businesses in diverse markets. This includes leveraging technology and data analytics to identify emerging trends, mitigate risks, and support responsible lending practices.

CHAPTER 5: Global Trade and Finance Gaps

Recommendations for governments:

1. **Prioritise all policy and non-policy measures to address the trade finance gap**. Given the scale of the global trade finance gap, governments should treat this as a growing emergency requiring innovative solutions. This can be a blend of policy and non-policy options, including collaborating with international financial institutions and multilateral development banks to increase the availability of trade finance instruments and support mechanisms, and implementing regulatory reforms to reduce barriers to trade finance. and promoting greater transparency and information sharing in trade finance processes to reduce perceived risks and increase access to finance for SMEs.

2. **Mitigate macroeconomic factors to reduce lending pressure**. Governments should implement measures to stabilise macroeconomic conditions, such as reducing inflation and maintaining accommodative monetary policies, to alleviate pressure on banks and encourage trade finance issuance. In addition, governments should provide targeted support to SMEs through fiscal stimulus packages and credit guarantee schemes and foster economic diversification and resilience to reduce dependency on traditional banking channels for trade finance, including promoting alternative financing mechanisms and facilitating access to capital markets.

4. **Leverage digital technologies for fintech adoption**. Governments should invest in digital infrastructure and regulatory frameworks to support the adoption of fintech solutions in trade finance, including AI, blockchain, and digital platforms. This can facilitate partnerships between financial institutions, technology companies, and government agencies to develop and deploy innovative fintech solutions tailored to the needs of SMEs and trade finance providers.

5. **Scale up non-traditional finance methods**. Governments should expand the availability of non-traditional finance mechanisms, such as export credit, blended finance, and microfinance, to address the trade finance gap on a larger scale. Priority should be given to partnerships with international organisations and donor agencies to mobilise additional funding for non-traditional finance initiatives, supporting their implementation in developing countries, as well as promoting awareness and capacity-building initiatives to increase SMEs' understanding and access to non-traditional finance options for trade expansion and growth.

REFERENCES
FOR CHAPTER V

ADB. (2023). 'Global Trade Finance Gap Expands to $25 Trillion in 2022', Asian Development Bank. Available at: https://www.adb.org/news/global-trade-finance-gap-expands-25-trillion-2022

Bank for International Settlements. (2023). 'Digitising Trade Finance', Bank for International Settlements. Available at: https://www.bis.org/about/bisih/topics/open_finance/dtf.htm#:~:text=Digitising%20Trade%20Finance%20seeks%20to,for%20small%20and%20medium%2Dsized

Climate Bonds Initiative. (2022). 'Interactive Data Platform', Climate Bonds Initiative. Available at: https://www.climatebonds.net/market/data/#country-map

Deutsche Bank. (2023). 'Fighting Trade-Related Fraud', Flow - Deutsche Bank. Available at: https://flow.db.com/trade-finance/fighting-trade-related-fraud

Financial Times. (2023). 'Have Green Bonds Staged a Comeback?', Financial Times. Available at: https://www.ft.com/partnercontent/lseg/have-green-bonds-staged-a-comeback.html#:~:text=It%20was%20noted%20that%20most,rates%20on%20long%2Ddated%20bonds

G20. (2022). 'Boosting MDBs' investing capacity. An Independent Review of Multilateral Development Banks' Capital Adequacy Framework', G20 Capital Adequacy Frameworks Panel Report. Available at: https://www.dt.mef.gov.it/export/sites/sitodt/modules/documenti_it/rapporti_finanziari_internazionali/rapporti_finanziari_internazionali/CAF-Review-Report.pdf

Global Trade Review. (2022). 'AI for Trade Finance: Taking the Review of Shipping Documents to the Next Level', Global Trade Review. Available at: https://www.gtreview.com/magazine/the-fintech-issue-2022/ai-for-trade-finance-taking-the-review-of-shipping-documents-to-the-next-level/

Global Trade Review. (2023). 'Pioneering the Digitalisation of Trade Finance for Our Clients', Global Trade Review. Available at: https://www.gtreview.com/magazine/the-esg-trade-issue-2023/pioneering-the-digitalisation-of-trade-finance-for-our-clients/

Gov UK. (2022). 'Paperless Trade for UK Businesses to Boost Growth', Gov UK. Available at: https://www.gov.uk/government/news/paperless-trade-for-uk-businesses-to-boost-growth

Guillot, C. (2023). 'The Future of Fintech: 2024 Forecast, Trends & Risks', The Financial Brand. Available at: https://thefinancialbrand.com/news/fintech-banking/how-a-new-report-from-silicon-valley-bank-assesses-the-future-of-fintech-171582/#:~:text=In%20addition%20to%20rising%20rates,worth%20of%20capital%20on%20hand.

Huber, N. (2021). 'Emerging markets 'leapfrog' the west in digital payments race', Financial Times. Available at: https://www.ft.com/content/a5c17035-8ba8-4fa0-bc06-690f5949b174

ICC. (2018). 'ICC Global Trade 2018', International Chamber of Commerce. Available at: https://www.icc-austria.org/fxdata/iccws/prod/media/files/Icc-Global-Trade-2018.pdf

IFC. (2015). 'Microfinance: A comprehensive review of the existing literature', World Bank. Available at: https://documents1.worldbank.org/curated/en/406041468126882907/pdf/950370WP00PUBL0book0SB0Microfinance.pdf

IMF. (2022). 'A New Trust to Help Countries Build Resilience and Sustainability', International Monetary Fund. Available at: https://www.imf.org/en/Blogs/Articles/2022/01/20/blog012022-a-new-trust-to-help-countries-build-resilience-and-sustainability

IMF. (2023). 'MD Remarks - Paris Summit Closing Presser', International Monetary Fund. Available at: https://www.imf.org/en/News/Articles/2023/06/23/sp062323-mdremarks-paris-summit-closing-presser

Istuk, I. (2023). 'The role of digital financial services in bridging the SME financing gap', World Bank. Available at: https://blogs.worldbank.org/en/psd/role-digital-financial-services-bridging-sme-financing-gap#:~:text=The%20report%20argues%20that%20digital,digital%20products%20and%20process%20automation.

McGrath, P., McCarthy, L., Marshall, D., and Rehme, J. (2021). 'Tools and Technologies of Transparency in Sustainable Global Supply Chains', California Management Review. Available at: file:///C:/Users/matilda.buchan/Downloads/mcgrath-et-al-2021-tools-and-technologies-of-transparency-in-sustainable-global-supply-chains.pdf

McKinsey. (2022). 'The Net Zero Transition: What It Would Cost and What It Could Bring,' McKinsey & Company. Available at: https://www.mckinsey.com/~/media/mckinsey/business%20functions/sustainability/our%20insights/the%20net%20zero%20transition%20what%20it%20would%20cost%20what%20it%20could%20bring/the-net-zero-transition-what-it-would-cost-and-what-it-could-bring-final.pdf

McKinsey. (2023). 'Fintechs: A New Paradigm of Growth', McKinsey & Company. Available at: https://www.mckinsey.com/industries/financial-services/our-insights/fintechs-a-new-paradigm-of-growth

Miller, M., Pudussery J., and Rosenfeld, D. (2023). 'The Role of IMF Financing in a Climate-Changed World', Overseas Development Institute. Available at: https://odi.org/en/insights/the-role-of-imf-financing-in-a-climate-changed-world/

Pettinotti, L., Cao, Y. Kamninga, T. M., and Colenbrander, S. (2023). 'A Fair Share of Climate Finance: The Adaptation Edition', Overseas Development Institute. Available at: https://odi.org/en/publications/a-fair-share-of-climate-finance-the-adaptation-edition/

Shibli, A. (2023). 'Trade finance gap grows to record levels', The Banker. Available at: https://www.thebanker.com/Trade-finance-gap-grows-to-record-levels-1695884991#:~:text=Based%20on%20the%20current%20financial,to%20grow%2C%20says%20Mr%20Benisty.

Triodos. (2018). 'Microfinance in the MENA-countries: addressing societal needs and shortfalls', Triodos Investment Management. Available at: https://www.triodos-im.com/articles/2018/microfinance-in-mena---interview-with-fadoua-boudiba

OECD. (2023a). 'Growth Accelerated in the Climate Finance Provided and Mobilised in 2021, But Developed Countries Remain Short', Organisation for Economic Co-operation and Development. Available at: https://www.oecd.org/newsroom/growth-accelerated-in-the-climate-finance-provided-and-mobilised-in-2021-but-developed-countries-remain-short.htm

OECD. (2023b). 'Climate Finance Provided and Mobilised by Developed Countries in 2013-2021', Organisation for Economic Co-operation and Development. Available at: https://www.oecd-ilibrary.org/environment/climate-finance-provided-and-mobilised-by-developed-countries-in-2013-2021_e20d2bc7-en

Pereira da Silva, L. (2018). 'Financial inclusion in the age of fintech: a paradigm shift', Bank for International Settlements. Available at: https://www.bis.org/speeches/sp181106.htm

PwC. (2019). 'Crossing the lines: How fintech is propelling FS and TMT firms out of their lanes', PricewaterhouseCoopers. Available at: https://www.pwc.co.uk/financial-services/fintech/assets/global-fintech-report-2019.pdf

PwC. (2024). 'Green Bonds: Financing a Sustainable Future', PricewaterhouseCoopers. Available at: https://www.pwc.co.uk/services/sustainability-climate-change/insights/green-bonds.html

Rosales, R. (2009). 'Peru: Microbusiness Helps Women Weather Crisis', IPS News. Available at: https://www.ipsnews.net/2009/05/peru-microbusiness-helps-women-weather-crisis/

Sengupta, S. (2022). 'Supply Chain SMEs Need More Than Financing to Crack Their ESG Strategies', HSBC. Available at: https://www.business.hsbc.com/en-gb/insights/sustainability/supply-chain-smes-need-more-than-financing-to-crack-their-esg-strategies

Trade Finance Global. (2023a). 'Standards for Digital Trade Exist: Lack of Awareness Is the Problem - A Deep Dive into ICC, DSI, and WTO's Standards Toolkit', Trade Finance Global. Available at: https://www.tradefinanceglobal.com/posts/standards-for-digital-trade-exist-lack-of-awareness-is-the-problem-a-deep-dive-into-icc-dsi-and-wtos-standards-toolkit/

Trade Finance Global. (2023b). 'Trade Finance Without Barriers', Trade Finance Global. Available at: https://www.tradefinanceglobal.com/

UKEF. (2020). 'Power Jacks Enters New Markets with UKEF Support', UK Export Finance. Available at: https://www.gov.uk/government/case-studies/power-jacks-enters-new-markets-with-ukef-support

UKEF. (2023). 'About UK Export Finance', UK Export Finance. Available at: https://www.gov.uk/government/organisations/uk-export-finance/about#:~:text=We%20help%20UK%20companies%20to,by%20insuring%20against%20buyer%20default

UN. (2017). 'Status of UNCITRAL Model Law on Electronic Transferable Records', United Nations. Available at: https://uncitral.un.org/en/texts/ecommerce/modellaw/electronic_transferable_records/status

UNEP. (2023). 'Export credit agencies supporting billions in global trade form net-zero alliance', UN Environment Programme. Available at: https://www.unep.org/news-and-stories/press-release/export-credit-agencies-supporting-billions-global-trade-form-net

UNESCAP. (n.d.). 'Financing Sustainable Development in Asia and the Pacific: Green Finance', United Nations Economic and Social Commission for Asia and the Pacific. Available at: https://www.unescap.org/sites/default/files/28.%20FS-Green-Finance.pdf

Walmart. (2021). 'Walmart Creates Industry First by Introducing Science-Based Targets for Supply Chain Finance Program', Walmart Corporate. Available at: https://corporate.walmart.com/news/2021/12/08/walmart-creates-industry-first-by-introducing-science-based-targets-for-supply-chain-finance-program

Wainer, A. (2023). 'The Resilience and Sustainability Trust: Early Learning and Challenges from Costa Rica and Rwanda,' Center for Global Development. Available at: https://www.cgdev.org/publication/resilience-and-sustainability-trust-early-learning-and-challenges-costa-rica-and-rwanda

WEF & OECD. (2015). 'Blended Finance Vol. 1: A Primer for Development Finance and Philanthropic Funders,' World Economic Forum and Organisation for Economic Co-operation and Development. Available at: https://www3.weforum.org/docs/WEF_Blended_Finance_A_Primer_Development_Finance_Philanthropic_Funders.pdf

World Bank. (2023). 'From India to Indonesia, Green Bonds Help Countries Move Toward Sustainability' World Bank. Available at: https://www.worldbank.org/en/news/feature/2023/04/10/from-india-to-indonesia-green-bonds-help-countries-move-toward-sustainability

WTO. (2016). 'Trade Finance for Small and Medium-Sized Enterprises,' World Trade Organisation. Available at: https://www.wto.org/english/res_e/publications_e/tradefinsme_e.htm

WTO. (2023a). 'Challenges Faced by the Multilateral Trading System,' World Trade Organisation. Available at: https://www.wto.org/english/thewto_e/coher_e/challenges_e.htm

WTO. (2023b). 'Appointment of WTO Deputy Directors-General,' World Trade Organisation. Available at: https://www.wto.org/english/news_e/news23_e/dgno_13oct23_e.htm

Zeng, H., Li, R. and Zeng, L. (2022). 'Evaluating green supply chain performance based on ESG and financial indicators', Frontiers in Environmental Science. Available at: https://www.frontiersin.org/articles/10.3389/fenvs.2022.982828/full

CHAPTER 5: Global Trade and Finance Gaps

Annex – research methods

This report adopts an interdisciplinary research approach to comprehensively explore multiple sources and achieve a nuanced understanding of international trade. Methods include:

Desk-based research.
Topic experts drew on academic papers and news sources to understand key developments. This is supplemented by analysis of trade and macroeconomic data.

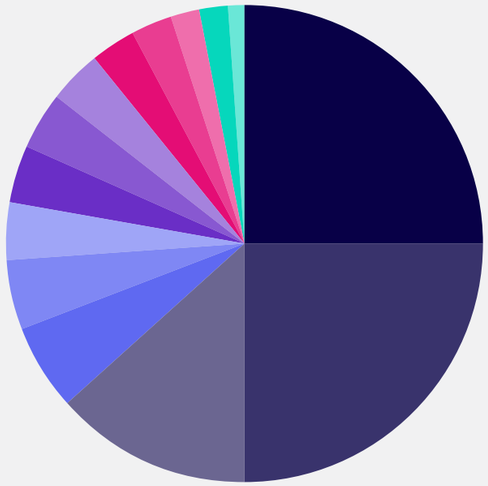
Interviews with industry leads.
Each chapter includes an interview with a business practitioner whose work directly relates to the themes discussed.

Survey data collection and analysis.
This is a new research method that we have introduced to the Future of Trade 2024 report. We invited selected businesses and trade practitioners to complete a survey on the outlook for trade and related themes and received 100+ responses. This has allowed us to analyse bespoke data that captures prevailing industry opinions on the future of trade and to compare results across countries.

Index development and analysis.
Two indices have been developed to analyse a multitude of factors to rank the performance of key markets. The commodity trade index evaluates and ranks ten commodity markets based on their clout regarding imports and exports of primary commodities. The industry digitalisation index tracks the progress of digitalisation across various trade processes.

FIGURE 65

DMCC Future of Trade survey respondents



- Finance and Insurance Services
- Professional Services (Law, Consulting etc.)
- Other
- Transport, Logistics
- Education
- Agriculture, Forestry, Mining
- Energy, Utilities
- Retail, E-commerce
- Think Tank
- Data Infrastructure, Telecoms
- Industrials (Manufacturing, Construction etc.)
- Life Sciences
- Public Services, Social Service
- Hospitality, Food, Leisure Travel

International roundtables with policy and business experts.
A crucial part of this research involved the organisation of global roundtables in Johannesburg, Dubai, London, Zurich, New York, Singapore, Hanoi, Hong Kong and Shanghai. These nine locations represent a mix of traditional and emerging economic hubs and are centres for a variety of industries engaged in international trade. We carefully selected 15-20 business and policy experts to attend each event, which involved a frank and candid discussion on trade, geopolitics, technology, sustainability and finance. In total, more than 150 individuals took part. Participants were selected from a range of organisations that were reflective of the key sectors in each focus economy. No individual or business from the roundtable is named in this report but we have analysed the themes and points that were raised to add an informed and nuanced perspective on how international trade is expected to evolve and affect business operations over the next two+ years.

Generally, the roundtables that took place in fast-growing emerging markets such as Dubai and Hanoi were more optimistic about the future of trade, noting the opportunities that would come from adopting new technologies and increased trade with multipolar trading nations. Discussions in Europe and the United States were generally more pessimistic as participants highlighted macroeconomic slowdowns and how the lack of data regulation and standardisation posed challenges to the adoption of potentially revolutionary technologies such as blockchain and AI. Participants in Johannesburg, meanwhile, expressed concern about poor macroeconomic conditions and tight credit controls and the likelihood that these would impede access to finance that is crucial to participate in global trade and supply chains. The discussion in Singapore highlighted the need for businesses to shield themselves from the impact of China's economic slowdown. At the Shanghai roundtable, participants explained that while many businesses have explored the strategy of moving production out of China, changes to supply chains are likely to be slow since other countries in the region often cannot compete on price or quality. Most roundtable participants expressed a conviction that the global drive to achieve net-zero targets would significantly change what is traded along with associated costs, particularly as more jurisdictions adopt carbon pricing mechanisms.

The timing of each event had an impact on the opinions expressed at the roundtables. All nine roundtables were held over a four-month period between November 2023 and February 2024. The first two, which took place at the end of 2023, discussed geopolitics in a broad and general sense, highlighting the numerous tensions and conflicts arising around the world and how likely these were to disrupt trade and create uncertainties. The remaining roundtable events occurred in early 2024, shortly after the start of the U.S. primaries, and coincided with a turning point in the polls in favour of Donald Trump. As a result, these discussions tended to focus far more on the potential impact of the U.S. election on U.S.-China tensions, as well as on international security and climate efforts.

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