
THE FUTURE OF TRADE

2026
**REBUILDING THROUGH
RUPTURE**



INTRODUCTION

Ten years ago, DMCC published the first edition of the Future of Trade.

The questions animating global commerce in 2016 were different in kind, not just degree. Blockchain was going to eliminate the paperwork that accounted for a fifth of the \$1.8 trillion cost of global trade. Fintech was going to close the \$1.5 trillion trade finance gap that left half of all SME funding applications rejected by banks. The Internet of Things and advanced robotics were going to streamline supply chains beyond recognition. The world's economic centre of gravity was shifting towards Asia, and China's Belt and Road Initiative was rewriting the map of global connectivity. The future of trade, our early editions argued, was digital, sustainable and increasingly Asian.

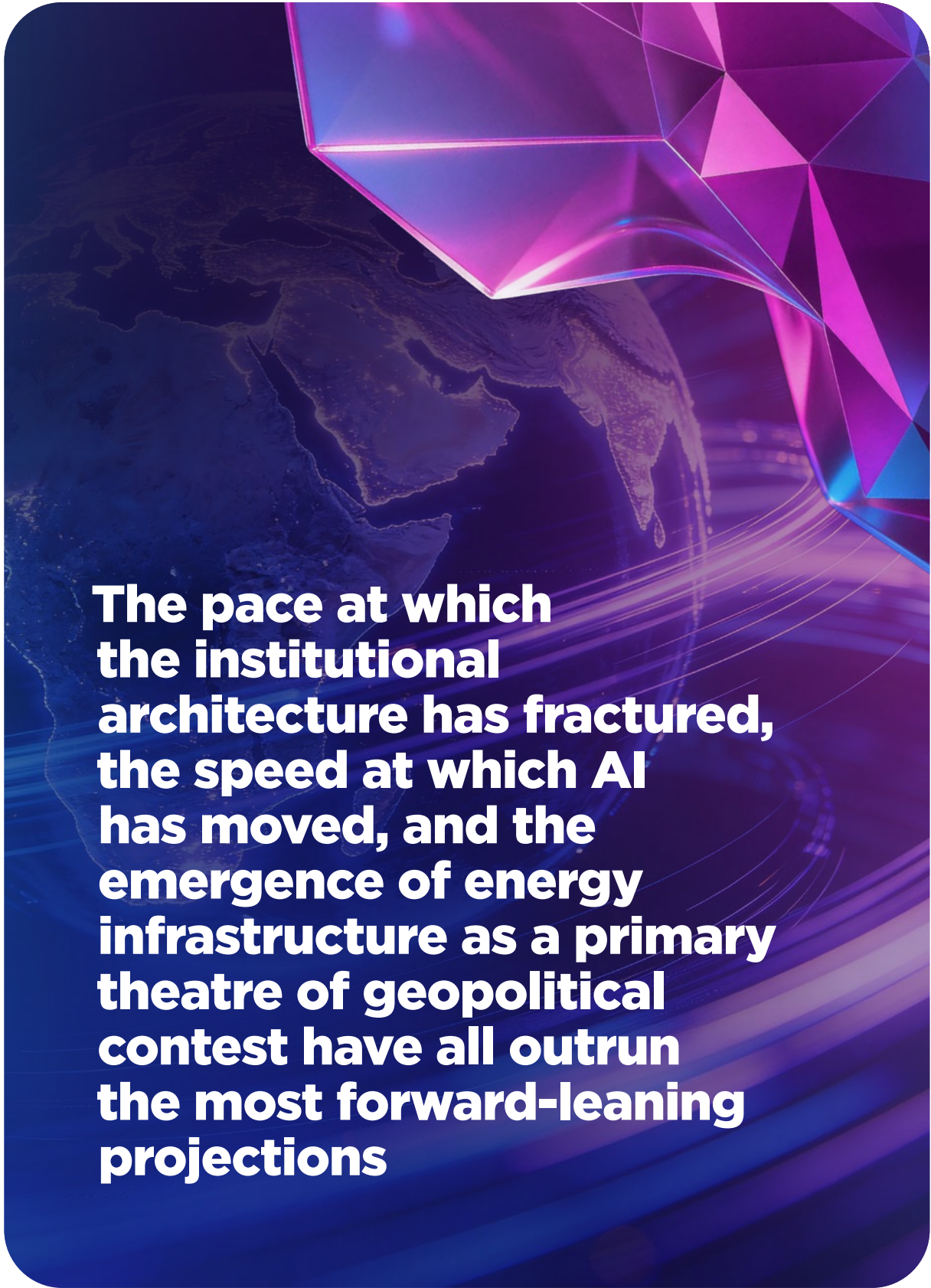


A decade on, the picture is mixed. Some assumptions did not hold, while others proved correct. What the intervening decade showed, above all, is that the forces of change are rarely linear, and rarely arrive alone.

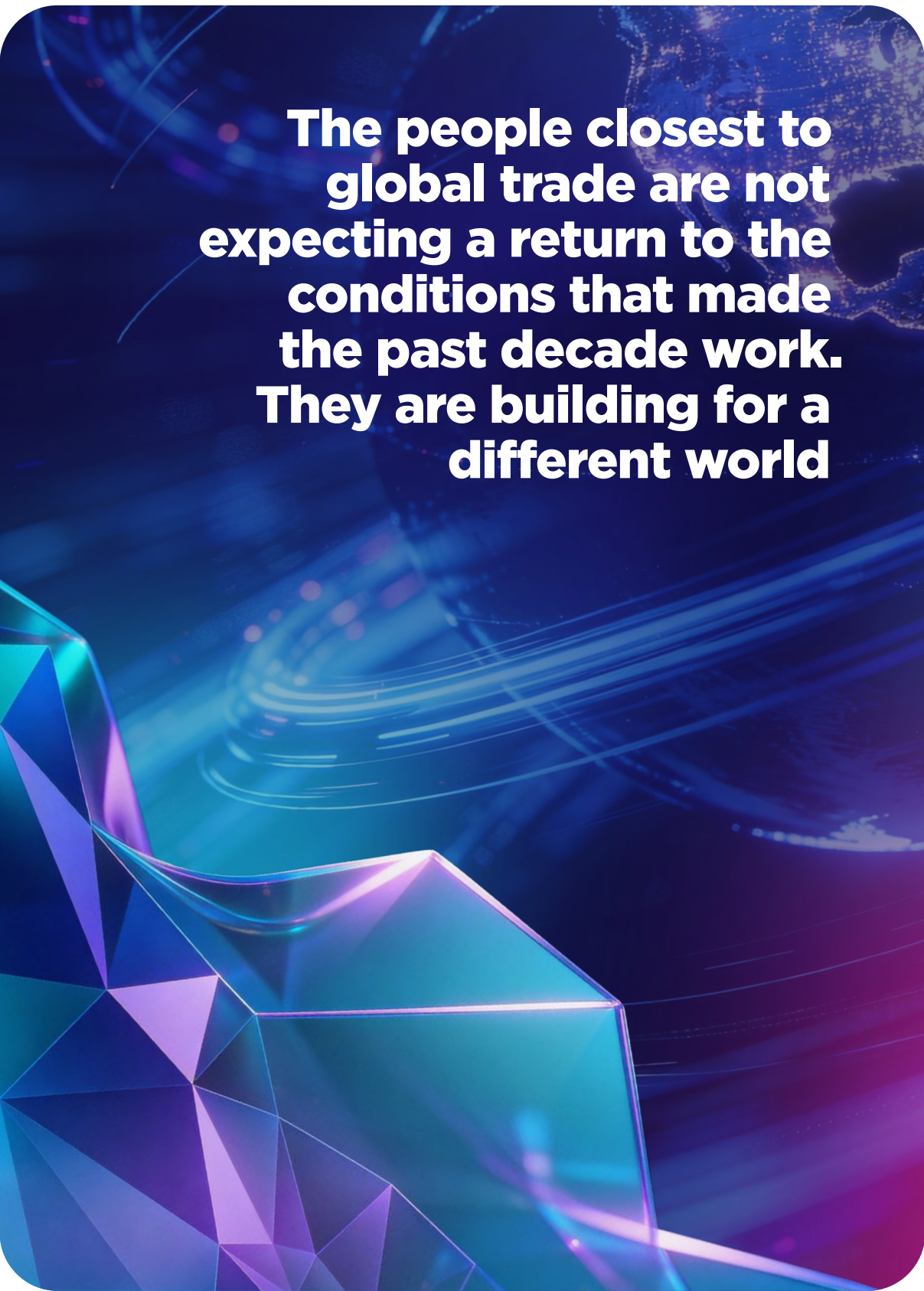
The digital revolution in trade finance arrived, but more slowly and unevenly than the most optimistic projections suggested; the trade finance gap, far from closing, has grown to \$2.5 trillion before stabilising. Blockchain's promise never fully materialised – it has found a role, though more as one component of a broader digital infrastructure stack now anchored by AI and distributed ledger technology. Asia did indeed become the world's dominant production hub, and then its primary arena of geopolitical contest, as the United States and China turned supply chains into instruments of strategic competition. The sustainability agenda has hardened into something more consequential than corporate commitment: a live contest for industrial advantage, in which control of critical minerals, clean technology supply chains and energy infrastructure has become as strategically significant as any tariff or trade agreement.

What has changed, fundamentally, is the character of trade: who conducts it, how, in what, and under whose rules. The old centres of gravity are shifting. South-South trade between developing economies now accounts for 35% of global activity, outpacing trade between advanced economies. Middle powers, from the United Arab Emirates to Vietnam to India, are capturing investment and redirecting supply chains. AI-related goods are growing fast. The stablecoin, once a curiosity of crypto enthusiasts, is emerging as a credible alternative to the correspondent banking system that has underpinned cross-border settlement for decades.

None of this is straightforward. The past two years have confounded forecasters. The pace at which the institutional architecture has fractured, the speed at which AI has moved from boardroom ambition to operational deployment, and the emergence of energy infrastructure as a primary theatre of geopolitical contest have all outrun the most forward-leaning projections.



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The people closest to global trade are not expecting a return to the conditions that made the past decade work. They are building for a different world

The lesson is not that forecasting is futile; it is that the range of plausible outcomes has widened, the tail risks have fattened, and the premium on strategic agility has never been higher.

When we asked more than 130 senior leaders and trade experts to choose between three scenarios for the next one to three years – best case, baseline or worst – only 4% selected the best. That number is this report's most arresting statistic. It tells us that the people closest to global trade, including the executives restructuring supply chains, the policymakers negotiating bilateral deals in the vacuum left by multilateralism, and the financiers navigating a settlement system in transition, are not expecting a return to the conditions that made the past decade work.

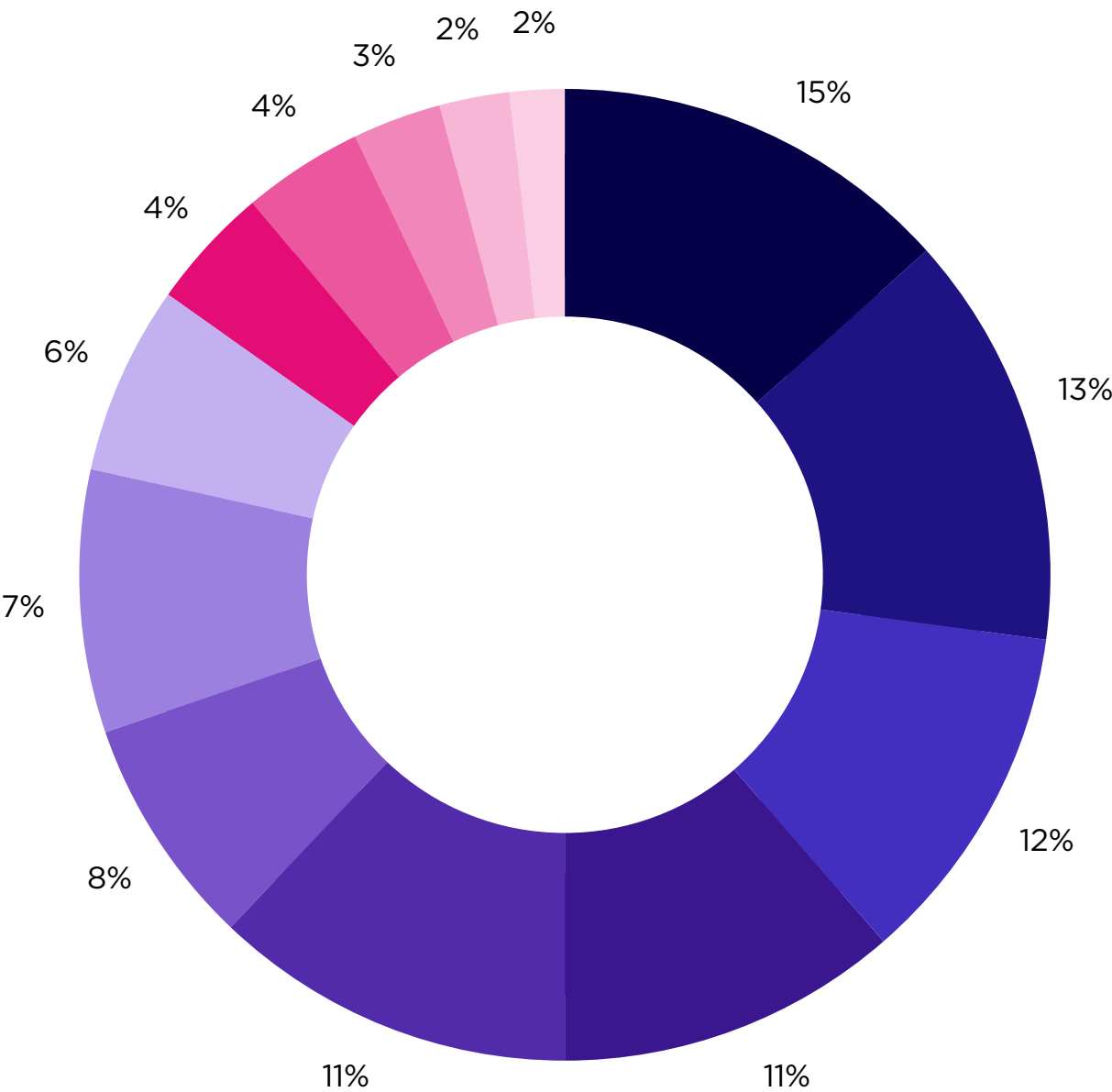
They are building for a different world.

This report is an attempt to describe that world with as much clarity and rigour as a volatile moment permits. It draws on 12 roundtable discussions held across global trade centres from Dubai to Shanghai, Frankfurt to São Paulo, and a survey of more than 130 businesses and practitioners. It examines the forces reshaping geopolitics, technology, macroeconomics and sustainability, and what they mean, in practical terms, for the companies and governments navigating the turbulence.

Ten years ago, the world felt predictable – the future of trade faster and more connected, but recognisably the same system. Today, that system has ruptured. And what is being rebuilt feels fundamentally different. Welcome to DMCC's Future of Trade 2026: Rebuilding Through Rupture.

Figure 1

Roundtable participants by sector



Source: DMCC Future of Trade Roundtables, 2026

The report is informed by a Future of Trade survey of more than **130 respondents** across industries and geographies, alongside extensive desk-based research. Insights from the roundtable series as well as survey responses are woven throughout the chapters that follow and reveal where businesses see opportunities and challenges for the future of trade.

- Technology, fintech, payments, digital infrastructure
- Banks
- Professional services (consulting, legal, accounting)
- Government, policy, regulators, multinational institutions
- Business associations/trade bodies
- Advisory
- Corporates (manufacturing/consumer goods, retail, health, mining, food agriculture, logistics/shipping)
- Asset managers, wealth managers, private equity, insurers
- Data/analytics
- Research
- Sustainability
- Think tanks
- Academia

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EXECUTIVE SUMMARY

The world has not merely changed since our last report – it has lurched. Iran’s seizure of the Strait of Hormuz, Donald Trump’s sweeping tariff regime and its subsequent legal unravelling, and the acceleration of AI from experimental to operational. These are firm ruptures. The architecture of global trade is being fundamentally rewired, and the businesses and governments that grasp what is being built, rather than rue what is breaking down, will be best placed to benefit.

Despite the turbulence, trade will prove resilient. Growth is forecast to slow in 2026 before recovering in 2027. But the character of that growth is changing. AI-related goods expanded at five times the rate of non-AI goods in the first half of 2025. Services exports are growing at double the pace of merchandise trade. The next wave of global trade will be smarter, more digital, more contested – and less predictable.

Trade will prove resilient. Growth is forecast to slow in 2026 before recovering in 2027. But the character of that growth is changing. The next wave of global trade will be smarter, more digital, more contested – and less predictable.

Looking back: What our 2024 report got right and what changed.

In our 2024 edition, we identified three forces we expected to shape global trade: an accelerated shift to regionalisation; widespread supply chain restructuring; and a surge in digital services and AI adoption.

The direction of travel on all three proved correct. Regionalisation has accelerated, though driven more by tariff shock than by the gradual geopolitical drift we anticipated. Supply chain restructuring has intensified, with the Strait of Hormuz closure and critical minerals bottlenecks adding new urgency beyond what geopolitics and climate alone were delivering.

And AI has arrived faster and more disruptively than even optimistic projections suggested: AI-related goods now expand faster than non-AI goods, and agentic systems are making operational decisions once reserved for human traders. The pace at which AI has moved from aspiration to operational reality has surprised even industry experts, as has the extent to which its underlying infrastructure – chips, data centres, energy and critical minerals – has emerged as a central arena of geopolitical competition in its own right.

What the intervening two years have shown is that the pace of change has outrun almost every forecast. The World Trade Organization's institutional decline, which we flagged as a structural risk, has moved further and faster than the trajectory then implied – culminating in the failure to renew the e-commerce moratorium for the first time since 1998. The U.S. tariff regime has proved more legally contested and more rapidly reconstituted than trade policy experts anticipated, producing a stop-start environment that has become part of the new normal. And the trade finance gap's feared widening did not materialise – it has held at \$2.5 trillion, a more resilient outcome than the macroeconomic conditions suggested.

We identify four forces that will define global trade over the next two to three years:

1 AI has crossed the operational point of no return, with bigger changes to come

AI has moved from boardroom experimentation to operational reality, but the bigger shift is still ahead. As agentic systems take on complex decision-making and adoption deepens from broad experiments to task-specific integration, the productivity gap between early movers and laggards will widen into a global, structural competitive divide.

2 There is no longer a tariff rulebook

Trump's second term and the marginalisation of the WTO have dismantled the architecture of rules-based trade, replacing it with bilateral deals, bloc-based trade and permanent uncertainty. Businesses should expect escalation, not resolution, as the default setting for trade policy in the years ahead.

3. Resilience is the new efficiency for supply chains

Supply chains are in a permanent state of stress-testing as a result of geopolitical fractures and are now again being rebuilt in response to the Iran conflict. The businesses that treat diversification as a one-time fix will be caught out by the next disruption; those building it as a continuous operational discipline will be structurally better placed to compete.

4. The energy transition is a battle for industrial advantage, and the window to stake a claim is narrowing

Clean technology – from EVs and batteries to critical minerals and renewables – has become the defining arena of geopolitical competition. The supply chain positions being secured today, by China, the United States, Europe and the Gulf, will determine who wins and who pays for decades; the window to establish a meaningful stake is narrowing.

Trump's second term has delivered a seismic shock, with 19.7% of global merchandise imports now affected by tariffs. The message is clear: there is no longer a stable rulebook, only a series of live negotiations.

AI and next-gen financial infrastructure are moving quickly to operational reality. In 2024, we said AI was set to revolutionise global commerce. In 2026, that revolution is firmly underway. Autonomous agentic systems are taking on decision-making tasks once reserved for human traders. AI-related goods like semiconductors, servers, and data centre hardware are reshaping trade corridors and driving export growth in Asia. The gap between early movers and laggards is widening. Alongside AI, a new generation of financial infrastructure is quietly reshaping cross-border settlement: stablecoins, tokenisation and wholesale central bank digital currencies (CBDCs) are live across select corridors. The institutions building on these new rails will have a structural advantage over those still reliant on correspondent banking.

In a new era of trade, there is no longer a tariff rulebook. Trump's second term has delivered a seismic shock to the trade order, with 19.7% of global merchandise imports now affected by tariffs or similar measures, up from 12.6% a year ago. The U.S. Supreme Court struck down the IEEPA tariff regime in February 2026 but, within days, new levies were introduced under Section 122, and two sweeping Section 301 investigations covering 90-95% of U.S. imports were launched. The message from the roundtables was clear: there is no longer a stable rulebook, only a series of live negotiations. The businesses that treat this volatility as a permanent feature, rather than an aberration, will outperform those waiting for normalisation.

Meanwhile, the WTO's waning authority has taken further structural damage. Its Appellate Body remains defunct. Members failed at the March 2026 Ministerial to renew the e-commerce moratorium – the first failure since 1998. In its place, a more fragmented architecture is emerging: targeted bilateral deals, sector-specific compacts, and the growing heft of middle powers. The UAE, India and Singapore appear repeatedly in this report as examples of states that are capturing redirected trade flows precisely because they have refused to pick a side. More than half of our survey respondents expect trade to become more regional and bloc-based over the next three years. Only 17% expect a more globalised, multilateral outcome.

Supply chains are being rebuilt for resilience – at a cost. The imperative to build resilient supply chains has moved from strategic aspiration to operational urgency. The “China + 1” model that accelerated during the COVID-19 pandemic has given way to “China + many”. The numbers reflect the scale of the shift: U.S. imports from Vietnam have risen 345% since 2014, while India and the UAE both ranked among the top five recipients of greenfield investment globally in 2024. Companies are no longer diversifying in response to individual disruptions; they are treating diversification as a standing investment, accepting higher costs as the price of continuity. The closure of the Strait of Hormuz has only sharpened that calculus. Critical minerals are the next pressure point: China controls 94% of sintered permanent magnet production, a chokehold on inputs essential to EVs, wind turbines and defence systems alike. The businesses building redundancy into these supply chains today are those best prepared for a disruption environment that shows no sign of easing.

The energy transition is now a geopolitical contest, not an environmental aspiration. Clean technologies like renewables, EVs, and advanced batteries, as well as critical minerals, are live battlegrounds among economies competing for industrial advantage. China already dominates the value chain, from rare earth refining to EV assembly.

The “China + 1” model has given way to “China + many”. The numbers reflect the scale of the shift: U.S. imports from Vietnam have risen 345% in ten years, while India and the UAE both ranked among the top five recipients of greenfield investment in 2024.

The United States is scaling back climate ambition; the Gulf and Europe are scaling up. Policy frameworks are diverging faster than they are converging, and carbon border measures are accelerating fragmentation. The companies that treat the energy transition as a strategic opportunity will outperform those treating it as a compliance burden.

Our survey tells a story about confidence. We asked more than 130 senior leaders and trade experts which scenario they saw as most likely for trade over the next one to three years. More than 80% expect the baseline: slow, uneven growth, with higher costs and ongoing supply chain adjustments. Nearly one in eight anticipates the worst case. Only 4% expect the best. That number is this report's most telling finding. Businesses are not planning for a recovery to pre-disruption norms. They are building for a world in which disruption is the norm.

Key findings

- Global trade will prove resilient but not buoyant. Growth is forecast at a slower pace in 2026 before recovering in 2027, with AI-related goods and services as the primary drivers.
- AI is at operational scale. The gap between early adopters and laggards is already widening in productivity, cost efficiency and market intelligence.
- The tariff environment is structurally uncertain. Businesses should plan for ongoing volatility rather than normalisation.
- The multilateral system is still fracturing. Middle powers, bilateral compacts and regional blocs are filling the vacuum and creating both disruption and opportunity.
- Supply chains are being rebuilt for resilience. The 'China + many' model is live across most sectors; diversification costs are real but falling as the model matures.
- The trade finance gap has stabilised at \$2.5 trillion – unchanged from 2024. It remains a structural constraint, particularly for SMEs and developing economy exporters.

- The next generation of financial infrastructure is taking shape around distributed ledger technology like stablecoins, tokenisation and wholesale CBDCs.
- Cross-border data flows are becoming a structural constraint on digital trade, as national data regulations diverge faster than they converge. Digital trade agreements are filling the vacuum, but a patchwork of rules has raised compliance costs and fragmented the digital trading environment that AI and services growth will depend on.
- The energy transition is a competitive arena. Critical minerals and grid infrastructure are the emerging chokepoints.
- South-South trade is the quiet winner. Flows between developing economies now account for 35% of global trade, outpacing North-North flows – a structural shift accelerating with regional trade agreements like RCEP and AfCFTA.

Scenarios

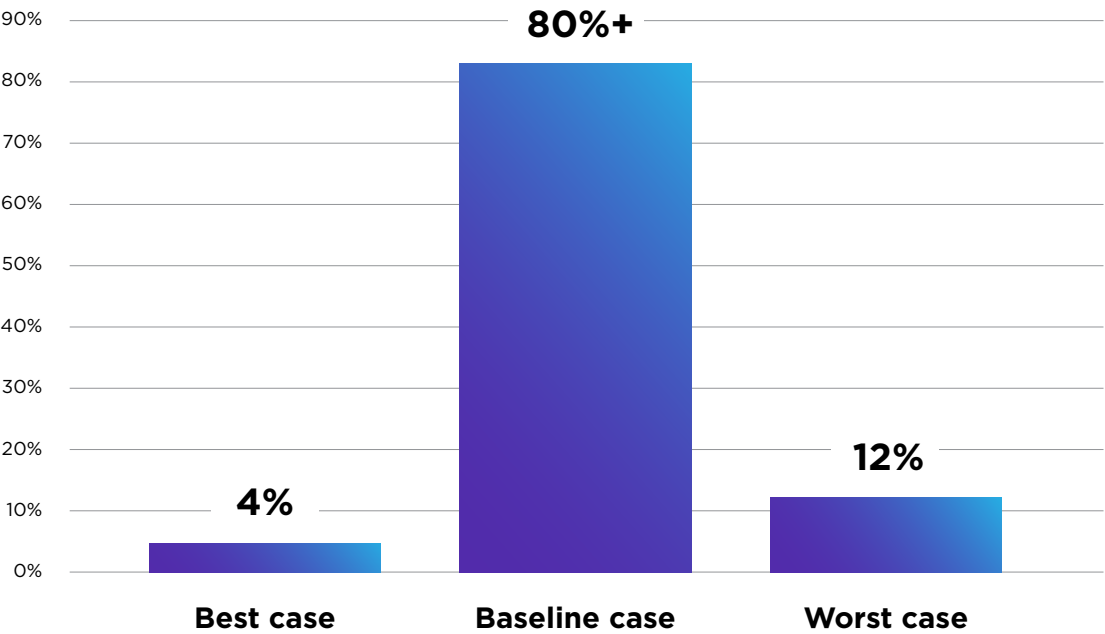
We asked more than 200 participants in our global roundtable series about potential scenarios for the future of trade. These fell into three categories: best case, baseline case and worst case. Below are the key components of each, based on insights from the roundtables, alongside additional research for this report:

	Best case	Baseline case	Worst case
TRADE OUTLOOK			
Global trade growth	Merchandise trade grows above WTO baseline; services trade accelerates; new trade corridors open as conflict and deals conclude; WTO regains relevance and dispute settlement mechanism is restored.	Trade grows modestly in 2026 and recovers in 2027; AI-related goods and services exports remain the primary drivers of trade growth.	Conflict worsens; inflation surges; tighter financial conditions cause merchandise trade to contract; WTO is increasingly marginalised.
Energy prices	Oil falls back towards \$60-80 per barrel as supply recovers; energy costs stabilise.	Brent crude remains high at \$90-110 per barrel, but businesses adapt through diversification.	Oil prices exceed \$120 per barrel for an extended period; energy-intensive sectors face cost pressures; agriculture and food security suffer amid high fertiliser costs.
Inflation and monetary policy	Inflation peaks quickly but then eases towards targets; central banks resume rate easing; real incomes recover and consumer demand increases.	Inflation remains at or near targets in 2026; monetary policy remains cautious; trade growth slows but does not contract.	Inflation becomes deeply embedded; central banks are forced to raise rates; reduced demand weighs on trade volumes.
GEOPOLITICS			
Iran conflict	Lasting ceasefire reached quickly; Strait of Hormuz fully reopens; shipping and energy flows normalise within a few months.	On-and-off tensions persist; Strait of Hormuz provides a fragile and unpredictable passage for energy trade with intermittent closures.	Conflict intensifies and spreads; Strait of Hormuz remains effectively closed for an extended period; energy infrastructure suffers further damage.
U.S. tariffs and trade policy	Bilateral momentum leads to settled tariff arrangements across major trade partners; policy uncertainty lessens; investment recovers.	Tariffs remain at 10-15%; selective deals are reached in strategic sectors; businesses adapt successfully to elevated compliance costs.	U.S. Section 301 investigations trigger additional tariff rounds; trading partners retaliate; global supply chains face renewed fragmentation.
Geopolitical alliances and trade blocs	Middle powers deepen cooperation; CPTPP expands; EU deals accelerate; AfCFTA gains meaningful traction.	New alliances form, albeit slowly; South-South trade grows; bloc-based trade expands; multilateral frameworks remain weak.	Geopolitical rivalries deepen divisions; countries are forced to choose sides; trade becomes more politicised and costly.

	Best case	Baseline case	Worst case
Supply chain configurations	China + many strategies mature; alternative hubs (e.g. India, Vietnam, Mexico) efficiently absorb redirected investment.	Supply chains continue to diversify but slowly; costs remain elevated; resilience improves incrementally.	Duplicated supply chains across rival blocs increase costs significantly; bottlenecks cause production disruptions.
Critical minerals	Investment in alternative processing capacity increases output; export controls ease; recycling begins to reduce supply pressures.	China retains dominance in supply and refining; export controls remain an active risk; alternative sourcing develops slowly and at higher costs.	China tightens export controls further; alternative processing capacity fails to scale; clean tech and AI supply chains face disruptions.
TECHNOLOGY			
AI and technology adoption	Regulatory clarity and cohesion, lower infrastructure costs, and strong investment enable AI to rapidly scale across global trade operations.	AI adoption advances but unevenly; large firms and developed countries lead; smaller businesses and lower-income countries lag; the divide widens.	AI investment outpaces returns; a market correction reduces capital available for infrastructure buildout; adoption stalls across sectors.
Financial infrastructure	Stablecoins, digital assets, CBDCs achieve regulatory clarity across major jurisdictions; cross-border settlement becomes faster, cheaper and more accessible.	Next-gen financial infrastructure scales in select corridors; regulatory divergence limits interoperability.	Regulatory inconsistency prevents scaling; stablecoin instability undermines confidence; traditional banking remains the only viable option for most.
Digital trade and data flows	Bilateral digital trade agreements build towards common standards; paperless trade adoption accelerates; data flow regulations ease and become more harmonised.	Bilateral and regional frameworks multiply but regulatory divergence hinders interoperability; compliance costs remain high; the WTO grows too weak to lead digital rulemaking.	Data localisation requirements grow; cross-border digital services face growing barriers.
SUSTAINABILITY			
Energy transition and sustainability	High fossil fuel prices accelerate the clean energy shift; Western financing gaps close; alternative critical mineral supply chains develop; grid investment keeps pace; clean tech trade expands across blocs.	The transition continues but divergent capital strategies fragment clean tech supply chains; critical mineral export controls remain an active risk; grid bottlenecks slow deployment; carbon border measures add trade friction.	Policy divergence and capital retreat outside China choke investment; critical mineral export controls tighten; alternative supply chains fail to scale; clean tech blocs split permanently.

Figure 2

Which scenario do you see as most likely for global trade over the next 1-3 years?



Source: DMCC Future of Trade Survey, 2026

We asked survey respondents which of the three scenarios they saw as most likely for global trade over the next one to three years: baseline, best or worst case. More than 80% saw the baseline case as most likely, wherein geopolitical uncertainty continues without major escalation; trade growth is slow and uneven, with higher costs and ongoing supply chain adjustments; and technology delivers incremental efficiency gains.

Almost 12% anticipate the worst-case scenario, in which escalating conflict, tariffs, sanctions and financial fragmentation disrupt trade; supply chains regionalise further, costs rise and trade volumes stagnate or fall; and technology adoption slows amid uncertainty and constrained investment. Only 4% expect the best-case scenario, in which geopolitical tensions and policy uncertainty ease; technology improves efficiency and creates new trade opportunities; and trade growth is moderate but broad-based.

The Future of Trade 2026 Survey: Insights

Businesses are building for a different world

It seems clear that businesses are not planning for a recovery around previous norms but are instead building their strategies around resilience and adaptability. On the trade outlook, businesses are cautiously optimistic: 71% expect modest trade growth over the next one to three years, while fewer than 5% anticipate strong growth. Nearly three-quarters expect digitally delivered and services trade to outperform merchandise trade, reflecting where the momentum is. Fewer than 9% expect a decline in trade volumes, suggesting businesses are not yet bracing for the worst case, even as the risks are already emerging.

On the trade outlook, businesses are cautiously optimistic: 71% expect modest trade growth over the next one to three years, while fewer than 5% anticipate strong growth.

Policy uncertainty is the constraint businesses fear most

Tariffs and protectionist measures are identified as the single biggest constraint on trade growth by half of respondents, well ahead of weak demand and macroeconomic conditions (15%) and cost pressures (15%). The fact that policy measures rank so far ahead of other constraints tells its own story: businesses are less worried about economic headwinds than about decisions that are more unpredictable and harder to hedge against. At the structural level, almost three-quarters of businesses expect trade to become regional and bloc-based or bilateral over the next one to three years, versus less than 17% who anticipate a return to globalisation and multilateralism. This is not a view about temporary disruption. It is a verdict on the architecture of trade itself – that the system is being rewired towards bilateral deals, regional blocs and strategic partnerships that bypass multilateral institutions.

Geopolitical risk has moved from the margins to the centre of business strategy

There is near unanimity on this, with over 98% of respondents citing geopolitical tensions as a major or moderate factor reshaping trade flows over the next one to three years. The expected consequences are broad: 83% anticipate new alliances or trade corridors forming, and 75% expect supply chain restructuring towards nearshoring and friendshoring. However, 71% expect increased costs and reduced efficiency, and 65% anticipate greater complexity and compliance burdens – responses that sit between baseline and worst-case territory. Organisations are responding deliberately: accelerating digitalisation to reduce exposure to disruption (32%), strengthening compliance and sanctions screening (32%) and reducing reliance on single-country sourcing (30%). These are not reactive adjustments; they reflect a strategic repositioning of operating models. Still, one-quarter of businesses report no material change to their operations – an exposure that could prove costly if conditions deteriorate.

On AI, the question has shifted from transformation to scale

Businesses are focused less on whether AI will transform trade and more on the gap between expectation and reality. Nearly 80% expect AI to increase trade volumes over the next one to three years, though the majority anticipate moderate rather than transformational impact. While AI is delivering real value in supply chain forecasting, customer engagement and customs and compliance, only 14% describe their organisation's use of AI as transformational or integrated, and a further 9% report no adoption at all. The barriers are structural: data quality and interoperability (46%), regulatory uncertainty and cross-border data rules (44%), integration with legacy systems (39%) and cybersecurity concerns (39%). These are obstacles that could ease with regulatory harmony in the best case – or worsen significantly with further regulatory divergence.

The technology story is broader than AI alone

Sixty percent of businesses identify payments, settlement and tokenisation as the most impactful technology for trade, followed by automation and robotics (57%) and digital commerce platforms (49%). New financial infrastructure is emerging in parallel with AI, not behind it. Over 80% of businesses identify data localisation rules as a major or moderate constraint on cross-border trade – a friction point that cuts across both AI adoption and wider digital commerce. The most significant downside signal: over two-thirds of businesses expect a market correction in AI and tech stocks within three years. Should that materialise, it would not only slow adoption but meaningfully narrow the gap between the baseline and worst-case scenarios.



The energy transition is no longer a compliance agenda

On sustainability, businesses are focused far less on carbon pricing than on the geopolitical and industrial forces driving the energy transition. Clean energy investment and manufacturing capacity are seen as the sustainability-related factor with the greatest impact on trade (30%), followed by critical minerals concentration (21%) and divergent industrial policies (18%). Together, these account for nearly 70% of responses – pointing to an underlying contest over who controls the supply chains, resources and manufacturing capacity the transition depends on. Carbon pricing and border measures rank last at 9%, with 42% of businesses not having modelled the impact of carbon pricing at all. The strategic pressure businesses feel is not regulatory. It is about where critical minerals are controlled, where clean technology is manufactured, and which governments are using export controls and industrial policy to shape the outcome.

The operating environment is complex but navigable for those who adapt

While the environment for trade is becoming more demanding, it will be navigable for businesses that accept and adapt to this rewired world. The fact that only 4% of senior executives and trade experts foresee the best case, and nearly one in eight anticipate the worst, reflects a broad consensus that old norms will not simply reassert themselves. The triggers that could push the baseline towards something worse – a prolonged closure of the Strait of Hormuz, an escalation in protectionism, a correction in AI investment – remain active risks, not remote ones. The businesses best placed to compete will be those that treat disruption not as an aberration to be weathered, but as the permanent condition of doing business in the years ahead.



Clean energy investment and manufacturing capacity are seen as the sustainability-related factor with the greatest impact on trade



CHAPTER 1

A WORLD TRADE DISORDER

The rules-based trading system that governed global commerce for decades is no longer the primary frame of reference for businesses making decisions about where to source, invest and sell. In its place: a world of bilateral deals, competing blocs, weaponised tariffs and geopolitical flashpoints that can redraw supply chains overnight.

Trump's return to the White House has unleashed a new wave of tariffs and protectionist measures that have forced countries to renegotiate trade relationships at speed. The 2026 Iran conflict has closed the Strait of Hormuz, one of the most critical chokepoints in global commerce, sending energy prices surging and supply chains scrambling. The WTO's authority has weakened further, giving way to a new era of bilateral deals and bloc-based trade. And the U.S.-China rivalry has deepened across AI, semiconductors and critical minerals, reshaping the architecture of global commerce in ways that will outlast any single administration. The trends we identified in 2024 have not just continued – they have accelerated, hardened and, in several cases, arrived earlier and with greater force than anticipated.

This chapter examines how that world took shape and what it demands of the businesses and governments navigating it.

SECTION 1

TRUMP 2.0 AND TARIFFS WITHOUT END

President Trump's second term has been marked by a significant escalation in the use of tariffs, with a resulting rise in protectionism across the globe.

According to the WTO, nearly a fifth of world merchandise imports (19.7%) are now affected by tariffs and similar measures, up sharply from 12.6% just a year earlier.¹

In 2025, the U.S. introduced a 10% baseline tariff on most imports, alongside higher reciprocal levies on selected partners, as part of the America First strategy aimed at reducing trade deficits and protecting domestic industries. Several major trading partners, including China, responded with retaliatory duties and targeted export controls, while others pursued negotiations to limit disruption.

The Supreme Court has ruled but the tariff environment is no clearer

In February 2026, the Supreme Court ruled that tariffs imposed under the International Emergency Economic Powers Act (IEEPA) were unlawful. Trump then invoked Section 122 of the Trade Act, raising the rate from 10% to 15% for up to 150 days.² These rapidly evolving policies create a highly uncertain business environment. While the direction of tariff policy remains uncertain, the economic consequences are clear: higher U.S. prices, lower demand for imports and weaker investment. The rise in protectionism will be particularly harmful for export-dependent economies, such as Southeast Asian manufacturing hubs, where external demand remains a key driver of economic growth.

¹ WTO, 2025c
² Shalal and Ax, 2026



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The Supreme Court decision has provided temporary relief but does little to resolve longer-term policy uncertainty. By ruling the IEEPA tariffs unlawful, the Court triggered potential refund claims for duties already collected estimated at around \$170 billion and launched what promises to be a complex and time-consuming process.³ The Cato Institute estimates that payment delays could cost U.S. taxpayers roughly \$700 million per month in interest payments.⁴

For trading partners, any relief stemming from the decision has proved short-lived. Tariffs of 10-15% were swiftly reintroduced under Section 122 of the Act, followed by the launch of two investigations under Section 301, which grants the Office of the U.S. Trade Representative (USTR) the power to probe certain foreign trade practices and take punitive action in response. The speed of these moves demonstrates the administration's ability to pivot quickly to alternative legal instruments. This limits exporters' ability to plan around policy changes and take protective steps such as front-loading shipments, reinforcing a stop-start trading environment. Over the longer term, the U.S. administration is likely to continue using a mix of legal tools to sustain barriers. As Treasury Secretary Scott Bessent noted: "We will get back to the same tariff level for the countries. It will just be in a less direct and slightly more convoluted manner".⁵

Section 301 investigations extend the uncertainty further still

Tariffs are a signal of the U.S.'s determination to target partners, and raise concerns about the durability of previously agreed trade arrangements. There are two probes under Section 301. The first accuses 16 countries, including major U.S. trading partners such as the EU, China and Mexico, of having excess manufacturing capacity. The second levels allegations of forced labour against 60 countries. Together, they cover around 90-95% of all U.S. imports.⁶ These are not temporary measures. In 2018, the United States imposed tariffs of up to 100% on some Chinese imports under Section 301, and many of these rates remain in place. The breadth of these investigations is unsettling previously negotiated trade deals. Singapore disputes the claim that it runs a large trade surplus with the United States, while Malaysia has declared its reciprocal trade arrangements void.⁷ Businesses and governments alike will need to grapple with heightened uncertainty in a more fragmented and less predictable global trading system, with shifting rules and increased compliance costs and risks.



Countries are asking questions: if I have a trade deal with the U.S., I'm paying 10%. If I don't have a trade deal, I'm still paying 10%. And if I have a trade deal, why am I subjected to new investigations? There is no peace. I think this is the major uncertainty right now."



Roundtable participant
Mumbai, April 2026

Tariffs have become a foreign policy instrument as much as a trade one

The trade outlook will remain volatile and uncertain, particularly as the United States increasingly uses tariffs to achieve foreign policy objectives. The use of tariffs as political bargaining chips suggests ongoing instability in the immediate term. In 2026, Trump threatened to impose duties on European

partners unless Denmark ceded control of Greenland – a position he later softened.⁸ He also cut India's tariff rate from 50% to 18% after India pledged to lower trade barriers and redirect oil purchases from Russia.⁹ The economic consequences of this approach are clear – higher prices, weaker import demand and suppressed investment. But the trajectory of policy itself is not. What businesses can plan around is not the tariff rate, but the certainty that the rate will keep moving.

³ Tillman et al., 2026
⁴ Lincicome et al., 2026
⁵ Slattery et al., 2026

⁶ Wolff, 2026
⁷ Reuters, 2026; Goh, 2026

⁸ Politi et al., 2026
⁹ Al Jazeera, 2026

SECTION 2

MORE FLASHPOINTS

The past year has produced not one defining shock but several, simultaneously: a conflict with Iran that has closed a critical shipping lane, a technology rivalry that is reshaping the global semiconductor and AI landscape, and energy supply chains being redrawn in real time across three continents. Together, they have done more than disrupt trade flows. They have changed the calculus of where to source, where to invest and who to trade with.

The response from businesses reflects this shift. In our Future of Trade survey (Figure 3), the

most frequently cited actions taken in response to geopolitical risk were accelerating digitalisation to reduce exposure to disruption, strengthening compliance and sanctions screening, and reducing reliance on single-country sourcing. Roundtable participants went further, describing a move from crisis management to embedded scenario planning, with geopolitical analysis now a standing input into supply chain, treasury and investment decisions rather than an occasional boardroom agenda item. Physical infrastructure, from ports and pipelines to data centres and energy grids, has emerged as a particular vulnerability.

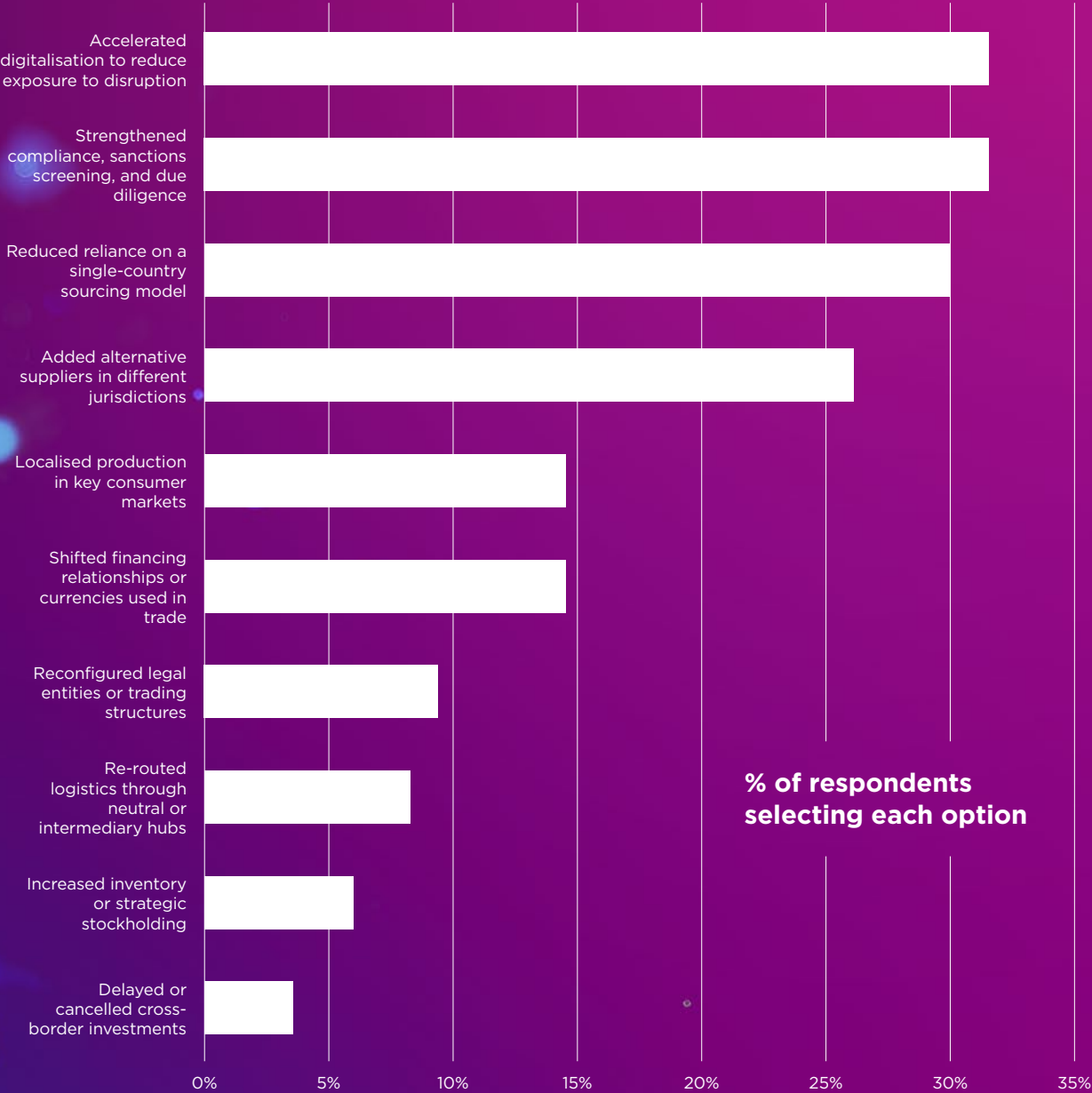
“

Up until February, we said, oh well, the tariff thing has settled down. I think we know where we are. And then of course, February came along and the invasion of Iran, and that really just blew everybody’s calculations right off the table.”

 **Roundtable participant**
Jakarta, March 2026

Figure 3

What concrete actions has your organisation taken, or is planning to take, in response to geopolitical risk? (Select all that apply)



Source: DMCC Future of Trade Survey, 2026

1.2.1

SILICON CURTAIN

U.S.-China tech rivalry enters more dangerous phase

The rivalry between the United States and China over AI, semiconductors and critical minerals has entered a new and more dangerous phase. What began as a competition for technological leadership has evolved into something more structurally significant: a contest over who controls the infrastructure, inputs and standards that will govern the global economy for decades. The implications for trade are no longer theoretical.

The AI race is closer than Washington would like to admit, with the performance gap between U.S.-China AI models now effectively closed.¹⁰ The United States held a commanding lead in AI model development as recently as 2023. That lead narrowed sharply in early 2025, when China’s DeepSeek released a low-cost, open-source reasoning model that matched the capabilities of its U.S. rivals –

and did so, according to its developers, at a fraction of the training cost of OpenAI’s equivalent.¹¹ In April 2026, DeepSeek’s V4 model went further still, running on Huawei chips with dramatically reduced compute and memory costs and enhanced agentic capabilities.¹²

The significance is not just competitive. A Chinese AI model running on Chinese hardware, at lower cost than U.S. alternatives, is a different kind of challenge than a performance gap that can be closed with export controls.¹³ China has now become a global leader in AI innovation, accounting for over 74% of global AI patents.¹⁴ The United States, however, stands at the forefront of AI research and model development, releasing 59 notable AI models in 2025, followed by China with 35 and South Korea with eight.¹⁵ The trajectory of the AI race is now increasingly uncertain, though Nvidia Chief Executive, Jensen Huang, warns: “China is going to win the AI race.”¹⁶

The AI race is closer than Washington would like to admit, with the performance gap between U.S.-China AI models now effectively closed.

¹⁰ HAI, 2026
¹¹ HAI, 2026; FRANCE 24, 2026
¹² FRANCE 24, 2026
¹³ Associated Press, 2026

¹⁴ HAI, 2026
¹⁵ HAI, 2026
¹⁶ Murgia and Criddle, 2025

China has now become a global leader in AI innovation, accounting for over 74% of global AI patents. The United States, however, stands at the forefront of AI research and model development, releasing 59 notable AI models in 2025.

Rivalry turns adversarial beyond competition

In April 2026, the White House accused China of industrial-scale theft of U.S. AI intellectual property.¹⁷ Anthropic had already accused three leading Chinese AI labs of distillation attacks on its models in February, and OpenAI claimed DeepSeek had used its models to train its own systems.¹⁸ The next phase of competition over agentic AI and autonomous systems will be fought on the same terms. As AI becomes more deeply embedded in the systems that govern global trade, the U.S.-China rivalry has shifted from a battle for technological supremacy into a contest over structural influence over the global economy (see Section 3.1.1).

¹⁷ Sevastopulo and Criddle, 2026
¹⁸ Olcott and Criddle, 2026
¹⁹ Freifeld and Shepardson, 2024; Chia, 2024

Semiconductors have become the primary chokepoint

The United States has sought to limit China’s access to advanced chips and manufacturing equipment, adding 140 companies to its export blacklist. Yet commercial pressures have complicated that strategy: Nvidia resumed sales of its H200 AI chip to China in January 2026 under a 25% surcharge arrangement.¹⁹ China, meanwhile, has responded by tightening its grip on the raw materials the semiconductor industry depends upon – controlling more than 90% of the world’s processed rare earths and rare earth magnets (see Section 4.2.1), and introducing sweeping export controls and licensing requirements across rare earths, processing equipment and battery technologies.^{20,21} While Trump’s actions have worsened relations, the roots of this rivalry lie in a longer-term bipartisan shift in the United States and a parallel trajectory in China, which suggest the struggle will outlast the current U.S. administration.

²⁰ Kim et al., 2025
²¹ Kim et al., 2025

Advanced chip concentration

The world's most advanced chip manufacturing is concentrated in a single geography: Taiwan's TSMC produces nearly 90% of the most advanced chips globally.²² This concentration is a structural vulnerability for the global economy. Any disruption to semiconductor production in the region – whether from conflict, natural disaster or energy disruption – would ripple through virtually every industry dependent on advanced chips, from automotive and defence to consumer electronics and AI infrastructure.



We talk about the bipolar world order, and it's exactly the same when it comes to AI, as a story between the U.S. and China. Whether we'll be able to access the automation capability, for example, is going to be a question mark."

 **Roundtable participant**
Hanoi, March 2026



Chinese companies and the Chinese market cannot access Nvidia's high-end chips – H100 or H200. So in order to conduct business using high-end chips, Chinese companies are trying to set up cloud computing services in Malaysia or Singapore. Companies are trying to set up Singapore or Malaysia headquarters without Chinese control... Some of the founders are actually changing their nationality, trying to find a third country, not Chinese, not U.S., like Singapore."

 **Roundtable participant**
Shanghai, March 2026

²² Zhang, 2025

1.2.2

HORMUZ: THE WORLD'S ENERGY CHOKEPOINT

The closure of the Strait of Hormuz is the single most disruptive event in global energy markets in a generation. Before the 2026 Iran conflict, around 25% of global seaborne oil and 19% of global LNG trade transited through the strait daily.²³ Iran's closure on 4 March brought that traffic to a near-standstill. By mid-April, tanker transits were running around 90% below pre-war levels.²⁴ Iran has since begun charging vessels up to \$2 million per transit to pass through – a chokehold that, if sustained, risks inspiring similar toll regimes elsewhere.²⁵ Indonesia's Finance Minister has already floated the idea of levying charges on vessels transiting the Strait of Malacca, which carries around 30% of global trade.²⁶

The energy shock has been immediate and severe. Following Iranian strikes on key infrastructure across the Gulf in March, Brent crude surged above \$120 per barrel – double the \$60 level at which it began the year.²⁷ Attacks on production and export facilities in Qatar, Saudi Arabia, the UAE and Kuwait further restricted supply, while Iranian missile strikes on Qatar's Ras Laffan – the world's largest LNG refinery – reduced Qatar's LNG export capacity by 17%.²⁸ The IEA's 32 member countries have called for the release of 400 million barrels from emergency reserves, but ongoing instability has limited the effect. Asia, which receives 80% of the oil that transits the strait – primarily China, India and Japan – is bearing the sharpest exposure.²⁹

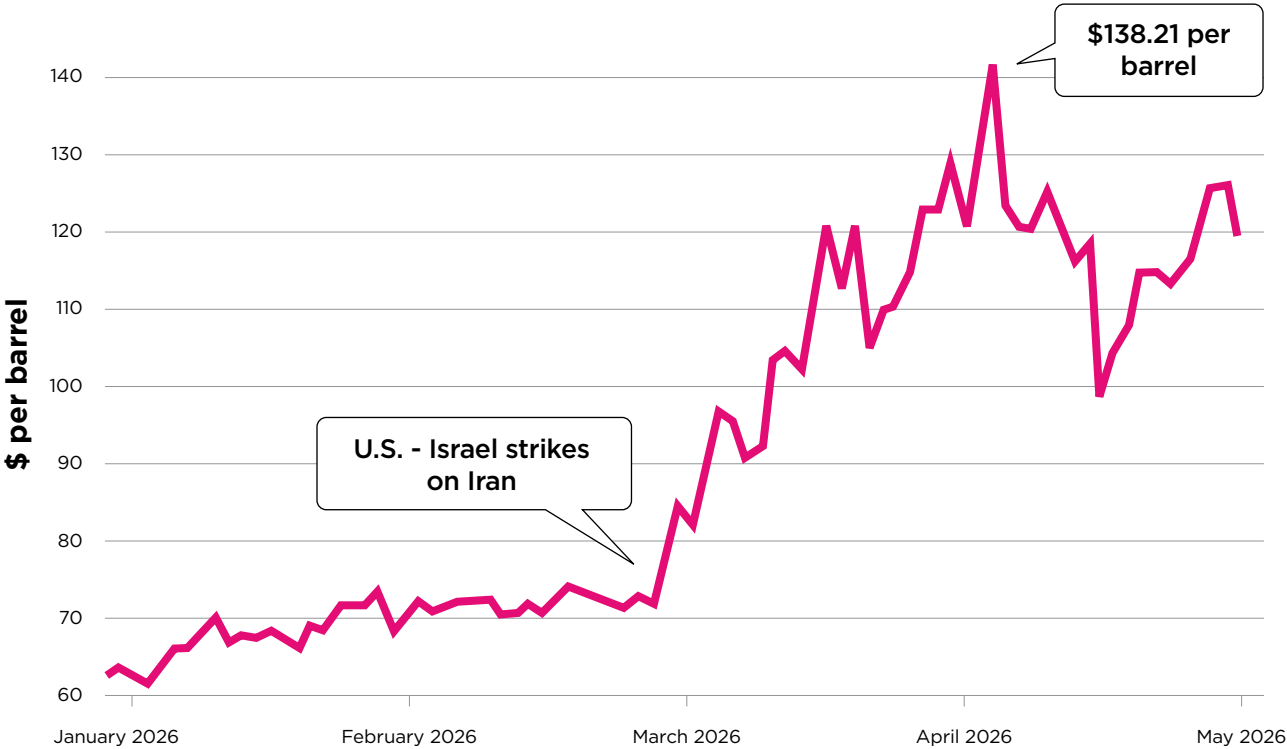
Following Iranian strikes on key infrastructure across the Gulf in March, Brent crude surged above \$120 per barrel – double the \$60 level at which it began the year.

²³ IEA, 2026a
²⁴ Kimball, 2026
²⁵ Paris, 2026; Ambrose and Knowles, 2026
²⁶ Ang, 2026

²⁷ Seba, 2026
²⁸ Gnana, 2026; IEA, 2026b
²⁹ IEA 2026a

Figure 4

Brent crude oil prices in 2026



Source: EIA, 2026



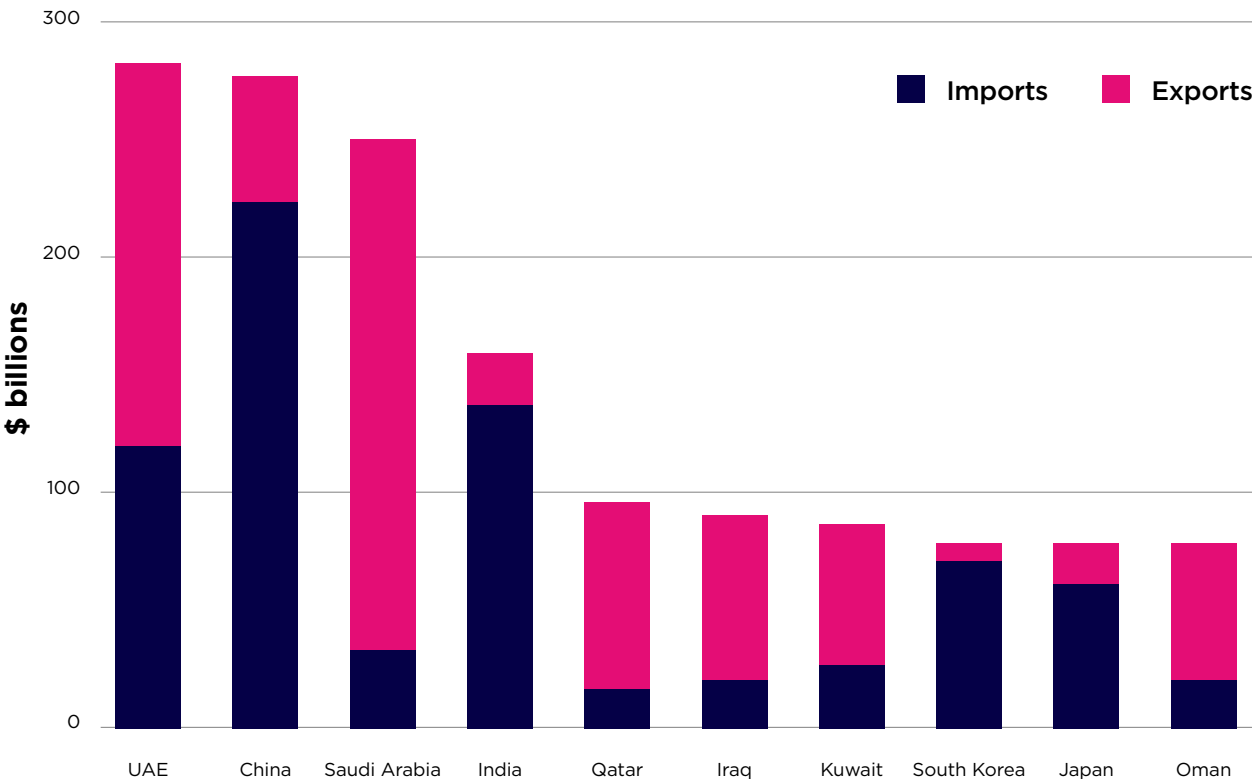
The Hormuz blockade is the ultra-pressure test for China because it's really exposing China's critical dependence on the crude oil through this strait as well as the Malacca Strait."



Roundtable participant
Shanghai, March 2026

Figure 5

Trade value passing through the Strait of Hormuz



Source: Funaiole et al., 2026

The disruption extends into food security and AI

The conflict’s impact extends beyond energy markets to fertilisers and food security. Not only is fertiliser production energy-intensive, with natural gas accounting for up to 70% of production costs, the strait carries around a third of seaborne fertiliser trade, including 44% of sulphur and 43% of urea.³⁰ Urea export prices in the Middle East have risen

by about 40%, and fertiliser prices in the United States are up as much as 32%.³¹ The Food and Agriculture Organization (FAO) projects that global fertiliser prices could be 15-20% higher in the first half of 2026 if the conflict persists.³² A sustained disruption in fertiliser supplies would threaten agriculture production and food security globally. The most vulnerable countries, many of which are still recovering from past shocks, will bear the brunt.

³⁰ Angel and Veyet, 2026; Savage et al., 2026; Commins, 2026
³¹ Angel and Veyet, 2026
³² FAO, 2026

The conflict’s impact extends beyond energy markets. The Strait of Hormuz carries around a third of seaborne fertiliser trade, with projections that fertiliser prices could be 15-20% higher in the first half of 2026.

The connection to AI infrastructure is less visible but equally significant. Taiwan sources around 30% of its LNG through the strait, with direct consequences for companies such as TSMC, which consumes nearly 10% of Taiwan’s electricity.³³ A sustained energy squeeze on TSMC’s operations could ripple through AI hardware supply chains and cause AI component prices to rise. The Gulf

also produces some 8% of global aluminium, which is used extensively in AI infrastructure, including data centres.³⁴ About 5 million tonnes of the metal are shipped from Gulf smelters through the strait every year, adding additional upstream exposure for the AI sector.³⁵ The conflict has exposed just how deeply the physical infrastructure of the digital economy depends on the same chokepoints as the energy economy.



If this conflict were to continue, it would pose a serious issue from India’s perspective. Urea is the primary fertiliser used by Indian farmers, and any disruption could have a substantial impact on food inflation.”

Roundtable participant
Mumbai, April 2026

³³ Mugo, 2026
³⁴ IEA, n.d.

³⁵ IEA, n.d.



We've seen what one ship stuck in a canal does to trade. We've seen the impacts of a global pandemic on trade. We've got Russia-Ukraine and that's a problem for the Red Sea and the Eastern Mediterranean. We had the Houthis and that's also a problem for the Red Sea. Now we see that the Strait of Hormuz is a problem ... That freedom of navigation piece, I think, is an important one."

 **Roundtable participant**
London, March 2026

The macroeconomic consequences are already feeding through

The IMF's reference forecast, which assumes a short-lived conflict and 19% energy price increase in 2026, still anticipates a 3.1% fall in global growth and a 4.4% increase in headline inflation.³⁶ Its adverse scenario, which factors in further disruptions, puts growth at 2.5% and inflation at 5.4%.³⁷ The European Central Bank (ECB) has flagged the war as making the outlook "significantly more uncertain", raising its 2026 inflation forecast to 2.6% and cutting its growth projection to 0.9%.³⁸ Higher energy and food prices eroding real incomes, combined

with the prospect of interest rate rises, represent a compounding headwind for global trade that will not resolve quickly.

At the time of writing a temporary ceasefire is in force but the situation remains on a knife edge. Iran declared the strait open on 17 April, then reversed its position within 24 hours in response to the United States's refusal to lift its naval blockade. The longer the closure continues, the greater the risk that disruption moves from acute to structural – and permanently altering shipping routes, energy relationships and the cost base of global trade. The Iran conflict and the closure of the Strait of Hormuz have served as a clear warning about the fragility of the systems that global trade depends on.

³⁶ IMF, 2026b
³⁷ IMF, 2026b

³⁸ ECB, 2026

1.2.3

CONFLICTS AND NEW ENERGY FLOWS

Wars redrawing the global energy trade map

The war in Ukraine delivered seismic shocks to commodity and energy prices, with particularly severe consequences for economies dependent on energy imports. In November 2025, a 28-point U.S.-Russia peace plan was drawn up. Talks have since stalled, however, and fighting continues with no ceasefire in sight. The most significant structural shift in global energy trade has stemmed from the EU, which has legislated a phased ban on all Russian gas imports, with a full prohibition in place by 2027, and oil import bans in the works as well.³⁹

New LNG infrastructure is being built, and supply corridors from the United States, Norway and the Gulf are opening to fill the gap.

The Iran conflict has now added a second, simultaneous shock to an energy system that had not yet absorbed the first. As these wars continue, energy supply chains are likely to move further away from integrated global markets towards a more fragmented, politically-driven trading system. IEA Executive Director Fatih Birol predicted in April that the Iran conflict will have lasting consequences for the fossil fuel industry and is likely to spur the adoption of renewables, nuclear power and electrification.⁴⁰

The Iran conflict has now added a second, simultaneous shock to an energy system that had not yet absorbed the first. As these wars continue, energy supply chains are likely to move further away from integrated global markets towards a more fragmented, politically-driven trading system.

³⁹ Hancock, 2026
⁴⁰ Harvey, 2026

Venezuela: The oil behind the intervention

The capture of Venezuelan President Nicolás Maduro by U.S. forces in January 2026 has reshaped hemispheric energy flows and revealed the strategic logic behind Trump's foreign policy. While framed as a law enforcement and a democracy action, the speed with which energy assets were secured made the broader intent clear. Within weeks, selective sanctions rollbacks enabled trading houses Vitol and Trafigura to secure the first export licences, Chevron ramped up shipments to U.S. refineries⁴¹, and Venezuelan exports

roughly doubled in February to 788,000 barrels, roughly twice as high as the previous month.⁴²

Venezuela's reserves make it a significant strategic asset albeit not a straightforward one to develop. The country holds the largest proven oil reserves in the world at 303 billion barrels – more than five times those of the United States – but decades of underinvestment have left infrastructure too degraded to deliver rapid supply gains.⁴³ The near-term impact is therefore less about volume than

direction: oil that previously flowed to China is being redirected into U.S.-aligned supply chains, representing a significant shift in the geography of global energy trade.

Taken alongside the U.S. role in the Iran conflict and rolling sanctions waivers on Russian oil, a pattern emerges. Where energy security and strategic supply intersect with great power competition, particularly with China, the current U.S. administration has shown a willingness to act decisively, even where that

sits in tension with its broader instinct to reduce overseas commitments. Whether this represents a coherent energy doctrine or a series of pragmatic responses to specific pressures, the trade consequences are the same: energy supply chains are becoming more politically directed, more fragmented and more contested. The integrated global energy market that underpinned decades of trade growth is giving way to something more regional, more bilateral and more shaped by strategic alignment than by price.

Where energy security and strategic supply intersect with great power competition, particularly with China, the current U.S. administration has shown a willingness to act decisively, even where that sits in tension with its broader instinct to reduce overseas commitments.

“

Covid, Ukraine, the tariff uncertainty from last year caused near-term disruption, and it certainly does cause damage and put investments on hold, etc. But generally trade recovers. If I had to make a call, I would say I'm cautiously optimistic that trade remains resilient over the next two to three years.”

 **Roundtable participant**
Hong Kong, March 2026

⁴¹ Contardo et al., 2026; Hussain and Jimenez, 2026
⁴² Kassai, 2026

⁴³ Hussein, 2026

SECTION 3

SUPPLY CHAINS: REBUILDING FOR DISRUPTION

The era of efficiency-first supply chains is over. For decades, the logic was straightforward: source where it is cheapest, manufacture where labour costs are lowest, and move goods along the most direct route to market. That logic has not disappeared, but it has been subordinated to a new imperative – resilience. The question businesses are now asking is not where they can produce most efficiently, but where they can produce most safely, and what happens if that source fails. The answer is reshaping global trade flows in ways that will outlast any individual tariff regime or geopolitical flashpoint.

The shift is visible in the data. In our Future of Trade survey, 23% of respondents said their supply chains today are more regionalised and resilience-driven than five years ago – almost double the 12% who said they are more globalised and efficiency-driven. Separately, 45% of respondents in a global poll by the Association of Chartered Certified Accountants (ACCA) said they have engaged in onshoring, nearshoring or friendshoring in recent years. These are not marginal adjustments.⁴⁴ They represent a fundamental reorientation of where production happens and why.

“

We are moving towards not only regionalisation, but almost a friendlisation of supply chains – not necessarily the most efficient, but actually the best way to allocate capital.”

 **Roundtable participant**
Jakarta, March 2026

The pace and pressure behind this shift has intensified sharply

We flagged the move towards regionalisation and resilience-driven diversification in both our 2022 and 2024 reports. What has changed is not the direction but the urgency. Tariff volatility under Trump’s second term has accelerated decisions that companies had been deferring. The closure of the Strait of Hormuz has added a new layer of urgency around energy and commodity supply routes. And the growing concentration of critical mineral supply chains by China has forced governments and companies to confront dependencies they had previously chosen to manage rather than resolve. Roundtable participants were consistent on this point: the move from efficiency to resilience is no longer a strategic aspiration but an operational necessity, even if the costs are real and the transition takes time.

Critical minerals and rare earths are the most urgent pressure point

The shift from just-in-time to just-in-case is taking hold across most industries – from electronics and EVs to pharmaceuticals, agrifood and apparel – but the exposure is most acute in the inputs that underpin the clean energy transition and advanced technology manufacturing.

China produces 94% of the world’s sintered permanent magnets, used in cars, wind turbines, industrial motors, data centres and defence systems – up from 50% two decades ago.⁴⁵ The concentration of processing capacity in a single country, combined with Beijing’s willingness to use export controls as a competitive tool, has transformed what was an accepted supply chain risk into an active strategic vulnerability. Governments are responding: the United States hosted more than 50 countries at the inaugural Critical Minerals Ministerial in early 2026, signing bilateral agreements to secure alternative supply.⁴⁶

The move from efficiency to resilience is no longer a strategic aspiration but an operational necessity, even if the costs are real and the transition takes time

⁴⁴ ACCA, 2025

⁴⁵ Kim et al., 2025
⁴⁶ Yiu, 2026

The EU has launched the Critical Raw Materials Act to bolster security across key supply chains.⁴⁷ The race to build alternative processing capacity is underway, but with average lead times of around 16 years from discovery to production, supply diversification remains a long-term solution to an immediate problem.

From “China + 1” to “China + many”

Global supply chain strategies have evolved from “China + 1” to “China + many” – and the data shows why. Multinationals began adopting China + 1 strategies in the 2010s,

accelerating during the first U.S.-China trade war as elevated tariffs exposed the dangers of over-dependence on a single manufacturing base. That model has now given way to something more ambitious and more complex. As shown in Figure 6, U.S. imports from China contracted 5% overall between 2014 and 2024. Meanwhile, imports from alternative partners surged: up 72% from Mexico, 94% from India, and 345% from Vietnam, the latter rising from \$32 billion to \$142 billion over the decade. With U.S. tariffs on Chinese goods exceeding 100% in certain sectors, the shift towards diversified, multi-nodal supply chains is likely to accelerate further.

Global supply chain strategies have evolved from “China + 1” to “China + many”. With U.S. tariffs on Chinese goods exceeding 100% in certain sectors, the shift towards diversified, multi-nodal supply chains is likely to accelerate further.

⁴⁷ European Commission, n.d.



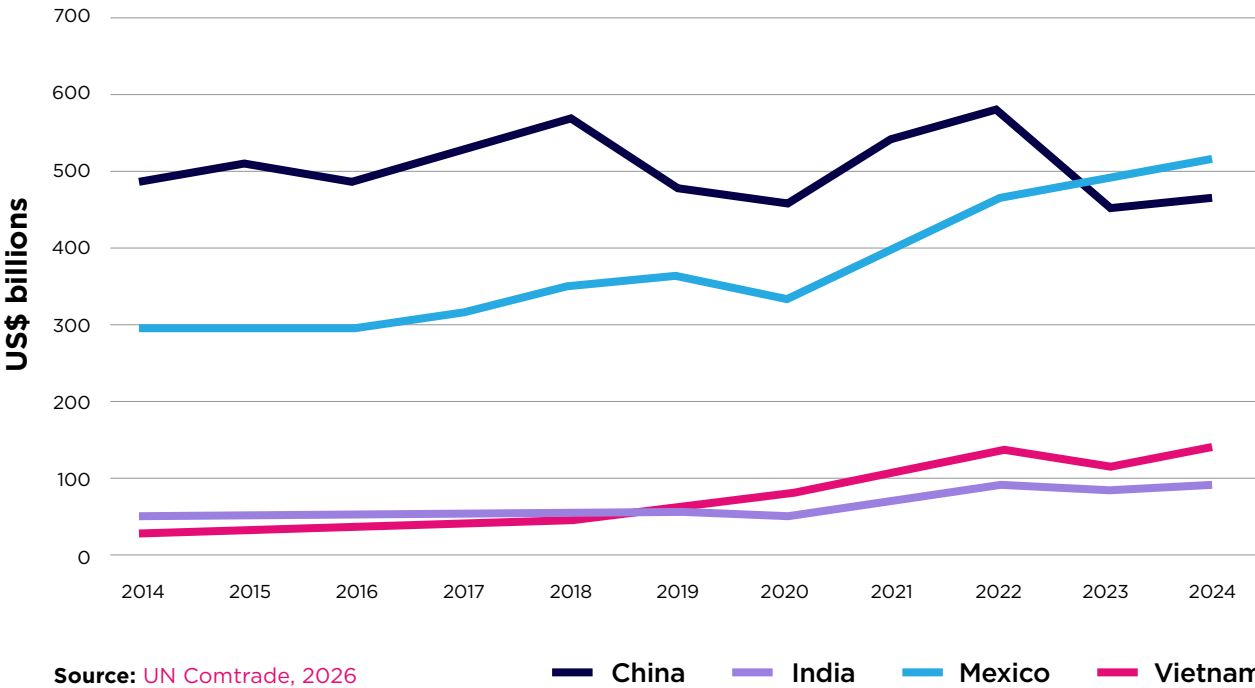
When there are these big plates moving around, connector countries can be in the middle – and that is Vietnam’s bamboo diplomacy.”



Roundtable participant
Hanoi, March 2026

Figure 6

U.S. goods imports from select partners, 2014-2024



CASE STUDY Apple

The Apple case study illustrates both the opportunity and the limits of the “China + many” model. While China remains Apple’s core hub, the world’s largest consumer electronics company has spread production across multiple markets, with India now accounting for roughly 18% of global iPhone production and a target of around 25% in the coming years.⁴⁸

In 2025, Apple committed approximately \$1.5 billion to a new Foxconn component plant in India, in a shift from simple assembly towards deeper supply chain integration.⁴⁹ Vietnam has become a key node for AirPods, Apple Watches, iPads and MacBooks.⁵⁰ Crucially, Chinese suppliers have internationalised alongside Apple: Luxshare, which produces Apple’s wireless earbuds, established a presence in Vietnam in 2016 and has since expanded into India.⁵¹

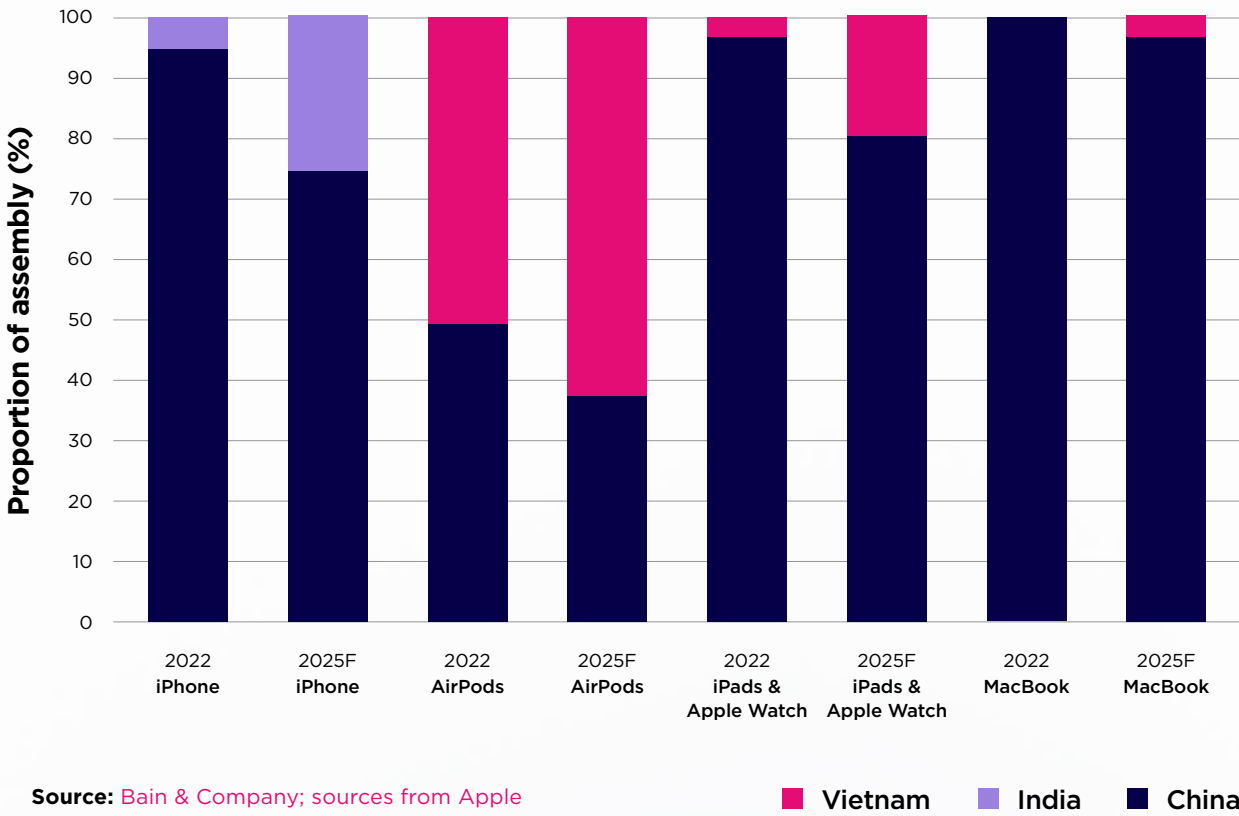
However, the political pressure on this model is growing. Donald Trump has openly urged Apple to prioritise United States-based production, and the company has pledged \$500 billion in domestic investment.⁵² Most analysts regard full U.S. production as commercially unviable given cost structures, but the political dynamic – including the pressure to reshore, even if the wider economics do not support it – illustrates

a broader tension that every multinational with a “China + many” strategy will face. The companies best positioned will be those that can demonstrate credible domestic investment while continuing to build the diversified international supply chains that actually make their operations resilient.

The cost of resilience is real but so is the cost of vulnerability. Higher costs, longer lead times and more complex supplier relationships are the price of a supply chain built for disruption rather than efficiency. Several roundtable participants noted that diversification strategies have not yet led to material operational change. The commitments are there, but the infrastructure is still being built. What is clear is that the businesses treating this as a one-time restructuring exercise rather than a continuous operational discipline will be the ones caught out by the next disruption.

Figure 7

Apple final assembly volume by geography



Source: Bain & Company; sources from Apple company reports and filings⁵³

The cost of resilience is real but so is the cost of vulnerability. Higher costs, longer lead times and more complex supplier relationships are the price of a supply chain built for disruption rather than efficiency.

⁴⁸ Reed and Bradshaw, 2025
⁴⁹ Reed and Bradshaw, 2025
⁵⁰ Gurman, 2025

⁵¹ Hunter, 2022
⁵² Fabian and Phartiyal, 2025

⁵³ Harris et al., 2023

SECTION 4

FROM RULES TO RELATIONSHIPS

The architecture of global trade is being rebuilt by default rather than design. The rules-based system that governed international commerce for decades assumed that multilateral institutions would remain the primary forum for resolving disputes, setting standards and opening markets. That assumption no longer holds. What is replacing it is not a new

system but a collection of overlapping arrangements – bilateral deals, sector-specific compacts, regional blocs and strategic partnerships – that reflect the interests of those negotiating them rather than any shared global framework. The shift from rules to relationships is not a temporary detour. It is the new architecture of global trade.

The shift from rules to relationships is not a temporary detour. It is the new architecture of global trade

1.4.1

TRADE GRAVITY SHIFTS

The centre of gravity in the global economy has been moving for years. In 1980, advanced economies accounted for roughly two-thirds of global GDP, with emerging and developing economies comprising the remaining third (Figure 8). That balance has steadily reversed. The International Monetary Fund (IMF) forecasts that by 2030, emerging and developing economies will account for around

two-thirds of global growth – a structural rebalancing that is reshaping not just where economic activity happens, but who gets to shape the rules governing it.⁵⁴ Trade and investment are being increasingly driven by a wider and more diverse set of actors: regional groupings, middle powers and developing economy blocs that were peripheral to the old order and are central to the new one.

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⁵⁴ UNCTAD, 2025



Governments have lost the ability to regulate globalisation, to regulate the effects of globalisation. And we're in the middle of a retraction."

Roundtable participant
New York, April 2026

The U.S.-China rivalry is the defining dynamic of this transition

Trump's second term has accelerated a shift towards protectionist trade policy that was already underway on a bipartisan basis. In AI, semiconductors and critical minerals, both the United States and China are using industrial policy to secure supply chains and technological leadership, contributing to the emergence of parallel systems with differing standards, rules and production networks. China continues to expand its Belt and Road Initiative; U.S. development engagement, including USAID, has been sharply reduced.

The outcome is a more fragmented system in which trade flows are increasingly shaped by strategic alignment rather than market efficiency, and in which third countries must navigate, rather than simply participate in, the global economy.

The result is not the end of globalisation. Growth and influence are becoming more widely distributed, and the economies best positioned to benefit are those that have refused to be defined by the binary choice between Washington and Beijing. Rather than a secondary development, the rise of middle powers is fast becoming the central narrative in this reorganisation.

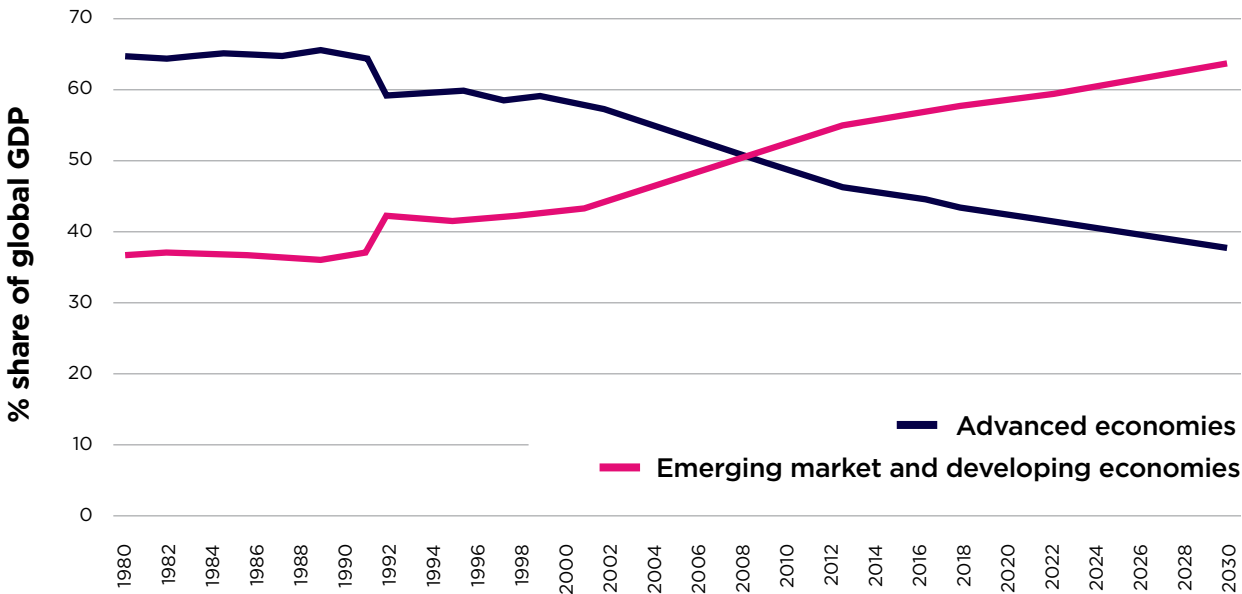


Let's make South Africa great again, and Kenya great again, and Dubai great again. It's those kinds of mindsets that are happening within government... I think this is a seismic change going forward. We're not going to go back to the old days. Companies are operating the same way."

Roundtable participant
Nairobi, March 2026

Figure 8

Share of global GDP Purchasing Power Parity, 1980-2030



Source: IMF, 2026⁵⁵

⁵⁵ IMF, 2026a

1.4.2

BETWEEN THE BLOCS

Trump’s aggressive use of tariffs has accelerated the transition away from broad-based liberalisation and towards targeted, transactional deals negotiated bilaterally or in small groups. Critical mineral agreements with Australia and Japan have secured access to rare earths in exchange for lower duties.⁵⁶ Taiwanese semiconductor and technology companies committed \$250 billion in direct U.S. investment under a trade and investment agreement, securing tariff reductions and the elimination of duties on select products in return.⁵⁷ These deals are faster to negotiate, easier to tailor to strategic priorities and, importantly, do not require the consensus of 166 WTO members. They are also, by design, exclusive. The architecture they are building is one of overlapping preferences rather than universal rules.

A new form of multilateralism is emerging

More than half of respondents in our Future of Trade survey expect global trade to become more regional and bloc-based over the next three years, while only 17% anticipate a more globalised and multilateral outcome (Figure 9). The new multilateralism taking shape looks nothing like the old one. It is not driven by superpowers convening around a shared framework but by middle powers finding common ground across competing blocs. Canada’s Prime Minister Mark Carney captured the dynamic at Davos in 2026: “Middle powers must act together, because if we’re not at the table, we’re on the menu.”⁵⁸



A number of countries are moving to more of a principle of non-alignment. They are far, far more open-minded in terms of the strategic partners they are willing to deal with.”

 **Roundtable participant**
Nairobi, March 2026

⁵⁶ Holbein, 2025
⁵⁷ Leswing, 2026

⁵⁸ World Economic Forum, 2026

The new multilateralism taking shape looks nothing like the old one. It is not driven by superpowers convening around a shared framework but by middle powers finding common ground across competing blocs.

India, Singapore and the UAE spearheading the middle power playbook

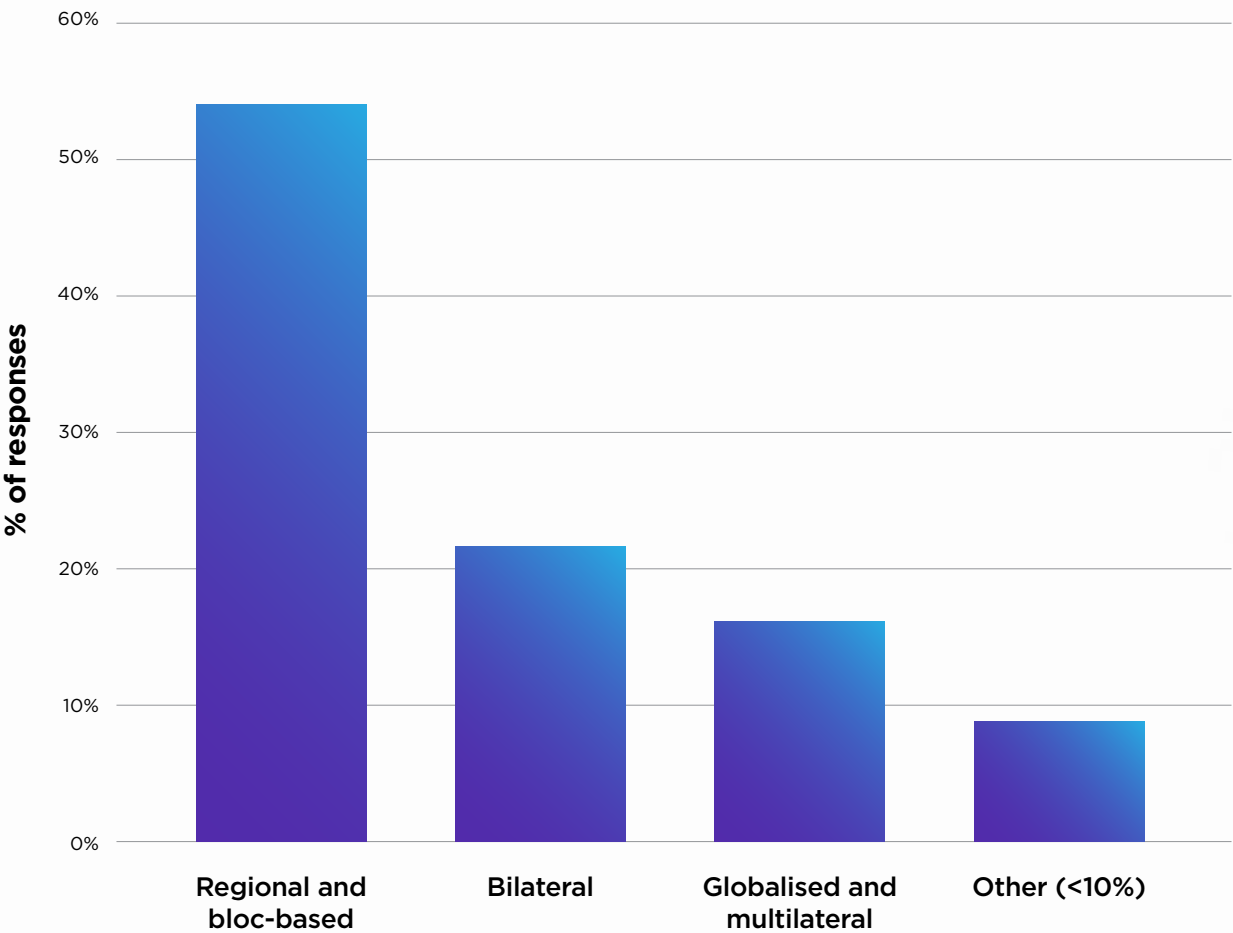
India, Singapore and the UAE have emerged as the clearest examples of this new middle power playbook. Each has positioned itself as a hub between competing systems rather than a member of either. Each offers strategic geography, world-class infrastructure and the kind of flexible diplomacy that allows them

to maintain productive relationships across blocs that are increasingly hostile to each other. UNCTAD’s World Investment Report finds that both India and the UAE ranked among the top five recipients of greenfield investment globally in 2024 – evidence that capital is following this positioning.⁵⁹ Singapore’s role as the world’s leading transshipment and logistics hub reinforces its place as the connective tissue between major regional trading systems.

⁵⁹ UNCTAD, 2025

Figure 9

How do you expect global trade to be structured over the next three years?



Source: DMCC Future of Trade Survey, 2026

For businesses, the implications are practical as well as strategic. The trade relationships and market access provisions that matter most are increasingly being negotiated outside the multilateral system, in bilateral talks, sector-specific compacts and regional arrangements where early

engagement makes a material difference. The businesses and governments that understand which deals are being struck, and position themselves accordingly, will have a structural advantage over those still oriented towards a multilateral system that is no longer setting the terms.



In five years, India, I expect, will become a meaningful, reliable player for the rest of the world, where predictability is guaranteed and stakeholders can rely on a trade partner who doesn't change at the whim of an individual."

 **Roundtable participant**
Mumbai, April 2026



INTERVIEW

Miha Hribernik

Chief Asia Geopolitical Strategist,
Deutsche Bank

Are we at the beginning of what some would describe as a profound restructuring of global trade?

I would argue that we're not at the beginning of restructuring. In fact, we're well into a process that has been going on for years, and it's been accelerated by the unravelling of the post 1945 international system. Now this has increased uncertainty for companies, and it's requiring them to be a lot more flexible and agile than in the past. This means a lot more uncertainty. It means having to quickly adapt to fragmenting trade rules.

But I would also say I think there's reason for cautious optimism if we think two to three years ahead. If we just look at some of the big geopolitical shocks of the last few years, the Covid-19 pandemic, the war in Ukraine, the tariff uncertainty of last year, we saw consistently significant disruption in the near term, but trade subsequently always bounced back. This is really important, because for all the talk of deglobalisation and this new restructuring as a fragmenting global trade, if you look at the data, it doesn't quite seem to support that.

The UN estimates that last year, global trade hit a record high. I'm not aware of many analysts a year ago, around some of the tariff uncertainty, who would have made that call. Despite this restructuring and realignment, the world remains interconnected and globalised. But it is the nature of this globalisation that's changing constantly, and it's requiring companies to be agile in the face of new trade rules and shifting geopolitics. And there's constant challenges that is basically training them to learn to manage those risks. We've seen that play out in the last few years, and I would expect the same for the next few years.

“

Something like 80% of global trade is carried by sea, and any threats to freedom of navigation can have a massive range of second, third order impacts from rising insurance premiums, rising commodity prices, disruption to energy, food commodity flows.”

How would you assess the level of risk for trade over the next two-to-three years?

Even though I expect trade to remain resilient, we absolutely need to be clear-eyed about risk. A world that is ultimately changing and is more fragmented, means more risk, and it means more uncertainty. There's nothing companies like less than uncertainty. And we're seeing this in the last few years, be it in the form of higher tariffs or the growing frequency and intensity of regional conflict, rising political security risks in some key markets. It's a broad category. But one particular risk that I'd like to highlight is the threat to seaborne trade, because we've also seen in the last few years a proliferation of pockets of risk around critical water waterways, maritime choke points and ports in geopolitically sensitive areas. Something like 80% of global trade is carried by sea, and any threats to freedom of navigation can have a massive range of second, third order impacts from rising insurance premiums, rising commodity prices, disruption to energy, food commodity flows. We highlighted it as one of the key risks for 2026 back in January, before the recent conflict in Iran, which has really sharpened global attention on this and why it actually matters for the global economy. This is a particular risk that is worth paying attention to, not just at the current juncture, but for the next two to three years.

What new trade corridors are being created?

As the global trading system fragments, risks go up, but this trend also creates opportunities. We're seeing supply chains readjust. We're seeing increased investment in infrastructure and ports and logistics and, we have seen in the last few years, new trade corridors emerge and existing corridors significantly strengthen. And the first one that I always like to point to is the Asia-Gulf Trade Corridor. In the last few years it has become one of the most important ones globally, in part driven by this sort of non-alignment strategy pursued by the Gulf states. I would also argue there's been a convergence of interest between the Gulf and Asia as both regions have been, in the last few years, looking to diversify their diplomatic and economic ties. As recent events demonstrate, the Gulf is not immune to geopolitical risk and the security environment around the region is something that will continue and will need to continue to monitor. But in geopolitics, we always think in terms of years, not in terms of weeks and months. So if we think two to three years ahead, it is really this multi-alignment strategy that, in my view, would continue to pay dividends after the current conflict.

And the other area I'd like to point to is the acceleration in trade talks – new trade agreements emerging in different parts of the world. Some of them quite clearly have been turbocharged by the tariff uncertainty of the last year. We have the UK-India FTA, the EU's trade deals with Mercosur and India, and the expansion of the China ASEAN trade deal. These are the types of developments that speak against the thesis of deglobalisation. And over the next few years, this could contribute to new corridors emerging or existing ones strengthening. This is going to be an important area to watch.

Are tensions around strategic technologies, including semiconductors, AI and AI standards, data and data localisation likely to intensify in the next couple of years?

Almost certainly. Everything that we've seen points towards more, not less, competition around strategic technologies. It is a trend that is perhaps most evident in the U.S.-China relationship, but it is really global in scope and is likely to accelerate. Economic security now equals national security, and maintaining or gaining technological leadership in as many areas as possible is now really strategically imperative for more governments.

This has upsides and downsides. It generates investment. New policy incentives are being rolled out, but, as we've also seen, it generates new barriers. It generates export controls, inbound or outbound investment restrictions, among others, and that can only impede trade and investment. And we've seen that as well, starting to sort of proliferate outside of these core areas of AI and chips in the sphere of data. Obviously, that's underpinning everything. We've seen an expansion of something that's quite onerous: data localisation requirements. These can have a material impact on a broad range of companies, including companies that have nothing to do with strategic technology.

1.4.3

THE WTO'S LONG GOODBYE

The WTO is not dead but it is no longer the institution that governs global trade. Established in 1995 to promote rules-based commerce and provide a credible mechanism for resolving disputes, its authority has been eroding for nearly a decade. The process accelerated in 2017, when the United States began blocking appointments to the Appellate Body – the institution’s dispute settlement mechanism – which ceased functioning entirely in December 2019. The consequences have been significant: losing states can now effectively veto rulings against them by appealing into the legal void, and the number of cases brought to the WTO has fallen to one-third of pre-crisis levels.⁶⁰ This is indicative of members no longer trusting the system to defend their interests. Efforts to find a workaround have also had limited success; the Multi-Party Interim Appeal Arbitration Arrangement, established by the EU and a subset of members in 2020, has settled just one case in five years.⁶¹ With the United States showing little appetite for reform, this institutional breakdown forms the backdrop to a wider unravelling of the WTO’s authority.

The WTO’s difficulties extend beyond dispute settlement

At the March 2026 Ministerial Conference, members failed for the first time since 1998 to renew the e-commerce moratorium, the only universal commitment preventing customs duties on electronic transmissions such as streaming services, cloud software and digital content. The WTO estimates that each year of delay in bringing the Electronic Commerce Agreement into force costs an estimated \$159 billion in lost trade.⁶² In the absence of global consensus, 66 countries agreed to implement an interim Electronic Commerce Agreement⁶³ – a workaround that underscores, rather than resolves, the WTO’s inability to advance multilateral digital trade rules.

“The WTO will shape policy – but will not make policy.”

📍 **Roundtable participant**
Mumbai, April 2026

⁶⁰ Hopewell, 2025
⁶¹ European Parliament, 2024

⁶² WTO, 2025a
⁶³ Elms, 2025

In 2010, around 27% of global imports occurred between partners in regional trade compacts. By 2022, that figure had risen to 52%.

The New Multilateralists

Countries are not abandoning rules-based trade but are migrating to frameworks they trust more. The Comprehensive and Progressive Agreement for Trans-Pacific Partnership (CPTPP) includes state-to-state dispute settlement provisions. The EU has strengthened trade enforcement through its Chief Trade Enforcement Officer and active monitoring of preferential agreements. Trade is becoming increasingly concentrated within these frameworks: in 2010, around 27% of

global imports occurred between partners in regional trade compacts. By 2022, that figure had risen to 52%, highlighting the decisive shift away from WTO Most Favoured Nation principles.⁶⁴ The EU and CPTPP, which together account for roughly a third of global GDP and trade, have launched a trade and investment dialogue that signals a shared commitment to open, rules-based commerce.⁶⁵ These developments suggest a reorientation of the current system, in which middle powers collaborate more closely, on their own terms, and through their own mechanisms.

“We’re seeing this plurilateral group increasingly strike deals bilaterally with each other – the EU and India, the UK and India, the EU and Mercosur. This is actually driving some momentum, but it’s outside the normal MFN system.”

📍 **Roundtable participant**
New York, April 2026

⁶⁴ WTO, 2025b
⁶⁵ European Commission, 2025

The rise of South-South trade is the quiet success story

Flows between developing economies now account for roughly 35% of global trade, surpassing North-North flows at around 25%, and reflect deeper economic integration across Asia, Africa, the Middle East and Latin America.⁶⁶ Much of this growth has been driven by intra-regional trade in Asia and China's role as both production hub and consumer market. The BRICS grouping, expanded in 2024 to include Egypt, Ethiopia, Indonesia, Iran, Saudi Arabia and the UAE, has provided an institutional platform for coordinating

trade, investment and financial cooperation among major developing economies. South-South trade has also broadened beyond commodities into manufacturing, intermediate goods and services, with higher-value activity enabling emerging economies to serve growing domestic and external markets. These networks have also proved more resilient to shocks, with South-South trade growth often outpacing the global average, even amid rising geopolitical tensions.⁶⁷ Regional pacts such as RCEP and AfCFTA are reinforcing these networks, lowering barriers and building the infrastructure of a more genuinely multipolar trading system.

Flows between developing economies now account for roughly 35% of global trade, surpassing North-North flows at around 25%.

⁶⁶ Mold, 2023
⁶⁷ Jay, 2025

“

The future of trade is South-South trade.”



Roundtable participant
Hong Kong, March 2026

The direction of travel is clear. The WTO will continue to shape norms and provide a reference point for trade policy, but the deals that matter, the rules that stick and the relationships that determine market access are increasingly being forged outside it. For businesses and governments, the practical implication is the same: engage with the frameworks that are actually functioning, and build the relationships that will determine where trade flows in the years ahead.

“

Among the BRICS countries and the Shanghai Cooperation, a majority of those members still tend to align with each other in terms of economic and political priorities, as most of them share some level of dissatisfaction towards the US.”



Roundtable participant
Shanghai, March 2026

KEY TAKEAWAYS AND RECOMMENDATIONS

Key Takeaways

- **The rules-based trading system is not in crisis, but the rules have fundamentally changed.** The WTO's dispute settlement mechanism is defunct, the e-commerce moratorium has lapsed, and nearly a fifth of world merchandise imports are now subject to tariffs or similar measures. Businesses and governments still oriented towards multilateral frameworks as the primary reference point for trade policy are working from an outdated map.
- **Tariffs are now both a trade instrument and a foreign policy tool.** The speed with which the United States has pivoted between legal instruments following the Supreme Court ruling demonstrates that the direction of travel is towards higher barriers, greater uncertainty and more politically driven trade policy. This will not be reversed by a single court decision and volatility is priced into the policy.
- **Resilience has replaced efficiency as the organising principle of global supply chains.** The strategic intent is clear across most industries and geographies even if the implementation of it is incomplete. The operational reality is that diversification takes time, alternative supply chains are expensive to build, and critical mineral processing capacity cannot be created quickly. The gap between aspiration and execution remains significant.
- **Middle powers are active architects of the new trade order.** The UAE, India, Singapore and Vietnam are capturing redirected investment and trade flows through deliberate positioning. The ability to operate credibly across competing blocs is emerging as one of the most valuable strategic assets in global trade.
- **The next wave of trade growth will be driven by the Global South.** South-South trade now accounts for 35% of global flows, surpassing North-North trade, and is growing faster than the global average. Regional frameworks including RCEP, AfCFTA and an expanding BRICS are reinforcing these networks. Businesses still primarily oriented towards advanced economy markets risk missing the most significant structural shift in global trade geography in a generation.

Recommendations

- **Map tariff exposure dynamically across every major trade corridor.** Static tariff analysis is no longer adequate in an environment where rates, legal instruments and trading partner relationships can change within weeks. Businesses should maintain live scenario models that identify at what tariff threshold specific products, suppliers or routes become commercially unviable, and have pre-agreed response protocols ready to activate. Policymakers should publish clear guidance on FTA utilisation rates to help businesses identify where preferential access is being systematically underused.
- **Audit critical mineral dependencies across every supply chain tier.** The concentration risk in critical minerals, particularly rare earths, permanent magnets, gallium and germanium, sits predominantly in tier two and tier three suppliers, where visibility is lowest. Businesses should map processing dependencies as well as mining dependencies. Policymakers should accelerate bilateral processing capacity agreements and provide clear investment frameworks for domestic and third partner refining infrastructure.
- **Treat supply chain diversification as a continuous investment discipline.** The "China + many" model offers a useful strategic direction, but its value depends on execution depth. Alternative suppliers must be able to scale under pressure. Businesses should stress-test alternative supply arrangements regularly, including through test orders and capacity verification, and build switching costs and lead times into their risk models. Policymakers should consider supply chain resilience criteria in procurement and investment screening frameworks.
- **Engage actively with trade agreements under negotiation before they are concluded.** The digital trade provisions, data flow rules, investment frameworks and standards being embedded in agreements such as CPTPP, AfCFTA, DEFA and the growing network of bilateral digital trade deals will govern market access for a decade or more. Businesses that engage through industry bodies during negotiation have a meaningful opportunity to shape outcomes. Policymakers should ensure both multinational and SME interests are represented in negotiating mandates.
- **Build a structured middle power strategy into market development planning.** The UAE, India, Singapore and Vietnam are emerging as the connective hubs of the new trade architecture, with growing influence over standards, logistics, finance and digital trade rules. Businesses should assess their current market presence, partnerships and regulatory relationships in these markets. Policymakers should prioritise trade and investment frameworks with middle powers.
- **Develop an explicit position on South-South trade corridors.** The growth of trade across Africa, South Asia, Southeast Asia and the Middle East is structural. Businesses should identify the two or three South-South corridors most relevant to their sector, assess the regulatory and logistical barriers to entry and begin building the local relationships and market intelligence that take years to develop.



CHAPTER 2

THE NEW TRADE MAP

The geopolitical ruptures described in Chapter 1 have not stopped trade but they have fundamentally changed its shape. Volumes are holding up better than the headline turbulence might suggest, but the composition of what is being traded, who is trading it and through which hubs it flows has shifted more rapidly than at any point in recent history. Understanding that shift is what this chapter sets out to do.

At its centre is the latest edition of DMCC's Commodity Trade Index, which assesses and ranks the world's ten most significant commodity trade hubs across key dimensions: commodities endowment, traded volumes, global connectivity, financial and political infrastructure, the regulatory environment, and so on. It finds that the geography of commodity trade is being redrawn and that the hubs best positioned to capture the next wave of trade growth are those that combine strategic location with regulatory sophistication, financial infrastructure and the diplomatic flexibility to operate across competing blocs. The findings have direct implications for where businesses locate trading operations, where governments focus trade infrastructure investment and where the real leverage points in global commodity markets are shifting to.

But the index does not stand alone. To understand why hub positioning matters more now than at any previous point in the modern trading era, the macro forces reshaping trade volumes and composition – and the structural frictions that will determine whether projected growth actually materialises – must also be factored in. The following sections provide the analytical context within which the index findings become not just interesting but strategically actionable.

SECTION 1

THE TRADE AND MACROECONOMIC OUTLOOK

2.1.1

TRADE GROWTH IS HOLDING

Global merchandise trade is growing but more slowly, more unevenly and under greater stress than at any point since the pandemic. The WTO forecasts merchandise export growth of 1.9% in 2026, down from 4.6% in 2025, followed by a modest recovery to 2.6% in 2027.⁶⁸

Businesses, too, are generally optimistic about the road ahead for trade, with three-quarters of surveyed respondents expecting growth over the next one to three years and only 9% foreseeing a decline (Figure 10). This optimism was consistently expressed across the roundtable series. Participants noted that, despite successive shocks, actual trade figures outperformed expectations in 2025. One participant noted that “demand continues to be very robust,” particularly as emerging markets, namely South and Southeast Asia, continue to grow.

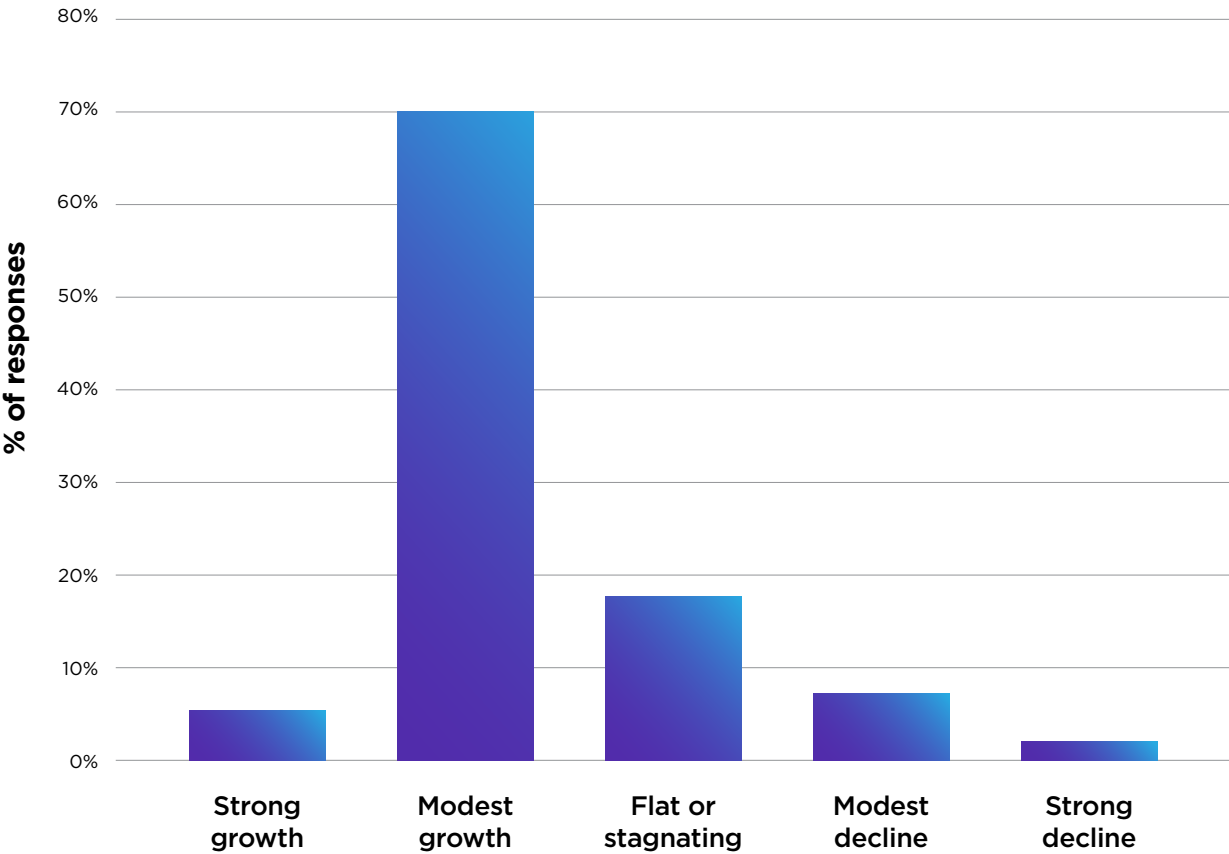
⁶⁸ WTO, 2026a

Those headline figures, however, obscure as much as they reveal. The composition of growth has shifted dramatically: AI-related goods such as semiconductors, servers, and data centre hardware have driven nearly half of all merchandise trade growth. Strip out the AI-related surge and the picture is considerably weaker. As one roundtable participant observed: “If I look at Asia’s exports, it’s an amazing divide – once you take out the electronic side of it, things are much weaker.”

The WTO forecasts merchandise export growth of 1.9% in 2026, down from 4.6% in 2025, followed by a modest recovery to 2.6% in 2027.

Figure 10

Overall, how do you expect global trade growth to perform over the next 1-3 years?



Source: DMCC Future of Trade Survey, 2026

AI buoying trade resilience

AI-related investment accounted for nearly half of merchandise trade growth in 2025, while office and telecommunications equipment recorded the fastest increase of any major product group, rising by 19% year-on-year in January-November.⁶⁹ Asia accounted for the largest share of AI-enabling goods trade, while government-led digital transformation programmes in the Middle East also fuelled notable increases in trade in servers and hardware.⁷⁰ As AI demand surges and more countries seek to position themselves within the expanding digital value chain, trade in AI-related goods is likely to grow in both scale and strategic importance.

The Iran conflict is the single biggest downside risk

The WTO's baseline forecast was upgraded earlier in the year on the back of AI-related demand and resilience in emerging markets, but that upgrade preceded the Strait of Hormuz closure. The conflict adds a material layer of uncertainty that the headline figures do not yet fully capture. The WTO estimates that persistently high energy prices could reduce world merchandise trade growth to as little as 1.4% in 2026 – a 0.5 percentage point drag from oil prices alone – with North America, Europe, Africa, the Middle East and Asia all recording weaker export growth than currently forecast.⁷¹ The severity and duration of the conflict will have a direct bearing on whether the 2027 recovery materialises as projected.

⁶⁹ WTO, 2026a
⁷⁰ WTO, 2025
⁷¹ WTO, 2026b

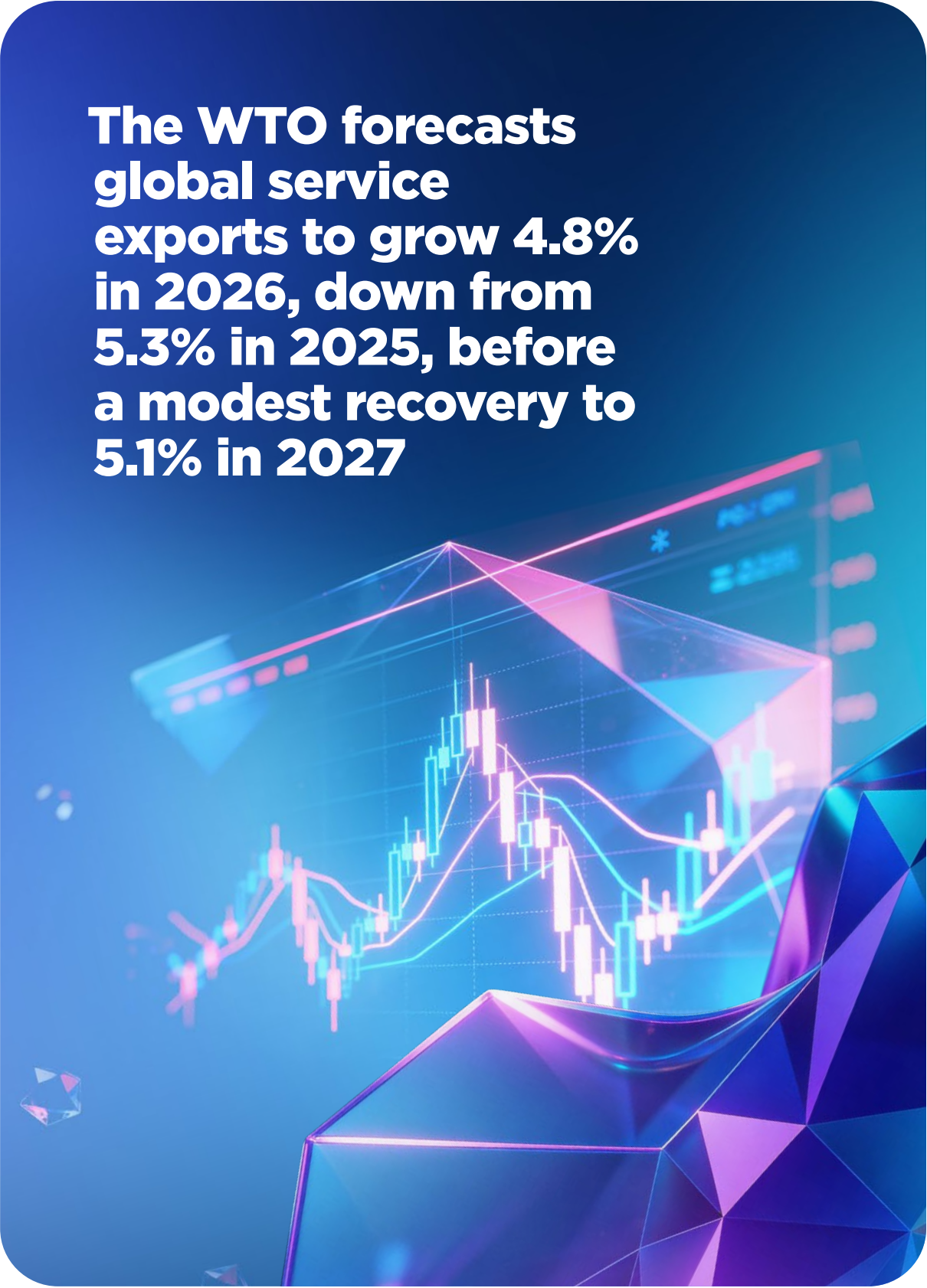
Asia leads but its Hormuz exposure is acute

Most regions are expected to follow the global pattern of slower merchandise export growth in 2026, followed by a faster expansion in 2027 (Figure 11). Merchandise exports from Asia are projected to grow 3.5% in 2026 and 3.2% in 2027, with South America also posting strong growth at 3.5% and 2.5% respectively.⁷² But 80% of the oil transiting the Strait of Hormuz is destined for Asian markets – primarily China, India and Japan – meaning the region driving trade growth is also the most exposed to the conflict's energy shock. The divergence between Asia's structural trade momentum and its near-term energy vulnerability is one of the defining tensions in the 2026 outlook.

Services outpacing goods but vulnerable to shocks

The WTO forecasts global service exports to grow 4.8% in 2026, down from 5.3% in 2025, before a modest recovery to 5.1% in 2027.⁷³ Within services, digitally delivered exports – cloud services, online finance, remote professional services – are growing faster still, projected at around 6.1% in 2025 and 5.6% in 2026. The Middle East is expected to lead service export growth at 6.5%, followed by Europe at 5.5% and Asia at 4.9%. However, the WTO estimates the conflict could wipe 0.7 percentage points off 2026 global services export growth through its impact on international transport and travel.

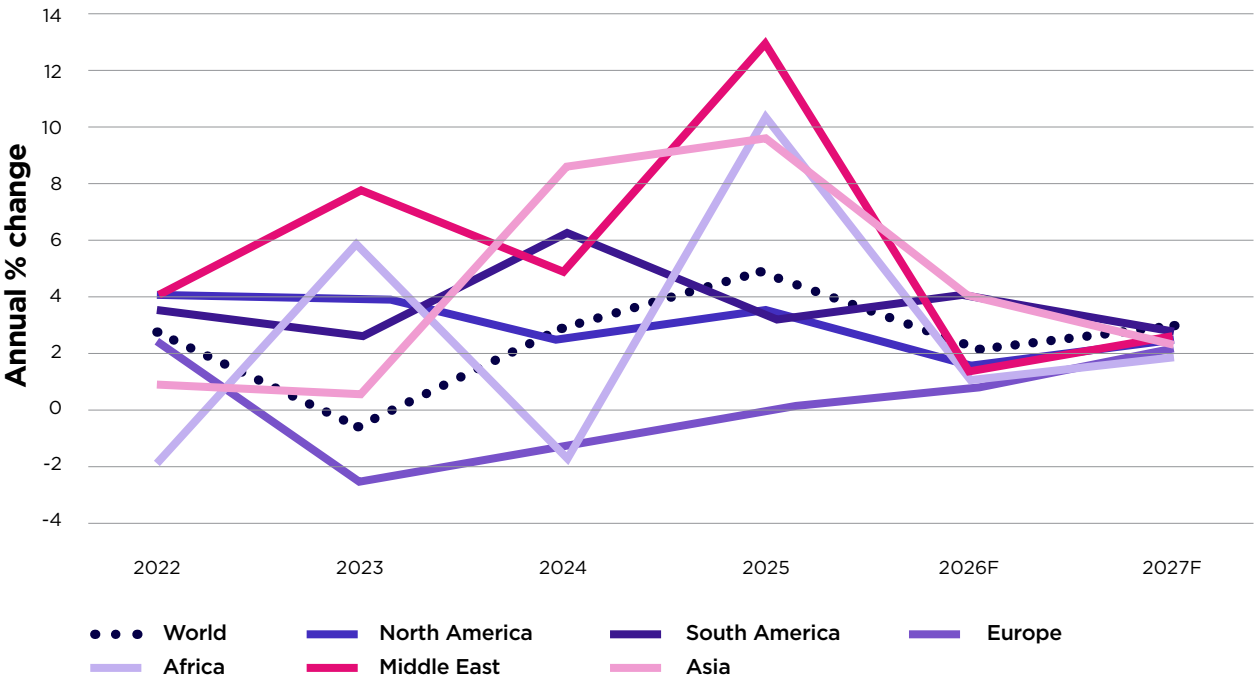
⁷² WTO, 2026a
⁷³ WTO, 2026a



The divergence between Asia’s structural trade momentum and its near-term energy vulnerability is one of the defining tensions in the 2026 outlook.

Figure 11

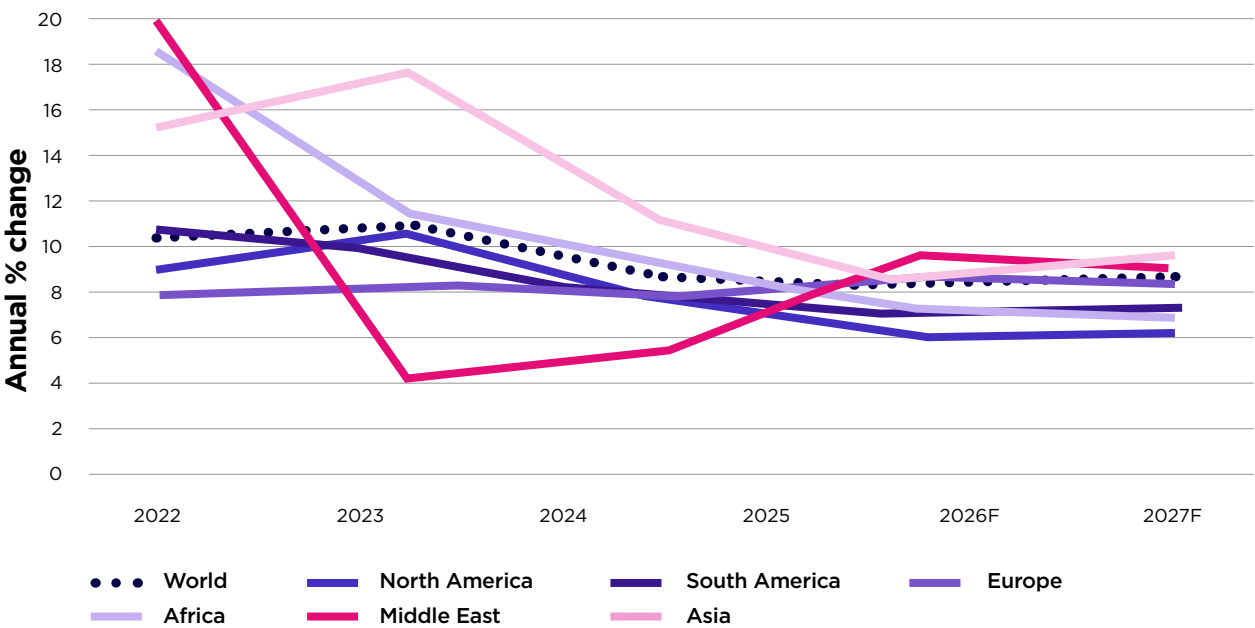
Merchandise trade volume export growth, baseline forecast, 2022-2027



Source: IMF, 2026a

Figure 12

Commercial services trade volume export growth, baseline forecast, 2023-2027



Source: IMF, 2026a

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Diversification is no longer an option – it is a must. I think all countries will intensify their diversification, not only in trading goods, but also in trading services, investments and payment systems.”



Roundtable participant
Jakarta, March 2026

2.1.2

THE DEALMAKERS: NEW FTAS AND SHIFTING CORRIDORS

In a world where multilateral trade rules are weakening, FTAs have become the primary mechanism through which market access is secured. Their strategic importance has never been higher. Beyond tariff reductions, modern FTAs provide regulatory certainty, protect digital trade flows, embed sustainability standards and create frameworks for cooperation in areas the WTO has proved unable to advance. The agreements being concluded and negotiated now will determine the shape of trade corridors for the next decade.

Several agreements stand out for their scale and strategic significance:

- The **EU-India FTA**, concluded in January 2026, is the largest trade deal either party has ever reached. It is expected to more than double bilateral goods exports by 2032 and includes an ambitious digital chapter that integrates most rules agreed under the WTO's Electronic Commerce Joint Initiative, which is even more significant given that India is not a signatory to that initiative.⁷⁴
- The **EU-Mercosur FTA**, also concluded in January 2026, opens a major new corridor between Europe and Latin America, promoting electronic contracts and signatures and prohibiting duties on electronic transmissions. That said, its digital chapter does not go significantly beyond baseline e-commerce provisions.⁷⁵
- **CPTPP expansion** continues to gather momentum. The agreement, covering 12 members and nearly 15% of global GDP, has attracted applications from the Philippines, the UAE and others seeking access to its pan-Pacific consumer markets and enhanced digital trade rules.⁷⁶
- The **ASEAN-China Free Trade Area 3.0** is an upgrade of the ASEAN-China FTA and reflects deepening economic integration between China and Southeast Asia. Version 3.0 will go beyond goods trade, covering digital economy provisions, green trade and supply chain cooperation.
- The **GCC-UK negotiations** concluded in May 2026, with projections suggesting the agreement could increase bilateral trade by 16% and add £8.6 billion annually over the long run.⁷⁷ Parallel momentum on a GCC-EU trade relationship holds further potential across energy, services and digital trade.
- **AfCFTA** implementation is deepening, with Phase II protocols on investment and digital trade enabling greater intra-African integration across goods and services – directly supporting the South-South trade growth described in Chapter 1.
- The **Future of Investment and Trade Partnership (FIT-P)**, launched in September 2025 by 14 founding middle power nations, takes a different approach entirely: rather than reducing tariffs, it focuses on supply chain resilience, investment facilitation and trade technology integration. In a fragmented multilateral environment, it represents a new model of trade cooperation built around shared operational priorities rather than market access concessions.⁷⁸
- Standalone **digital trade agreements** and digital chapters within FTAs will shape new rules on data flows, e-commerce and digital services. Singapore has set the standard with its EU and UK deals, while frameworks such as the Digital Economy Partnership Agreement (DEPA) are expanding to include countries such as Chile, New Zealand, South Korea and Australia.⁷⁹

⁷⁴ European Commission, 2026⁷⁵ Horseman, 2026⁷⁶ Nikkei Asia, 2026⁷⁷ UK Parliament, 2024⁷⁸ Government of New Zealand, 2025⁷⁹ Ministry of Trade and Industry Singapore, 2025



INTERVIEW

Dr. V. Anantha Nageswaran

Chief Economic Advisor to the Government of India

How would you characterise the global trade outlook over the next two to three years?

Global trade has already been subject to significant shifts in the last few years. I expect those trends to continue and even accelerate further. I think we will see more and more formation of different blocs. There will be some overlap between blocs – countries could be part of more than one bloc – but I do see these emerging. There will be a lot of emphasis on some items of national importance, to onshore them or indigenise them, rather than depending on the world markets to serve them. So that I see as an important development shaping up in the coming years.

So as opposed to efficiency, which used to drive supply chains, you are seeing national interests being a bigger part in that shaping?

Security will become far more important than efficiency. To that extent, that will raise the working capital requirements for businesses. In the aggregate, it might lead to a higher inflation rate for countries, but that is the price one pays for a shifting geopolitical environment.

India has changed its trade policy dramatically. Why is that important strategically, and how is that going to drive trade?

Some of these things may appear, for an outsider, that they are sudden and seismic, but they have been slowly growing and reflect evolving thinking. Suddenly everything comes together and it looks as if there has been a seismic shift. In the first few years of the new government in 2014, after Prime Minister Modi took over, the emphasis was on building domestic capability. To some extent, the MFN tariff rates slightly picked up. But we also realised that we need to expose our industry to global competition.

Number one: that is also consistent with indigenisation but in a manner where indigenisation doesn't come at the cost of competitiveness. The second dimension is that the rising tide of global export growth was lifting all boats before the global financial crisis. That's not going to happen. So we need to give our exporters more opportunities, more access. That is another reason why we feel these free trade agreements matter much more than before, when it was possible to rely on global volume growth to drive one's own export growth. The third dimension is to ensure that the Indian manufacturing sector is given uninterrupted access and a diversified source of primary, intermediate and infrastructural goods, because much of India's imports rely on these three items – raw materials, primary and intermediate goods, and infra goods. To rely on one single source leads to a lot of vulnerabilities. These are the important forces or considerations that are driving the diversification of free trade agreements that India is pursuing.

You spoke earlier about new trade blocs. Which ones are going to be important to India over the next few years?

If you look at it from the point of view of consuming markets, it is the West because of the high degree of per capita income. At the same time, emerging economies do have a lot of primary materials, and there are middle powers which are willing to co-create technologies and services. India, given its size, should be able to plug itself into the advanced economies for being an absorber of Indian-made goods, and with emerging economies to confer continued access and diversification of primary materials and so on, and other middle-income powers for co-creating manufacturing synergies, which are currently somewhat skewed.

What's your outlook for the impact of technology on trade and particularly from India's strategic perspective over the next two-plus years?

That's an interesting question but a difficult one to answer. I don't see technology making much of a difference to the trends that are already underway in terms of trading between blocs, fragmentation and emphasis on security over efficiency. I do not think these basic considerations will be altered by technology. If anything, it may actually accelerate them, and some of these technologies themselves will become sources that reinforce these trends.

Whether it is chips, GPUs, memory chips, or any other consideration, they will further reinforce this trade fragmentation. At the same time, given that the new technologies have a huge role to play in national security, every country would like to develop their own sovereign models.

The level of trust that characterised global trade between 1980 and sometime into the new millennium is not, in general, going to prevail. So every country, regardless of which alliance they are part of, and whether they are part of multiple alliances, would prefer to err on the side of a "just in case" approach. That will apply to some of these new technological tools and devices or approaches, and there will be a tendency to indigenise them and develop sovereign models to feel comfortable.

“

The level of trust that characterised global trade between 1980 and sometime into the new millennium is not, in general, going to prevail. So every country, regardless of which alliance they are part of, and whether they are part of multiple alliances, would prefer to err on the side of a "just in case" approach.”

Despite this fragmentation and the volatile picture, are you expecting trade generally to continue to increase?

Yes. I think the global integration of value chains has gone on for too long for countries to completely disentangle themselves from it. So I do see trade growth happening. But definitely the average levels of growth that we have seen – and that is partly driven by global growth – will tend to be lower in the coming years. Therefore, trade volume growth will also be lower, but definitely it will still continue to grow. Overall global trade volumes will continue to expand.

2.1.3

THE TRADE GROWTH OUTLOOK

Global economic growth will slow in 2026 before recovering modestly in 2027, albeit with a range of outcomes wider than forecasts suggest. Under the IMF’s reference scenario, which assumes a relatively short-lived Iran conflict, global growth slows from 3.4% in 2025 to 3.1% in 2026, recovering to 3.2% in 2027.⁸⁰ Surging technology investment and supportive fiscal conditions provide some offset to the drag from tariffs and trade policy uncertainty.⁸¹ But the IMF’s adverse scenario – a protracted conflict driving a sustained oil price spike – puts 2026 growth as low as 2.5% and raises the spectre of a worldwide recession. The gap between those two outcomes is, in large part, a function of what happens in the Strait of Hormuz.

Emerging markets will drive growth but remain exposed to commodity price volatility

Advanced economies face constrained productivity growth and lingering trade policy uncertainty. Many emerging markets are forecast to outperform the global average, underpinned by stronger investment and domestic demand. China is expected to maintain relatively robust growth – slowing from 5.0% in 2025 to 4.5% in 2026 and 4.0% in 2027 – though structural headwinds are building.⁸²

The United States is forecast to maintain steady growth as the effects of trade barriers are offset by supportive fiscal policy. The most significant divergence will be in commodity-dependent emerging markets, where energy price volatility and supply chain disruption create outsized downside risk.

Technology investment a bright spot in cautious FDI picture

Global FDI fell 11% in 2024 to \$1.49 trillion, the second consecutive year of double-digit contraction, as elevated interest rates, geopolitical fragmentation and regulatory uncertainty weighed on cross-border capital flows.⁸³ Regional patterns diverge sharply: investment has risen in North America, Southeast Asia and Africa, while falling in Europe, East Asia and South America. Technology sectors have been the primary exception, with international investment in the digital economy doubling in value.⁸⁴ Data centres, semiconductors and ICT services are attracting significant capital, a pattern that is itself reshaping trade corridors and global trade hub positioning.⁸⁵

⁸⁰ IMF, 2026a

⁸¹ IMF, 2026b

⁸² IMF, 2026b

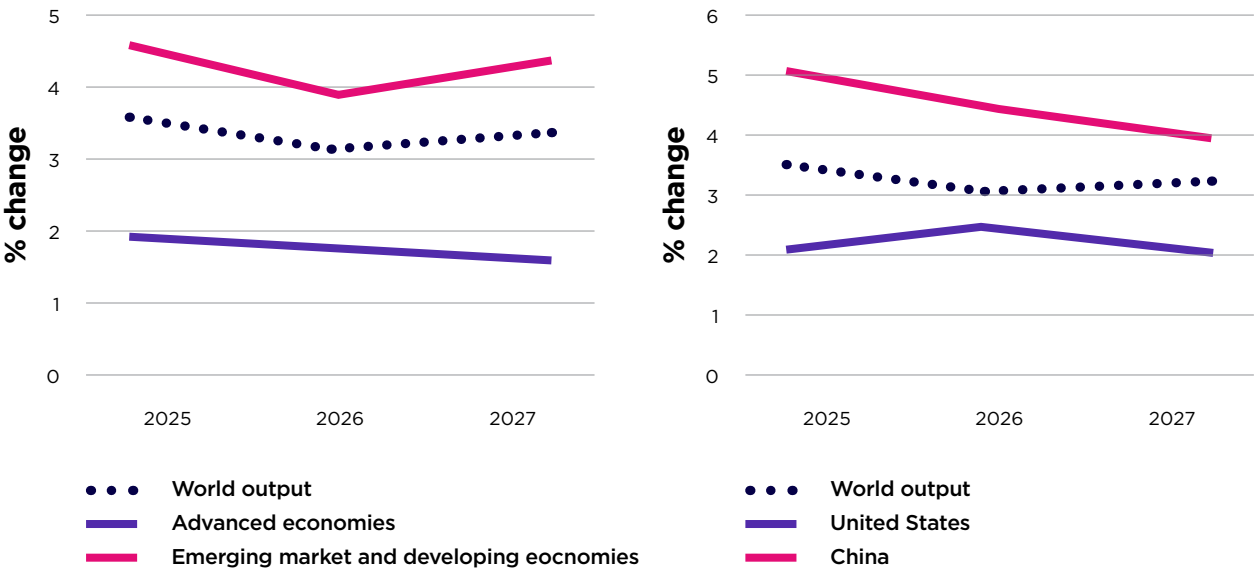
⁸³ Global FDI in 2024 increased marginally, by 4%, however, this headline figure was inflated by volatile financial flows through several European economies with high levels of conduit flows. When these are excluded, global FDI flows in fact declined by 11%. UNCTAD, 2025

⁸⁴ UNCTAD, 2025

⁸⁵ BlackRock, 2026; Morgan Stanley, 2026

Figures 13, 14

GDP growth, 2025-2027 (forecast)



Source: IMF, 2026b

International investment in the digital economy doubling in value. Data centres, semiconductors and ICT services are attracting significant capital, a pattern that is itself reshaping trade corridors and global trade hub positioning.

2.1.4

MACRO HEADWINDS: INFLATION, RATES AND THE DOLLAR

The macroeconomic environment businesses must navigate in 2026 is more complex than at any point since the post-pandemic inflation surge – and the primary driver is geopolitical rather than cyclical.

Returning inflation driven by supply disruption

Prior to the Iran conflict, global price pressures had been expected to ease. The IMF now forecasts global inflation rising from 4.1% in 2025 to 4.4% in 2026, before slowing to 3.7% in 2027.⁸⁶ The mechanism is direct: the Strait of Hormuz closure has driven oil prices above \$120 per barrel, fertiliser costs are surging as a consequence of both the energy shock and the strait's role in seaborne fertiliser trade, and food prices are following. This is supply-side inflation driven by geopolitical disruption, a challenge for central banks to address without also suppressing growth, while eroding real incomes and weighing on global demand and trade growth.⁸⁷

Central banks caught between a rock and a hard place

The U.S. Federal Reserve held rates steady through April 2026, signalling one cut by year end.⁸⁸ Markets now expect rate increases from the ECB and Bank of England through to the end of 2026 – a reversal of the easing trajectory that had been widely anticipated.⁸⁹ Central banks must balance the risk of embedding inflation against the risk of tipping slowing economies into recession. The outcome of that balance will have direct implications for trade financing conditions, cross-border investment flows and demand for globally traded goods.

Dollar strengthening and trade pressures

Periods of elevated geopolitical risk typically drive capital into dollar-denominated assets.⁹⁰ The Fed's decision to hold rates at 3.5-3.75% reinforces that dynamic.⁹¹ A stronger dollar tightens global financial conditions, particularly for economies with high levels of dollar-denominated debt, while compressing the competitiveness of U.S. exports and raising the real cost of commodity imports for emerging markets priced in dollars. Currency volatility will remain a key transmission channel through which the macroeconomic and geopolitical environment shapes trade and investment flows in the period ahead.

The IMF now forecasts global inflation rising from 4.1% in 2025 to 4.4% in 2026, before slowing to 3.7% in 2027.



What's going on with inflation and oil prices could be something that not only dents real incomes but also causes interest rate hikes from central banks around the world. Tight financial conditions generally create a cyclical headwind to trade over the next 12 months. If it weren't for the Iran conflict, I'd be very confident in saying a very positive, above-consensus view, but that does make me feel cautious about 2026."



Roundtable participant
London, March 2026

⁸⁶ IMF, 2026b
⁸⁷ Rapier, 2026
⁸⁸ White and Wells, 2026

⁸⁹ Fleming, et al., 2026
⁹⁰ Towfighi, 2026
⁹¹ Cox, 2026

SECTION 2

THE DMCC

COMMODITY TRADE

INDEX 2026

This chapter introduces the fifth iteration of the Commodity Trade Index, a tool used to assess the relative performance of top trading hubs over time.

Dollar strengthening and trade pressures

The Commodity Trade Index (CTI) assesses the relative performance of ten key commodities trading hubs within the global trade environment. It produces a score for each of the ten indicators and combines them to produce an index score for each hub. The commodities hubs in question are the United States, the Netherlands, Singapore, the UK, the UAE, Switzerland, Hong Kong SAR, China, South Africa, and Nigeria. The eight-year back history of the CTI, dating back to 2018, also allows for time series comparisons of index scores between trading hubs.

The CTI 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 and the United Nations⁹².

Data for the CTI are released with a time lag, often of at least a year. The implicit assumption that trends remain broadly constant over the time lag period was acceptable for previous editions. However, recent developments in global trade, specifically the implementation of sweeping U.S. tariffs and the outbreak of the war with Iran, have meant that this assumption can no longer be held. Time lags have therefore been navigated by using higher-frequency data to create ‘nowcast’ estimates for April 2026 for key variables in the Index.

The ten indicators analysed are:

- **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
- **Commodity endowment factors**
4. Tons of oil exported annually

5. Hub’s share of global commodity trade for coffee, grains, sugar, gold, diamonds, soya bean, tea, cotton, silver, animals and animal products, plastic, rare earths, and copper

6. Natural resource rents as a share of GDP
- **Institutional factors**
7. Financial services infrastructure

8. Attractiveness of the tax regime

9. Strength of regulatory enforcement

10. Logistics performance

Each indicator in the index is given equal weight. The data were standardised for each, and scaled within the 0% to 100% range, whereby the top performer always receives a score of 100%, and the bottom performer always receives a score of 0%.

⁹² For a detailed methodology and a list of sources and references, please see the appendix.

COMMODITY TRADE INDEX RESULTS **2026**

Country	Commodity endowment factors	Locational and trading partner factors	Institutional factors	Index Score 2026
United States	67%	36%	67%	57% ↓
United Arab Emirates	61%	19%	61%	47% ↓
Netherlands	9%	69%	63%	47% ↑
Switzerland	17%	42%	73%	44% ↓
Hong Kong SAR, China	10%	35%	85%	43% ↑
Singapore	4%	43%	77%	41% ↓
United Kingdom	17%	30%	61%	36% ↓
China	37%	0%	49%	29% ↓
South Africa	15%	6%	40%	21% ↑
Nigeria	43%	11%	0%	18% ↑

Source: [See Appendix](#)

Arrows indicate % change from 2024 index

The 2026 Commodity Trade Index ranks the United States as the world’s most prominent commodities hub for the third consecutive edition, with a score of 57%. While it has held onto its position, it saw its overall score drop by two percentage points. A similar story applied to the UAE, which held onto second place with a score three percentage points lower than in 2024.

The commodity endowment and institutional pillars were the U.S.’s greatest strength in the 2026 CTI, with both achieving scores of 67%. Focusing on commodity endowment-related factors, the U.S.’s most significant gains were in oil exports, where it received the strongest score out of the ten hubs. Rather than reflecting rising dominance in petroleum exports, although policy momentum in the US is very much behind expanding oil and gas production, this rise is predominantly driven by the estimated fall in oil exports from the UAE in March and April. The combination of damage to essential infrastructure and the closure of the Strait of Hormuz are expected to weigh on petroleum exports from the Emirates. Elsewhere, the US fell slightly behind China in its share of overall commodities trade between the ten hubs. Its high score is driven by its particularly large share of agricultural commodities like grain and soya, where it has the largest shares of all ten hubs. However, China’s dominance of rare earths, copper, plastic, and cotton mean this strength only grants the US second place.

Regarding locational factors, the US saw its score fall significantly, from 54% in 2024 to 36% as of April 2026. This was primarily

tariff driven. The CTI’s tariff pillar assigns scores based on the average tariff faced across all trading partners, weighted by the proportion of trade done with each. The damage to the U.S.’s score is thus done by the implementation of escalating retaliatory tariffs by major trading partners, particularly China, in response to the general trade pressures that have followed ‘Liberation Day’ in April 2025. The tariff situation remains highly uncertain, as trade deal renegotiations and legal challenges to current policy may cause major swings in effective rates faced by the US in the future.

Elsewhere, the US held onto its top position for the HQs of commodities firms. A mechanical change to this iteration of the Index is that these firms are weighted by 2025 turnover. While agricultural firms like Cargill and ADM take up smaller revenues than other main players, the U.S.’s share is elevated by huge contributions from the oil and gas giants Chevron and ExxonMobil.

The United States rose to fourth out of the 10 countries of interest in institutional factors. Its strong financial services infrastructure, where it ranks second, as well as a robust fourth place ranking in trade facilitation, have driven it up two places compared to 2024. It falls behind only Singapore, Hong Kong, and Switzerland for the strength of its institutions relevant to the commodities trade, with its primary weakness being its relatively unattractive corporate tax regime.

In second place, the UAE’s power within the CTI was far more evenly split across the pillars as of April 2026 when compared to

the 2024 edition. This primarily comes from a significant fall in its score for commodity endowment-related factors, from 77% to 61%. Conflict in nearby Iran and the resulting closure of the Strait of Hormuz have made exports by sea more challenging. It fell to second place for petroleum exports, with a larger fall being prevented by the resilience of trade through the ports at Fujairah and Khor Fakkan, allowing rerouting around Hormuz. Tankers are still able to move through the region, if not the strait itself, but at greater risk. Many have been forced to turn off AIS trackers. An additional downward pressure on this pillar came from natural resource rents as a share of GDP. Unlike the fall in petroleum exports, this is more a reflection of the UAE’s ongoing economic diversification than a sign of commodity weakness. As the non-hydrocarbon economy grows as a share of GDP, natural resource rents mechanically represent a smaller proportion – an outcome the CTI’s endowment pillar penalises, though one that reflects economic maturation rather than diminished commodity strength. Future iterations of the index may benefit from revisiting this sub-indicator’s weighting for economies actively pursuing diversification strategies.

Elsewhere, the Emirates’ institutions scored strongly, also at 61%. The primary driver was its corporate tax regime, by far the most attractive of the ten commodities hubs.

The Netherlands improved the most in the CTI in 2026, moving from sixth to third,

with a score of 49%. This reflects a mixture of mechanical changes to the Index, as well as beneficial shifts in the source data. Firstly, as discussed in the Appendix, data availability dictated that the logistics performance sub-pillar be updated with a new data source on trade facilitation from the OECD. These data are constructed differently and give the Netherlands a boost to its score relative to the previously used – and now inapplicable – Logistics Performance Index (LPI) from the World Bank. Higher weight is given to the development of administrative frameworks in the OECD’s indicators, for which the Netherlands scores exceptionally highly, while the LPI assigned greater value to shipping volumes and dwell times at each port.

The other area where the Netherlands saw the largest improvement relative to 2024 was in tariffs from trade partners, where it received the highest score of all the commodities hubs. As a member of the European Union, the Netherlands saw tariffs on exports to the US rise significantly from April 2025, with the bloc receiving a higher rate than those seen on many of the other hubs. The Netherlands’ relative advantage in this space is that it is estimated to do a far smaller proportion of its commodities trade with the US compared to many of the other hubs. As such, its membership of the EU and associated free trade area means that a larger proportion of its trade remains tariff free, despite higher rates from the US. Its gains are relative, marking it as the ‘least worst’ affected country and seeing it top the rankings due to other countries suffering more.

COMMODITY TRADE INDEX RESULTS **2024, 2022, 2020**

Country	Index Score 2024	Rank 2024	Index Score 2022	Rank 2022	Index Score 2020	Rank 2020
United States	59%	1	58%	1	53%	1
United Arab Emirates	50%	2	50%	2	53%	2
Switzerland	46%	3	48%	4	47%	4
Singapore	44%	4	41%	7	41%	7
Hong Kong SAR, China	41%	5	44%	6	45%	6
Netherlands	40%	6	48%	3	48%	3
United Kingdom	38%	7	45%	5	46%	5
China	34%	8	32%	8	33%	8
South Africa	18%	9	21%	9	23%	9
Nigeria	10%	10	16%	10	22%	10

Source: [See Appendix](#)

Switzerland fell from third in 2024 down to fourth in 2026, with a score of 44%. This again was predominantly tariff driven; the United States is estimated to be Switzerland’s largest export partner by a significant margin, meaning it was one of the hubs worst affected by tariff upheaval.

Nevertheless, Switzerland’s overall score remains strong for both locational and institutional factors, which make up for a weaker score in commodity endowment-related factors. Its scores in trade facilitation and the strength of regulatory enforcement ensured a robust performance in the institutional pillar, where it placed third overall. There are also many large commodities firms with headquarters in the country, including Vitol in Geneva, ranked as the largest of considered firms by turnover. The presence of other major players like Glencore in Baar, and Mercuria and Gunvor, also in Geneva, see it rank only slightly behind the US in this sub-pillar.

Hong Kong maintained its position in fifth place, overtaking Singapore while being overtaken by the Netherlands. Unlike many hubs in the CTI, its score rose compared to 2024. It saw small gains in institutional factors, ensuring that it kept the highest ranking in this pillar, driven in part by the new data source for trade facilitation. However, its primary gains were in the locational pillar. Like the Netherlands, Hong Kong benefitted greatly from doing a far smaller proportion of its trade with the more volatile United States compared to others. The US was estimated to be its second largest trade partner, but trade value estimates were six orders of magnitude lower than its tariff-free exports to mainland China, its largest partner.

After placing fourth in 2024, Singapore fell down to sixth in 2026, with its score dropping by two percentage points. Its score for locational factors was the main factor. Its strong trading relationship with the US meant that it suffered from tariff impositions to a greater extent than hubs like Hong Kong and the Netherlands, despite receiving only the base tariff rate. Its fall in the locational pillar was also driven by the mechanical change of weighting commodities firms by turnover. Its three major players, Trafigura, Wilmar, and Olam, had a far smaller combined turnover than considered firms in the US and Switzerland, resulting in a lower score due to factors not considered in 2024 CTI. Nevertheless, Singapore’s institutional pillar remains extremely strong, second only behind Hong Kong, and its economy continues to perform strongly.

In seventh, the UK’s institutional factors remain by far its greatest strength, showing resilience while its overall score suffered compared to 2024. Its commodity endowment-related factors also still outmatch those of other European countries, driven largely by its share of precious metals trade – although gold is increasingly moving to Asian exchanges such as Hong Kong and China. While it has held onto seventh place, economic challenges may limit its growth in the CTI. On top of a falling share in precious metals trade, a weakening City of London may jeopardise future performance both in financial services and even the value of commodities firms headquartered in the capital. Additionally, to a greater extent than Singapore, the UK’s trade reliance on the US saw it receive a poor score on the tariff sub-pillar, which also contributed to its weakening performance in this edition.

In eighth place, China maintained its relatively low index score, falling by five percentage points to 29% in 2026. This largely reflects its poor performance for locational and trading partner factors. Its destructive trade war with the US has seen it fall in the tariff sub-pillar, despite the recent tariff-reducing agreement with the ASEAN bloc. Combined with the fact that its trade is far reaching, including significant exports to sub-Saharan Africa, which drives down its score for proximity to trading partners, China receives the lowest score in the locational pillar. This has been exacerbated by the ongoing crisis in the Middle East, which is estimated to have compressed trade volumes from the region, increasing the proportion that goes to further destinations such as SSA and the Americas. It is also contrasted against its relative strength in commodities endowment. Similar to the US, its highly diverse economy means that natural resource rents as a share of GDP are relatively low, however it is the top performer for total commodities trade. This is where China’s dominance of rare earths and critical minerals such as copper shows clearly, giving it a strong score despite low petroleum exports relative to other hubs.

In ninth and tenth, South Africa and Nigeria retained their rankings from previous index iterations. The former ranked near last in each of the pillars, showing a particularly weak performance in locational and trading partner factors. That said, South Africa has benefitted from greater passage through the Cape of Good Hope as a result of the ongoing Iran conflict. While absolute trade volumes alone do not have significant weight in the Index, a more structural shift to using this passage may result in South Africa

seeing more sustained gains in its CTI score in future editions.

By contrast, Nigeria’s oil reserves continue to drive significant petroleum exports, putting it in a position of relative strength for commodity endowments. Combined with an extremely high oil price, Nigeria’s oil exports and natural resource rents as a share of GDP place it in third for these factors, notably above China. However, it is let down by institutional factors. In this pillar it ranks last across all sub-pillars, marking the only country with a score of 0% in any of the pillars.

The 2026 edition of the CTI sees continued variation in the middle of the table, with recent trade and conflict-related disruptions driving down scores for a number of the hubs. That said, the first, second, eighth, ninth, and tenth places have been relatively fixed through previous iterations. Trends in this edition seem similar to those seen in the 2022 CTI, when Ukraine-related shocks put downward pressure on scores, although the UK’s performance is notably weaker.

A note on data: several results in this edition rest on nowcast estimates. These estimates draw on IMF high-frequency freight data and updated WTO tariff information and are the most defensible available approximations given data release lags. However, the period under review has been one of exceptional volatility, and the margin of uncertainty around these figures is wider than in previous editions. The directional findings are considered robust; precise scores should be interpreted with appropriate caution.

SECTION 3

THE CHANGING COMPOSITION OF TRADE

The most consequential shift in global trade right now is not where goods are flowing, but what is being traded. The composition of trade is being driven by three simultaneous and mutually reinforcing structural shifts: services are overtaking goods as the primary engine of trade growth; within goods, AI-related products have become so dominant that they are distorting the overall picture; and the nature of value creation in trade is becoming increasingly intangible – intellectual property, data, software and branding are now as tradeable and as strategically significant as physical commodities. Together, these shifts are producing a version of global trade that looks fundamentally different from the one that existed a decade ago, and they are being powered by a demand transformation that is equally profound.

From containers to code

The structural shift from goods to services in global trade is now a present reality. Services export growth continues to outpace merchandise trade by a significant and widening margin. The WTO forecasts global service exports to grow 4.8% in 2026 and 5.1% in 2027, against merchandise growth of 1.9% and 2.6% respectively.⁹³

Within services, digitally delivered exports such as cloud computing, online finance, remote professional services, and software licensing, are growing fastest of all, projected at 6.1% in 2025 and 5.6% in 2026.⁹⁴ This is a structural and accelerating shift in what the global economy produces and consumes.

Digital trade provisions now as important as tariff schedules

The rules governing cross-border data flows, e-commerce, digital signatures and cloud services are now central to every significant trade negotiation. CPTPP, with its commitments to free data flows and restrictions on data localisation, is considered the gold standard.⁹⁵ The EU-India FTA's digital chapter, the EU-Singapore Digital Trade Agreement and the expanding Digital Economy Partnership Agreement all reflect the same recognition: that the terms on which digital services cross borders will determine competitive advantage in the same way that tariff rates once did. The countries and businesses that shape those terms will have a structural advantage over those that inherit them.

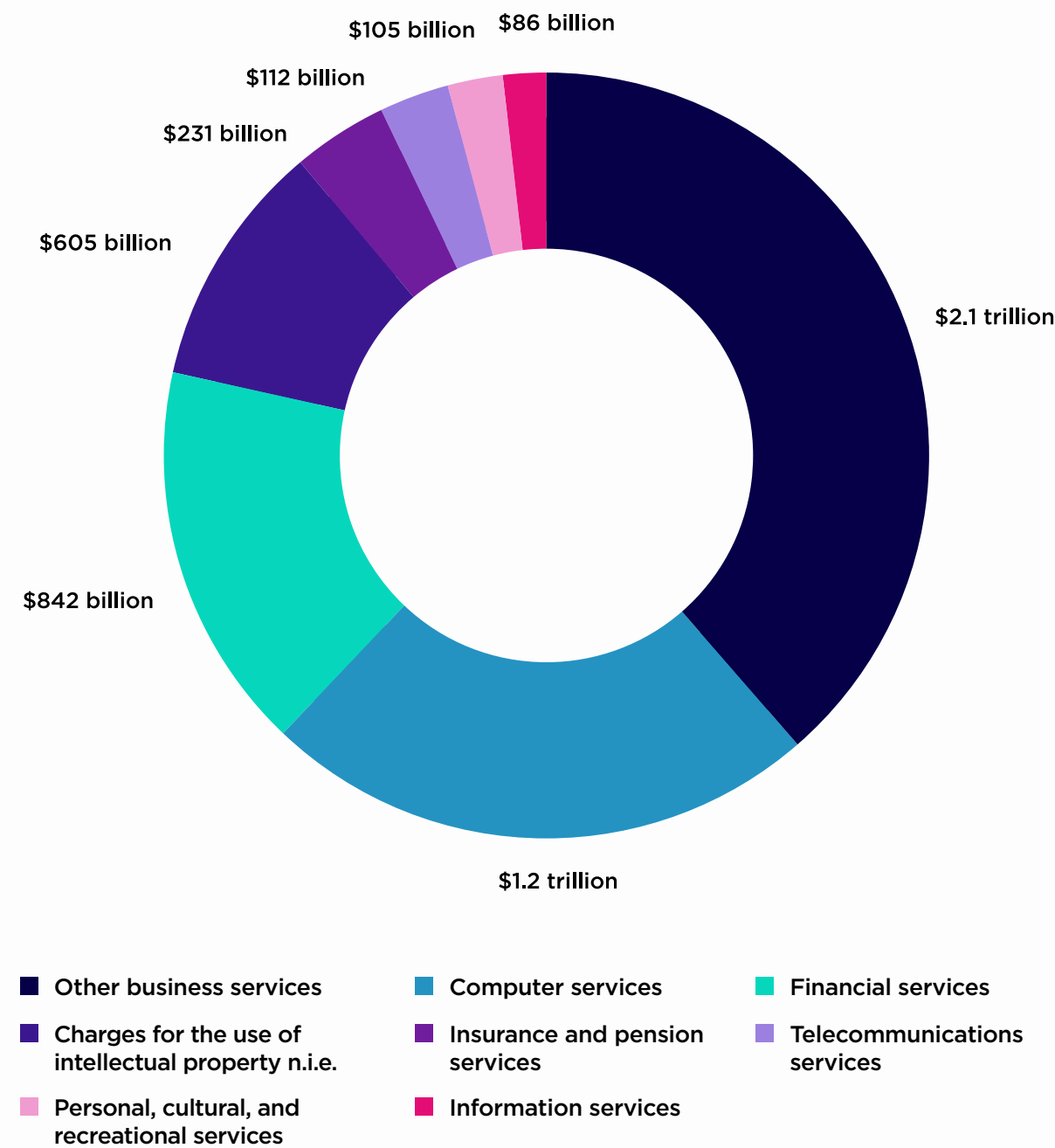
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⁹³ WTO, 2026a
⁹⁴ WTO, 2024

⁹⁵ Asia Pacific Foundation of Canada, 2025

Figure 15

Composition of global digitally delivered services, 2025



Source: WTO, 2026c

The AI goods surge

AI-related goods have become the defining merchandise trade story of the decade. In the first half of 2025, trade in AI-related goods – semiconductors, processors, servers and finished computers – expanded 20%, against less than 4% growth in non-AI goods.⁹⁶ AI-related investment accounted for nearly half of merchandise trade growth in 2025, while office and telecommunications equipment recorded the fastest increase of any major product group, rising 19% year-on-year. These goods now represent 15% of global trade by volume but drove 43% of its growth in the first half of 2025. The AI goods surge is not just a technology story – it is reshaping which countries and corridors are gaining influence in global trade, and which are being left behind.

The concentration of AI goods production is as significant as its growth. Advanced chip manufacturing remains overwhelmingly concentrated in Taiwan, South Korea and Japan, with the United States controlling design and intellectual property. China is building alternative capacity but remains years behind at the frontier. ASEAN is emerging as an alternative manufacturing base, with Malaysia, Singapore, Thailand and Vietnam accounting for nearly 30% of global semiconductor export growth by 2024. As governments and firms restructure production, services and infrastructure around AI deployment, the appetite for both AI hardware and the digital services running on it will expand further, but so will the geopolitical contest over who controls the supply chains that produce them.

AI goods now represent 15% of global trade by volume but drove 43% of its growth in the first half of 2025.

⁹⁶ WTO, 2025

The growing intangibles economy

A growing share of the most valuable cross-border flows cannot be weighed, measured or tracked through a port. Intellectual property, data, branding, design and embedded software now drive a significant and growing proportion of global trade value. Charges for the use of intellectual property in services exports have been rising steadily, with the EU and the United States accounting for nearly 70% of such exports in 2024, a concentration that reflects decades of investment in innovation capacity and that is proving difficult for emerging economies to penetrate.⁹⁷ The World Intellectual Property Organization finds that since 1995, intangible investment has grown 143%, while tangible investment has grown just 32%.⁹⁸ The gap is not closing.

The strategic implications are profound and underappreciated. Intangible assets drive competitiveness, enable premium pricing and generate the kind of customer loyalty that is not easily disrupted by a competitor with lower labour costs. For businesses, the ability to generate, protect and commercialise intellectual property across borders is increasingly the determinant of long-term competitive position in global markets. For governments, the policy frameworks governing IP protection, data ownership and digital services trade are becoming as consequential for economic growth as industrial policy once was. The countries building the strongest intangible asset bases today – in AI, biotechnology, advanced manufacturing software and creative industries – are positioning themselves for the next wave of trade growth.

The World Intellectual Property Organization finds that since 1995, intangible investment has grown 143%, while tangible investment has grown just 32%. The gap is not closing.

The demand engine

Behind the compositional shifts in what is being traded lies an equally profound transformation in who is buying it. Three demographic forces are reshaping the demand side of global trade simultaneously and their combined effect will determine which markets, products and corridors matter most over the next two decades.

Ageing populations in Europe and East Asia are two key demographics reshaping consumption patterns and creating fiscal pressure. The proportion of people aged 65 and over is projected to more than double from 761 million in 2021 to 1.6 billion by 2050.⁹⁹ In practical trade terms, this means rising demand for healthcare products, pharmaceutical exports, medical devices, leisure services and specialist financial products, and falling demand for the mass consumer goods that have historically driven merchandise trade growth. The European Bank for Reconstruction and Development (EBRD) estimates that ageing populations could reduce annual per capita GDP growth by almost 0.4 percentage points in parts of Europe between 2024 and 2050.¹⁰⁰ For trade-dependent economies in East Asia like Japan, South Korea, or Taiwan, managing the transition from export-led growth to domestically balanced economies while populations age is one of the defining policy challenges of the decade.

Young, digitally connected populations in Africa and South Asia represent the largest

untapped consumer opportunity in global trade. Sub-Saharan Africa's population is projected to almost double between 2022 and 2050, while Central and Southern Asia will become the world's most populous region.¹⁰¹ Many African countries are entering a demographic sweet spot with a surge in 15-24 year olds with positive implications for labour force growth and, critically, digital adoption. These populations are leapfrogging traditional retail and banking infrastructure entirely, driving growth in mobile commerce, digital payments and e-commerce that is creating new trade corridors and new demand pools faster than most Western businesses have recognised.

The expanding global middle class is the single most powerful driver of demand for high-value goods and services trade. More than half the world's population is projected to be middle class by 2030, with the largest expansions in Asia Pacific and Latin America.¹⁰² By 2034, nearly half of all middle-class households in emerging markets will be in China alone.¹⁰³ These newly prosperous consumers are driving demand for premium food and beverage products, international tourism, quality healthcare, higher education, financial services and digital subscriptions – categories where services trade and intangible value creation are growing fastest. The centre of gravity in global consumer demand is shifting decisively towards emerging markets, and the trade flows, logistics networks and brand strategies of businesses will need to be increasingly recalibrated to meet that reality.

⁹⁷ WTO, 2025
⁹⁸ World Intellectual Property Organization, 2025

⁹⁹ United Nations, 2023
¹⁰⁰ Yakustidi, 2025
¹⁰¹ United Nations, n.d.

¹⁰² Wallach, 2022
¹⁰³ Oxford Economics, 2025

SECTION 4

THE FORCES SHAPING TRADE OUTCOMES

The structural transformation of trade described in the previous section will not unfold uniformly or without friction. Three forces – industrial policy, financial conditions and energy availability – will determine which countries, sectors and businesses capture the opportunity that the new composition of trade represents, and which are held back by the structural constraints that sit beneath the headline growth numbers. Understanding these forces is as important as understanding the trends they are shaping.

Industrial policy

The era of hands-off trade policy is over. Major economies are using subsidies, localisation requirements, export controls and national security carve-outs with a frequency and ambition not seen since the reconstruction period of the last century. The logic is consistent across otherwise very different governments: reduce external dependencies, secure strategic supply chains and build domestic capacity in the sectors that will determine competitive advantage in the decades ahead. The trade consequences may be significant and are still unfolding.

The technology sector is where industrial policy is most active and most consequential. The United States has implemented export controls on advanced computing and semiconductor technologies, adding over 140 companies to its export blacklist and restricting China's access to the most advanced chip manufacturing equipment. China has responded with export controls on critical rare earths and processing equipment. The EU is formulating a Made in Europe strategy, India has launched Make in India, and a growing number of governments are publishing national AI strategies backed by domestic manufacturing incentives.¹⁰⁴ These measures are designed to build resilience but

they also fragment integrated global supply chains, raise input costs, slow innovation diffusion and intensify competition in the sectors where collaboration would generate the greatest collective gains.

The risk is not that industrial policy fails; it is that it succeeds in ways that are collectively detrimental. When every major economy simultaneously prioritises domestic production

of the same strategic goods – semiconductors, batteries, AI infrastructure, pharmaceutical ingredients – the result is duplicated capacity, higher costs and an arguably less efficient global economy. The businesses best positioned to navigate this environment will be those that can map their exposure to competing industrial policy regimes across their full supply chain and identify where strategic realignment is genuinely commercially viable.

The technology sector is where industrial policy is most active and most consequential. The United States has implemented export controls on advanced computing and semiconductor technologies, adding over 140 companies to its export blacklist and restricting China's access to the most advanced chip manufacturing equipment.

¹⁰⁴ Leali and Stone, 2026

Financial conditions

The investment environment for trade-intensive sectors has deteriorated significantly and the recovery will be uneven. Global FDI fell 11% in 2024 to \$1.49 trillion, the second consecutive year of double-digit contraction.¹⁰⁵ Higher interest rates have raised the cost of capital across sectors that underpin physical trade flows, namely manufacturing, infrastructure and logistics. Although monetary easing has begun in some economies, the Iran conflict has introduced new inflationary pressure that is pushing rate expectations higher again in Europe and the UK. The result is a financing environment in which long-horizon infrastructure investment such as ports, rail, energy, and digital connectivity is being deferred at exactly the moment when trade route diversification is making it most necessary.

Technology is the exception. But the concentration of that capital creates its own risks. International investment in the digital economy doubled in value in 2024, with data centres, semiconductors and ICT services attracting disproportionate flows. The hyperscaler buildout led by AWS, Microsoft Azure, Google Cloud and their Chinese equivalents is directing enormous capital into a relatively small number of locations, creating AI infrastructure hubs that will shape trade in digital services for decades. For the majority of trade-intensive sectors outside technology, however, the financing environment remains tight, and the gap between the investment needed to build resilient, diversified supply chains and the capital available to fund them is not closing quickly.

For the majority of trade-intensive sectors outside technology, the financing environment remains tight, and the gap between the investment needed and the capital available to fund them is not closing quickly.

¹⁰⁵ UNCTAD, 2025

The Gulf states, with their combination of abundant renewable potential and sovereign capital to fund grid development, are similarly well-positioned.

Energy

Reliable, affordable and abundant electricity has emerged as one of the most significant and least anticipated constraints on trade competitiveness. The digital transformation of global commerce and the AI buildout are driving a surge in power demand that existing grid infrastructure was not designed to meet. In the United States, data centres could account for nearly half of total electricity demand growth over the same period.¹⁰⁶

Grid constraints are already slowing investment in the world's most advanced trade infrastructure. In Northern Virginia – one of the world's largest data centre clusters – grid connection delays are pushing new projects back by years. Similar constraints are emerging in Ireland, Singapore and parts of Northern Europe, where planning approvals and transmission capacity are becoming the binding constraint on digital infrastructure expansion.¹⁰⁷ The Netherlands and Ireland have introduced outright curbs on new data centre development. These reflect a structural gap

between the pace of digital trade growth and the pace of energy infrastructure investment that will take years to close.

The countries that solve the energy problem will win the next round of trade infrastructure competition. As energy availability and cost become decisive factors in where data centres, AI infrastructure and advanced manufacturing facilities are located, the economies able to offer reliable, affordable and increasingly low-carbon power will capture a disproportionate share of the investment that drives digital trade growth. Southeast Asia is emerging as a primary beneficiary – the IEA forecasts that data centre electricity consumption in ASEAN will nearly double by 2030, with Malaysia, Indonesia, Vietnam and Thailand all attracting significant investment. The Gulf states, with their combination of abundant renewable potential and sovereign capital to fund grid development, are similarly well-positioned. For businesses making location decisions about where to build or expand trade-critical digital infrastructure, energy availability is no longer a secondary consideration but often the primary one.

¹⁰⁶ IEA, 2025

¹⁰⁷ Morgan and Patridge, n.d.

SECTION 5

TRADE FINANCE: THE \$2.5 TRILLION PROBLEM

One of the single biggest constraints on trade growth is the inability of the global financial system to fund the trade that businesses are already trying to do. The global trade finance gap – the difference between the funding businesses need to execute cross-border transactions and what the financial system actually provides – stands at \$2.5 trillion.¹⁰⁸ That figure represents 10% of global merchandise trade. It has not widened despite mounting geopolitical pressure and tighter global liquidity, which speaks to the resilience of trade finance mechanisms under stress¹⁰⁹, but it has not narrowed either, despite a decade of fintech innovation, digitisation initiatives and development bank programmes designed to close it. The gap is structural, persistent, unequally distributed, and holding back the very trade flows that the new global economy depends on most.

A gap falling hardest on those who can least afford it

The trade finance gap is not evenly distributed, and its concentration tells its own story about the limits of the current system. India and Africa face the largest shortfalls relative to their trade volumes, while in the UAE the gap is negligible – a reflection of financial infrastructure depth, regulatory sophistication and the concentration of trade finance expertise.¹¹⁰ For micro, small and medium-sized enterprises and firms in developing economies, the consequences are direct: funding applications are rejected, export opportunities are missed and participation in global supply chains remains out of reach. The Asian Development Bank estimates that nearly half of all trade finance requests from SMEs are rejected by banks, against a rejection rate of just 7% for multinational corporations. The gap is not a failure of capital availability given the depth and liquidity of global capital markets. It is a failure of accessibility, driven by complexity, compliance costs and risk aversion that disproportionately penalises the businesses and economies that could benefit most from greater trade participation.

¹⁰⁸ Asian Development Bank, 2025

¹⁰⁹ Asian Development Bank, 2025

¹¹⁰ Asian Development Bank, 2025

The \$2.5 trillion trade finance gap is structural, persistent, unequally distributed, and holding back the very trade flows that the new global economy depends on most.

“

Why can't we direct that [\$4 trillion of wealth in the GCC and trillions in Wall Street] into trade finance? It's too complex. Every time I've spoken to my colleagues on the global markets side, when we start digging into the details of how trade finance is executed, they back off and they say: I can't sell this to my investors. It's too complex.”



Roundtable participant

Dubai, February 2026

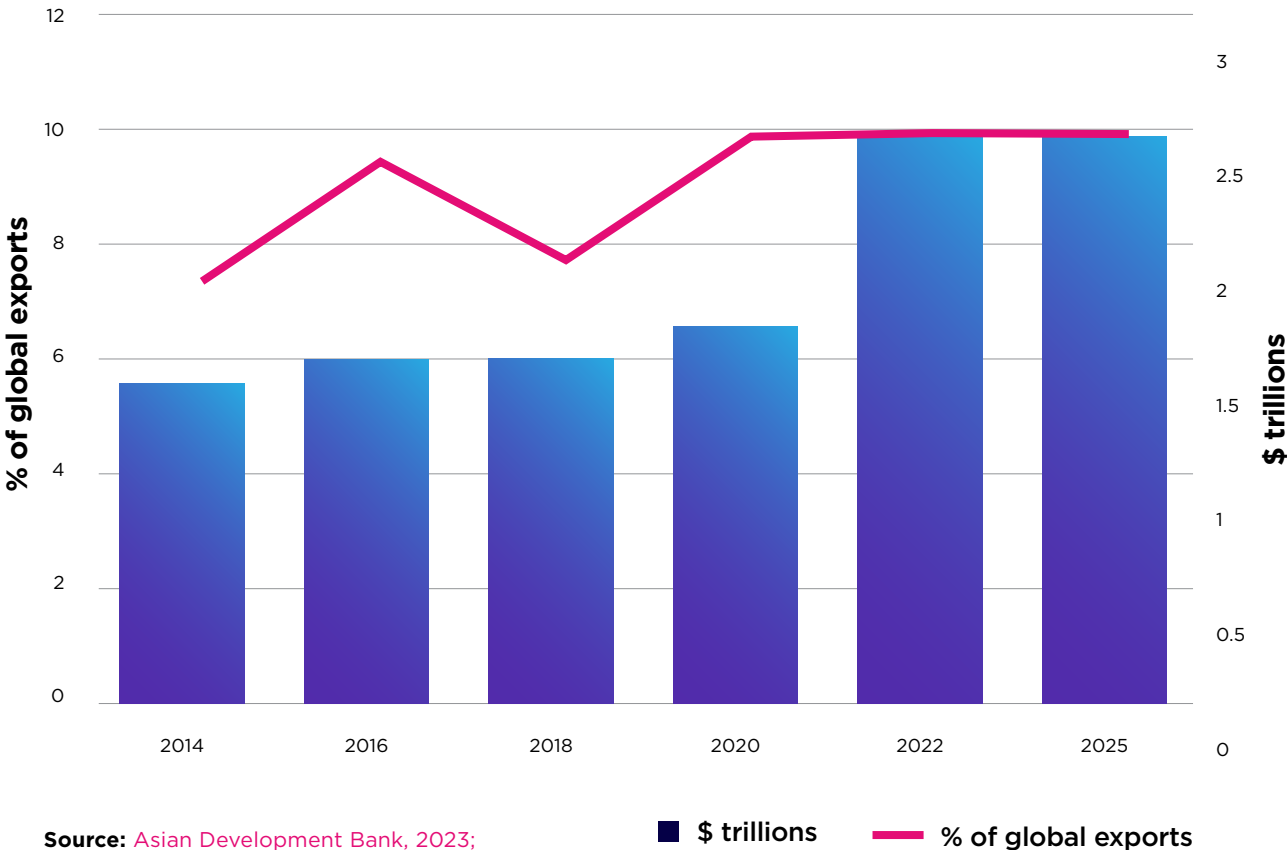
The complexity problem

Trade finance transactions involve multiple counterparties across multiple jurisdictions, each with their own documentation requirements, compliance frameworks and risk assessment methodologies. A single letter of credit can require more than twenty separate documents, verified by hand, in a process that has changed little since the nineteenth century.

The compliance burden has grown rather than shrunk as anti-money laundering and sanctions screening requirements have intensified, adding cost and friction that falls disproportionately on smaller transactions and less familiar corridors. The result is a system that works well for large, established firms trading along well-worn routes, and poorly for everyone else.

Figure 16

Global trade finance gap, 2014-2025



Source: Asian Development Bank, 2023; Asian Development Bank, 2025¹¹¹

¹¹¹ Data points from 2014-2022 are sourced from the 2023 paper. Data for 2025 is sourced from the 2025 paper.



What we need is more transparency and stronger partnerships between regulators, SMEs, and banks, with fintechs supporting this through capabilities such as fraud detection and AI.”

Roundtable participant
Dubai, February 2026

Technology is narrowing the gap but faces a scaling challenge

The tools to close the trade finance gap exist but the challenge is deploying them at the scale and speed the problem demands. Digital documentation platforms are already reducing processing times and administrative costs by replacing paper-based trade documentation, improving transparency and reducing fraud risk.¹¹² AI is being deployed to improve credit and risk assessment, enabling financial institutions to evaluate smaller exporters that have historically been screened out by blunt risk models. Tokenisation and distributed ledger technology are showing genuine promise in allowing trade assets like invoices, receivables, and bills of lading to be digitised and traded more efficiently, expanding the pool of

liquidity available to trade finance markets and reducing the capital tied up at each stage of the transaction cycle.¹¹³ The early deployments are producing real results and the direction of travel is clear – Chapter 3 examines the evidence in detail.

But adoption remains uneven and the structural barriers are significant. Most digital trade finance deployments still operate within closed networks, limiting their scale. Legacy systems in banks and trading companies make integration costly and slow. Regulatory frameworks governing digital trade documents vary across jurisdictions, creating legal uncertainty that slows adoption precisely in the cross-border contexts where the gains would be greatest. And the talent required to build, implement and manage these systems is in short supply across the financial institutions that need it most.

¹¹² Gilder and Jacobson, n.d.
¹¹³ Schweitzer, 2025



A lot of the trade finance gap is still due to legacy infrastructure rails trapping liquidity at different stages of flow... If you can move dollars on chain in seconds, you help to reduce that capital burden that exists within the trade... If you can reduce that gap that exists within a supplier initiating a payment or a buyer initiating a payment to a supplier, you help to solve some of that trade finance gap.”

 **Roundtable participant**
Dubai, February 2026

Beneath the trade finance gap

Even if the trade finance gap were closed tomorrow, a deeper and more expensive problem would remain. The physical and digital infrastructure that moves goods, data and capital across borders is ageing, underfunded and increasingly misaligned

with the trade flows it is being asked to support. McKinsey estimates that \$106 trillion in cumulative infrastructure investment will be required by 2040 to meet future demand, with transport and logistics accounting for the largest share at \$36 trillion, followed by energy and power at \$23 trillion and digital infrastructure at \$19 trillion.¹¹⁴

The energy infrastructure gap is the most acute near-term constraint. Global annual energy infrastructure investment falls short of requirements by an estimated \$1.5 trillion, with particularly severe shortfalls in the United States and emerging markets.¹¹⁵ Renewable generation capacity has doubled over the past decade, but grid infrastructure, storage and transmission networks have not kept pace. The consequences are already visible in the data centre market where grid connection delays are pushing back projects by years, and will become more visible across manufacturing and logistics infrastructure as the energy demands of an AI-driven global economy continue to grow.

The hubs that are closing these gaps fastest are pulling ahead of the rest. Port modernisation, logistics network digitisation, grid investment and data centre expansion are not just infrastructure decisions but part of bigger trade competitiveness decisions. Infrastructure depth and connectivity are among the primary dimensions on which future-forward trade hubs are assessed, a position expanded on in DMCC's Commodities Trade Index in section 2.5. The investment being made in trade infrastructure today will determine the geography of global commerce for the coming decades.

McKinsey estimates that \$106 trillion in cumulative infrastructure investment will be required by 2040 to meet future demand, with transport and logistics accounting for the largest share at \$36 trillion, followed by energy and power at \$23 trillion and digital infrastructure at \$19 trillion.

¹¹⁴ Green et al., 2025

¹¹⁵ Carrera et al., 2025

KEY TAKEAWAYS AND RECOMMENDATIONS

Key Takeaways

- **Trade is proving more resilient than the geopolitical turbulence suggests.** Headline growth figures are holding up, but strip out AI-related goods and the picture is considerably weaker. The businesses and economies best positioned for the next wave of trade growth are those that have recognised that the composition of trade has shifted structurally and are repositioning accordingly.
- **Services and digital trade are the present of global commerce.** Digitally delivered services are already growing faster than any other trade category, and the gap with merchandise trade is widening rather than narrowing. The regulatory frameworks governing cross-border data flows, digital services and e-commerce are now as strategically consequential as tariff schedules.
- **AI-related goods have become the single most important driver of merchandise trade growth.** Semiconductors, servers and data centre hardware drove nearly half of all merchandise trade growth in the first half of 2025. The geographic concentration of advanced chip production, and processing capacity for the critical minerals that underpin it, represents a structural vulnerability that export controls and industrial policy are intensifying rather than resolving.
- **The \$2.5 trillion trade finance gap has stalled but not closed.** SMEs and firms in developing economies bear a disproportionate share of the burden. The technology to close the gap exists but scaling it requires regulatory alignment, institutional commitment and infrastructure investment that remains insufficient. The hubs and corridors that solve the accessibility problem first will capture a disproportionate share of future trade growth.
- **Infrastructure is becoming a primary source of competitive differentiation.** The \$106 trillion infrastructure investment requirement by 2040 is not an abstraction. Grid constraints are already slowing data centre development in leading markets. Digital connectivity gaps are limiting trade growth in the regions with the fastest-expanding middle classes. The investment decisions being made now will determine the geography of global commerce for the next two decades.

Recommendations

- **Audit trade portfolios for services and digital exposure.** Businesses still primarily oriented towards merchandise trade should assess what share of their revenue, margin and growth is coming from services and digitally delivered offerings. Policymakers should ensure that services trade provisions, particularly on data flows and digital market access, are prioritised in bilateral and regional negotiations and not treated as secondary to goods trade commitments.
- **Build AI-related supply chain exposure into strategic risk frameworks.** The dominance of AI-related goods in merchandise trade growth means that businesses across sectors are increasingly exposed to semiconductor supply chain risk, export control volatility and the geopolitical contest over chip production capacity. Businesses should map where AI-related components and infrastructure sit in their supply chains, identify concentration risks at the tier two and tier three level and develop contingency sourcing arrangements for the scenarios that pose the greatest operational risk.
- **Close trade finance accessibility gaps before they become competitiveness gaps.** Businesses should audit trade finance arrangements against emerging digital platforms that offer faster credit decisions, lower documentation requirements and better SME access than traditional correspondent banking. Policymakers should accelerate the legal and regulatory reforms that give digital trade documents equivalent legal status to paper equivalents across all major trading jurisdictions, and should work with development banks to deploy blended finance instruments that reduce the risk premium on trade finance in underserved markets.
- **Factor infrastructure depth into market entry and investment location decisions.** Energy availability, grid reliability, digital connectivity and logistics network quality are now primary considerations in trade infrastructure planning. Businesses making decisions about where to locate trading operations, build supply chain nodes or expand market presence should incorporate infrastructure assessments into their evaluation criteria alongside more traditional metrics.
- **Engage with demographic demand shifts that will determine trade growth.** The expanding middle classes of Asia, Africa and Latin America represent the most significant demand opportunity in global trade. Businesses still primarily oriented towards advanced economy consumers should identify high-growth demographic markets most relevant to their sector and begin building market intelligence, regulatory relationships and distribution capabilities. Policymakers should ensure that trade and investment frameworks with high-growth demographic markets reflect their growing strategic importance.



CHAPTER 3

THE TECHNOLOGY DIVIDE

The most consequential divide in global trade is no longer between rich and poor countries, or between large and small firms. It is between those deploying technology at scale and those that are not

AI has crossed from boardroom ambition to operational reality. A new generation of financial infrastructure – stablecoins, tokenised assets, wholesale CBDCs – is already settling transactions in corridors where traditional banking is too slow, too expensive or simply absent. The foundational technologies that enable all of this, including semiconductors, data centres, 5G networks, edge computing, and blockchain are themselves becoming geopolitical assets, subject to export controls, investment screening and strategic stockpiling.

And cross-border data flows, the invisible infrastructure on which digital trade depends, are being fragmented by divergent national regulations faster than bilateral agreements can repair them.

The result is a two-track global trade system. On one track: businesses and economies that have integrated AI into their operations, built access to next-generation financial infrastructure and positioned themselves within the data flow frameworks that govern digital commerce. On the other: those still running on paper-based trade documentation, correspondent banking rails and fragmented data systems that predate the current technological era. The gap between these tracks is already widening in productivity, cost efficiency and market reach. It will widen further as agentic AI moves from pilot to production, as stablecoin settlement scales across more corridors and as data localisation rules tighten in markets that have not yet built the digital trade frameworks to manage them.

This chapter examines the technologies driving that divide and what businesses and governments must do to be on the right side of it.

SECTION 1

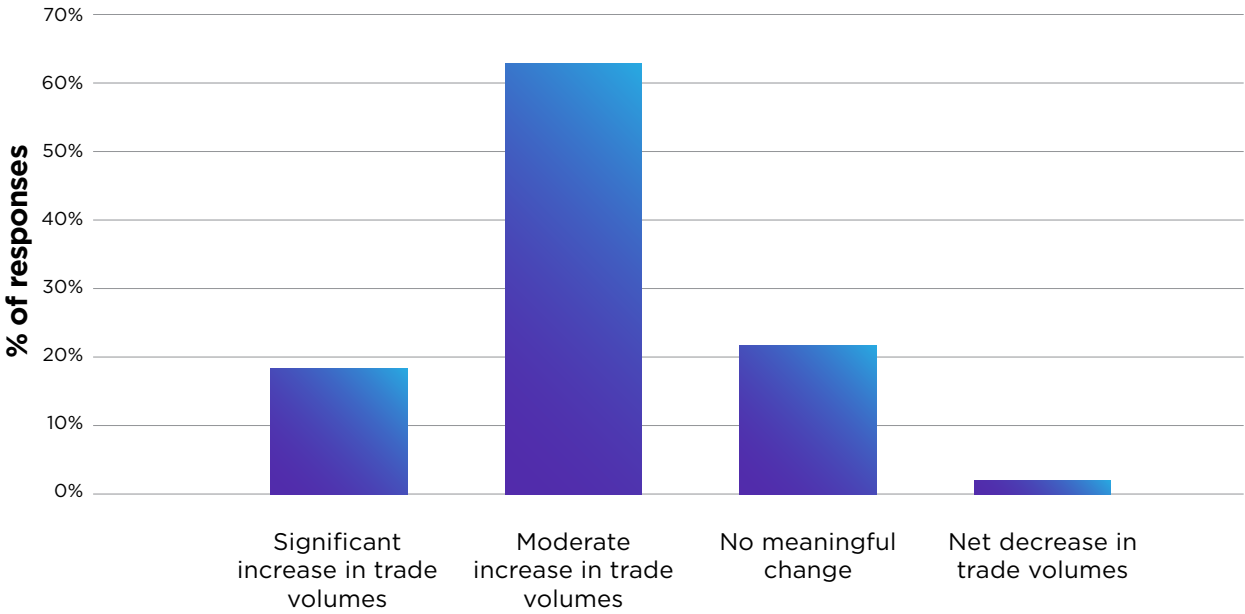
ARTIFICIAL INTELLIGENCE: CROSSING THE LINE

AI has entered a decisive phase of scale, capability and maturity. AI-related products and services are forecast to boost trade by nearly 40% by 2040 and hold the potential to revolutionise not only global commerce

but the trajectory of the world economy.¹¹⁶ Businesses agree: in our Future of Trade survey, more than three-quarters of businesses expect AI to result in either a significant increase or moderate increase in trade volumes.

Figure 17

To what extent do you expect AI adoption to affect global trade volumes over the next 1-3 years?



Source: DMCC Future of Trade Survey, 2026

¹¹⁶ WTO, 2025a

AI-related products and services are forecast to boost trade by nearly 40% by 2040 and hold the potential to revolutionise not only global commerce but the trajectory of the world economy



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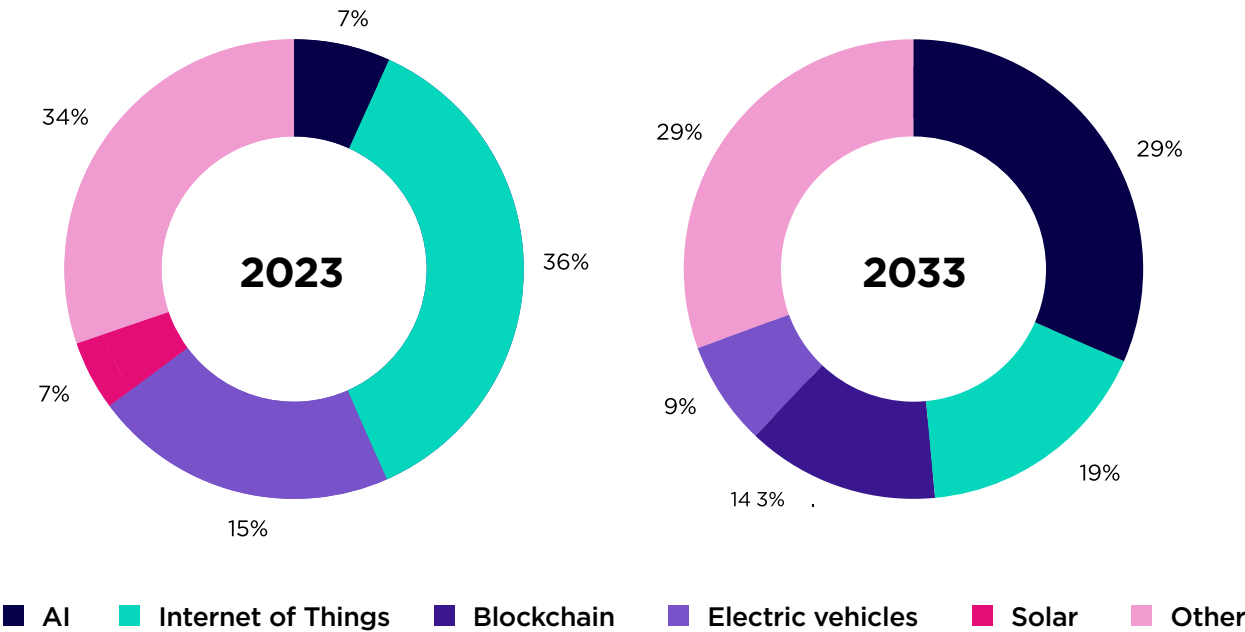
THE \$581 BILLION BET

The economic transformation expected from AI is substantial. PwC estimates AI adoption could lift global GDP by 15% by 2035, driven by gains in productivity efficiencies, automation, innovation, services expansion and entirely new AI-enabled industries.¹¹⁷ UNCTAD forecasts that AI will quadruple its share of the frontier tech market to reach

\$4.8 trillion in market value by 2033.¹¹⁸ Equality remains a concern. With AI expected to have an impact on 40% of the world's jobs and to tilt the economic scales away from labour towards capital, UNCTAD warns that the technology could widen rather than reduce the divide between developed and developing nations.¹¹⁹

Figure 18

AI's share of the frontier tech market could quadruple by 2033



Source: UNCTAD, 2025a

¹¹⁷ PwC, 2025
¹¹⁸ UNCTAD, 2025a

¹¹⁹ UNCTAD, 2025a

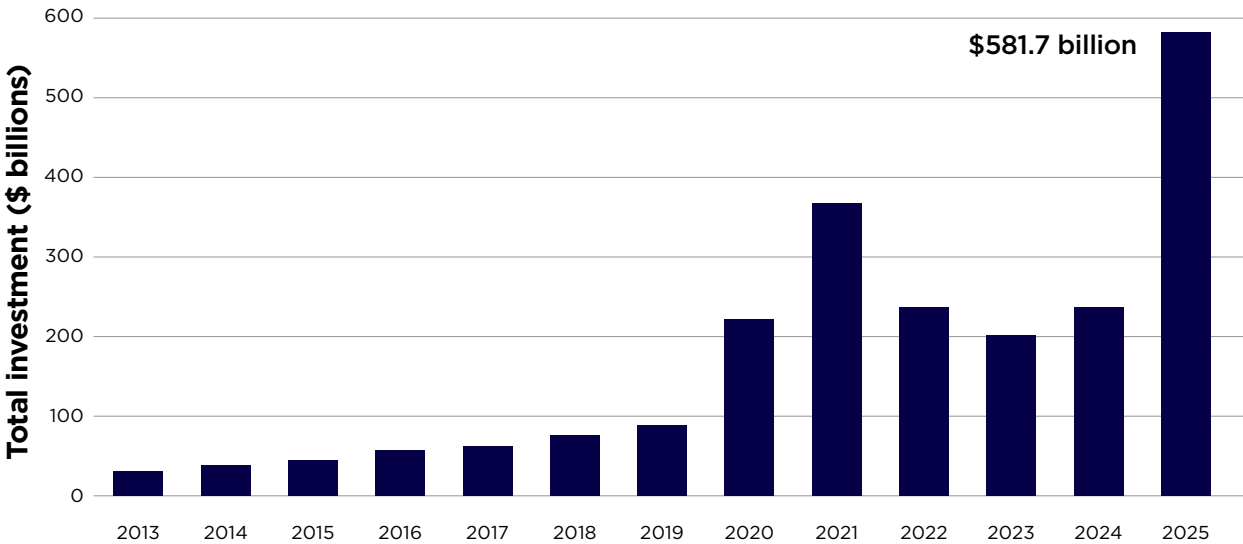
AI adoption could lift global GDP by 15% by 2035, driven by gains in productivity efficiencies, automation, innovation, services expansion and entirely new AI-enabled industries.

Corporations are placing large bets on AI's ability to strengthen their own capabilities and position. Global corporate spending on AI rose to a record \$581.7 billion in 2025, up 130% from 2024.¹²⁰ Private investment represented the lion's share, increasing

more than 127% from 2024, while mergers and acquisitions (M&A) showed similar growth, rising 133%.¹²¹ Generative AI (GenAI) accounted for nearly half of all AI-related private investment in 2025 and grew more than 200% from 2024.¹²²

Figure 19

Global corporate investment in AI, 2013-2025



Source: HAI, 2026

¹²⁰ HAI, 2026
¹²¹ HAI, 2026
¹²² HAI, 2026

AI'S TRADE IMPACT IS BEING PROPELLED BY THREE PHASES OF APPLICATION

GenAI and predictive AI (early 2020s to 2025)

GenAI has lowered the administrative, analytical and communications costs of cross-border trading, allowing firms to operate with a level of speed and agility once thought unattainable. Firms are using it to automate compliance documentation, draft contracts, translate regulations across jurisdictions and generate digital-twin simulations of entire supply chains to test scenarios. Customer experience, too, is being transformed: multilingual support systems powered by GenAI allow exporters and logistics firms to serve clients 24/7 without adding staff.

Predictive AI now underpins many of the decisions of global commerce. It informs demand forecasting, supply planning, risk scoring, warehouse and fleet optimisation, credit assessment, port-flow management and customs targeting.¹²³ As firms integrate real-sensor data, satellite imagery and transaction data, predictive AI is rapidly becoming the operational backbone of cross-border commerce, enabling exports, shippers and financial services providers to anticipate disruptions, rather than just respond to them.

The physical AI market is projected to reach \$49.73 billion by 2033, up from \$5.23 billion in 2025.

¹²³ Ruke, 2025

Agentic AI (2025 to 2030)

Agentic AI promises to transform trade-related AI from a reactive tool to a proactive, autonomous actor and collaborator. Unlike earlier systems that wait for human instructions, agentic models can interpret context, analyse, plan and execute tasks end-to-end with minimal human input. In practice, this means AI agents could manage a procurement cycle, monitor a shipment in transit or pre-clear customs documentation, all while automatically identifying missing data, checking regulatory requirements, escalating risks and completing paperwork. Gartner predicts that by 2026, 40% of enterprise applications will be integrated with task-specific AI agents, up from less than 1% in 2024.¹²⁴

Physical AI (2025 to 2040)

Physical AI bridges the gap between digital and physical worlds, integrating sensory input, spatial understanding and decision-making capabilities to enable machines to adapt and respond to real environments and physical dynamics.¹²⁵ In trade, this technology is already making its impact felt in areas such as warehouse robotics, automated port operations and autonomous transport, where it is increasingly being used to optimise the movement and handling of goods. The physical AI market is projected to reach \$49.73 billion by 2033, up from \$5.23 billion in 2025, growing at a CAGR of 32.53% over the forecast period.¹²⁶ Over the longer term, these technologies will drive a new phase of industrial automation: one that provides solutions to such challenges as rising costs, labour shortages and shifting consumer demands.¹²⁷

¹²⁴ Gartner, 2025
¹²⁵ Rowan et al., 2025

¹²⁶ SNS Insider, 2025a
¹²⁷ Wolf and Willige, 2025

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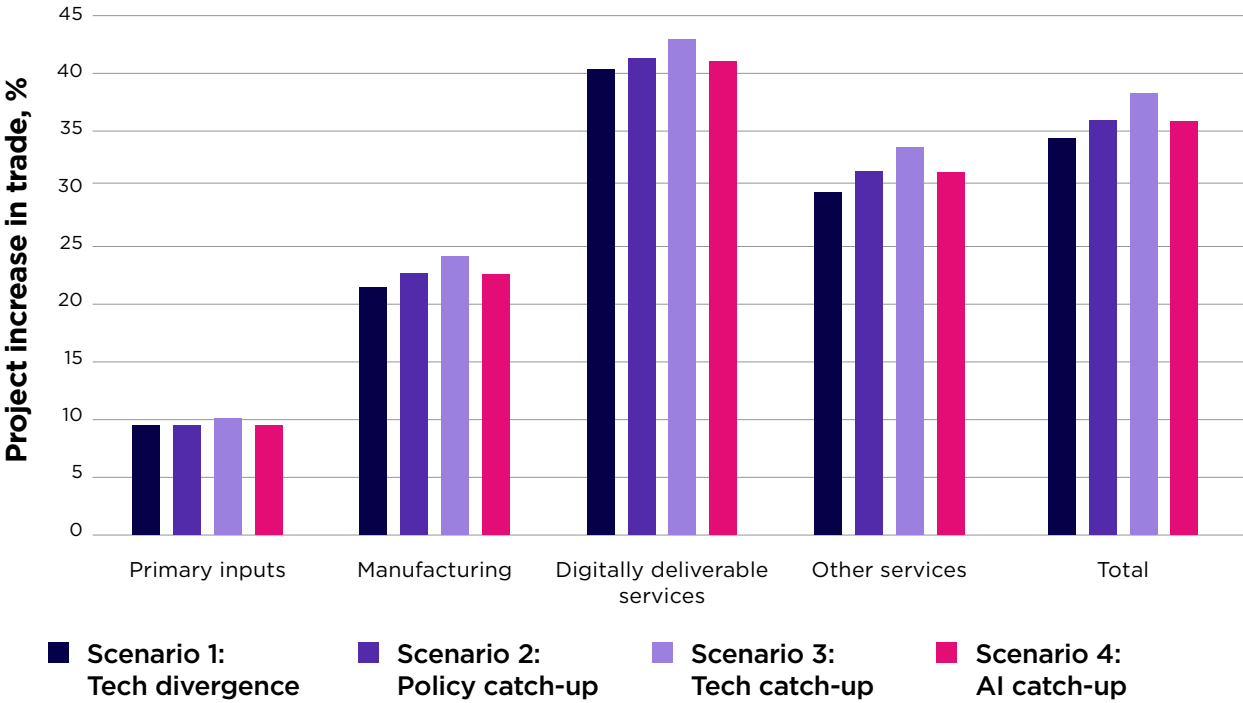
FROM EXPERIMENT TO OPERATIONS

AI’s impact on trade will not be determined by frontier breakthroughs alone, but by how widely it is integrated across the sectors and systems that enable cross-border commerce. That process is already underway, and its potential scale is

significant. According to the WTO, AI-driven productivity gains and reductions in trade costs could increase global flows of goods and services by 34-37% by 2040, with digitally deliverable services trade projected to grow by 42%.¹²⁸

Figure 20

AI’s projected increase in trade by sector and scenario, 2025-2040



Source: WTO, 2025b

¹²⁸ WTO, 2025b



In one of the projects I was just involved in, we improved the client’s productivity by 70%, meaning 70% fewer people are needed.”

Roundtable participant
Hong Kong, March 2026

AI is already transforming trade

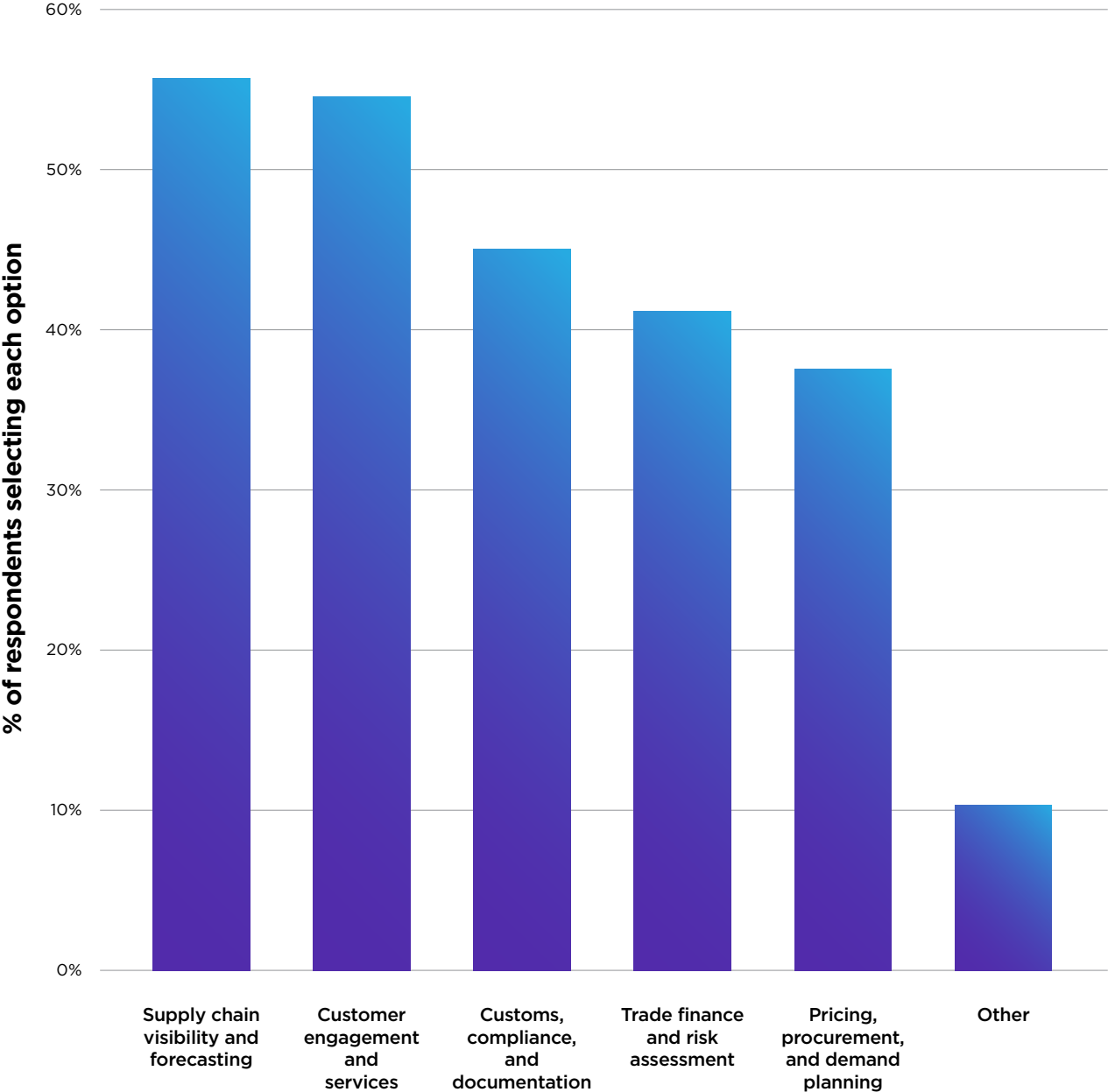
From logistics and supply chains, manufacturing, and ports to customers and border processes, customer service, and trade finance, participants across the roundtable series agreed that AI has moved from experiment to operational reality, giving examples of how it is being used in

demand forecasting, compliance screening, document processing and logistics optimisation. Our Future of Trade survey shows that, for businesses, AI is delivering the most value in supply chain visibility and forecasting, along with customer engagement and services, with customs and compliance, trade finance, and pricing and demand planning close behind.

For businesses, AI is delivering the most value in supply chain visibility and forecasting, along with customer engagement and services, with customs and compliance, trade finance, and pricing and demand planning close behind.

Figure 21

Where is AI already delivering the most value in trade-related processes?
(Select all that apply)



Source: DMCC Future of Trade Survey, 2026



What you need to really gain productivity is to move away from broad, shallow adoption of AI to deep task-specific adoption. That’s where the productivity lies.”



Roundtable participant
Frankfurt, March 2026

Logistics and supply chains

The logistics sector has moved furthest and fastest in AI adoption, and the productivity gap between leaders and laggards is already measurable. The global market for AI in supply chain and logistics, valued at around \$18 billion in 2024, is projected to grow at around 44% annually through to 2034.¹²⁹ Firms are moving from reactive to predictive supply chain management, using AI to anticipate bottlenecks before they materialise, model alternative routes and make better use of available capacity. Real-world examples illustrate how far this has already progressed:

Toyota’s AI-powered risk monitoring system tracks more than 175,000 suppliers across its supply chain tiers, reportedly detecting disruptions with 91% accuracy.¹³⁰ During flooding in Southeast Asia, the system identified at-risk components 11 days in advance, allowing the company to source alternatives and avert significant losses.¹³¹ A similar system at Johnson & Johnson monitors more than 27,000 suppliers across 100 countries and provided early warning of 85% of major supply disruptions in 2024, with an average lead time of seven days before impacts materialised.¹³²

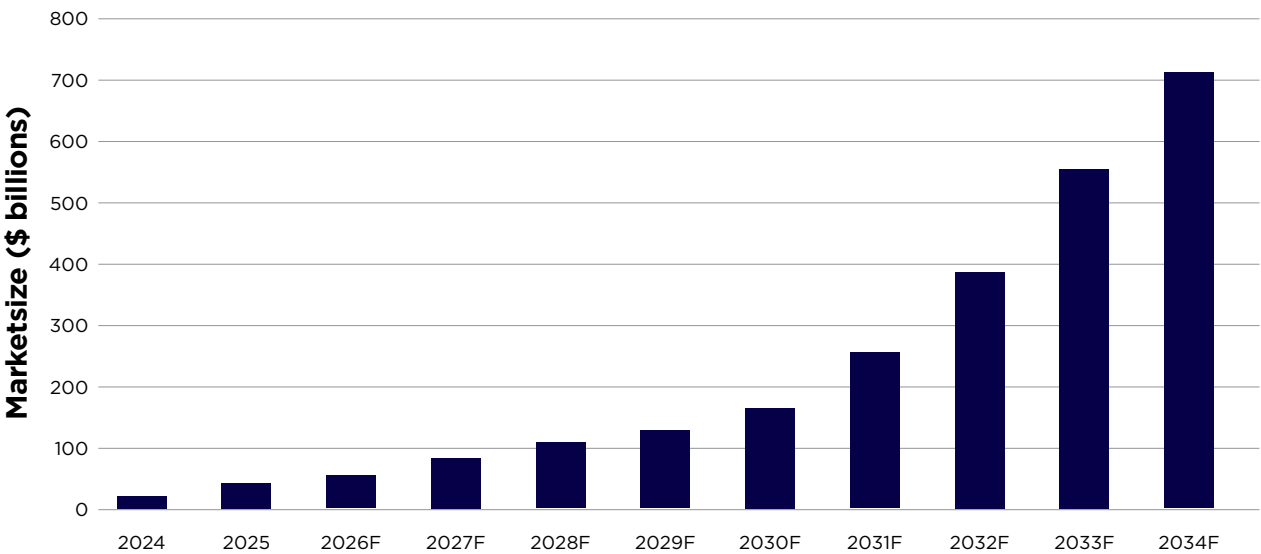
The global market for AI in supply chain and logistics, valued at around \$18 billion in 2024, is projected to grow at around 44% annually through to 2034.

¹²⁹ Zoting, 2025
¹³⁰ Docshipper, 2026

¹³¹ Docshipper, 2026
¹³² Docshipper, 2026

Figure 22

AI in logistics market size, 2024-2034



Source: Zoting, 2025



There’s a trade platform being built by the UAE Ministry of Foreign Trade, which is using live data points to predict trade. It looks at shipping routes, shipping costs, and regulations... taking the different data points that we have access to and uses them for real implementation.”

Roundtable participant
Dubai, February 2026

Ports and maritime trade

Ports are where AI’s operational impact on trade is most visible, and where the cost of not deploying it is most direct. More than 80% of goods trade by volume travels by sea, making ports a pressure point in global supply chains: one AI is already helping to ease.¹³³

Europe’s largest, the Port of Rotterdam, is deploying AI into its fairway traffic planning, using models trained on vessel data, draft restrictions and weather information to predict ship movements up to 24 hours ahead.¹³⁴ Singapore’s Tuas Port, which is set to be the world’s largest fully automated terminal when completed in the 2040s, is being built from the

ground up around automation, with electrified automated yard cranes and driverless guided vehicles managing container movements, all coordinated remotely from a central control hub.¹³⁵ The two ports are collaborating directly through the Rotterdam-Singapore Green and Digital Shipping Corridor and have established ship-to-shore data exchange infrastructure to enable quick and secure port clearance information, with live trials of global standards-based solutions as of March 2025.¹³⁶

As AI reduces delays through better planning, predictive maintenance and automated documentation, the gains flow across every sector that depends on maritime trade (which is nearly all of them).

Europe’s largest, the Port of Rotterdam, is deploying AI into its fairway traffic planning, using models trained on vessel data, draft restrictions and weather information to predict ship movements up to 24 hours ahead.

¹³³ UNCTAD, 2025b
¹³⁴ Port of Rotterdam, n.d.

¹³⁵ MPA, n.d.
¹³⁶ Port of Rotterdam, 2025

Customs and border processes

Border clearance has historically been one of the most stubborn sources of trade friction and AI is beginning to dissolve it. The classification of goods, verification of documentation and identification of high-risk shipments have all long relied on slow labour-intensive manual processes. AI is now automating parts of these workflows,

including the Harmonised System codes, and detecting anomalies in data. Alibaba's AI-powered customs clearance system, launched in 2024, has cut average processing time for cross-border shipments into China from 72 to 18 hours.¹³⁷ A joint WTO-ICC survey found that three-quarters of firms using AI were applying it to customs-related applications, and 20% were using it specifically to identify trade compliance risks.¹³⁸ However, regulatory barriers remain.

Customer service

Cross-border customer service – historically a constraint on international expansion for all but the largest firms – is being democratised by AI. Chatbots, predictive and sentiment analytics and GenAI tools offer 24/7, multilingual support, personalised product recommendations and automated sales service.¹³⁹ The insights AI offers into customer behaviour can help steer businesses' strategic decision-making. 81% of businesses surveyed by Salesforce are now integrating AI into customer service workflows and 83% of decision-makers expect to increase investment over the next year, with only 6% saying they have no plans to adopt the technology.¹⁴⁰ Klarna's AI assistant now handles two-thirds of customer service chats, doing the equivalent work of 700 full-time agents and driving an estimated \$40 million increase in profit.¹⁴¹

Trade finance

The \$2.5 trillion trade finance gap is partly a technology problem and AI is beginning to address the specific frictions that sustain it. Smaller firms, which face disproportionately high compliance costs, are particularly affected. AI is increasingly being used to automate document processing, verify transaction data and support fraud detection, reducing both the time and cost associated with trade finance transactions. For smaller exporters, lower due diligence costs and better risk assessment tools could meaningfully improve their access to finance.



Currently, we can check documents using AIs and they can identify discrepancies, but we are still required to have a human sitting next to the machine to validate what the machine has done. So yes, the productivity is huge, but we are not yet able to take those people out completely.”

Roundtable participant
Hong Kong, March 2026

Klarna's AI assistant now handles two-thirds of customer service chats, doing the equivalent work of 700 full-time agents and driving an estimated \$40 million increase in profit.

¹³⁷ Market Data Forecast, 2025
¹³⁸ WTO, 2025c

¹³⁹ Robert, 2026
¹⁴⁰ Salesforce, n.d.
¹⁴¹ Klarna, 2024

Manufacturing

The productivity gains from AI in manufacturing are upstream of trade but their effects flow directly into supply chain reliability and export competitiveness. Predictive maintenance is enabling firms to identify faults earlier, which some estimates suggest reduces equipment downtime by 30-50% and maintenance costs by 10-40%.¹⁴² For individual facilities, these may appear to be operational improvements. At the system level, however, more reliable production means more predictable output, meaning more resilient supply chains and more consistent delivery timelines.

Taken together, these developments point to a profound reduction in trade friction. AI is not replacing the architecture of global trade. Instead, it is being applied to the specific pressure points where friction has historically

been greatest: forecasting, border clearance, compliance documentation, credit access and production reliability. When deployed at scale, these improvements have the potential to substantially reshape the economics of cross-border commerce.

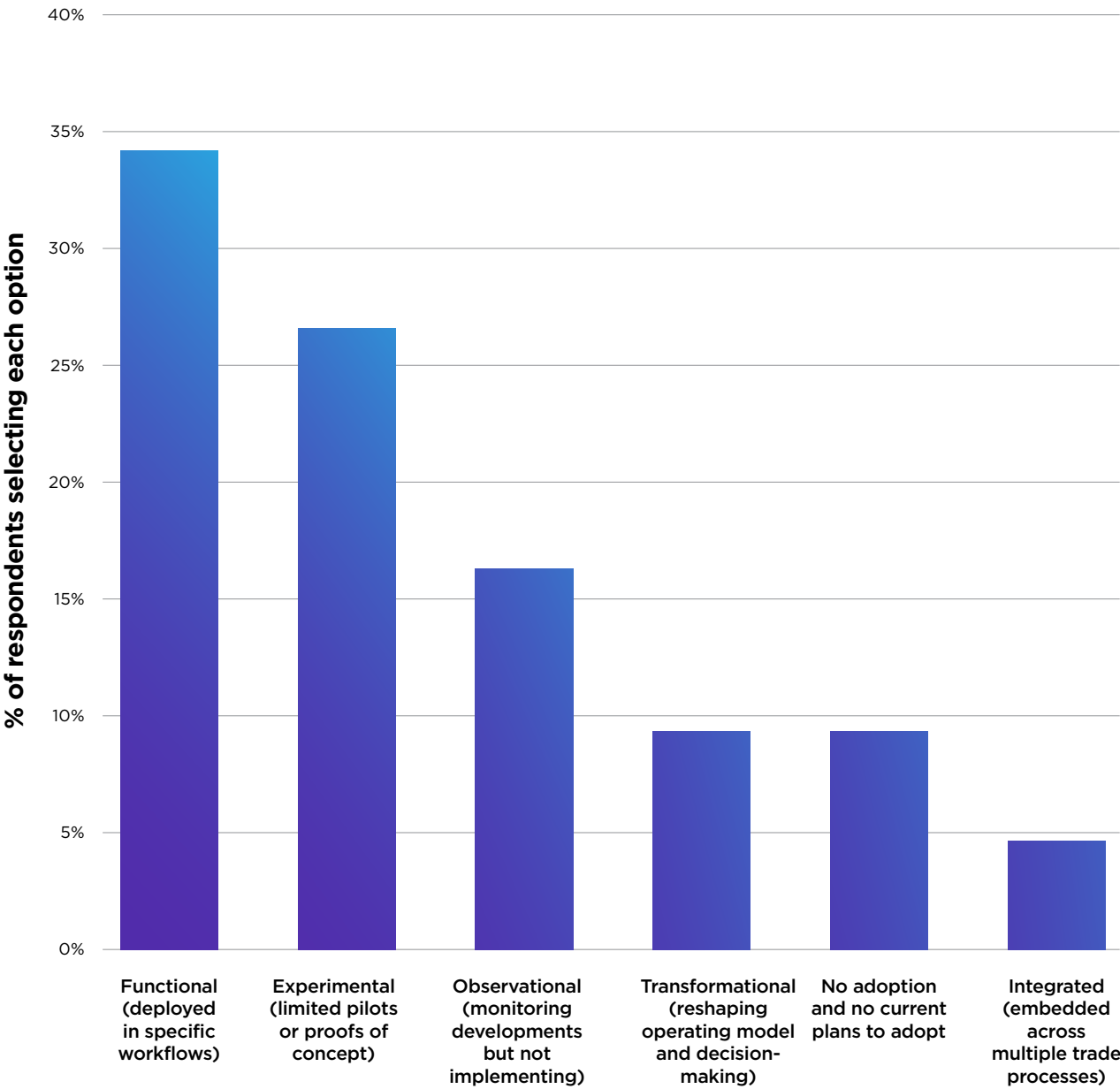
That said, although close to 90% of organisations now report using AI in at least one business function according to McKinsey, most have not yet scaled it across operations, which means the full impact on trade has yet to be felt.¹⁴³ Results from our Future of Trade survey indicate that adoption remains uneven, with more than 60% of businesses reporting functional or experimental use of AI, whereas less than 15% describe their use as fully integrated or transformational. More than 25% report observational use or no adoption and no current plans to adopt, suggesting untapped potential for AI deployment across trade operations.

AI is not replacing the architecture of global trade. Instead, it is being applied to the specific pressure points where friction has historically been greatest.

¹⁴² Dilda et al., 2017
¹⁴³ McKinsey, 2025a

Figure 23

What stage best describes your organisation's AI adoption in trade operations?



Source: DMCC Future of Trade Survey, 2026

3.1.3

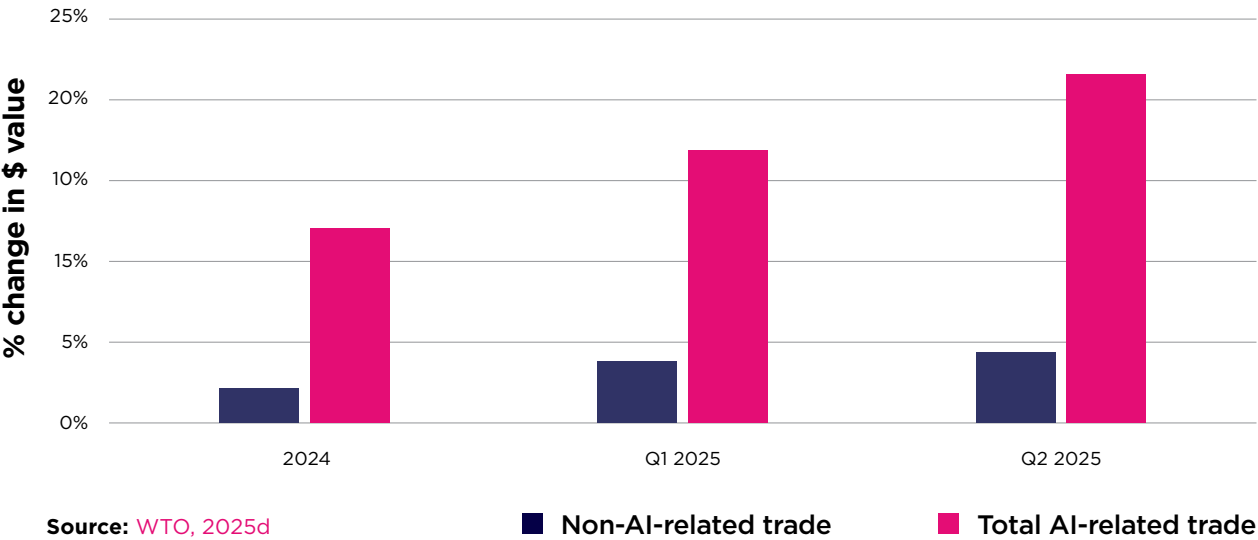
THE INFRASTRUCTURE BEHIND THE INTELLIGENCE

The infrastructure powering AI has become as strategically contested as the technology itself. Models can be copied, replicated or distilled. The physical infrastructure required to train and run them at scale – semiconductors, data centres, power grids, cooling systems, critical minerals – cannot. It takes years and billions of dollars to build, it depends on supply chains that are themselves subject to export controls and geopolitical disruption, and it is increasingly being treated by governments as a sovereign asset rather than a commercial one. The contest

for AI supremacy is, at its foundation, a contest for control of this infrastructure stack. The countries and companies that understand that, and are acting on it, will have a structural advantage over those still focused on the model layer alone. The data is unambiguous: global trade of AI-enabling goods totalled \$2.3 trillion in 2023.¹⁴⁴ By the first half of 2025, trade across 100 AI-related product lines had reached \$1.92 trillion, up more than 20% year on year.¹⁴⁵ AI-related goods represent just 15% of global trade by volume but drove 43% of its growth in the first half of 2025.¹⁴⁶

Figure 24

AI-related trade growth far outpaces non-AI related trade



¹⁴⁴ WTO, 2025a
¹⁴⁵ WTO, 2025d
¹⁴⁶ WTO, 2025d



AI-related trade has been the most substantial engine of growth in trade. Exports of semiconductors, data centre equipment – that was a third of global trade growth last year. There’s a shift in both the composition of trade and the transaction corridors.”



Roundtable participant
New York, April 2026

Semiconductors

At the centre of the infrastructure web are semiconductors, which have become the primary bottleneck in AI development. As AI adoption has soared, so too has demand for specialised chips, including graphics processing units (GPUs) and accelerators. The global GPU market is now worth an estimated \$65 billion, and is expected to grow to \$274 billion by 2029, at a CAGR of more than 33%.¹⁴⁷ The market is highly concentrated,

with dominant Nvidia holding a 92% share.¹⁴⁸ This level of concentration has made accelerators a key issue for export control policy, industrial strategy and U.S.-China competition.

Global semiconductor sales hit a record \$697 billion in 2025 and are forecast to exceed \$1 trillion by 2030.¹⁴⁹ As of April 2026, the total market cap of the sector reached nearly \$17 trillion, reflecting expectations of sustained AI growth.¹⁵⁰

¹⁴⁷ KPMG, 2025
¹⁴⁸ Vena, 2026

¹⁴⁹ Tritto, 2025
¹⁵⁰ Companies Market Cap, n.d.

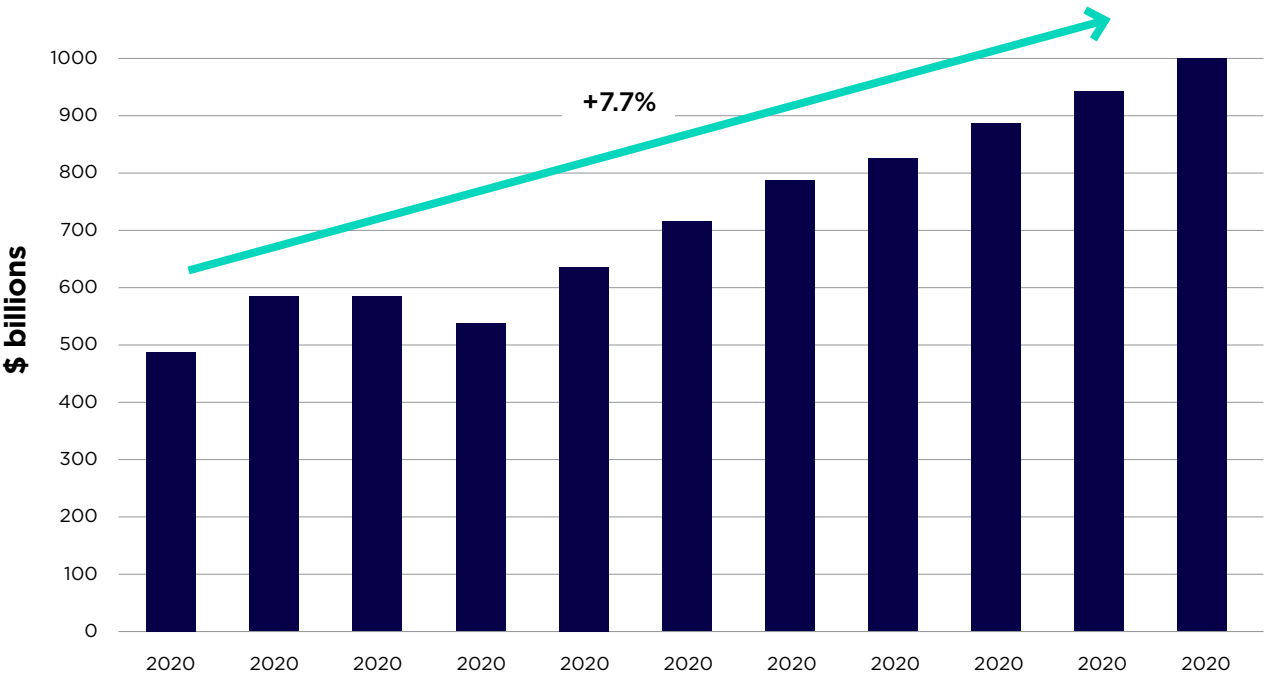


Everything that we talk about today that will change the world is going to be driven by electronics and semiconductors. Because all tech that we experience today and that we will experience in the future needs semiconductor devices to run it.”

Roundtable participant
Mumbai, April 2026

Figure 25

Global semiconductor market revenue, 2020-2030 (forecast)



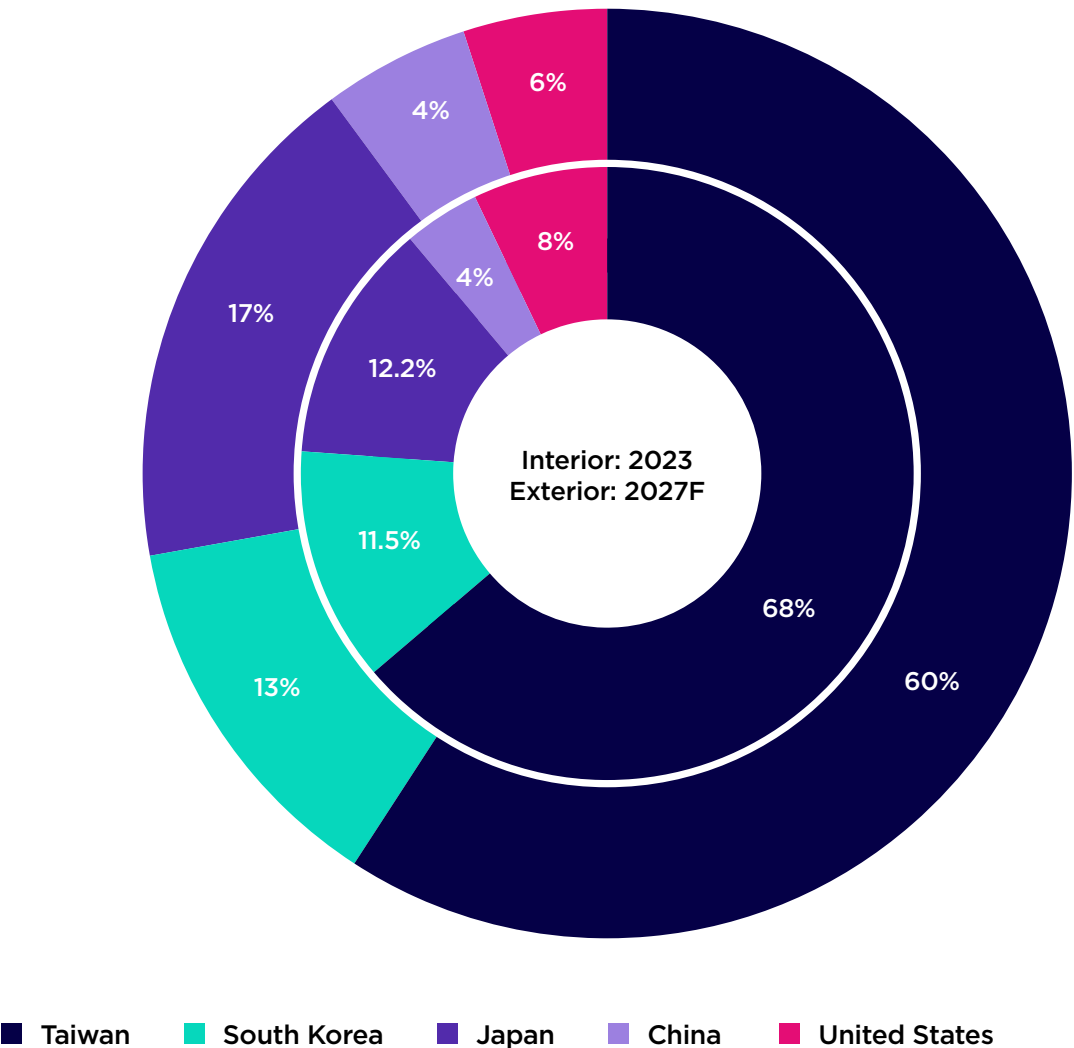
Source: PwC, 2024

However, the geographic concentration of production remains a vulnerability. Roughly 75% of the world’s semiconductor production capacity is located in Taiwan, South Korea, mainland China and Japan.¹⁵¹ Taiwan, in

particular, holds sway in the advanced chip ecosystem, led by TSMC, which produces the world’s most advanced chips at scale. This is a vulnerability the industry has long accepted, but it is now taking steps to address.

Figure 26

Share of advanced foundry capacity by country



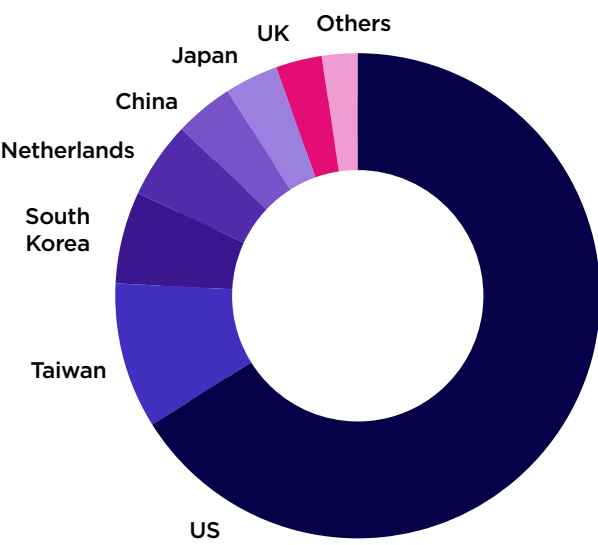
Source: Chiao, 2023

¹⁵¹ ICAEW, 2026

ASEAN is emerging as an alternative manufacturing base

Malaysia, Singapore, Thailand and Vietnam have become strategic nodes in chip manufacturing and assembly over the past decade. ASEAN’s share of global semiconductor export growth has risen from around 20% in 2015 to nearly 30% in 2024.¹⁵² Semiconductors have become the region’s strongest growth engine, accounting for about half of ASEAN’s trade expansion over this period.¹⁵³

Figure 27
Share of global semiconductor market cap by country, 2025



Source: Companies Market Cap, 2025

¹⁵² Tritto, 2025
¹⁵³ Tritto, 2025
¹⁵⁴ Kurilla, 2024

The United States leads semiconductor market capitalisation

The United States leads global semiconductor market cap by a wide margin, due to its strength in chip design, intellectual property and the software ecosystems that sit on top of the hardware. The value of major players Nvidia, Broadcom and Qualcomm lies in their chip designs rather than production. This distinction matters for trade policy: the United States controls the architecture even where it does not control the factory floor.

Semiconductor competition ramps up

U.S. export controls on advanced chips, aimed primarily at limiting China’s access, have forced supply chain restructuring. The Biden administration’s CHIPS and Science Act, signed in 2022, was designed to reverse a decades-long decline in U.S. production, which had fallen from nearly 40% of global output in 1990 to just 12% by 2022.¹⁵⁴ Nvidia has since begun manufacturing its Blackwell GPUs in Arizona, a notable shift for a company that had previously relied exclusively on TSMC.¹⁵⁵ Under an agreement signed in January 2026, commitments of at least \$250 billion in direct U.S. investment from Taiwanese semiconductor and technology companies were secured, and a further \$250 billion in credit guarantees, in exchange for a reduction in U.S. tariffs on Taiwanese goods from 20% to 15%.¹⁵⁶ Taiwan’s push for supply chain security has pulled in domestic suppliers from industries such as steel, plastics and display manufacturing, as chipmakers look to reduce their dependence on foreign inputs.¹⁵⁷

¹⁵⁵ Leswing, 2025
¹⁵⁶ U.S. Department of Commerce, 2026
¹⁵⁷ Ting-Fang, 2026

China investing in domestic alternatives

Huawei and its manufacturing partner SMIC have made meaningful progress, but the performance gap is still wide: U.S. AI chips are currently estimated to be around five times more powerful than Huawei’s best equivalent, with some forecasts putting that gap at seventeen-fold by 2027.¹⁵⁸ In December 2025, the Trump administration granted Nvidia permission to export its older 2023 H200 chip to China in exchange for a 25% surcharge.¹⁵⁹ Still, China relies heavily on imports of critical semiconductor manufacturing machinery. Spending on such imports reached \$30.9 billion in 2024, \$20 billion of which went to Japan and the Netherlands.¹⁶⁰ In 2025, Chinese imports from Malaysia and Singapore surpassed those from the United States, which declined more than 34% to some \$2 billion: the lowest since 2017.¹⁶¹ Whether Beijing takes up large-scale imports or continues its push to localise tech production for self-sufficiency will have an important bearing on global AI hardware trade.

Data centres

Chips need somewhere to operate, and that somewhere is under pressure. We are already seeing a global buildout of data centres as countries and firms race to meet surging AI demand. Global demand for data centre capacity could almost triple by 2030, with AI workloads accounting for around 70%.¹⁶² Meeting this will require an estimated \$6.7 trillion in investment by 2030, \$5.2 trillion of which is attributable to AI requirements.¹⁶³

¹⁵⁸ McGuire, 2025
¹⁵⁹ Bloomberg, 2026
¹⁶⁰ Ting-Fang et al., 2025
¹⁶¹ Ting-Fang and Li, 2026
¹⁶² McKinsey, 2025b
¹⁶³ McKinsey, 2025b

OpenAI alone has signed more than \$1.4 trillion in infrastructure deals to add 28 GW in capacity over the next eight years.¹⁶⁴ Most of the world’s data centre infrastructure is currently located in a handful of countries, with the United States hosting over 5,400 data centres – more than ten times more than any other country.¹⁶⁵

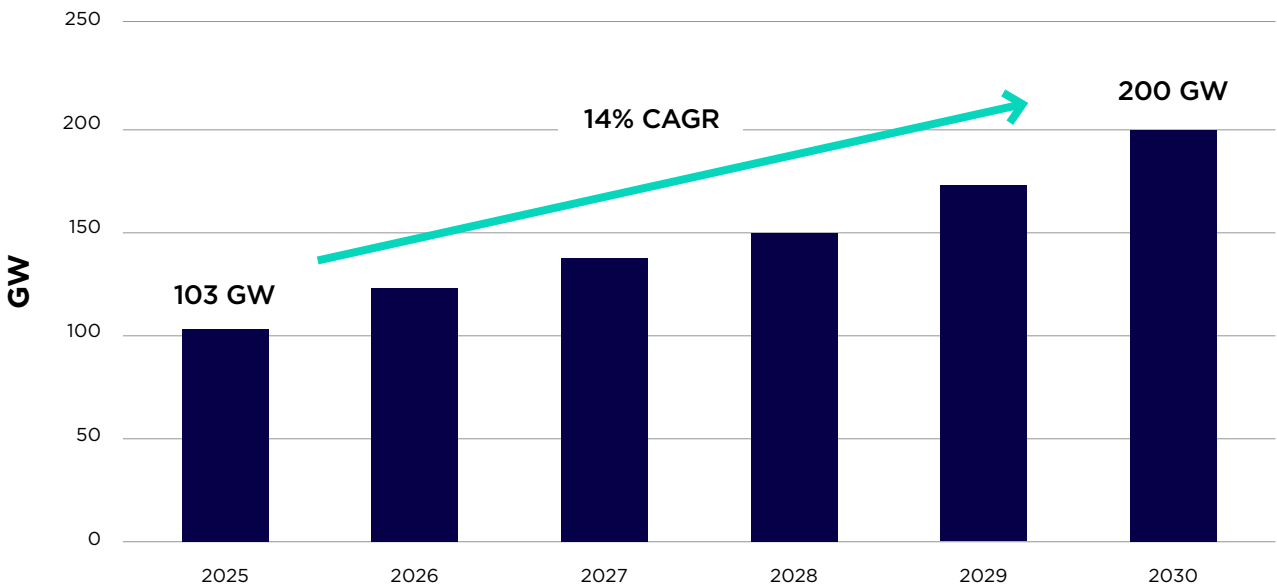
Investment in data centres is accelerating

Data centre M&A and investment hit a record \$61 billion in 2025.¹⁶⁶ The sector is expected to expand at a 14% CAGR through 2030, with nearly 100 GW of new data centres to be added between 2026 and 2030, doubling global capacity.¹⁶⁷ By 2030, AI could represent half of data centre workloads, with inference becoming the primary driver as deployments scale.¹⁶⁸

¹⁶⁴ Rosner-Uddin et al., 2025
¹⁶⁵ HAI, 2026
¹⁶⁶ Struta, 2025
¹⁶⁷ JLL, 2026
¹⁶⁸ JLL, 2026

Figure 28

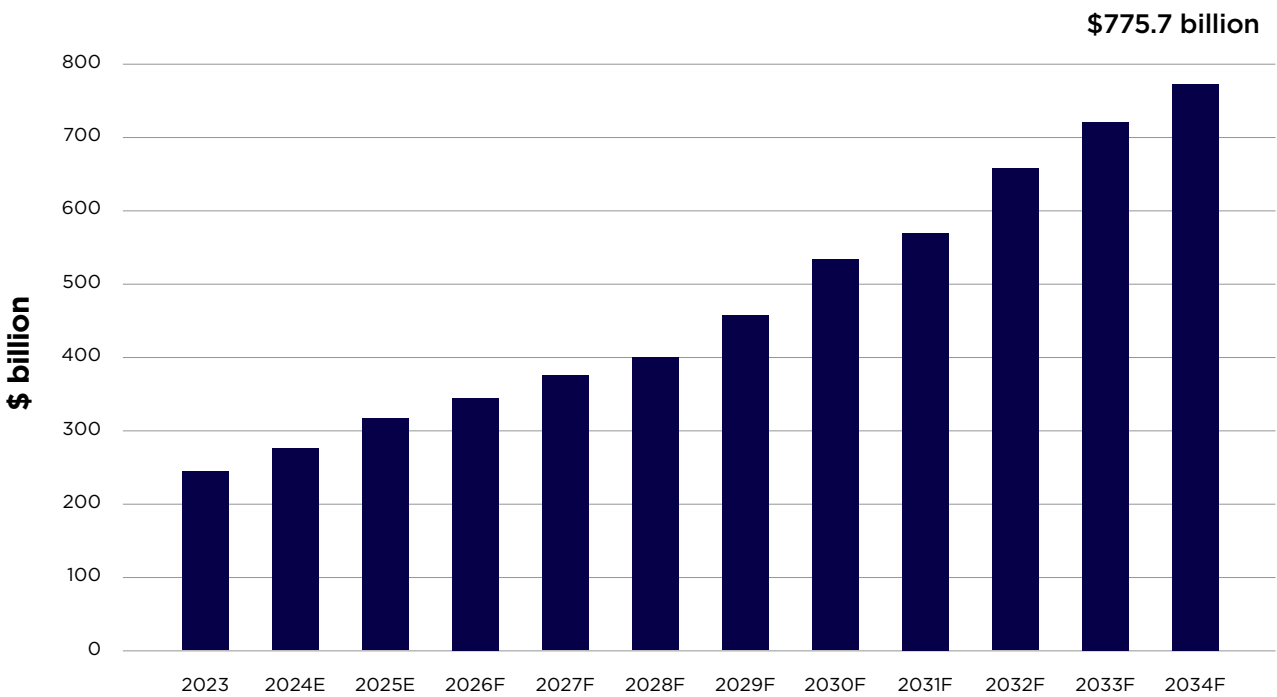
Global data centre capacity, 2025-2030



Source: JLL, 2026

Figure 29

Data centre market size, 2023-2034



Source: GlobalNewswire, 2024

Impacts felt far beyond tech

In 2025, U.S. crude steel output surpassed that of Japan for the first time in 26 years, rising to third globally behind China and India, driven in part by the surge in AI data centre and power plant construction.¹⁶⁹ Hyperscale providers – AWS, Microsoft Azure, Google Cloud, alongside China’s ByteDance, Tencent, Alibaba and Baidu – are determining where AI can be used at scale, and on what legal terms, based on where they place cloud regions. For companies operating across borders, these choices influence latency, data localisation compliance and real-time applications, including logistics optimisation, automated compliance checks, fraud detection and cross-border payments.

active role in where capacity is built and who controls it, through planning rules, energy policy and incentives. Capacity is being written into national AI strategies from Paris to Riyadh to New Delhi. For trade, the implications are clear: economies with dense data centre networks and reliable power can integrate AI more quickly and more deeply into trade-intensive sectors. Those without face higher costs, slower adoption and growing dependence on infrastructure they do not control.

Energy

Existing energy systems are not designed for a data centre buildout of this speed and magnitude. The IEA projects that electricity demand from AI-optimised data centres will more than quadruple by 2030.¹⁷⁰ In the United States, data centres are on course to account for nearly half of all electricity demand growth between 2025 and 2030.¹⁷¹ Globally, data centre power consumption is set to roughly double to around 945 terawatt-hours by 2030: more than all the power Japan consumes today.¹⁷² Goldman Sachs forecasts global power demand from data centres will increase by 50% by 2027, and by as much as 165% by 2030.¹⁷³

Compute access has shifted to a strategic issue

Firms are learning that AI deployment depends not only on models and talent, but on the availability of cloud capacity and compute power. Governments have taken note too. These considerations are feeding a demand for sovereign AI, with public policy playing a more

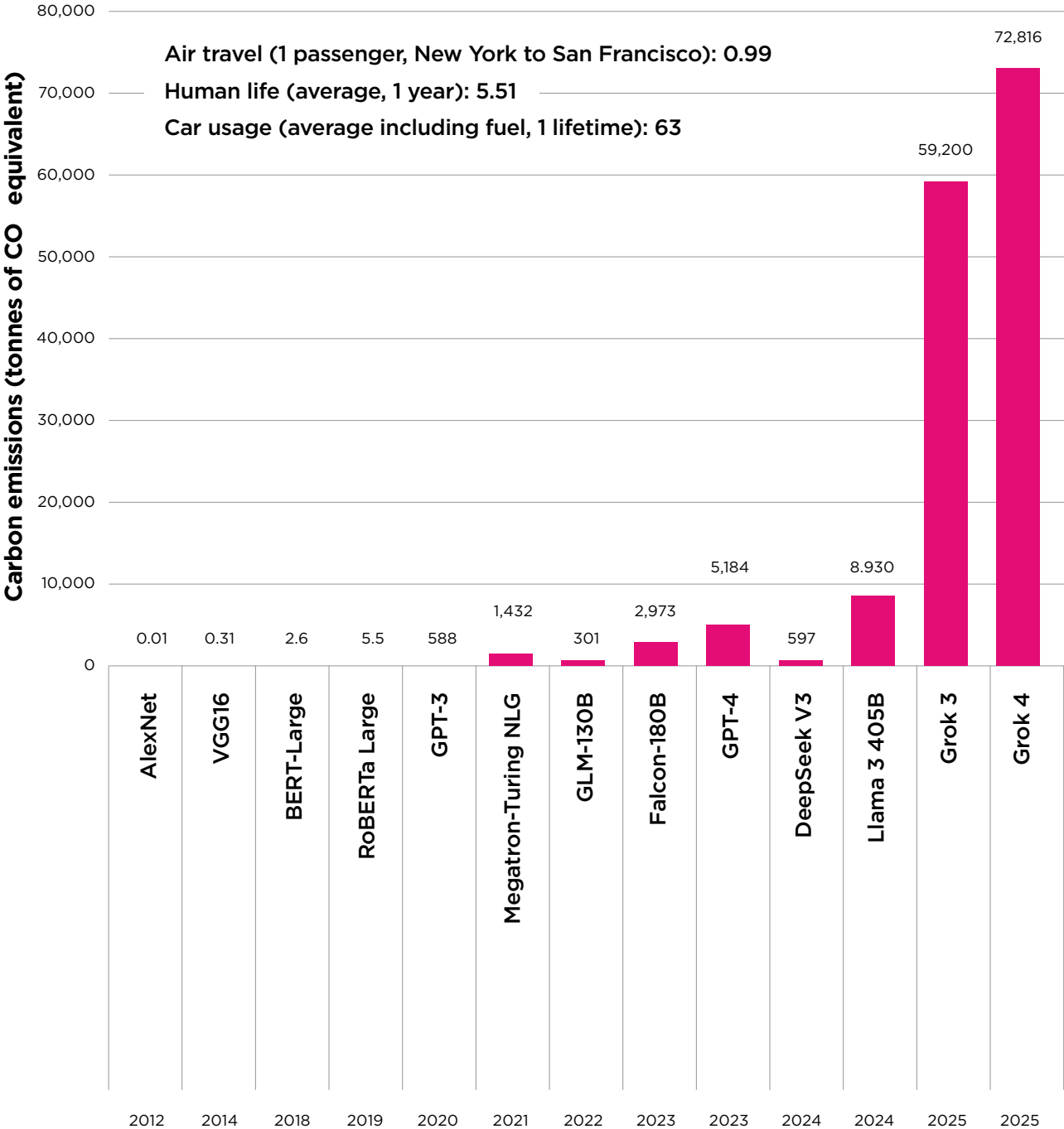
Globally, data centre power consumption is set to roughly double to around 945 terawatt-hours by 2030: more than all the power Japan consumes today.

¹⁶⁹ Kawakami, 2026
¹⁷⁰ IEA, 2025a
¹⁷¹ IEA, 2025a

¹⁷² IEA, 2025a; Smart and Hsu, 2025
¹⁷³ Goldman Sachs, 2025

Figure 30

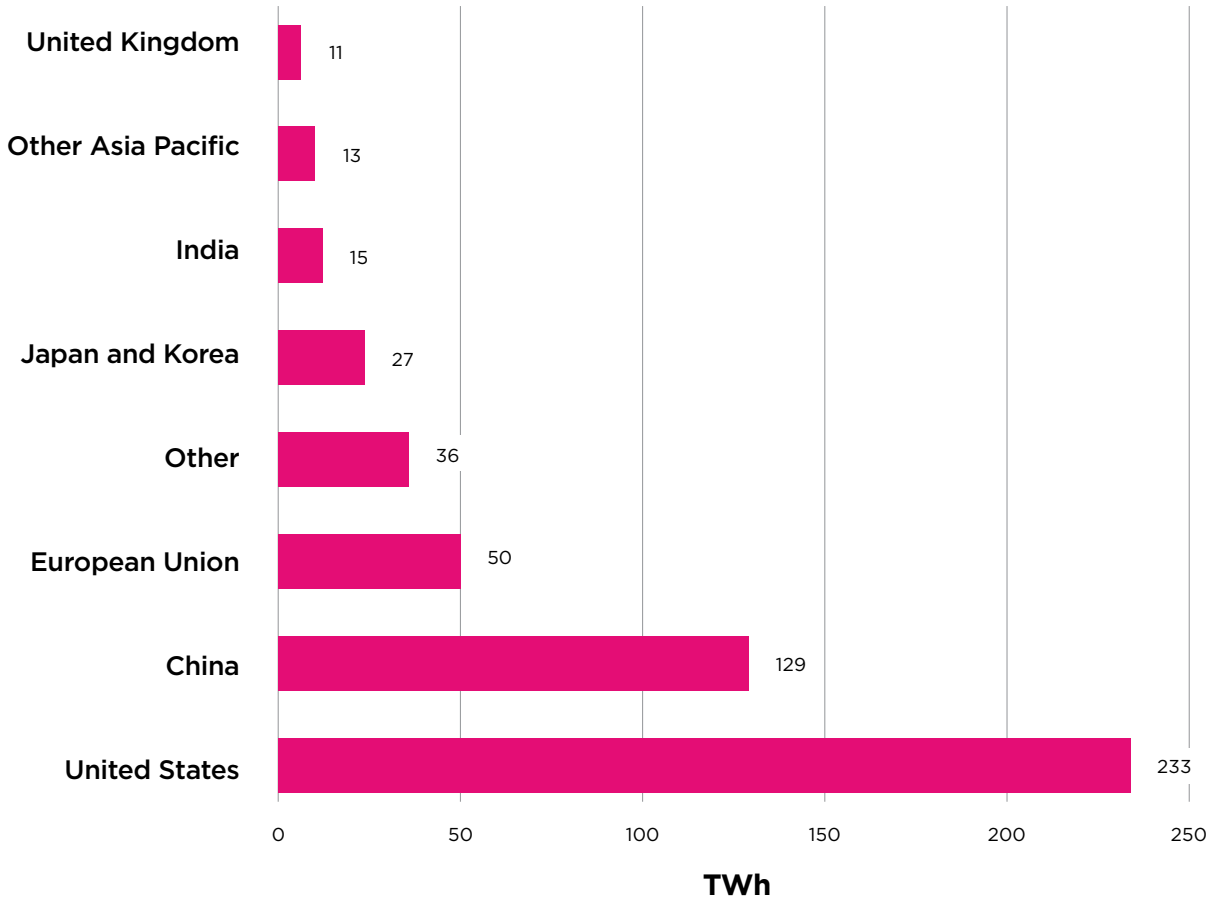
Estimated carbon emissions from training select AI models and real-life activities, 2012-2025



Source: HAI, 2026

Figure 31

Electricity consumption from data centres by region, 2025



Source: IEA, 2025b

Grid constraints may redirect investment

The IEA estimates that unless transmission infrastructure keeps pace, up to one in five planned data centre projects could face delays.¹⁷⁴ In the EU, wait times for a grid

connection range from two to ten years, with developers in Frankfurt, London, Amsterdam, Paris and Dublin facing seven to ten years on average.¹⁷⁵ Both the Netherlands and Ireland have introduced curbs on new data centre development in response to grid and environmental concerns.

¹⁷⁴ IEA, 2025c
¹⁷⁵ Jacamon et al., 2025

These restrictions are pushing developers towards locations with more available power, lower land costs and supportive regulatory environments, with direct consequences for where AI capability will concentrate globally. Southeast Asia is emerging as a primary beneficiary. The IEA forecasts that data centre electricity consumption in ASEAN will nearly

double by 2030, with Malaysia, Indonesia, Vietnam and Thailand all attracting significant investment.¹⁷⁶ The region holds an estimated 20 terawatts of untapped solar and wind potential – roughly 55 times its current total capacity – a resource advantage that could accelerate its integration into AI-driven trade infrastructure.¹⁷⁷



There’s the environmental cost, land, emissions, and mostly water, which people are not paying enough attention to ... when Singapore is putting all of its data centres in Malaysia, and they’re expecting Malaysia to pay the cost of this environmentally, and yet Singapore is going to gain all the benefits, that’s not going to last. So I think we’re in for more disruption than we’re anticipating. And we all anticipate a lot of disruption.”

 **Roundtable participant**
Singapore, March 2026

¹⁷⁶ IEA, 2024
¹⁷⁷ IEA, 2025d

Water an overlooked constraint on AI development

Advanced AI chips consume more than ten times as much energy as their predecessors and pump out so much heat they can no longer be cooled by air conditioning alone.¹⁷⁸ Water cooling is required. Water use by the world’s data centres is forecast to reach 450 million gallons per day by 2030, equivalent to the daily use of 5 million people, up from 292 million gallons in 2022.¹⁷⁹ Electricity generation and chip manufacturing are themselves water-intensive and more than half of data centres’ water footprint is off-site, in energy generation and semiconductor manufacturing.¹⁸⁰

AI in an ‘era of global water bankruptcy’

In water-stressed regions, the spread of AI infrastructure is coming under growing scrutiny. Amazon, Microsoft and Google have each faced community opposition to data centre

projects on environmental grounds, while several U.S. states are moving to tighten or restrict approvals.¹⁸¹ The European Commission expects to introduce minimum water performance standards for data centre operators in 2026, while Singapore will require facilities to raise operating temperatures to reduce cooling demand.¹⁸² China is currently the only country to have embedded water use efficiency standards directly into its data centre building code.¹⁸³

Critical minerals

Behind the chips and data centres are physical raw materials with the potential to shape the spread of AI. Each megawatt of data centre capacity embeds some 60-75 tonnes of minerals: copper and aluminium in power systems, gallium and germanium in semiconductors and rare earth elements in cooling and power equipment.¹⁸⁴ As AI infrastructure grows, so does demand for these inputs, and supply is not keeping pace.



We don’t have long-term visibility on natural resources to keep the data centres operating.”

 **Roundtable participant**
São Paulo, March 2026

¹⁷⁸ Einhorn and King, 2025
¹⁷⁹ Smart and Hsu, 2025
¹⁸⁰ Meredith and Roach, 2025
¹⁸¹ Jennifer, 2025

¹⁸² Laudisio et al., 2025
¹⁸³ Laudisio et al., 2025
¹⁸⁴ Allgood and Hulak, 2025

As capital spending by so-called hyperscalers – large-scale cloud service providers that operate massive data centre infrastructure to deliver services such as computing power and storage capacity – jumped 44% to \$371 billion in 2025, copper prices rose 28%, while gallium and germanium prices spiked 25-30% following export restrictions imposed by China in 2023 and 2024.¹⁸⁵

The concentration of processing poses a structural challenge. China controls more than 90% of global refined rare earth output and 94% of permanent magnet production.¹⁸⁶ Building alternative processing capacity requires years of investment in infrastructure that does not yet exist at meaningful scale, which means supply diversification is a long-term rather than near-term solution. In October 2025, Beijing added five more rare earths to its export control list, restricting licences for select semiconductor firms.¹⁸⁷ In December 2025, Washington convened eight allied nations to coordinate on energy, critical minerals and advanced manufacturing.¹⁸⁸ Critical minerals are an increasingly important factor in trade and an upstream chokepoint for AI hardware supply chains. As one senior U.S. official said, “If the 20th century ran on oil and steel, the 21st century is going to run on compute and minerals.”¹⁸⁹ Export controls or processing disruptions ripple through chip manufacturing, data centre construction and the AI buildout.

Data

Data is a growing constraint on AI growth. High-quality, large-scale datasets remain essential to training AI models, but access is increasingly contested and the legal frameworks governing their use are still being written.

¹⁸⁵ Enki AI, n.d.
¹⁸⁶ Martin, 2025
¹⁸⁷ Hoskins and Bicker, 2025
¹⁸⁸ Martin, 2025
¹⁸⁹ Lu, 2025

One battleground is copyright. As of October 2025, there are more than 40 AI copyright claims in the United States.¹⁹⁰ In March 2025, a U.S. judge allowed the New York Times’s closely watched copyright infringement suit against OpenAI and Microsoft to proceed.¹⁹¹ The outcome of this landmark case will determine whether the data underpinning AI development remains broadly accessible and on what terms.

Weak data a challenge for corporate adoption

Fragmented, siloed data environments can stall AI adoption at the pilot stage in companies of all stripes and sizes. While 60% of organisations say AI is a key influence on their data programmes, only 12% report that their data is of sufficient quality and accessibility for effective implementation.¹⁹²

Cross-border data flows subject to divergent rules

From the EU’s General Data Protection Regulation (GDPR) to China’s data security law to emerging frameworks across India, Brazil and Southeast Asia, WTO analysis shows that a 10% increase in digitally deliverable services trade is associated with a 2.6% rise in AI patent citations across borders, underscoring how open data flows and AI development reinforce one another.¹⁹³ Where flows are restricted, AI development can slow too. Who can access what data – and under what rules – is becoming a determinant of which economies can compete in AI-driven trade.

¹⁹⁰ CMS, 2025
¹⁹¹ Allyn, 2025
¹⁹² Precisely, 2024
¹⁹³ WTO, 2025b

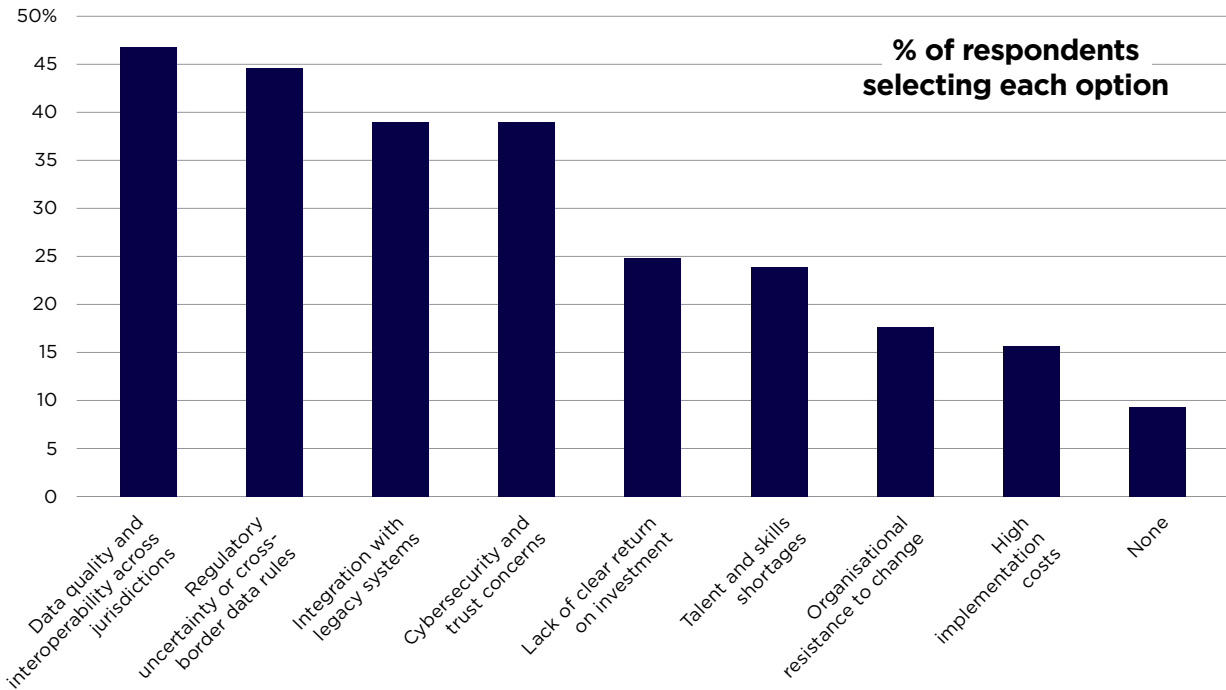
According to our Future of Trade survey, businesses find data quality and interoperability across jurisdictions to be the biggest barrier to scaling AI activity across trade activities. However, regulatory uncertainty and cross-border data rules are a close second.

Taken together, the infrastructure stack – semiconductors, data centres, energy, water and critical minerals – is the story powering AI’s meteoric rise. Every constraint in this stack is a constraint on where AI can be deployed, at what cost and under whose rules. Export controls on chips determine which economies

can build frontier AI capability. Grid capacity determines where data centres can be built. Water availability determines how long they can run. Critical mineral processing determines who controls the inputs to the hardware they depend on. The businesses and governments that treat AI as a software and talent challenge while leaving infrastructure dependencies unexamined are building on foundations they do not control. The ones that map their infrastructure exposure with the same rigour they apply to their supply chains will be structurally better positioned as the contest for AI infrastructure intensifies in the years ahead.

Figure 32

What is the biggest barrier to scaling AI across trade activities? (Select all that apply)



Source: DMCC Future of Trade Survey, 2026

3.1.4

RISKS AND CHALLENGES

The scale of investment flowing into AI and the speed of its deployment across sectors can obscure a more complicated reality: adoption is uneven, the risks are real and some structural barriers to AI-driven trade remain largely unresolved.

Regulation and policy fragmentation

One of the biggest obstacles for businesses operating across borders is the absence of a coherent international framework governing AI. Different jurisdictions are moving at different speeds and in different directions. The EU’s AI Act – the world’s first comprehensive AI regulation – uses a risk-based compliance regime, covering any firm selling AI-powered products or services to the European market, regardless of where they are based. China has its own suite of rules. The United States has taken a lighter-touch approach at the federal level, though state-level rules exist. The WTO-ICC business survey found that nearly one in five firms regard regulatory uncertainty as a top concern in AI adoption, 12% saw regulatory or compliance challenges as a key barrier and 64% of AI-adopting firms expect at least a 5% impact on their compliance costs from differing data protection regulations alone.¹⁹⁴ These discrepancies translate directly into higher costs, slower rollouts and, in some cases, decisions not to enter certain markets at all. So far, global cooperation on AI governance has been limited in scope and ambition.

AI deepening existing tech divides

AI risks deepening existing divides between high-income economies, which are both early adopters and the primary beneficiaries, and lower-income economies, which lag in digital infrastructure, computing capacity and regulatory readiness. As global GenAI adoption has risen – it now stands at 16.3% worldwide – the gap between the Global North (24.7%) and the Global South (14%) has widened.¹⁹⁵ In high-income economies, 66% of firms reported adopting AI, versus only 27% in low/lower-middle-income countries.¹⁹⁶ How this asymmetry is addressed will shape whether gains from AI in trade are broadly shared or concentrated among those already best-positioned to capture them.

¹⁹⁴ WTO, 2025c
¹⁹⁵ Microsoft, 2026
¹⁹⁶ WTO, 2025c

Inequalities at the company level

Across the EU, 55% of large enterprises have adopted AI, versus just 17% of small businesses, which lack the financial resources, skills and capacity readily available to bigger enterprises.¹⁹⁷ For many smaller firms, there are also integration challenges. Limited technical expertise, patchy data systems and difficulty in incorporating new tools into legacy systems and existing workflows can all slow progress. The result is a widening divide, with larger companies better able to experiment, invest and thus capture the benefits of AI.

Cybersecurity

The same connectivity that makes AI-driven trade more efficient also leaves it more exposed to external assaults. IBM’s 2026 X-Force Threat Intelligence Index recorded a 44% rise in attacks targeting public-facing applications, while supply chain compromises have nearly quadrupled since 2020, as AI tools now enable attackers to identify and exploit

vulnerabilities faster than most organisations can respond.¹⁹⁸ The World Economic Forum (WEF) found that AI-enhanced phishing, deepfakes and supply chain attacks all grew in both scale and sophistication through 2025.¹⁹⁹ A breach in a logistics platform, a compromised customs system or a disruption to trade finance infrastructure can bring cross-border flows to a standstill within hours. In April 2026, Anthropic withheld public release of its newest AI model, Mythos, after a preview version demonstrated an ability to autonomously identify zero-day vulnerabilities across major operating systems and web browsers, which Anthropic said were in “every major operating system and web browser”, some of which had been undetected for decades”.²⁰⁰ This shows that the AI tools capable of accelerating trade can also be used to undermine the systems they depend on. As AI becomes more deeply embedded in trade systems, gains will be accompanied by greater risk as a single vulnerability can affect the entire system. As digital trade infrastructure expands across jurisdictions, resilience will only be as strong as its weakest node, implying cybersecurity is no longer just a firm-level concern but a shared condition of participation in global trade.

Across the EU, 55% of large enterprises have adopted AI, versus just 17% of small businesses.

¹⁹⁷ Eurostat, n.d.
¹⁹⁸ IBM, 2026

¹⁹⁹ 200 WEF, 2025a
²⁰⁰ Anthropic, 2026

The AI Bubble

The volume of capital flowing into AI and associated infrastructure has prompted questions as to whether markets are getting ahead of returns. The numbers are striking. JP Morgan analysts project cumulative AI infrastructure spending of \$5 trillion by 2030, while Amazon, Alphabet, Meta and Microsoft have together committed \$670 billion to AI capital expenditure in 2026 alone.²⁰¹ AI-related investment surpassed consumer spending as the primary driver of U.S. economic growth in the first half of 2025, accounting for 1.1% of GDP expansion.²⁰² According to JP Morgan Asset Management, 65-75% of S&P 500

returns, profits and capital spending since ChatGPT's 2022 launch have flowed from just 42 AI-related companies.²⁰³ The concern is not whether AI has value but whether the revenues it generates will justify the capital already being deployed. Investment in AI infrastructure is in the trillions, while actual spending on AI products and services is still in the billions. Goldman Sachs CEO David Solomon openly acknowledged the gap in October 2025, warning that "there will be a lot of capital that's deployed that will turn out to not deliver returns".²⁰⁴ More than two-thirds of businesses in our Future of Trade survey agree, with 21% anticipating a market correction within one year, and close to 45% expecting one within 2-3 years.

AI-related investment surpassed consumer spending as the primary driver of U.S. economic growth in the first half of 2025, accounting for 1.1% of GDP expansion.

²⁰¹ Sitaraman and Ramzanali, 2026
²⁰² Aliaga, 2025

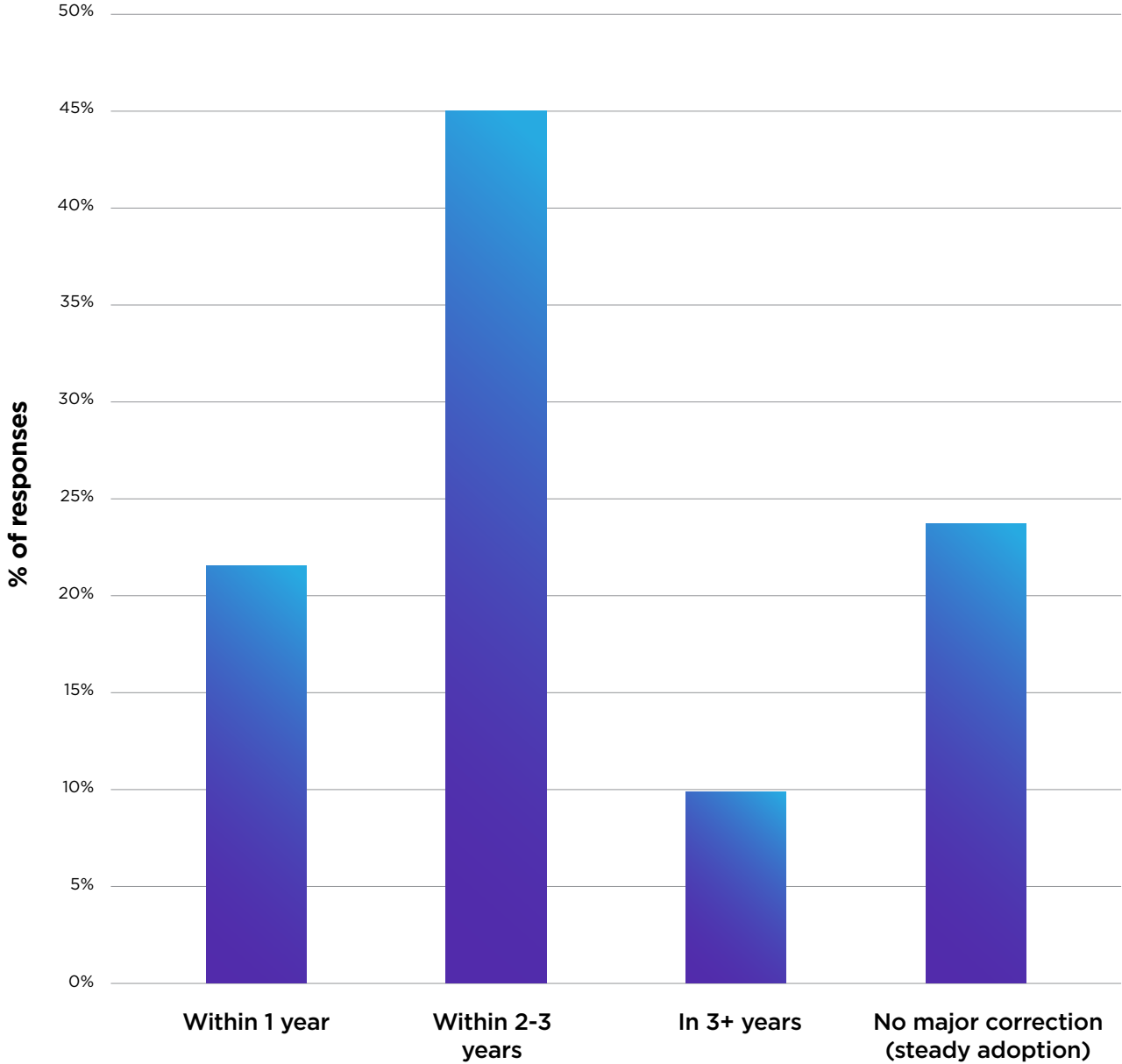
²⁰³ Cembalest, 2026
²⁰⁴ Taylor, 2025

The concern is not whether AI has value but whether the revenues it generates will justify the capital already being deployed



Figure 33

Do you believe that AI/tech stocks are at risk of being overvalued and that a major market correction is likely?



Source: DMCC Future of Trade Survey, 2026

Two possible scenarios loom large

The first mirrors the dot-com bubble of the late 1990s. The second echoes 2008, when the bursting of a bubble in one interconnected sector started a domino effect that triggered a global financial crisis. AI is not immune to the latter risk. The seven largest U.S. tech companies are entangled in cross-investments, vendor financing arrangements and cloud commitments that blur the lines between suppliers, customers and investors. A correction in one part of the system could quickly ripple through the rest.

skills shortage compared to the previous year (28%).²⁰⁵ There are more than 1.6 million open AI-related positions worldwide, but only half a million qualified professionals available to fill them, and 85% of tech executives report having postponed or slowed important AI projects specifically due to lack of skilled staff.²⁰⁶ IDC estimates that sustained skills gaps could cost the global economy up to \$5.5 trillion by 2026 in delayed projects, quality failures, missed revenue, and reduced competitiveness.²⁰⁷

A global talent shortage

Concentration of AI expertise in a small number of cities and countries reinforces the same geographic inequalities evident in infrastructure. For lower-income economies trying to build AI capabilities, the challenge is compounded by competition from higher-paying markets that lure their trained professionals away. Closing this gap will require sustained investment in education and reskilling.

The human touch

To fulfil its potential, AI needs people who understand how to build, implement and manage it, and those people are in short supply. A Nash Squared/Harvey Nash report found that AI has jumped from the sixth scarcest technology skill to number one in just 18 months, with nearly twice as many technology leaders (51%) reporting an AI

“The benefits of AI are medium to long term. The costs are now.”

Roundtable participant
Singapore, March 2026

²⁰⁵ Harvey Nash, 2025
²⁰⁶ Aitken, 2025
²⁰⁷ Smith, 2025

SECTION 2

THE ENABLING TECHNOLOGY STACK

AI does not operate in isolation. The productivity gains, supply chain visibility and trade finance breakthroughs described in 3.1 depend on a layer of enabling technologies that are themselves transforming the operational infrastructure of global trade.

Sensors and IoT devices generate the real-time data that AI systems learn from and act on. 5G and edge computing provide the connectivity and processing speed that allow AI decisions to be executed at the point of action rather than in a distant data centre. Blockchain and distributed ledger technology provide the trust architecture that makes AI-generated records and automated transactions legally and commercially viable. Automation and autonomous systems translate AI decisions into physical outcomes – moving goods, operating machinery, navigating logistics networks. Together these technologies form an enabling stack: each layer dependent on the others, and the whole determining whether AI's potential in trade is realised or remains theoretical.

The divide between those who have built this stack and those who have not is already visible in trade performance. Ports deploying 5G-connected autonomous systems and AI-driven berth planning are processing vessels faster and with fewer errors than those still relying on manual coordination. Manufacturers running predictive AI on IoT sensor networks are detecting supply disruptions days before they materialise. Trading firms using blockchain-based trade finance are settling transactions in hours rather than days. It is not primarily a technology gap given that the tools are available and increasingly affordable. It is an integration gap. The ability to connect these technologies into a coherent operational system rather than deploying them as isolated pilots. That integration capability is becoming one of the most significant sources of competitive differentiation in global trade.

3.2.1

SENSORS, 5G AND EDGE COMPUTING

Sensors and IoT

The use of IoT sensors, electronic devices that gather data from the physical world, has ballooned in recent years, with major implications for global trade. The global IoT sensor market was worth \$23.9 billion in 2025 and is forecast to reach \$99.2 billion by 2030.²⁰⁸ There are more than 22 billion active IoT connections today, projected to rise to 32 billion by 2030.²⁰⁹

Sensors are transforming supply chain visibility. Shipping containers can now carry devices that track location, temperature, humidity and security status across every leg of a multimodal journey, allowing end-to-end supply chain visibility. In March 2025, Folk Maritime became the first dry-container company in the Middle East to deploy smart container technology across its entire fleet.²¹⁰ The sector is also starting to grapple with interoperability. For example, the Smart Container Alliance, launched in February 2025 by a consortium of tech companies, is

working to develop unified industry standards across trade corridors that will improve cargo traceability, strengthen maritime trade and help enforcement agencies to address illicit trade and supply chain insecurity.²¹¹ Walmart is rolling out millions of ambient IoT sensors across its U.S. supply chain, targeting 4,600 stores, more than 40 distribution centres and an estimated 90 million pallets of inventory by the end of 2026.²¹² The data feeds directly into Walmart's AI systems, enabling real-time replenishment decisions, proof of delivery and loss prevention.

IoT is becoming an integral part of the operating layer of trade. As more of the supply chain becomes instrumented, organisations use this data to make decisions in real time, from routing and inventory to how disruptions are handled. The challenge is that much of this data still sits in closed systems. Where platforms do not easily connect, the value of that visibility is contained within individual networks rather than shared across them, which reinforces siloes even as the underlying technology becomes universal.

The global IoT sensor market was worth \$23.9 billion in 2025 and is forecast to reach \$99.2 billion by 2030.

²⁰⁸ Global Market Insights, 2025

²⁰⁹ Taylor, 2026

²¹⁰ Folk Maritime, 2025

²¹¹ Barakat, 2025

²¹² Violino, 2025

5G and next-gen connectivity

5G matters for trade and not just because of speed. In addition to faster data speeds, it offers ultra-low latency and massive device connectivity: a powerful combination that is changing what is possible in industrial and logistics ecosystems, from fully automated ports and smart factories to autonomous vehicles coordinating in real time. Smart ports in China, the United States and the Gulf have moved from pilots to live commercial operations and 5G powers automated cranes, driverless guided vehicles and real-time container tracking at major facilities. The Port of Rotterdam has connected 15,000 IoT devices via 5G, cutting vessel wait times through predictive berthing.²¹³

Private 5G networks lie behind much of this change. The global market for private 5G, where a port authority, manufacturer or logistics operator runs its own dedicated infrastructure rather than sharing a public carrier, reached \$7.57 billion in early 2026 and is projected to expand to \$29.8 billion by 2030.²¹⁴ Manufacturing is the largest demand driver, with companies such as BMW

and Tesla replacing factory cabling entirely with 5G, cutting infrastructure costs by up to 40%.²¹⁵ In logistics, South Korean company CJ Logistics deployed a private 5G network and reported a 20% increase in productivity alongside 15% capital expenditure savings.²¹⁶

Rollout has been fast but uneven. 5G now reaches 55% of the world's population.²¹⁷ But whereas 84% of people in high-income countries have coverage, that is the case for only 4% in low-income countries.²¹⁸ This disparity matters for trade: the ports, factories and logistics companies most likely to benefit from 5G are those already operating in well-connected markets. For smaller operators and exporters in lower-income economies, the infrastructure is lacking and private networks are costly to build. Here, satellite connectivity is increasingly filling the gap. Starlink now operates more than 14,000 satellites covering approximately 150 countries, and major cargo lines including Maersk and Hapag-Lloyd have installed terminals on their fleets for real-time cargo monitoring and communications at sea.²¹⁹ Amazon's satellite internet network Leo, expected to go live in mid-2026, will add further capacity and competition in the coming years.²²⁰

The Port of Rotterdam has connected 15,000 IoT devices via 5G, cutting vessel wait times through predictive berthing.

²¹³ Market Data Forecast, 2026
²¹⁴ IPLook, 2026
²¹⁵ IPLook, 2026
²¹⁶ Ericsson, n.d.

²¹⁷ ITU, 2025
²¹⁸ ITU, 2025
²¹⁹ Slobodian and Tarnoff, 2026; Hand, 2023
²²⁰ Boyd, 2026

Starlink now operates more than 14,000 satellites covering approximately 150 countries, and major cargo lines including Maersk and Hapag-Lloyd have installed terminals on their fleets.

Edge computing

Edge computing processes data close to where it is generated, rather than on distant servers: often less a preference than a necessity in trade. A crane deciding in real time whether a container is correctly positioned cannot wait for a cloud round-trip. A cold chain sensor detecting a temperature breach in a truck needs to send out an alert instantly. An autonomous vehicle navigating a busy port must process its sensor data in milliseconds. Even well-connected cloud systems introduce tens to hundreds of milliseconds of delay, which can be too substantial for time-critical decisions on the ground.

3.2.2

BLOCKCHAIN AND DISTRIBUTED LEDGER TECHNOLOGY

Global trade runs on records of ownership, origin, payment and compliance. However, most of these remain distributed across disconnected systems. Rather than relying on often centralised and siloed records, blockchain’s DLT creates a trusted, immutable register shared by all participants in a network: from the raw material supplier to the end buyer. That this cannot be altered makes it a powerful tool for tracking provenance, reducing fraud and automating compliance. More than 12,500 instances of blockchain deployments in supply chains were logged in 2025 as companies sought greater transparency and traceability.²²¹ Beyond supply chains, DLT underpins digital assets, including stablecoins, tokenised assets and CBDCs.

Adoption is being spurred by three main functions. First, provenance and traceability.

DLT enables verified, end-to-end tracking of goods from origin through production, handling and transport to the end user. This is especially important in sectors where origin is commercially and legally significant, such as critical minerals, pharmaceuticals, agrifood, art, antiques and luxury goods. Second, DLT enables smart contract automation. Smart contracts are self-executing, triggering actions automatically when pre-set conditions are met (e.g. releasing a payment when delivery is confirmed or generating a compliance certificate when an inspection is passed). Smart contract usage increased 55% in 2025.²²² Third, trade finance. DLT’s single, shared and tamper-proof transaction record cuts fraud risk and speeds up processing. As of 2026, trade finance processing times have fallen by an average of 81% in blockchain-based systems.²²³

As of 2026, trade finance processing times have fallen by an average of 81% in blockchain-based systems.

²²¹ SNS Insider, 2025b
²²² Burnett and Elad, 2026
²²³ Burnett and Elad, 2026



Blockchain is a facilitator of something ... that’s why blockchain (and AI) on their own are not creating standalone things. You need to put them into the business models, you need to put them into supply chains for them to accelerate. I think this is how these topics will structurally change trade.”

 **Roundtable participant**
(Dubai, February 2026)

Adoption faces constraints

Many deployments still operate on closed networks, limiting scale. The preponderance of legacy systems in trade makes it difficult to connect new instances to existing processes, while the lack of common technical standards or protocols means platforms are not interoperable, fragmenting what should ideally be a shared system. This issue was flagged by roundtable participants, with one participant in Singapore saying: “Our big issue

has been the lack of standards alignment on the end-to-end supply chain. Anyone can have a pilot where you digitalise an entire supply chain, but nothing can scale because there’s no connectivity.” As a result, near-term adoption is likely to remain limited to targeted applications where coordination and trust already exist among participants. Broader deployment will hinge on the development of industry standards to enable integration and communication: a challenge shared by many of the technologies shaping trade today.²²⁴

²²⁴ Wilson et al., 2026

3.2.3

AUTOMATION AND AUTONOMOUS SYSTEMS

Automation and autonomous systems such as those outlined below are shifting responsibility for the execution layer of trade – how goods are made, sorted, and delivered – from human to machine intelligence.

Robots a core part of manufacturing

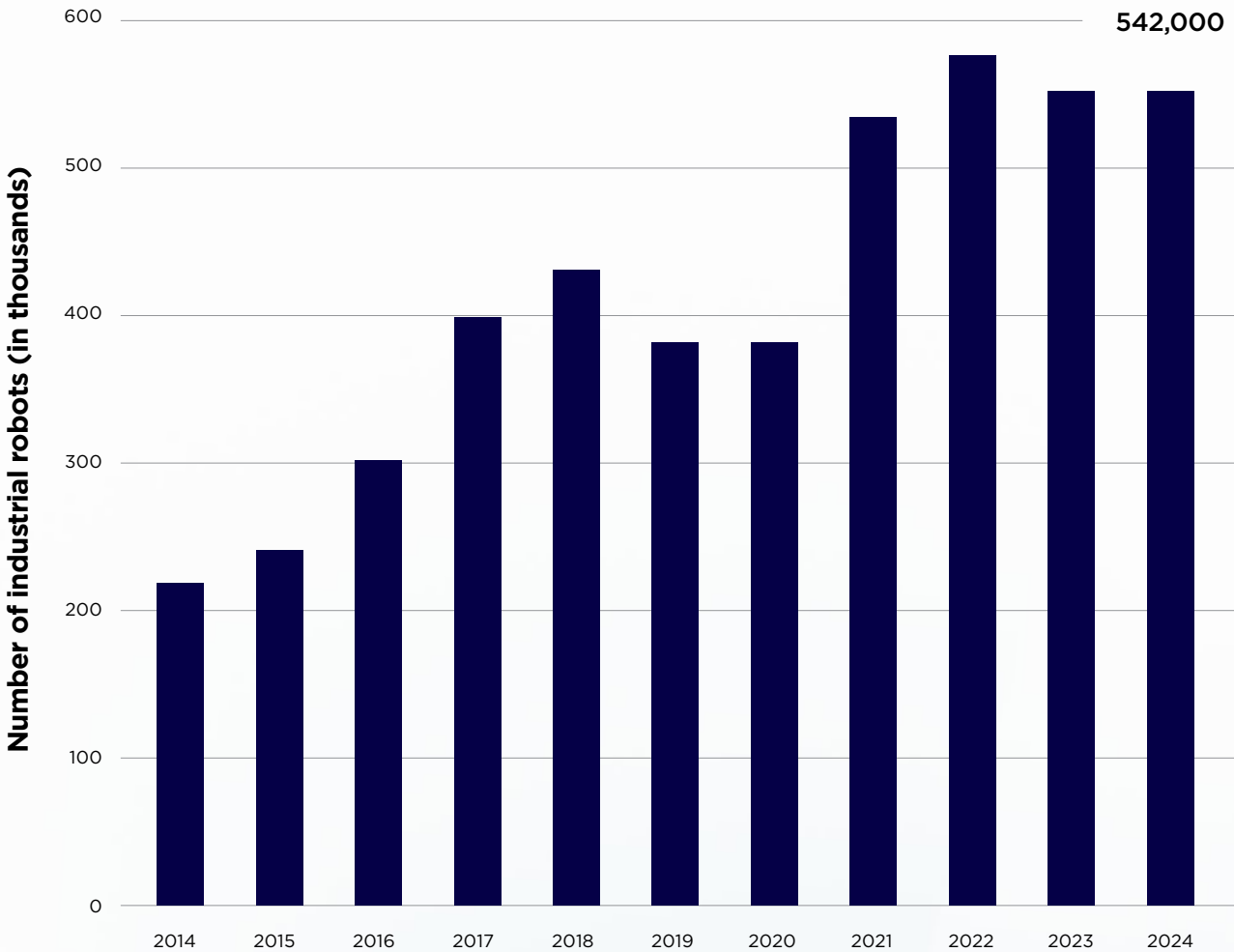
542,000 robots were installed worldwide in 2024, more than double the volume a decade ago.²²⁵ This is expected to surpass 700,000 by 2028.²²⁶ The global stock of industrial robots exceeded 4.6 million in 2024, a 9% year-over-year increase.²²⁷ Robots now handle everyday manufacturing tasks such as welding, inspection, packaging and 3D printing, while also improving safety and reducing waste.

Robots hold the potential to redraw global trade maps. As automation reduces the share of wages in production costs, the case for offshoring manufacturing to lower-wage economies has weakened. The implications of this for labour-intensive sectors are enormous. In textiles, 64% of jobs are now technically replaceable by robots.²²⁸ However, robot adoption remains minimal, with only 0.35 robots per million labour hours, compared with 10.8 robots per million labour hours in the automobile industry, which is already heavily automated.²²⁹

542,000 robots were installed worldwide in 2024, more than double the volume a decade ago. This is expected to surpass 700,000 by 2028.

Figure 34

Annual installations of industrial robots globally, 2014-2024



Source: IFR, 2025a

²²⁵ IFR, 2025a
²²⁶ IFR, 2025a
²²⁷ IFR, 2025a

²²⁸ Goldberg and Ruta, 2025
²²⁹ Goldberg and Ruta, 2025

Industrial robots are concentrated in a small number of markets. In 2024, 80% of installations occurred in five countries.²³⁰ China, by far the largest of these, accounts for 54% of global deployments and added 295,000 units in 2024 alone: more than the rest of the world combined.²³¹ The country's robot stock has doubled within the past three years and its factories now operate more than two million industrial robots.²³² Chinese companies have even started operating so-called dark factories: facilities that run 24/7, largely without workers or lighting. China's automation edge reflects sustained policy support. The government's Made in China 2025 strategy has prioritised domestic capability in advanced manufacturing, robotics and

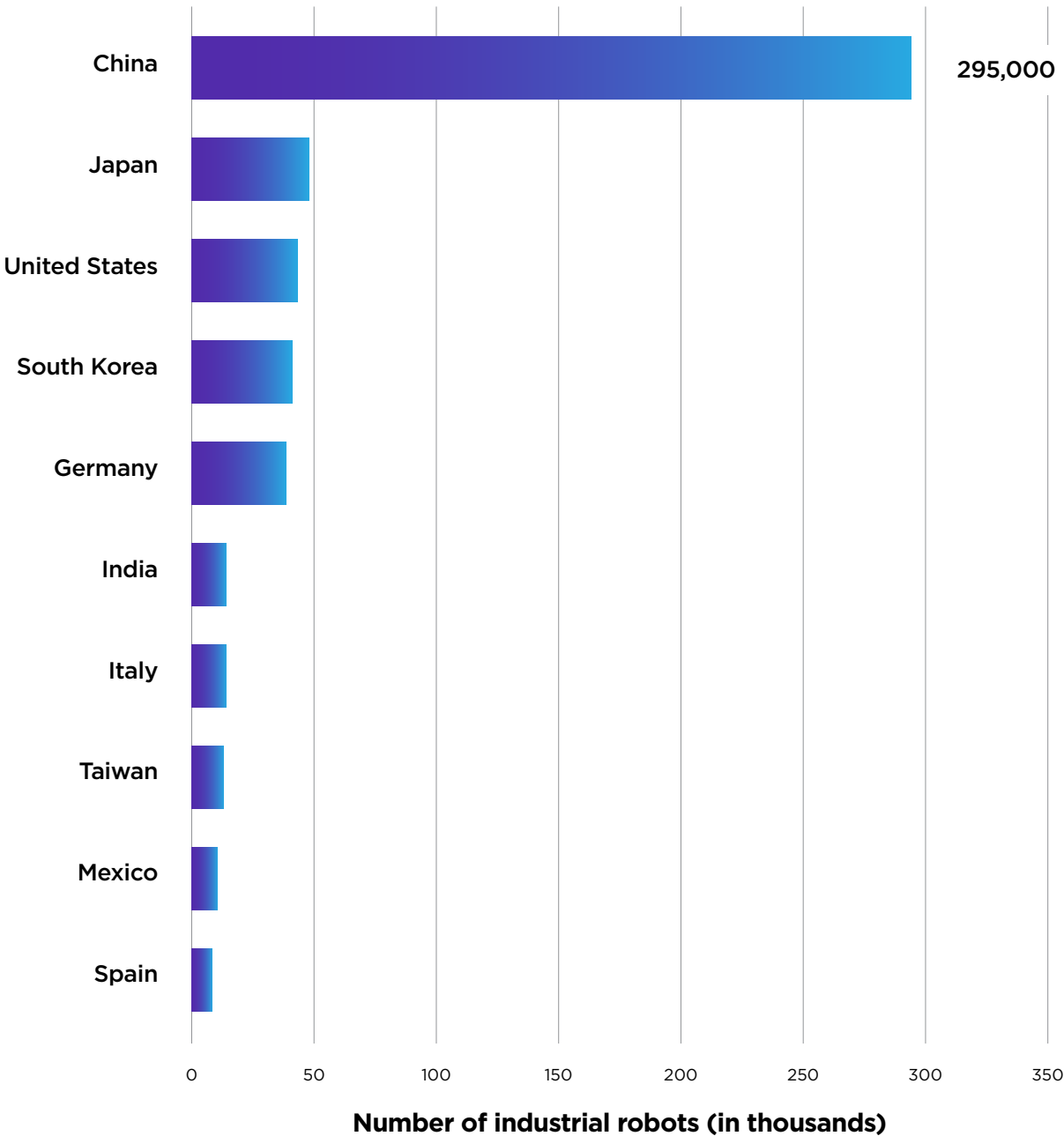
other technologies, backed by funding and localisation measures.²³³ By early 2025, Chinese factories made nearly a third of manufactured goods globally – more than the United States, Germany, Japan, South Korea and the UK put together.²³⁴

The next frontier is humanoid robots: machines built to work in environments designed for people. Most factories, warehouses and ports were not built around today's automation, but reconfiguring them is costly. A robot that can operate within an existing facility lowers the cost of adoption, especially for smaller operators. Companies such as BMW, Mercedes Benz and Tesla are already piloting humanoids for assembly and logistics.²³⁵

China, by far the largest market, accounts for 54% of global deployments and added 295,000 units in 2024 alone: more than the rest of the world combined.

Figure 35

Annual installations of industrial robots in 10 largest markets, 2024



Source: IFR, 2025a

²³⁰ IFR, 2025a
²³¹ IFR, 2025b
²³² IFR, 2025b
²³³ Kennedy, 2015
²³⁴ Tobin and Bradsher, 2025
²³⁵ Business Wire, 2025

**Autonomous systems
reshaping logistics and freight**

In April 2025, the first driverless commercial trucks hit U.S. highways; by October, they had completed more than 100,000 driverless miles on public roads.²³⁶ In Europe, autonomous electric trucks are operating on fixed routes across several countries.²³⁷ The global autonomous truck market, estimated at \$1.74 billion in 2025, is forecast to grow to \$2.04 billion in 2026 and \$8.14 billion by 2035.²³⁸ This has the potential to disrupt the \$4.6 trillion global market for road freight, which is already under pressure from a driver shortage, rising costs and growing parcel volumes stemming from the e-commerce boom.²³⁹ In the near term, autonomous systems are most likely to operate on difficult-to-staff routes, including overnight, remote and cross-border hauls, rather than displace drivers entirely. China is advancing in this space as well. Chinese autonomous vehicle companies have scaled real-world deployments across major cities in China and have international ambitions. They are pushing into Gulf countries and plan to expand into

Southeast Asia and Europe.²⁴⁰ U.S. firms, in contrast, are more domestically-focused.

At the last mile, delivery robots and drones are moving from experiments to commercial use in select markets. The autonomous last-mile market was worth \$1.1 billion in 2025 and is projected to reach \$8.76 billion by 2035.²⁴¹ Ground-based delivery robots now operate in more than 80 cities across the United States, Europe and Asia.²⁴² Starship Technologies alone has made more than nine million autonomous deliveries in seven countries.²⁴³ Drone delivery has advanced even further in some markets. Amazon's Prime Air is already operating in parts of the United States and is expanding to the UK in 2026.²⁴⁴ However, wider rollout will depend heavily on regulation as the rules governing autonomous flight in populated areas, beyond-visual-line-of-sight operations and airspace management vary significantly between jurisdictions and remain a work in progress. The U.S. Federal Aviation Administration (FAA) published its first proposed framework for routine beyond-visual-line-of-sight operations in August 2025.²⁴⁵

The global autonomous truck market, estimated at \$1.74 billion in 2025, is forecast to grow to \$2.04 billion in 2026 and \$8.14 billion by 2035.

²³⁶ Aurora, 2025
²³⁷ Peterson, 2025
²³⁸ Narayan, 2026
²³⁹ Inagaki, 2025
²⁴⁰ Cheng, 2025

²⁴¹ Cheng, 2025
²⁴² Micromobility, 2025
²⁴³ Invest Estonia, 2025
²⁴⁴ Simpson and Morris, 2025
²⁴⁵ Donley II and Sauer, 2025

In Europe, noise has also emerged as a public concern and an obstacle to approvals in populated areas.²⁴⁶ Although the technology is ready, regulatory divergence and societal concerns may hinder deployment at scale.²⁴⁷

**The gap
between ambition
and adoption**

Despite automation's potential, most businesses involved in trade have yet to exploit it fully. Capital is the most immediate barrier. Automated factories and terminals are expensive to build, while robotics carry high upfront costs even before training and integration into existing systems. Legacy infrastructure adds to the challenge. The majority of supply chains still run on paper-based processes and fragmented IT systems that pre-dated automated technology. Further complicating the picture are regulatory discrepancies across jurisdictions, which are especially relevant for cross-border autonomous logistics.

The autonomous last-mile market was worth \$1.1 billion in 2025 and is projected to reach \$8.76 billion by 2035.

²⁴⁶ Peeters and Schwanen, 2024
²⁴⁷ Peeters and Schwanen, 2024

3.2.4

QUANTUM COMPUTING

Quantum computing sits at the edge of the technology stack transforming trade. While it is not yet in wide commercial use, its potential impact is clear. In theory, it could optimise important tasks that lie at the heart of global trade, from routing ships and aircraft to managing complex supply chains and pricing risk. McKinsey estimates quantum computing could unlock up to \$1.3 trillion in value by 2035, although this is concentrated in a few sectors, such as chemicals, financial services, automotive and life sciences.²⁴⁸

Current systems are still limited in scale and reliability, and most applications remain in research or early-stage pilots. Still, governments and major technology firms such as IBM and Google continue to invest heavily in the technology. Estimates

on when it will realise its potential vary. While Nvidia CEO Jensen Huang has said quantum computing’s practical use was likely two decades away, Google has said it aims to release commercial applications within five years.²⁴⁹

²⁴⁸ Bogobowicz et al., 2023
²⁴⁹ Bajwa, 2025; Cherney, 2025



SECTION 3

THE NEW FINANCIAL PLUMBING

3.3.1

COMMERCE GOES DIGITAL AND SOCIAL

Cross-border e-commerce has moved from a niche channel to a substantial component of international trade – and its growth is accelerating. The market for digital sales across national borders was valued at an estimated \$1.21 trillion in 2025 and is projected to reach \$1.84 trillion by 2030, growing 28.3% faster than the overall market²⁵⁰. Lower barriers to entry are broadening the base of exporters, allowing smaller firms and producers in emerging markets to reach global consumers without the distribution infrastructure that once made international expansion the preserve of large multinationals.

But the democratisation of digital commerce is incomplete and the platform concentration problem is real. A handful of companies – Amazon, Alibaba, Temu and Shein – account for a growing share of cross-border flows. Smaller businesses are increasingly dependent on access to these platforms for international distribution. While they reduce the cost and complexity of entering new markets, they also give platform operators significant control over pricing, visibility, logistics and customer relationships. The infrastructure of digital trade is open – but the architecture sitting on top of it is concentrating rapidly.

The market for digital sales across national borders was valued at an estimated \$1.21 trillion in 2025 and is projected to reach \$1.84 trillion by 2030.

²⁵⁰ CapitalOne Shopping, 2026

The global social commerce market was valued at \$821 billion in 2025 and is on track to reach \$1 trillion by 2028, driven by the integration of TikTok, Instagram and YouTube into the buying journey.

The global social commerce market was valued at \$821 billion in 2025 and is on track to reach \$1 trillion by 2028, driven by the integration of TikTok, Instagram and YouTube into the buying journey.²⁵¹ Live commerce, where customers make purchasing decisions in real time during streamed interactions, is compressing the distance between demand generation and fulfilment to near zero. For logistics and supply chain operators, this creates a fundamentally different challenge: not managing predictable order flows but absorbing demand spikes that are immediate, volatile and increasingly global in reach.

But the growth of digital commerce is running ahead of the infrastructure designed to support it. Cross-border platforms can connect a seller in Vietnam to a buyer in Germany in seconds but the trade documentation accompanying that transaction still moves, in most cases, on paper. A single shipment can require more than twenty separate documents, verified by hand, in processes that predate the digital economy by a century.

²⁵¹ Keenan, 2025

3.3.2

KILLING THE PAPER TRAIL

Paperless trade requires more than digital documents. It requires verified digital identity. As trade documentation moves from paper to platform, the ability to confirm who is transacting, on what authority and under which regulatory framework becomes the foundational prerequisite for the system to function. Jurisdictions that have moved fastest on digital identity infrastructure like the UAE, Singapore and India, each of which has deployed digital identity systems across government and private sector services including banking and healthcare, are not coincidentally among the most advanced in paperless trade adoption. The EU's eIDAS 2.0, which requires all member states to provide digital identity wallets to citizens by 2026, is the most significant regulatory step towards making verified digital identity a universal commercial infrastructure rather than a national experiment.²⁵²

Over 90% of trade transactions today are paper based

More than four billion documents move through the global trade system every day and must be handled manually.^{253,254} This means long processing times, limited real-time transparency, tied-up capital and frictions at customs. The widespread introduction of digitalised trade processes would have a transformational impact on the system. McKinsey estimates that adopting an electronic bill of lading (eBLs) could save \$6.5 billion in costs and unlock up to \$40 billion

in new global trade.²⁵⁵ Beyond cost savings, paperless trade enables greater transparency and resilience in supply chains, improves compliance and reduces environmental impact.

Electronic bills of lading accelerating

In 2021, only 1% of bills were issued electronically.²⁵⁶ By August 2025, this had risen to 11% and nearly half of the shipping industry now uses eBLs in some form.²⁵⁷ This change is largely being driven by legal reform rather than the technology itself. Since the UK's Electronic Trade Documents Act 2023 gave eBLs the same legal stature as paper under English law, several European markets, including France, Germany and the Netherlands, have followed suit. In May 2025, the Digital Container Shipping Association completed its first successful interoperable eBL transaction across different platforms.²⁵⁸ Major carriers are targeting full adoption by 2030.

Beyond eBLs, e-invoicing, certification of origin, customs declarations and compliance documentation are also going digital in advanced trade corridors. OECD modelling suggests that a 10% improvement in border process automation, alongside streamlined documentation and stronger inter-agency cooperation, could increase global goods exports by up to 18%.²⁵⁹ While the technology is available, issues with regulation and interoperability remain to be solved.

OECD modelling suggests that a 10% improvement in border process automation, alongside streamlined documentation and stronger inter-agency cooperation, could increase global goods exports by up to 18%.

Shift from paper to platforms is proceeding slowly

Legal reforms are encouraging the change and are laying the foundations for further progress. However, interoperability is required if pilots are to become useable networks. Otherwise, digital trade documents risk replicating the fragmentation of the paper systems they must replace. The future of paperless trade will depend on expansion to more jurisdictions, the incorporation of smaller traders and emerging market exports into digital systems and the industry's success in achieving its digitisation targets.

²⁵² European Digital Identity Regulation, 2026
²⁵³ KPMG, 2026
²⁵⁴ Comninos, 2024
²⁵⁵ Casanova et al., 2022

²⁵⁶ Scanferla, 2025
²⁵⁷ Scanferla, 2025
²⁵⁸ DCSA, 2025
²⁵⁹ OECD, 2025

3.3.3

WHY MOVING MONEY STILL TAKES DAYS

Cross-border payments one of the most persistent trade inefficiencies

Despite decades of technological progress, moving money across borders has changed little. Payments must still make their way through correspondent banking networks before reaching their destination. Global messaging network Swift, which operates across more than 11,500 financial institutions and more than 200 jurisdictions, coordinates much of this process.²⁶⁰ While the system works, it was designed for a world of infrequent, high-value transfers, not for the speed, frequency and complexity required by modern trade.

Inefficiencies with consequences

Settlement times of two to five business days are still common in many corridors, tying up working capital that smaller exporters in particular can ill afford to have sitting idle. Costs are also high and unevenly distributed. While global B2B retail payment transfer costs average around 1.5% – well above the G20’s 1% target – there is wide variation across regions.²⁶¹ European cross-border payments (B2B and B2P) amounted to

1.1% of transfer costs in 2024, well below an average of 3% in sub-Saharan Africa.²⁶² Within some African trade corridors, cross-border payments through traditional banking channels can cost between 7-20% of the transaction value and take three to five days to clear.²⁶³ For businesses operating in high-friction corridors, this can severely hamper competitiveness.

Technology changing the payments game

In more than 70 countries, domestic payments now reach their destination immediately and at near-zero cost thanks to the rise of instant payment systems.²⁶⁴ From India’s UPI and Kenya’s M-Pesa to Brazil’s Pix, digital money transfer providers have transformed domestic payment systems. These networks are beginning to connect across borders too: UPI has expanded into eight countries, including the UAE, Singapore and Qatar.²⁶⁵ The Bank of International Settlements (BIS) Project Nexus is working to scale these further by creating a global connector between national instant payment systems.²⁶⁶



India has about a 50% share of global real-time payments, so we have a natural seat at the table in leveraging our expertise and experience in broad-basing and internationalising the learnings that we have had in building this infrastructure. That has translated into NPCI going global – us building bilateral corridors with Nepal, Sri Lanka, UAE, etc. in connecting payment systems between these countries. I suppose it’s only a matter of time before that also pervades and moves on to settling trade flows as well.”



Roundtable participant
Mumbai, April 2026

²⁶⁰ Swift, n.d.
²⁶¹ FSB, 2023
²⁶² FSB, 2023
²⁶³ Signé and Munyati, 2026

²⁶⁴ BIS, 2025a
²⁶⁵ Salve, 2025
²⁶⁶ BIS, 2025a

Disruption in cross-border payments industry

Digital payment platforms such as Wise and Revolut have built infrastructure that routes payments around the traditional correspondent banking chain using local payment rails, currency pre-funding and real-time FX to lower costs and settlement times. Wise processed £145.2 billion in cross-border volumes in 2025, a 23% year-on-year increase, for customers and businesses seeking faster alternatives to traditional bank transfers.²⁶⁷ Fintech activity is not constrained to developed markets either. Africa now has more than 500 million active

mobile money accounts, processing over \$830 billion in transactions annually, driven by a young, tech-savvy population.²⁶⁸ McKinsey estimates that in 2024, up to 65% of the value of P2P transfers globally was captured by nontraditional providers.²⁶⁹

The challenge is not a lack of innovation but a lag between domestic progress and cross-border connectivity and settlement. Regulatory divergence, currency risk and limited interoperability between national systems are coordination problems that remain difficult to resolve. Still, the direction of travel is encouraging.

Fintech activity is not constrained to developed markets either. Africa now has more than 500 million active mobile money accounts, processing over \$830 billion in transactions annually.

3.3.4

STABLECOINS, TOKENS AND CBDCS

Other technologies are reconfiguring the system that has long underpinned global trade. The inefficiencies of traditional payment systems have created space for a new generation of financial infrastructure built on DLT and designed to replace

specific use cases in traditional banking. To be clear, this is not a wholesale replacement of the incumbent system. However, in a growing number of corridors and contexts, alternatives are gaining traction.



Payments are very costly, unpredictable, and they're looking for alternatives. Stablecoins, of course, could be one option, similar to central bank digital currencies as soon as they're available."



Roundtable participant
Frankfurt, March 2026

²⁶⁷ Wise, 2025
²⁶⁸ Scala, 2025
²⁶⁹ Karwowski et al., 2025

Stablecoins

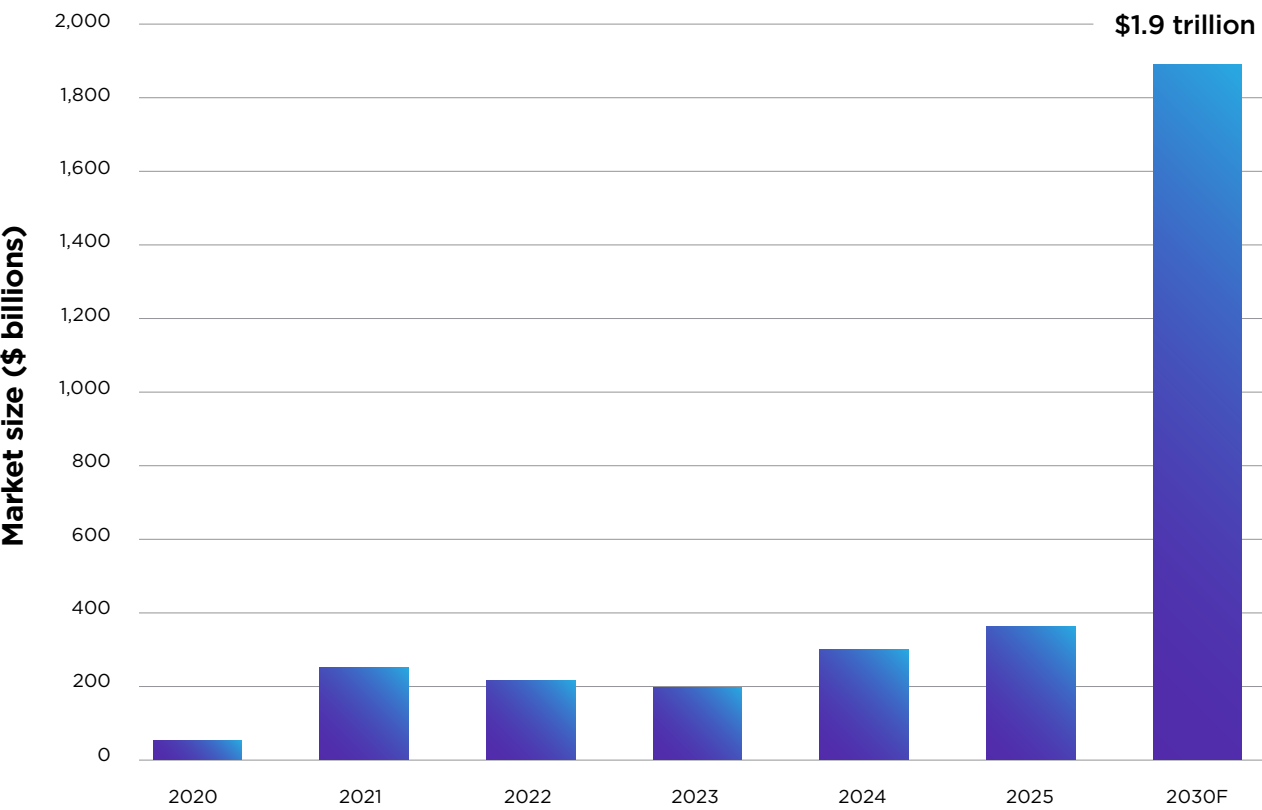
Stablecoins are a form of cryptocurrency designed to promote stability rather than speculation. Unlike Bitcoin and Ethereum, which are designed to fluctuate freely, stablecoins are digital tokens typically pegged to a fiat currency (most commonly the U.S. dollar) and backed by reserves. Stablecoins, however, offer what the traditional correspondent banking system fails to: near-

instant, low-cost settlement, operating 24/7 across borders, without the intermediaries that create cost and delay.

As of early 2026, global stablecoin supply exceeded \$300 billion, up from less than \$30 billion in 2020.²⁷⁰ By 2030, Citi estimates issuance could reach \$1.9 trillion in its base case scenario – and up to \$4 trillion in its bull case scenario – making stablecoins a potentially significant factor in the global payments landscape.²⁷¹

Figure 36

Estimated stablecoin market size by 2030, base case



Source: Citi, 2025a

²⁷⁰ Higginson et al., 2026
²⁷¹ Citi, 2025a

As of early 2026, global stablecoin supply exceeded \$300 billion, up from less than \$30 billion in 2020.

While stablecoin transaction volumes rose 72% to a record \$33 trillion in 2025, most of this reflects trading and automated blockchain activity, rather than real payments.²⁷² McKinsey estimates actual stablecoin payment volumes were around \$390 billion in 2025.²⁷³ While this was more than double 2024 levels, it was still

less than 0.02% of global payment volumes.²⁷⁴ Businesses were the most prominent adopters, using dollar-backed stablecoins to settle invoices, manage treasuries and move funds in corridors where traditional banking is slow, costly or unreliable. B2B payments accounted for around 60% – up 733% year on year.²⁷⁵

“Stablecoins will lower that cost [of cross-border wire transfers] to 1% or less than 1%. It will shorten the time to only minutes ... It will also reduce the risks associated throughout that settlement process as well. With that, it will enhance trade efficiency for sure.”

Roundtable participant
Frankfurt, March 2026

²⁷² Ghosh, 2026
²⁷³ Higginson et al., 2026

²⁷⁴ Higginson et al., 2026
²⁷⁵ Higginson et al., 2026

Regulatory frameworks are maturing in parallel

The U.S. GENIUS Act, signed in 2025, sets out strict requirements for stablecoins, requiring 100% reserve banking and licensing for issuers.²⁷⁶ Hong Kong introduced its own stablecoin regime in August 2025, while the EU’s MiCA framework is already in force.²⁷⁷ Singapore, the UAE and the UK have all introduced or are developing stablecoin regulatory frameworks. Greater regulatory clarity is expected to speed institutional adoption. In a further sign the currency is well on its way to widespread acceptance, major banks are building stablecoin infrastructure, card networks are integrating digital asset rails and DP World plans to introduce a multi-currency stablecoin system for global trade.²⁷⁸

Reserve currency potential

The question is no longer whether stablecoins work, but whether they can scale into something more structurally significant. U.S. Treasury Secretary Scott Bessent said in November 2025 that he expects the market for stablecoins to hit \$3 trillion by 2030, in line with projections from leading financial institutions.²⁷⁹ At this scale, dollar-backed stablecoins would move beyond a payments tool alone to a significant holder of U.S. Treasury securities.

One Singapore roundtable participant suggested stablecoins may have the potential to become a reserve currency. That remains

speculative and, for now, stablecoins function as a settlement and liquidity vehicle rather than a store of value.²⁸⁰ Importantly, unlike reserve assets such as gold or sovereign debt, their stability also depends entirely on the reserves that back them. Whether they develop reserve-like properties themselves will depend on regulatory evolution, institutional adoption and whether interoperability develops enough to make them borderless.

Stablecoins are not universally loved

China reaffirmed its ban on cryptocurrencies, including stablecoins, in November 2025. It is instead throwing its weight behind CBDCs: specifically the e-CNY or digital yuan. In 2024, more than \$2.4 trillion in transactions were processed in e-CNY, a more than 800% increase from 2023.²⁸¹ However, Hong Kong, which has positioned itself as a regulated hub for digital assets, launched a stablecoin licensing regime and granted its first issuer licences in April 2026.²⁸² Mainland Chinese companies JD.com and Ant Group, the financial arm of Alibaba, are requesting permission to issue offshore RMB stablecoins and applied to issue Hong Kong dollar-pegged stablecoins.²⁸³ The adoption of an RMB-backed stablecoin in trade corridors connecting China with the Middle East, Southeast Asia and Africa would reduce dollar dependency in corridors where China’s trade footprint is already significant. However, 99% of stablecoins are pegged to the U.S. dollar, reinforcing dollar dominance in digital payments.²⁸⁴

Stablecoins have really been growing. They work as a payment intermediary. I can instantly send you one cross-border for a very low transaction price. They’re typically dollar-denominated, and you don’t have to go through your traditional bank.”

Roundtable participant
New York, April 2026

Risks around stablecoins

The IMF has warned that dollar-backed stablecoins could weaken local currencies in some emerging markets, undermining national monetary policy and capital flow controls.²⁸⁵

There are also concerns around concentration, in which a small number of issuers dominate supply. Fees moving in and out of stablecoins can add up too. Finally, while regulation is moving forward, it is still uneven across jurisdictions, making it difficult for firms to operate across borders.

The fact that we’re talking about digital currencies and crypto with a group like this tells you how much evolution there’s been.”

Roundtable participant
New York, April 2026

²⁷⁶ The White House, 2025a
²⁷⁷ HKMA, n.d.
²⁷⁸ DP World, 2025
²⁷⁹ Reiter, 2025
²⁸⁰ Amoros, 2025

²⁸¹ Balaha, 2026
²⁸² HKMA, 2026
²⁸³ He, 2025
²⁸⁴ Spira and Wessel, 2025

²⁸⁵ Adrian et al., 2025

Tokenisation

Tokenisation, or the conversion of financial assets and physical goods into tokens on a blockchain, is moving from concept to reality. While stablecoins provide a digital means of payment, tokenisation enables assets themselves to be represented and transferred digitally. Once an asset is tokenised, it can be traded in real time, with blockchain records providing immutable proof of ownership. The real-world asset tokenisation market has grown 380% in three years, reaching \$24 billion in 2025.²⁸⁶ McKinsey estimates total tokenised market cap (excluding cryptocurrencies and stablecoins) could grow to \$2 trillion by 2030.²⁸⁷

Banks have begun issuing deposit tokens: digital tokens representing deposits they hold. These enable businesses to transfer funds instantly across borders with more transparency and without the delays of traditional settlement. JP Morgan began rolling out a deposit token called JPM Coin to institutional clients in late 2025.²⁸⁸ Citi is developing tokenised deposit infrastructure to support cross-border payments and liquidity for corporate clients.²⁸⁹ In April 2026, HSBC launched its Tokenised Deposit Service in the United States, signalling growing adoption among banks.²⁹⁰

Tokenisation driving real-world asset collateralisation

Physical commodities such as metals, energy and agricultural goods can now be tokenised. They can thus be subdivided into smaller units for fractional ownership, transferred digitally between parties and used as digital collateral in real time. The value of tokenised real-world assets could rise to \$30.1 trillion by 2034, according to Standard Chartered.²⁹¹ HSBC launched a Gold Token in March 2024, allowing fractional ownership of physical gold represented by tokens on a distributed ledger.²⁹² Trading volumes in the token have surpassed \$1 billion and it has facilitated more than 100,000 transactions since its launch.²⁹³ Products such as these allow high-value assets to be traded freely, lower the barriers to entry for retail investors and reduce the cost of intermediaries, while blockchain records provide immutable proof of ownership. Other physical, less liquid assets such as real estate and art are also being tokenised.

The real-world asset tokenisation market has grown 380% in three years, reaching \$24 billion in 2025.

²⁸⁶ Crawley, 2025
²⁸⁷ Banerjee et al., 2024
²⁸⁸ Irrera, 2025
²⁸⁹ Citi, 2025b

²⁹⁰ Financial Times, 2026
²⁹¹ Standard Chartered, 2024
²⁹² HSBC, n.d.
²⁹³ Xiaoping, 2025



Using that same technology [blockchain] but putting rights in tokens, as opposed to crypto assets where you don't really have any rights – what that opens up is the ability to create financial products that represent fractional interest in real-world assets. We've already launched products referencing tokenised racehorses.”



Technology roundtable participant
April 2026

However, most tokenised assets still operate on closed platforms and are not yet connected to conventional banking infrastructure, which limits their impact. In addition, as one technology roundtable participant put it, “Regulation has been and remains deficient in most parts of the world ... They are all in one way or another going through the process of digitally transforming themselves and making those regulations blockchain-enabled, blockchain-ready. But that’s a very painful and slow process.” Still, the implications for trade could be significant. While tokenisation does not alter what is being traded, it changes how it is traded, through faster settlement, more accessible collateral and greater transparency.

Central bank digital currencies (CBDCs)

CBDCs are central banks’ attempt to combat the same inefficiencies that have spurred the growth of stablecoins and fintech platforms. While stablecoins are privately issued and operate outside sovereign control, however, CBDCs are issued and backed by central banks, thereby preserving central bank authority over issuance and settlement. Wholesale CBDCs are being explored for settling transactions between financial institutions, including in cross-border pilots. Retail CBDCs, by contrast, focus on domestic payments. As of mid-2025, 137 countries representing 98% of global GDP were exploring the digital currencies, versus just 35 in 2020.²⁹⁴

While tokenisation does not alter what is being traded, it changes how it is traded, through faster settlement, more accessible collateral and greater transparency.

²⁹⁴ Atlantic Council, n.d.

As of mid-2025, 137 countries representing 98% of global GDP were exploring the digital currencies, versus just 35 in 2020.



Projects which are central government-driven CBDCs and bilateral as well as multi-country-based CBDC projects will pick up steam because you want to use the technology, but you also want to ensure that you do not have dependency on a particular channel. I feel these projects will become mainstay over time.”



Roundtable participant
Mumbai, April 2026

Comparing mBridge and Agorá

The most significant wholesale CBDC initiative underway is mBridge, which links the central banks of China, the UAE, Hong Kong, Thailand and Saudi Arabia. Originally co-developed by the BIS, which has since withdrawn, mBridge reached minimum viable product stage in 2024 and, in November 2025, the UAE and China executed their first cross-border CBDC transaction using Jisr, a platform built on mBridge infrastructure.²⁹⁵ As of early 2026, mBridge has processed more than 4,000 cross-border transactions valued at \$55.5 billion.²⁹⁶ The platform, however, is not yet mature enough to be deployed at scale.

A parallel initiative, Project Agorá, has taken a different tack. Agorá has brought together seven central banks, including the New York Federal Reserve Bank and leading central banks from Europe, Korea, Mexico and Japan, along with more than 40 major financial institutions, to explore the potential of using tokenisation to improve wholesale cross-border payment systems.²⁹⁷ Whereas mBridge aims to reduce dependence on the existing dollar-dominated system, Project Agorá looks to upgrade it by exploring ways tokenisation can make payments faster, cheaper and more transparent.²⁹⁸ Launched in 2024, it entered its testing phase in early 2026. While President Trump has halted domestic retail CBDC development in favour of dollar-backed stablecoins, the United States remains engaged in wholesale CBDCs through Project Agorá.²⁹⁹

²⁹⁵ Kaaru, 2025
²⁹⁶ Jones, 2026
²⁹⁷ BIS, 2024; IIF, 2025

CBDCs are already showing early potential for streamlining settlement and reducing friction in cross-border transactions. However, in the near term, they will likely be limited to specific corridors and pilot systems. Interoperability among CBDCs and with other payment systems will be essential for their long-term success.

Fragmentation of financial infrastructure

With the advent of so many new payment technologies, the global financial infrastructure supporting trade is becoming increasingly layered. Three systems now operate in parallel: traditional correspondent banking and Swift, domestic instant payment systems and fintech rails and blockchain-based financial infrastructure, which includes stablecoins, tokenised deposits and CBDCs. These layers fulfil different purposes, serve different users across different corridors and generally lack interoperability. Larger firms with the resources and scale to operate across multiple systems are best-placed to navigate this complexity, whereas SMEs in less-connected markets have fewer options and face higher costs. Whether this new architecture expands access or adds friction will depend on whether countries can agree on the common standards needed to make these systems work together.

²⁹⁸ BIS, 2025b
²⁹⁹ The White House, 2025b



The platform that has the most potential in terms of affecting global trade is a platform called mBridge, which is a central bank digital currency platform. It is working. It’s a prototype, but it is operational and functional.”



Roundtable participant
Hong Kong, March 2026

Three systems now operate in parallel: traditional correspondent banking and Swift, domestic instant payment systems and fintech rails and blockchain-based financial infrastructure, which includes stablecoins, tokenised deposits and CBDCs.



INTERVIEW Jim Ferraioli

Director of Crypto Research and Strategy, Charles Schwab

What's your view on the evolution of digital assets over the next two years?

Digital assets have grown up. Traditionally this has been a market which was dominated by retail engagement. You had several large cryptocurrencies. If you go down chain, there are more speculative use cases. What's changed in the past few years is now institutions have realised that this is an asset class that's large enough, this is a technology that's maturing, that there's actual real world use cases beyond just an individual investor wanting to hold a token. And so, when I think about the next two years, we're going to see a profound change in assets being tokenised.

What really kicked this off is the growth of stablecoins. Stablecoins have been around for many years. Traditionally, these were an on-ramp from traditional currencies into these digital blockchain systems and that, at some point when you're comfortable, you can swap that stablecoin into a volatile cryptocurrency. But the use case has really evolved. Traditional financial institutions have seen the benefits of the low cost and fast settlement. And now beyond just tokenising U.S. dollars – which is stablecoins – institutions are trying to understand how they can tokenise other aspects of their business, whether that's to meet customer demand who already want these products, whether that's to improve operations. It's a unique time period in digital assets because until now, all activity that's happened in the digital assets ecosystem has really been tied to the market cap of the broader crypto system.

The exciting thing when I think about the growth of the space two years from now, now you're having activity that's not tied to the crypto market cap. If you're a bank and you want to tokenise your deposits because it enables faster settlement, it can reduce your operations cost. You don't care what the price of Bitcoin is. You don't care where the broader market cap is, you're just focused on creating efficiencies for your business. And so that's a step change difference into what we've seen in the past 17 years of digital assets.

If you're a bank and you want to tokenise your deposits because it enables faster settlement, it can reduce your operations cost. You don't care what the price of Bitcoin is. You don't care where the broader market cap is, you're just focused on creating efficiencies for your business

You talked about profound change. So, in two years' time, what does that look like?

Traditionally, stablecoin adoption has been the largest outside the U.S. If you think about investors globally, they prefer or they've historically preferred to have their assets in dollar denominated assets, and so stablecoins offer a way to do that. You can have essentially digital dollars that you don't need to access through the traditional banking system. So if your concerns are inflation, if you're an emerging economy, it's an attractive asset, it's easy to trade, it's liquid, you have it at your fingertips.

The biggest change really came last year with the passing of the Genius Act in the United States and that provided regulatory clarity around stablecoin usage in the U.S. And so I would expect stablecoin market cap to now grow more in developed markets. The use case in the US is much different than outside the US. In the US, you're less concerned with having access to your money. The financial system works. I can quickly transfer you money, I know it's going to get there, I can transact digitally through credit cards. Use cases are actually emerging almost similar to a money market fund where investors are realising they can earn a reward that's an attractive alternative to keeping funds in cash.

So I would expect, in developed markets, more stablecoins to grow. And what we're seeing there is what you would expect in any competitive market. Banks are seeing this. They see their customers like the instant settlement. They like the 24/7 access to their money. So they're willing to meet them there by offering tokenised deposits, tokenised money funds, because it's a lot of the aspects of a stablecoin within the context of how a developed market uses them.

Does the adoption, the increase in the use of stablecoins and digital assets more broadly, enable participants to enter into global trade that may not have previously been able to do so?

I think so and even amid this change – if you think global partners are questioning their relationships with the US – it's a new transmission mechanism for U.S. dollars globally. Trade changes over time, but stablecoin growth reinforces the U.S. dollar reserve as the primary means of global trade.

SECTION 4

THE INVISIBLE BARRIER

3.4.1

RESTRICTING CROSS-BORDER DATA FLOWS

Cross-border data flows have become essential to the mechanics of international trade. Data is a primary input to supply chain visibility systems and the cross-border delivery of digital services as well as a vital raw material for AI model training and deployment. The regulations and policies governing how data moves across

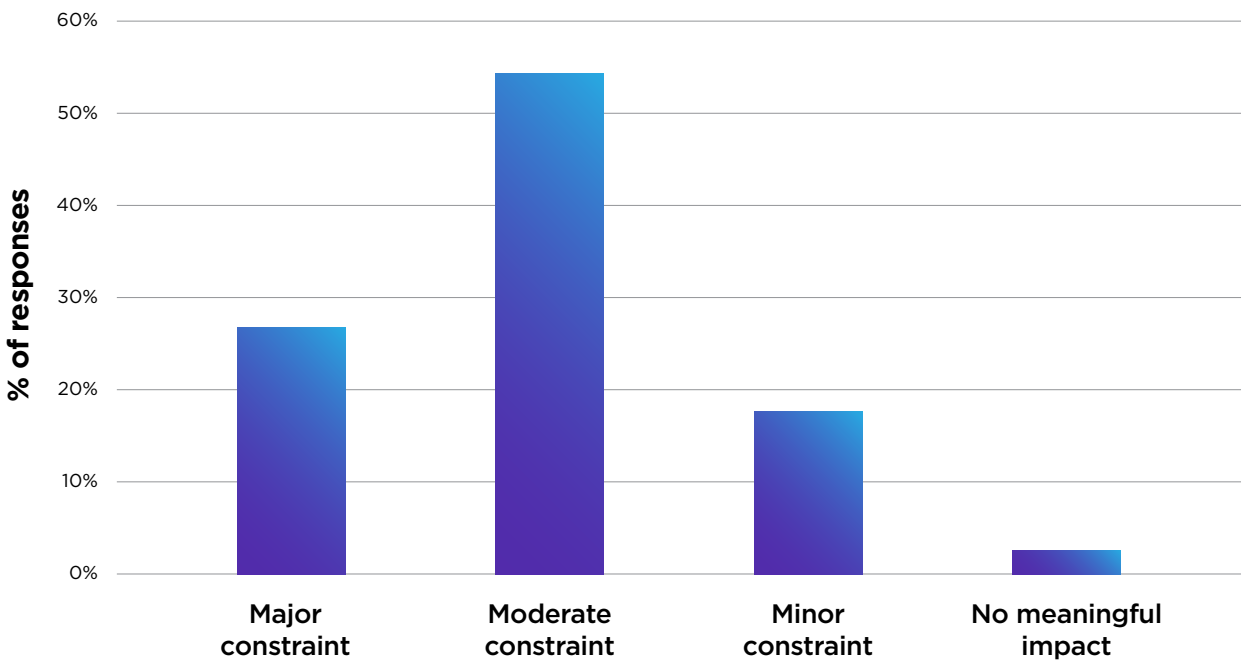
borders therefore directly and increasingly affect the nature of trade as well as the broader global economy. Our Future of Trade survey reflects this, with more than 80% of businesses deeming data localisation rules and data sovereignty concerns a major constraint (28%) or moderate constraint (52%) to cross-border trade.

“We need to protect that movement of data so that, along with that, the movement of expertise can move freely... But if that starts to get stressed, it will be a huge impediment to all the other things that we’re talking about.”

 **Roundtable participant**
Mumbai, April 2026

Figure 37

To what extent do data localisation rules and data sovereignty concerns limit cross-border trade?



Source: DMCC Future of Trade Survey, 2026

Governments take a wide range of approaches to data

China is at the most restrictive end with its Cybersecurity, Data Security, and Personal Information Protection Laws, which impose strict rules on data localisation, including mandated government assessments for large data exports.³⁰⁰ Turkey, Russia and Kenya sit towards this end of the spectrum too. While

India allows cross-border transfers, there are sector-specific caveats. For example, the Reserve Bank of India requires payment data to be stored domestically, effectively localising core financial information.³⁰¹ The EU’s GDPR will only allow data transfers to destination countries with adequate safeguards. This has in effect made it the global bellwether for data privacy rules, since other nations need to maintain data flows with Europe.³⁰²

³⁰⁰ DLA Piper, n.d.
³⁰¹ Hrangbung, 2026
³⁰² Murphy, 2025

The United States sits at the other end of the spectrum

There is no comprehensive federal privacy law and relatively few restrictions on cross-border data transfers in the United States. In April 2025, the Department of Justice’s Data Security Program, also referred to as the Bulk Transfer Rule, took effect, establishing export controls for sensitive personal information and government-related data.³⁰³ This was framed as a national security imperative, primarily aimed at foreign adversaries including China, Russia and Iran.³⁰⁴ This means businesses must now implement data compliance programmes with risk-based procedures.³⁰⁵ The EU-U.S. Data Privacy Framework, established in July 2023, is the primary mechanism that enables U.S. companies to self-certify their compliance with EU data protection principles and receive EU personal data without additional safeguards. It underpins more than \$1 trillion in trade and investment annually.³⁰⁶

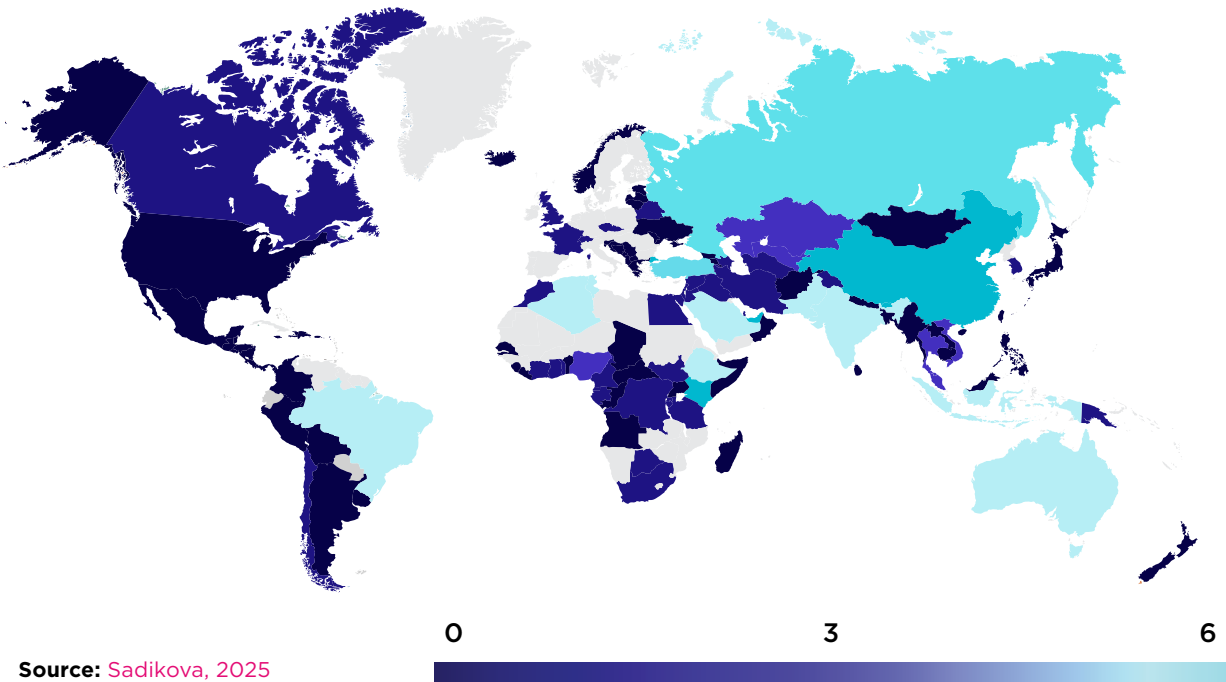
Should the end result be the total restriction of cross-border data flows – or data autarky – this could reduce global GDP by an estimated 4.5% and cut exports by 8.5%.

Data flow rules are becoming more restrictive and fragmented

The growing appetite for data has raised a range of new issues, including for privacy and data protection, national security, cybersecurity and protectionism.³⁰⁷ Governments have responded by imposing regulations that condition, or in some cases prohibit, data flows or mandate data localisation. Should the end result be the total restriction of cross-border data flows – or data autarky – this could reduce global GDP by an estimated 4.5% and cut exports by 8.5%.³⁰⁸ In contrast, open regimes that combine cross-border data flows with safeguards can preserve trust while limiting the costs associated with regulation. If economies were to adopt these looser approaches, this could raise global GDP by 1.77% and increase global exports by 3.6%.³⁰⁹ The largest gains would come in low and lower-middle income countries, where data flows have the potential to boost GDP by more than 4%.³¹⁰ The current divergence in national regulations is an ongoing challenge for businesses operating across borders.

Figure 38

Number of data localisation measures by country, 2025



Hampering supply chain visibility, cloud services and AI training

Supply chains rely on continuous data flowing across borders, to connect manufacturers, logistics operators, customs authorities and buyers in real time.³¹¹ In countries where data localisation requirements constrain such traffic, businesses face reduced visibility, slower responses to disruptions and higher costs. Data localisation acts as a market access barrier for cloud services as well, requiring region-specific deployments. And since AI models and systems are only as good as the data they are

trained on, access to large, diverse and cross-border datasets is essential. Restrictions on data flows limit the models that can be built, where they are built and who builds them. In China, AI developers and service providers must comply with the country’s strict data privacy and cybersecurity laws, up to and including requirements to obtain consent from subjects before using personal information as training data.³¹² Although AI-related regulatory frameworks are emerging, there is no common global standard. Operating across jurisdictions with fragmented cross-border data transfer rules adds cost and complexity, which often consolidates advantage among larger companies.

³⁰³ FTI Consulting, 2025
³⁰⁴ FTI Consulting, 2025
³⁰⁵ FTI Consulting, 2025
³⁰⁶ U.S. Department of Commerce, 2023

³⁰⁷ OECD and WTO, 2025
³⁰⁸ OECD and WTO, 2025
³⁰⁹ OECD and WTO, 2025
³¹⁰ OECD and WTO, 2025

³¹¹ ICC, 2025
³¹² Li, 2025

3.4.2

THE RISE OF BILATERAL DIGITAL FRAMEWORKS

The collapse of multilateral consensus on digital trade has produced a proliferation of bilateral and regional agreements that are filling the space the WTO can no longer occupy. The expiry of the e-commerce moratorium at the March 2026 Ministerial Conference was the clearest signal yet that global digital trade rules will not be set multilaterally.³¹³ In its place, a patchwork of overlapping bilateral deals, regional frameworks and plurilateral initiatives is emerging, each operating within its own geographic and legal scope, with inconsistent overlap and limited interoperability. The result is fragmentation: a world in which the rules governing digital trade depend on which agreements the parties to a transaction happen to be operating under.

Several agreements are setting the terms that others are being measured against:

The **CPTPP** established the original benchmark for digital trade rules almost a decade ago, including free data flows, restrictions on data localisation, and state-to-state dispute settlement.³¹⁴ A 2025 review found it requires significant updating to reflect the pace of digital evolution since inception, with several members still imposing the localisation measures the agreement was designed to prohibit. However it remains the gold standard in aspiration if not always in practice.³¹⁵

The **EU-Singapore Digital Trade Agreement**, which entered into force in February 2026 as the EU’s first standalone bilateral digital pact, prohibits customs duties on electronic transmissions, validates electronic signatures and contracts, and bars unjustified data localisation requirements.³¹⁶ It is the template the EU is now replicating across a growing network of bilateral relationships including South Korea, Canada, Thailand and the Philippines all in various stages of negotiation.

The **Digital Economy Partnership Agreement (DEPA)**, forged by Singapore, Chile and New Zealand and now expanded to include South Korea, offers a modular structure that allows its 16 thematic provisions to be adopted individually or as a package, making it the most flexible framework available for economies seeking to embed digital trade rules without committing to a comprehensive agreement.³¹⁷ Nine further economies have applied to join, including China, Canada and the UAE.³¹⁸

The **ASEAN Digital Economy Framework Agreement (DEFA)**, due to be signed in 2026, would be the world’s first regional agreement on digital economy governance across a bloc of nearly 680 million people.³¹⁹ ASEAN’s digital economy is projected to reach \$1 trillion by 2030³²⁰, while implementation of DEFA could double that figure to \$2 trillion by reducing compliance costs estimated at \$15-20 billion annually for ASEAN

ASEAN’s digital economy is projected to reach \$1 trillion by 2030, while implementation of DEFA could double that figure to \$2 trillion.

businesses.³²¹ With 73% of provisions agreed, the remaining negotiations on cross-border data flows, financial services and digital identity frameworks will determine whether DEFA delivers on its ambition or becomes another framework that falls short of its potential.³²²

The **FIT-P**, launched by Singapore, New Zealand and the UAE in September 2025, takes a different approach entirely. It focuses on supply chain resilience, investment facilitation and trade technology integration rather than tariff reduction or data flow commitments. It represents a new model of trade cooperation built around operational priorities rather than market access concessions, and is particularly significant as a signal of middle power cooperation in digital trade governance.³²³

The bilateral track has also produced agreements notable for what they signal beyond their immediate commercial scope. The **UK-Ukraine Digital Trade Agreement**, signed during active conflict and entering into force in September 2024, was explicitly designed to secure Ukrainian access to digital infrastructure and financial services for wartime economic stability and post-war reconstruction, making it one of the few digital trade deals tied to

geopolitics rather than commercial objectives alone.³²⁴ The **EU-India FTA**’s digital chapter, which integrates most rules agreed under the WTO’s Electronic Commerce Joint Initiative despite India not being a signatory, signals a willingness to embed multilateral-standard digital commitments in bilateral frameworks when global consensus cannot be achieved.³²⁵

The pattern across all of these agreements is consistent and instructive. Digital trade rules are being written bilaterally and regionally, by coalitions of willing partners, outside the multilateral system that was supposed to set them. CPTPP and RCEP shape the Asia Pacific. The EU’s bilateral network is extending European digital standards across an expanding set of trading partners. DEPA’s modular structure is creating a flexible alternative for economies that want digital trade rules without full framework commitment. The WTO’s Electronic Commerce Agreement, still awaiting ratification and binding only on its 66 signatories, provides a floor rather than a ceiling. For businesses, the practical implication is the same as in goods trade: the rules that matter are being negotiated now, in forums where early engagement shapes outcomes. Those that engage after ratification inherit whatever was decided without them.

³¹³ PwC, n.d.
³¹⁴ Schweitzer and Saccomanno, 2024
³¹⁵ PECC, 2025
³¹⁶ European Commission, 2026a

³¹⁷ Warren and Fan, 2022; Honey, 2021
³¹⁸ MTI, 2026
³¹⁹ Feingold and Pfister, 2026
³²⁰ Feingold and Pfister, 2026

³²¹ Feingold and Pfister, 2026
³²² Ihza Fairal et al., 2026
³²³ New Zealand Foreign Affairs & Trade, n.d.

³²⁴ Ministry of Economy of Ukraine, 2025; Department for International Trade and Badenoch, 2023
³²⁵ The Attorneys, 2026

SECTION 5

THE DMCC INDUSTRY DIGITALISATION INDEX 2026

Digital trade continues to grow at a faster rate than overall global trade and is estimated to account for 21.9% of the global total.³²⁶ Progress in AI technologies is expected to have transformative effects on global trade and has swathes of potential that are as yet untapped. Studying the ways in which businesses can take advantage of this digital progress is an essential complement to any analysis of global trade. This section of the report focuses on quantifying these technological progressions and how they have affected world trade, through the lens of the DMCC Industry Digitalisation Index.

DMCC Industry Digitalisation Index

The Industry Digitalisation Index (IDI) tracks businesses’ digitalisation progress across sectors. Digitalisation in this sense refers to the uptake of digital technologies and processes, ranging from the installation of wireless internet, to providing employees with a company phone, to utilising artificial intelligence. It 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 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.

³²⁶ Global Digital Trade Development Report 2025

Data for the IDI were sourced from Eurostat and represent insights for the European Union. This is because up-to-date digital economy data at the level of granularity required for the Index is not readily available from other sources. Therefore, the assumption is made that the level of differentiation in digitalisation across various industries is broadly consistent across developed countries. This does not assume that the rates of digitalisation are identical, or even consistent, worldwide. Different economic, fiscal, and cultural environments are highly likely to drive digitalisation at different rates. Instead, it makes the claim that the sectors which are likely to lead digitalisation are broadly consistent. Relative technology adoption at the industry level is likely to be driven by factors that are industry-specific, and geography-agnostic. This is also reflected in the limited available data beyond Eurostat, specifically for AI. As such, the sectoral and pillar-level comparisons of the IDI carry relevance across the developed world, far beyond the EU.

Input data for the IDI are official data on the percentage uptake of selected digital advancements amongst various industries. As such, the Index assigns scores between 0 and 100, with 100 indicating full uptake among all component digital technologies. Some variables have been updated to give additional weight to advancements in, and adoption of, AI technologies. AI uptake is one of a number of variables considered in the ‘production’ pillar of the IDI, relating to the digitalisation of internal processes. The two variables that are considered are the proportion of total firms using AI at all, and the proportion of firms using AI for at least one of a set of purposes ranging from text mining and

image processing to deep learning and process automation. These variables contained a limited back history, meaning the Index for 2024 could be similarly updated, but not previous editions. Therefore, while comparability with the 2024 IDI is ensured, this limits the comparability with values in editions prior. These changes have been made to ensure that the insights and points of comparison within the IDI remain relevant and on the forefront of modern trends.

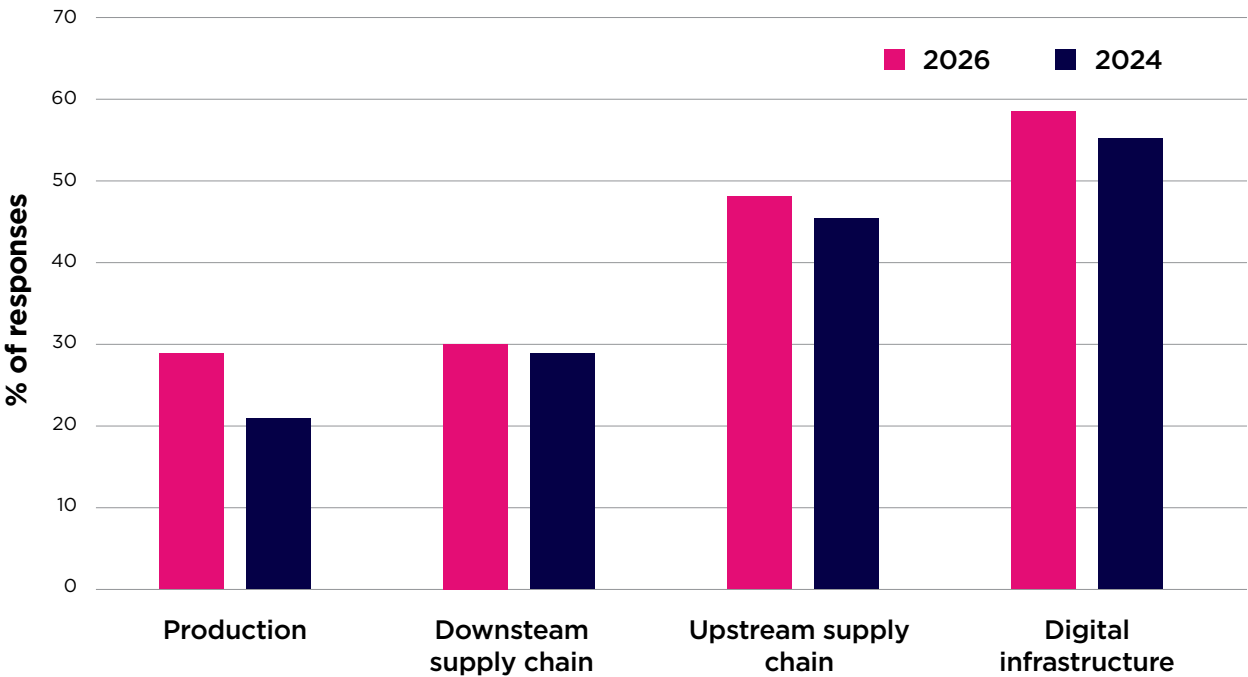
Results for the 2026 IDI showed an overall improvement compared with the 2024 edition, although substantial variation remains across the four components of the Index. Digital infrastructure remained the most digitalised function, scoring 58 out of 100, while production remained the least digitalised, with a score of 29, though this marks a notable 8-point increase from 2024. The latter was primarily driven by a significant acceleration in the uptake of cloud computing and AI technologies.

The continued strong performance in the digital infrastructure component was driven by a high share of businesses reporting a lack of ICT security-related incidents, as well as widespread access to broadband download speeds of at least 30 megabits per second, both of which showed steady improvements from 2024. This improvement was also widespread across the business landscape, with most sectors achieving moderately strong results. The information & communication sector stood out within the pillar, with a score of 70, well above the overall average.

The low score for the production component reflects slower uptake of newer technologies across sectors. Construction and wholesale and retail trade were the two most significant

Figure 39

Score on DMCC Industry Digitalisation Index (IDI), average across all industries, by index component (1-100, where 100 is fully digitalised), 2026 and 2024 scores



Source: Eurostat, OECD Cebr analysis

laggards, with scores of 21, significantly below the average. Perhaps unsurprisingly, the strongest-performing sector was information and communication, with a score of 52, a significant jump from 35 in 2024.

The upstream supply chain pillar recorded an IDI score of 49, up from 47 in 2024. Upward pressure on this component came from the high proportion of firms conducting online meetings, with downward pressure coming from the low uptake of customer relationship management (CRM) systems. These were reported to be 60% and 34% of firms in the

average across sectors respectively, rising from 57% and 31% in 2024.

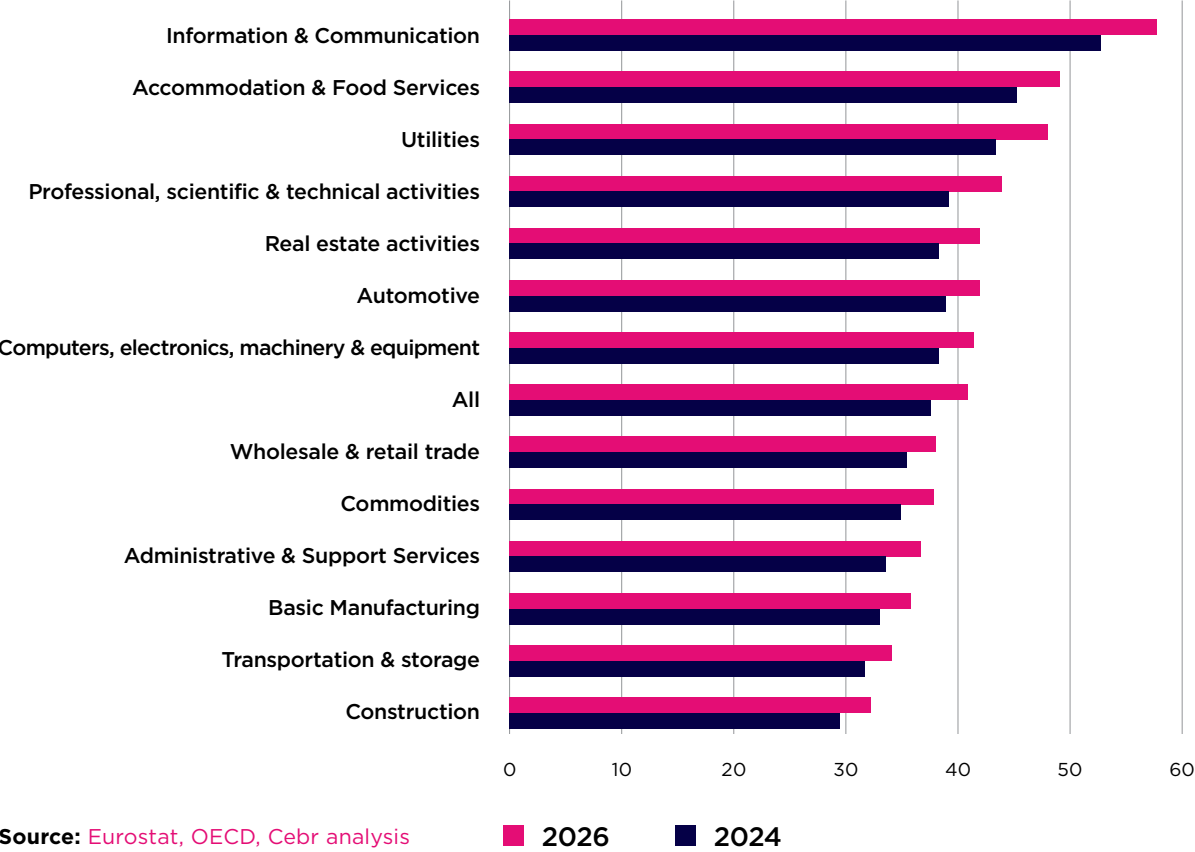
The downstream supply chain pillar performed considerably weaker than upstream, with a score of 30, improving only slightly compared to 2024, when it scored 29. This was largely due to an average of only 10% of firms across sectors having developed a mobile app for clients, and only 6% having received orders via electronic data interchange (EDI) messages, with both showing stagnation compared to 2024. Support for the pillar came from social media usage, which remained strong at 64%, rising from 62% in 2024.

At the sector level, IDI results also showed substantial variation, though all sectors recorded modest improvements in their absolute scores relative to 2024. The information and communication sector continued to lead with a score of 57, although its downstream performance stood at 34, reflecting limited engagement in receiving and processing online orders.

The construction sector remained the least digitalised sector, with a score of 32 in 2026, though this was up from 29 in 2024. Its performance in the production and downstream pillars was particularly low, at 21 and 16, respectively, potentially reflecting limited capacity within the industry for the uptake of new digital technologies and e-commerce use cases.

Figure 40

Score on DMCC Industry Digitalisation Index (IDI), by industry group (1-100, where 100 is fully digitalised), 2026 and 2024 scores



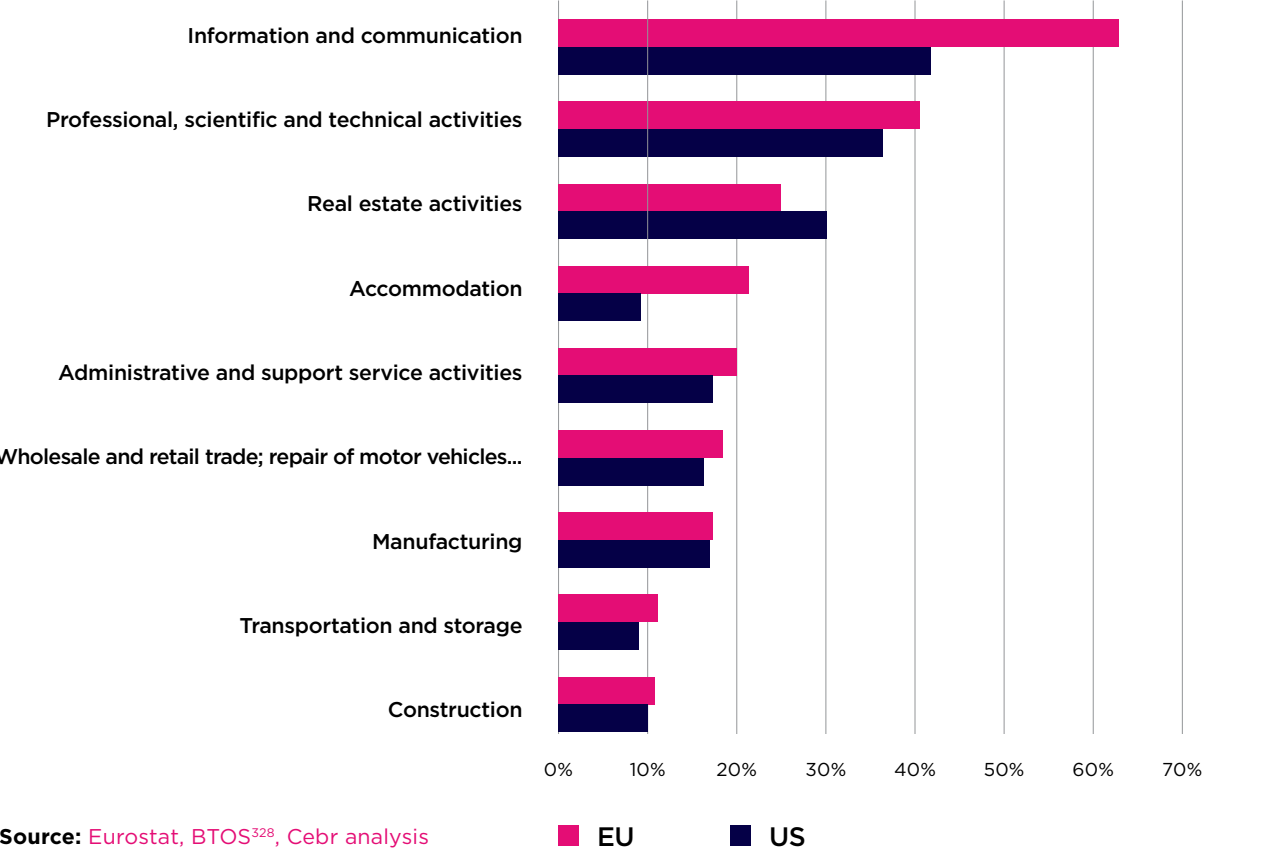
Assessing the impact of AI on trade

Advancements in AI adoption drove significant progress in the IDI in 2026, signifying greater integration into processes within trade as well as the business landscape more generally. This section reviews available literature to assess

the potential transformative effects of the technology within global trade, providing greater context to the insights of the previous section. The literature review finds that AI can deliver significant efficiency gains and broaden market access. However, these benefits are unevenly distributed, constrained by cross-border data flow bottlenecks, as well as fragmented domestic policies and trade agreements.

Figure 41

AI adoption across industries in the EU and United States³²⁷



³²⁷ Wholesale and retail trade are individual sectors in the United States. In the absence of survey counts, a simple average of the two sectors is used here. Other US sector definitions may also differ slightly from those used in the IDI but are mapped to ensure broad alignment.
³²⁸ This represents data from the January 2026 edition of the BTOS.

AI in the Industry Digitalisation Index

AI adoption in the IDI displayed considerable variation across industries, with usage ranging from a minimal 7% of construction firms to 61% of firms in information and communication. While the data composition of the Index only reflects the European Union, relative trends across sectors and pillars in the IDI were assumed to be broadly comparable on a global scale. Figure 41 tests this assumption, comparing data on AI uptake from Eurostat with sources from the United States.

It is important to note that adoption definitions differ between the sources. The U.S. Business Trends and Outlook Survey (BTOS) asks firms if they have used AI in the past two weeks, whereas Eurostat measures whether a firm uses AI at all. This may cause results for the United States to have a slight downward bias compared to the EU equivalents. That said, evidence suggests that the total scale of AI adoption in the United States and the EU should be broadly comparable, although integration is superior in the United States,³²⁹ which appears to be reflected in the results.

The assumption that cross-industry trends are geography-agnostic is supported by the evidence in Figure 41, although absolute adoption levels show some volatility, particularly in the accommodation sector. The top three sectors are the same across the two geographies, those being information and communication, professional, scientific and technical activities, and real estate activities. Construction and transportation and storage are also the two sectors with the lowest uptake in both.

³²⁹ European Investment Bank, 2025
³³⁰ ICC and WTO, 2025

The value of AI in international trade

AI’s adaptive capabilities are particularly relevant for international trade, altering production dynamics and the conditions under which economies compete in global markets. Adoption is increasingly bearing fruit, as evidenced by the results of a global survey conducted by the WTO Secretariat and ICC in 2025. With responses from 158 firms of varying sizes and sectors across all major regions and income groups, nearly half of the surveyed firms reported using AI to support trade-related activities, while 90% of those using AI identify tangible benefits, including efficiency gains, expanded export bases and a broader range of traded products.³³⁰

The projected economic value of AI is significant. AI is expected to contribute more than \$15 trillion to the global economy by 2030, with successful integration into trade processes potentially adding 13.6 percentage point of cumulative real trade growth in goods and services.³³¹ By 2040, WTO simulations estimate that AI adoption could increase global trade by 34-37%, raising global GDP by 12-13%.³³² The benefits to global trade manifest in two main ways. First, AI enhances efficiency, reducing operational costs and strengthening supply chain performance. Second, AI supports inclusivity, lowering trade costs and enabling broader participation, particularly for smaller firms and economies.

³³¹ WTO, 2026; WTO, 2025b
³³² WTO, 2025b

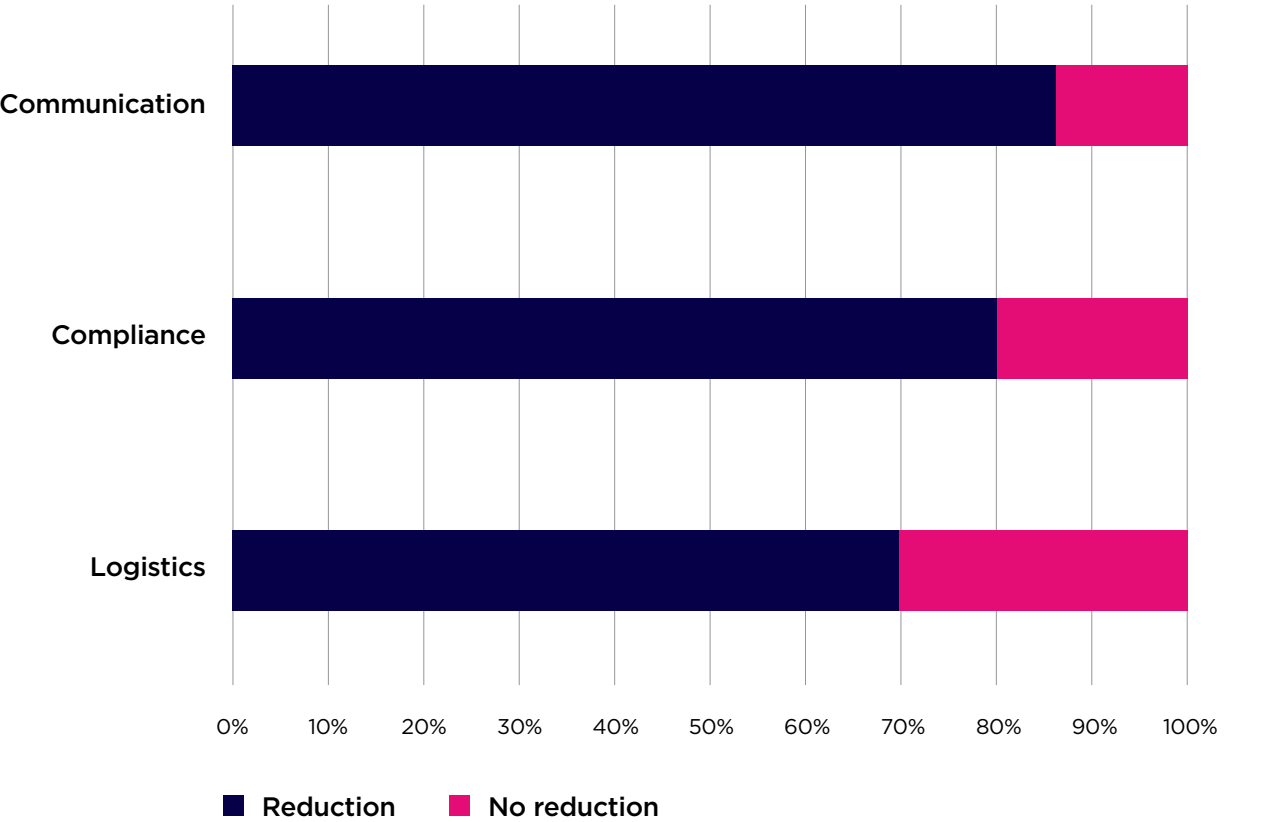
Efficiency gains

AI delivers substantial efficiency improvements by generating cost savings and improving resilience in supply chains. AI enables firms and border agencies to automate information-intensive and highly repetitive tasks, substantially reducing the time and

resources required to complete trade transactions. Evidence from the ICC and WTO survey reveals the scale of these expected gains: 70% of respondents adopting AI anticipate cost savings in logistics, 80% in compliance, and 86% in communications.³³³ These reductions stem from AI’s ability to streamline documentation, accelerate

Figure 42

Percentage of AI-adopting firms expecting trade cost reductions



Source: ICC, WTO, Cebr analysis

³³³ ICC and WTO, 2025

verification processes and minimise manual intervention, areas that traditionally account for a significant share of trade-related administrative costs. Such capabilities are particularly valuable in international trade, where delays, uncertainty and fragmented information flows can impose significant costs, with the IMF (2025) finding that a one standard deviation increase in global uncertainty is associated with a decline in bilateral trade by 4.5%.³³⁴

One example of how AI can be integrated is the AI-powered Advanced Trade and Logistics Platform (ATLP). Developed by AD Ports Group’s Maqta Technologies, it integrates Abu Dhabi’s air, land and sea operations, facilitating inspections and customs clearance, while connecting traders to economic zones. The platform has processed 176 million digital transactions, consolidating data from over 20 maritime, aviation, rail, regulatory, financial and economic-zone sources.³³⁵ Since its implementation, the platform has reduced documentation requirements by 90% and cut worker time burdens by 50-90% (Project Management Institute, 2024).³³⁶

Increased inclusivity

AI also enhances inclusivity in global trade by lowering barriers that disproportionately affect smaller firms and those in developing economies. Many SMEs lack the resources needed to navigate the regulatory and administrative complexity of cross-border commerce. These can be addressed using AI to simplify compliance and improve cross-border communication.

AI-powered solutions can reduce the costs associated with compliance with trade regulations and border requirements. For instance, MyGTS (My Global Trade Services) is a free self-service platform rolled out by DHL for businesses to compare and analyse trading regulations between exporting and importing countries. Using AI to distil trade agreements and estimate duties, taxes, insurance and shipping fees, the platform enables businesses to calculate the total landed cost of goods across different trade routes.³³⁷ This improves SMEs’ ability to assess their competitiveness and enter new markets, thereby supporting their integration into global value chains.

Besides border requirements, AI enables more inclusive trade participation as communication tools lower language barriers. For instance, SEA-LION, the world’s first large language model tailored to Southeast Asia’s linguistic and cultural context, was developed by AI Singapore to improve communication across a region of 680 million people speaking more than 1,200 languages.

The trade effects of AI-enabled translation are extremely significant, as evidenced by eBay’s Machine Translation (eMT) programme, which increased U.S. exports to Spanish-speaking Latin American countries by 17.5% in quantity and 13.1% in revenue, an effect equivalent to reducing the geographic distance between economies by 37.3%.³³⁸ These findings highlight how AI can reduce informational frictions, expanding market access for firms that would otherwise face communication barriers.

³³⁴ IMF, 2024
³³⁵ WEF, 2025b; IMF, 2024
³³⁶ PMI, 2024

³³⁷ Vella, 2025
³³⁸ WTO, 2025b

Distribution of AI-driven trade gains

While AI offers substantial aggregate benefits for trade, the realisation of trade gains is currently uneven across countries and sectors. WTO analysis shows that economies more integrated into the digitally deliverable services trade experience stronger innovation spillovers, with a 10% increase in such trade associated with a 2.6% rise in cross-border AI patent citations.³³⁹ At the same time, more than 90% of AI-related patents are concentrated in just five sectors (computer and electronics, machinery, IT services, transport equipment and electrical equipment) indicating that AI-driven productivity gains are clustered in a relatively narrow segment of the global economy.³⁴⁰ The largest trade gains are expected in digitally deliverable services, projected to grow by 42%, reflecting both the high tradability of AI-enabled services and the productivity improvements they generate.³⁴¹

These benefits are also distributed unevenly across countries. WTO simulations suggest that, under a benchmark scenario, where low-income economies do not catch up with high income economies in terms of digital technology and infrastructure, GDP rises by 14% in high-income economies, 11% in middle-income economies and 8% in low-income economies.

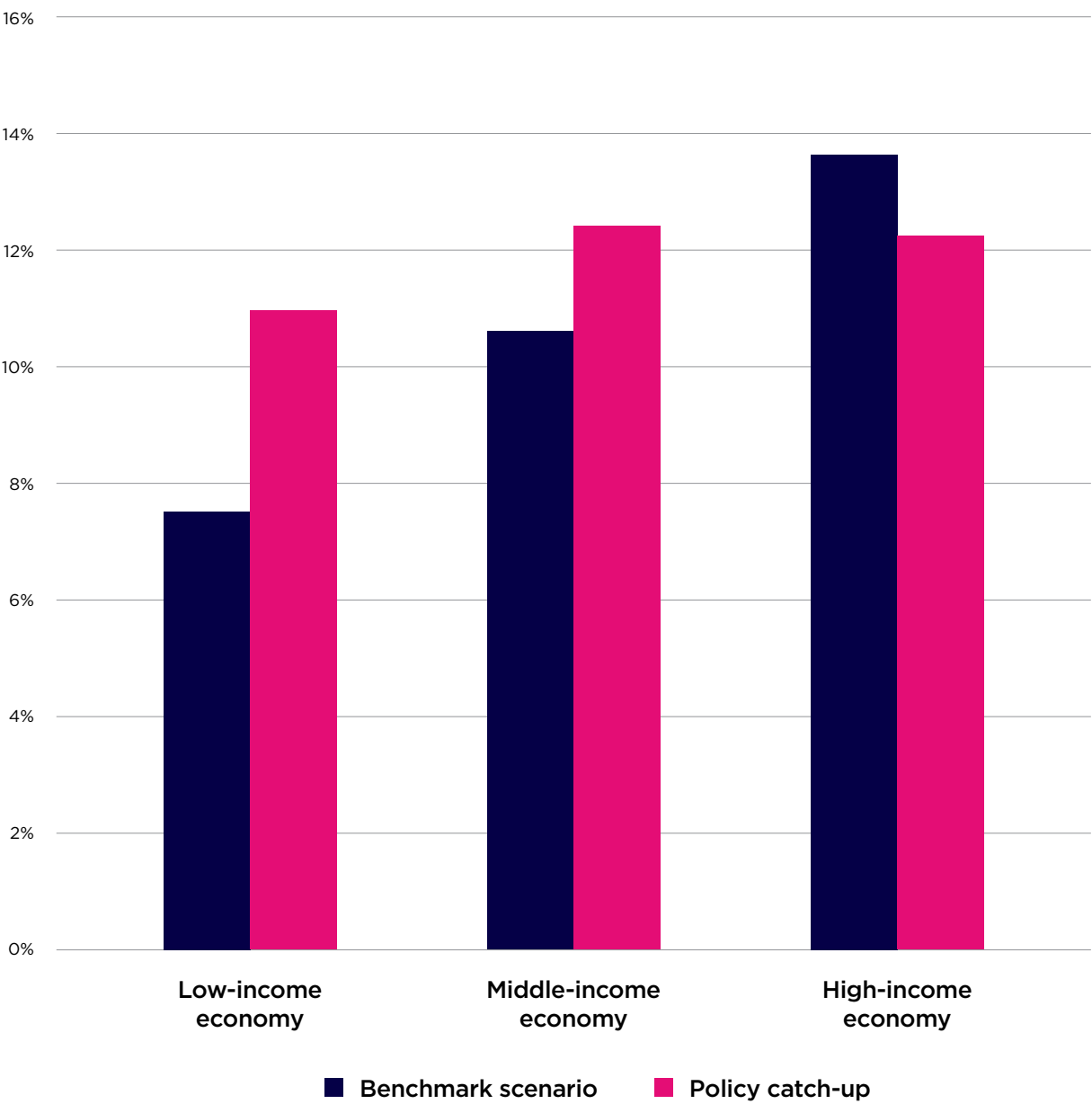
However, when digital infrastructure in low-income economies is improved (policy catch-up), the gap narrows significantly, with projected gains of 12%, 12% and 11%, respectively.³⁴²

³³⁹ WTO, 2025b
³⁴⁰ WEF, 2025b
³⁴¹ WTO, 2025b
³⁴² WTO, 2025b



Figure 43

Variation of AI gains by 2040 across economies (GDP growth)



Source: WTO

A key source of divergence in AI gains lies in the treatment of cross-border data flows. An example of this can be found in the trade of digitally delivered services. AI-assisted workflows can enable the development of more diverse mobile phone applications, which can increase the number of foreign users of these applications tenfold. However, AI’s impact on those users is halved when they are located in economies with stringent restrictions on cross-border data flows.³⁴³ In recent years, besides an increase in such measures, they have become more restrictive, with more than two-thirds now involving not only local storage requirements but also prohibitions on transferring data abroad.³⁴⁴ Such policies are likely to limit the scalability of AI solutions and reduce the diffusion of AI-enabled trade benefits, particularly for smaller and less digitally advanced economies, as cross-border data regulation is positively correlated with income.³⁴⁵

Furthermore, while domestic policies are beginning to address the opportunities and risks associated with AI, they remain highly siloed, with limited consistency across countries. Current national approaches vary widely in focus and ambition. Around 19% of AI policy initiatives focus on financial support and incentives for AI research, development and adoption, while 18% of those centre on guidelines and regulations related to data privacy and algorithmic transparency, often accompanied by new oversight bodies and standards.

Meanwhile, 27% aim to foster an enabling environment for AI through public awareness initiatives, collaborative platforms and business advisory services.³⁴⁶ This diversity reflects different national priorities and capacities, risking deeper fragmentation across countries if domestic frameworks are not aligned with international trade commitments.

Moving forward, greater international harmonisation will be essential to bridge the widening gap in AI adoption, allowing the benefits of AI on trade to be harnessed inclusively across all economies.

³⁴³ WTO, 2024
³⁴⁴ OECD, 2023
³⁴⁵ WTO, 2025b
³⁴⁶ WTO, 2024

KEY TAKEAWAYS AND RECOMMENDATIONS

Key Takeaways

- **AI has crossed the operational point of no return but the productivity divide is widening.** AI is no longer experimental. It is deployed at scale in logistics, customs, ports, manufacturing and trade finance, and is delivering measurable gains in cost efficiency, supply chain visibility and market reach. But adoption remains deeply uneven: fewer than 15% of businesses describe their AI use as fully integrated or transformational, while more than 25% report observational use or no adoption at all. The gap between early movers and laggards is already visible in performance and will widen significantly as agentic AI moves from pilot to production over the next three to five years.
- **The infrastructure stack powering AI has become as strategically contested as the technology itself.** Models can be replicated but the physical infrastructure required to train and run them at scale cannot. Export controls on chips, grid constraints on data centre expansion, water scarcity in AI manufacturing regions and Chinese dominance in critical mineral processing are all active constraints on where AI capability can be built and at what cost.
- **A new generation of financial infrastructure is moving from proof of concept to live deployment.** Stablecoins, tokenised assets and wholesale CBDCs are settling real transactions in real corridors. B2B stablecoin payments grew 733% year on year in 2025. The first cross-border CBDC transaction on mBridge processed in November 2025. Electronic bills of lading have risen from 1% to 11% of issuances in four years. The direction of travel is unambiguous. But most deployments still operate on closed networks, regulatory frameworks remain inconsistent across jurisdictions and the interoperability required to make these systems globally viable does not yet exist at scale.
- **Cross-border data flows are becoming tied to national strategic interests.** More than 80% of businesses in our survey identify data localisation rules as a major or moderate constraint on cross-border trade. Where data cannot flow freely, AI development slows, cloud services face market access barriers and supply chain visibility degrades. The businesses and economies best positioned in digital trade will be those that have built data architecture flexible enough to operate across divergent regulatory environments.
- **The multilateral framework for digital trade has effectively collapsed.** The expiry of the WTO e-commerce moratorium in March 2026 removed the only universal commitment on digital trade. In its place: a proliferating network of bilateral and regional digital trade agreements, each setting its own rules on data flows, electronic documentation, digital identity and e-commerce governance. Businesses and governments must engage in these negotiations to shape outcomes or inherit them.

Recommendations

- **Run a structured AI maturity audit across core trade operations.** Businesses should map AI adoption across customs classification, demand forecasting, sanctions screening, trade finance and logistics optimisation to identify where the gap between current deployment and best-in-class is largest, and prioritise those areas for scaled investment. Policymakers should establish AI readiness benchmarks for trade-intensive sectors and direct digital infrastructure investment towards the corridors and markets where the adoption gap is largest.
- **Stress-test AI infrastructure dependencies across cloud providers, chip suppliers, data centre operators and energy sources.** Businesses should map which AI workloads depend on single providers or jurisdictions, distribute critical workloads across multiple infrastructure providers, and factor energy availability and grid connection timelines into decisions about where to locate or expand AI-dependent operations. Policymakers should treat AI infrastructure like data centres, grid capacity, and semiconductor supply chains as strategic national infrastructure and plan accordingly.
- **Build dual-track payment capabilities now.** The UAE, Singapore, Hong Kong and the UK have all introduced or are developing stablecoin regulatory frameworks that provide sufficient clarity for institutional adoption. Businesses should maintain correspondent banking for established trade corridors while piloting stablecoin or tokenised settlement in markets where banking frictions are highest. Policymakers should accelerate regulatory harmonisation on stablecoin reserves, interoperability standards and CBDC corridor development.
- **Map data localisation exposure before expanding into new markets.** Businesses should identify which jurisdictions require local storage or processing of trade-relevant data, assess whether current infrastructure can accommodate those requirements and make modular design a standard requirement for new system development. Policymakers should prioritise data flow provisions in bilateral trade negotiations and push for mutual recognition frameworks that reduce the compliance burden.
- **Mandate digital trade documentation on a fixed timeline.** Businesses should set internal targets for eBL, digital letters of credit and paperless customs filings across primary corridors and provide transition support to suppliers who lack the capability to comply unilaterally. Policymakers should extend eBL legal equivalence across all major trading jurisdictions, harmonise digital signature and electronic contract frameworks and direct development finance towards SME digitisation in underserved trade corridors.
- **Engage with digital trade agreement negotiations before they conclude.** Businesses should engage through industry bodies in negotiations relevant to their primary trade corridors, with particular focus on AI governance provisions, data flow commitments and electronic trade document standards. Policymakers should treat digital trade agreement negotiations as a strategic priority equivalent to tariff schedules.



CHAPTER 4

CLEAN ENERGY

THE RACE
FOR INDUSTRIAL
SUPREMACY

The energy transition has been reframed – not by policymakers or scientists, but by the market. What began as a climate imperative has become something more consequential and more contested: a race for industrial supremacy in which the countries and companies that control critical minerals, manufacturing capacity, clean technology supply chains and grid infrastructure will not merely benefit from the transition but will determine its terms.

The language of carbon targets and net zero commitments has not disappeared, but it has been overtaken by the language of export controls, strategic stockpiles, bilateral deals and sovereign capital. The Iran conflict, and the oil supply shock it has delivered, has only accelerated that reframing, with energy security now the primary driver where climate ambition once held that position. This chapter is about who is winning that contest, who is losing, and what the trade consequences will be for the decades ahead.

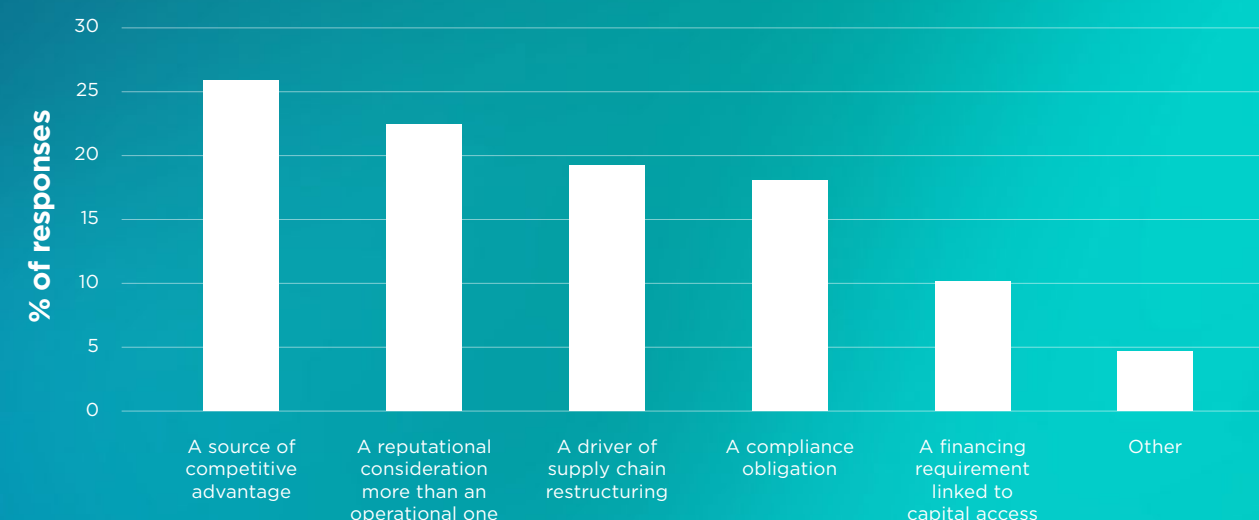
Businesses are adjusting their expectations

According to our Future of Trade survey, more than one-quarter of businesses see sustainability becoming a source of competitive advantage and almost 20% expect it to become a driver of supply chain restructuring. Over one in five anticipate it will function as a reputational consideration more than an operational one.

This shift is already influencing where businesses see the greatest sources of opportunity and disruption in global trade. More than 30% of businesses in our survey identified clean energy production as the most significant sustainability-related factor expected to shape trade flows over the next one to three years, followed by critical minerals (21%), climate and industrial policy (18%) and EVs and batteries (15%).

Figure 44

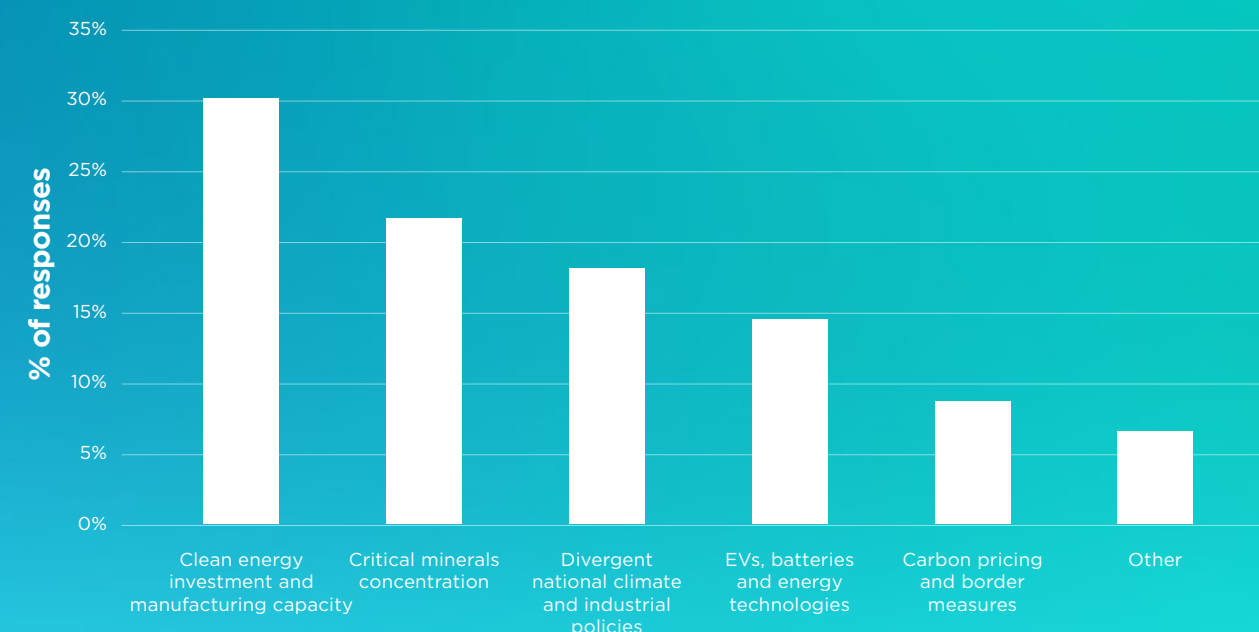
Looking ahead, sustainability will primarily function as:



Source: DMCC Future of Trade Survey, 2026

Figure 45

Which sustainability-related factor will have the greatest impact on trade flows over the next 1-3 years?



Source: DMCC Future of Trade Survey, 2026

SECTION 1

BETTING ON THE TRANSITION

4.1.1

FOLLOW THE CAPITAL

The shift to a post-carbon economy is one of the largest reallocations of capital in economic history. Investment in the low-carbon energy transition hit a record \$2.3 trillion globally in 2025, up 8% from 2024, and is projected to reach \$2.9 trillion over the next five years.³⁴⁷ For the first time, investment in the electricity sector is running roughly 50% higher than capital deployed across hydrocarbons supply – a complete reversal from a decade ago, when fossil investment exceeded power sector spending by around 30%.³⁴⁸ Trade flows are following: global trade in clean energy products like solar PV components, batteries, wind turbines, electrolyzers and heat pumps is expected to reach \$650 billion annually by 2030, roughly three times the 2023 level.³⁴⁹ The direction of capital is clear. The old energy order is not fading, but it is being outspent.

Within that aggregate, capital is concentrating in three distinct fronts, with each a separate battleground in the industrial contest. Electrified transport leads, with \$893 billion invested in EVs and charging infrastructure in 2025 – reflecting a 21% year-on-year increase – and accounting for nearly 40% of total transition spending.³⁵⁰ This is where China has built its most dominant position. Renewable energy ranks second at \$690 billion, though investment fell 9.5% as power market reforms in China introduced uncertainty.³⁵¹ Grid infrastructure is the third front, reaching \$483 billion in 2025, with cumulative grid spending forecast to reach \$5.8 trillion between 2026 and 2035, and representing the most consequential bottleneck in the entire transition.³⁵² The race is not just about generating clean power. It is about who can transmit it, store it and deploy it at industrial scale.³⁵³

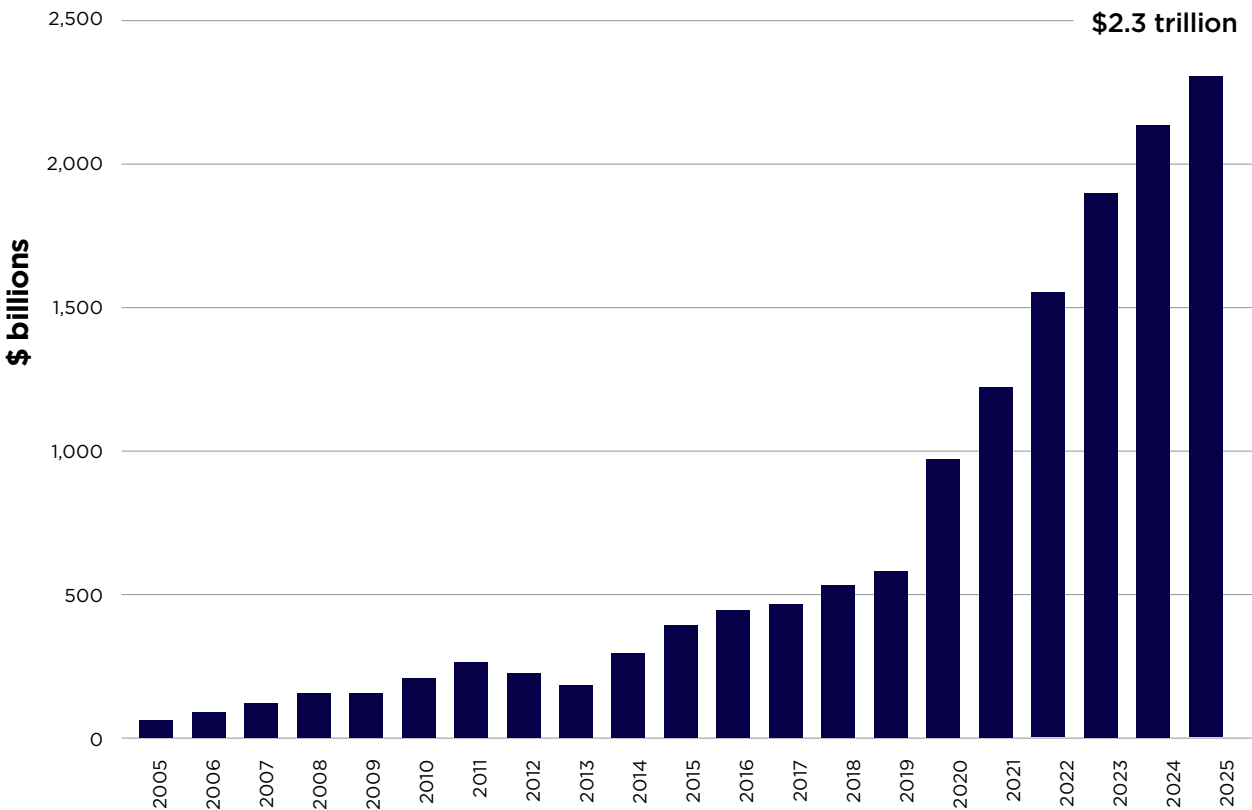
³⁴⁷ BloombergNEF, 2026a
³⁴⁸ IEA, 2025a
³⁴⁹ IEA, 2023
³⁵⁰ BloombergNEF, 2026a; JPMorgan, 2026

³⁵¹ BloombergNEF, 2026a
³⁵² JPMorgan, 2026
³⁵³ JPMorgan, 2026

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Figure 46

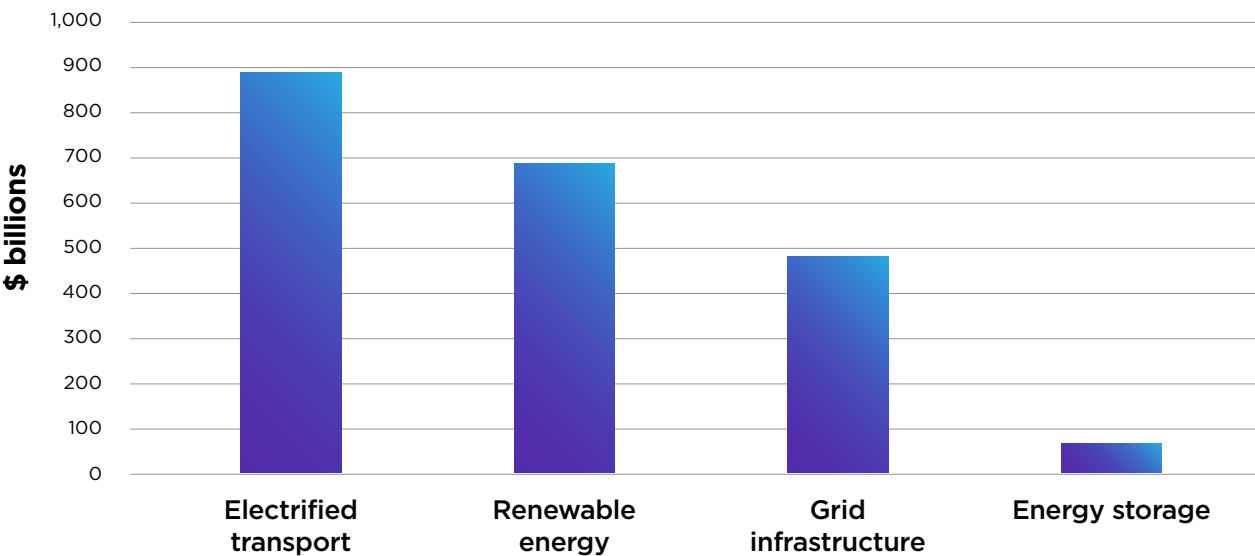
Global energy transition investment, 2005-2025



Source: BloombergNEF, 2026b

Figure 47

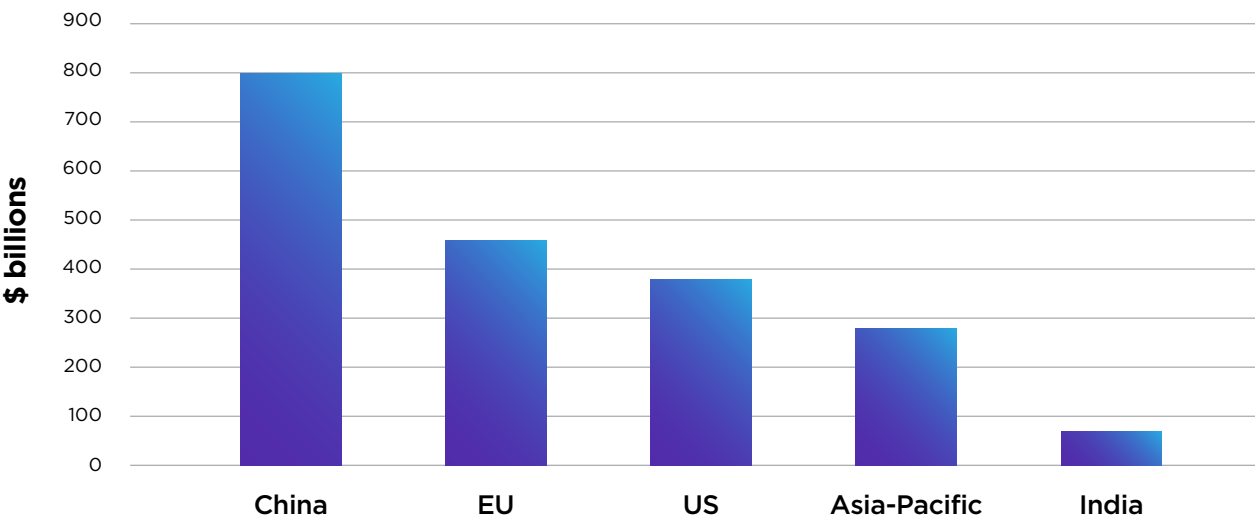
Global energy transition investment by largest sectors, 2025



Source: BloombergNEF, 2026b

Figure 48

Global energy transition investment by region, 2025



Source: BloombergNEF, 2026b

The geography of clean tech investment is shifting alongside its scale. Asia Pacific accounts for almost half of global energy transition capital, driven by manufacturing dominance, EV deployment and supply chain control. China invested \$800 billion in 2025 alone. The EU grew 18% to \$455 billion. U.S. investment rose just 3.5% to \$378 billion.

The geography of clean tech investment is shifting alongside its scale. Asia Pacific accounts for almost half of global energy transition capital, driven by manufacturing dominance, EV deployment and supply chain control. China invested \$800 billion in 2025 alone. The EU grew 18% to \$455 billion.³⁵⁴ U.S. investment rose just 3.5% to \$378 billion, despite – or because of – the Trump administration’s retreat from clean energy

industrial policy.³⁵⁵ Beyond these established markets, India reached a record \$150 billion in total energy investment in 2025, with \$101 billion going to clean energy, and surpassed its 50% non-fossil electricity capacity target five years ahead of schedule.³⁵⁶ Southeast Asia invested \$47 billion in clean energy in 2025, up from \$30 billion in 2015, and now directs almost half of all energy investment towards the transition.³⁵⁷

³⁵⁴ BloombergNEF, 2026a
³⁵⁵ BloombergNEF, 2026a

³⁵⁶ Li et al., 2025; Reuters, 2025
³⁵⁷ IEA, 2025a

4.1.2

FOUR STRATEGIES, ONE RACE

The allocation decisions behind the investment figures tell an important story about which economies are building structural positions and which are conceding ground they will struggle to recover.

The United States Retreats

The United States has made a deliberate choice to retreat and the capital is already leaving. The Biden administration's Inflation Reduction Act triggered a genuine private sector response, with nearly \$500 billion in business and consumer investment in the two years after

signing. However that momentum has since reversed.³⁵⁸ By the end of 2025, companies had cancelled, closed or downsized 61 clean energy projects representing \$34.8 billion in abandoned investment – almost three times the \$12.3 billion in new announcements that year – and over 38,000 jobs gone.³⁵⁹ It was the first year on record in which more clean energy investment left the United States than arrived.³⁶⁰ The Trump

It was the first year on record in which more clean energy investment left the United States than arrived. The Trump administration cancelled offshore wind permits, including one that was nearly complete. Capital has now moved to Europe: while U.S. renewable investment fell 36% in the first half of 2025, EU renewable investment grew 63%.

³⁵⁸ Clean Investment Monitor, 2024
³⁵⁹ E2, 2026

³⁶⁰ E2, 2026



The lesson that we have from all these shocks is diversification. In Europe, we had difficulty in thinking this way... The keyword is security of supply and affordability. The big issue in Europe is that we were too focused on ideology.”



Roundtable participant
Frankfurt, March 2026

administration cancelled offshore wind permits, including one that was nearly complete.³⁶¹ Capital has now moved to Europe: while U.S. renewable investment fell 36% in the first half of 2025, EU renewable investment grew 63%.³⁶² TotalEnergies and RWE have reduced U.S. activity and expanded in the North Sea. Canada's La Caisse has rebalanced from the United States to Europe.³⁶³ The consequence for trade is direct: as the United States retreats from clean energy manufacturing, it becomes more dependent on imports, including from China, for the clean tech products its own economy will require.

Europe Hesitates

Europe has the ambition but not yet the capital and the gap with China is widening. Across key clean technologies, European manufacturing costs are significantly higher

than Chinese equivalents. Chinese wind turbines are at least 20% cheaper than European equivalents. Wind turbine prices in Europe have risen even as Chinese prices have fallen 50% since 2022.³⁶⁴ The EU remains structurally dependent on China for upstream and midstream components of the clean energy supply chain even as it erects tariffs on downstream products.³⁶⁵ The fundamental problem is financing. The EU faces an estimated 477 billion annual funding gap, forecast to widen by a further 180 billion between 2024 and 2030.³⁶⁶ Implementation delays, the expiry of the Recovery and Resilience Facility in 2026, and tighter fiscal rules are all constraining momentum. Europe is trying to compete in a manufacturing contest with policy ambition rather than patient capital and the gap is showing.³⁶⁷

³⁶¹ Victor, 2026
³⁶² BloombergNEF, 2025a
³⁶³ Gombar, 2025
³⁶⁴ IEA, 2025a

³⁶⁵ Romanuk, 2024
³⁶⁶ Kuk, 2025
³⁶⁷ Kuk, 2025

China Advances

China has turned the clean energy transition into a manufacturing strategy. While Western clean energy investment depends on policy incentives to attract private capital, China combines state and private capital in tandem. The government absorbs first-mover risks, builds manufacturing at scale and uses export competitiveness as an instrument of strategic influence.³⁶⁸ The results are stark: 76% of global clean tech factory investment in 2024 went to China.³⁶⁹ The country now controls over 70% of global manufacturing capacity across major clean tech segments.³⁷⁰ As Western manufacturers retreat or stall, Chinese clean tech exports are filling the gap. China is not just producing clean energy: it is producing the world's clean energy supply chains.

China has turned the clean energy transition into a manufacturing strategy. The results are stark: 76% of global clean tech factory investment in 2024 went to China. The country now controls over 70% of global manufacturing capacity across major clean tech segments.

The Gulf Hedges

The Gulf states are not choosing between the old energy order and the new one – they are funding both. As the world's leading hydrocarbon exporters, Gulf states might have been expected to resist the energy transition. Instead, they are among its most active financiers. Gulf sovereign wealth funds, which account for around 40% of global SWF assets, are deploying long-term capital – largely from hydrocarbon revenues – into renewable energy, hydrogen, critical minerals and green industrial manufacturing, all of which support domestic economic diversification plans.³⁷¹ Nearly half of all green assets held by sovereign wealth funds are held by Gulf funds.³⁷² GCC countries have invested over \$37.7 billion in around 62.9 GW of renewable energy projects as of October 2025,

³⁶⁸ Victor, 2026
³⁶⁹ BloombergNEF, 2025b
³⁷⁰ BloombergNEF, 2025b

³⁷¹ Bakshi, 2026
³⁷² Miniaoui and Bechri, 2024

The clean tech order is fragmenting into competing blocs: one anchored in Chinese manufacturing, financing and standards; another fragmenting along national lines as Western economies pursue divergent strategies.

targeting 165 GW by 2030.³⁷³ The UAE's Masdar alone committed \$15 billion to global renewable energy projects in 2025, with a combined capacity of 51 GW and a target of 100 GW by 2030.³⁷⁴ What makes the Gulf position distinctive is that it is not pivoting away from hydrocarbons, but using hydrocarbon revenues to finance the technologies that may eventually displace them, positioning itself as an indispensable node in both the old energy order and the new one.

These divergent strategies are already reshaping commodity prices, trade routes and patterns of economic dependency in ways that will be difficult to reverse. The clean energy supply chain is among the most geographically concentrated in the global economy, with critical minerals, batteries and grid components flowing from a small number of production and processing centres – overwhelmingly in China

– to consuming markets along shipping routes whose fragility has already been demonstrated. Supply constraints are feeding into prices. Grid materials have nearly doubled in price in the last five years due to rising demand for cables and transformers.³⁷⁵ This is creating bottlenecks that are slowing deployment of clean energy infrastructure across Europe, the United States and emerging markets. In the economies where Western capital is absent, Chinese state financing and technology are filling the gap and deepening trade dependencies that will be hard to unwind. The clean tech order is fragmenting into competing blocs: one anchored in Chinese manufacturing, financing and standards; another fragmenting along national lines as Western economies pursue divergent strategies. The capital allocation decisions being made now are determining both who profits from the transition and the trade geography of the next industrial era.

³⁷³ Alhajraf, 2026t
³⁷⁴ Rahman, 2026
³⁷⁵ IEA, 2025a



INTERVIEW **Michelle Brouhard**

Head of Policy and Geopolitical Risk, Kpler

You track commodities and you track shipping. Give us a sense of what trends you've been seeing and how they may play out over the next two or three years.

Really, the trend started changing in 2022 during Russia-Ukraine – when Europe started changing their energy flows; Russia changed their energy flows; and Brazil, which previously did not take any diesel from Russia, started taking diesel from Russia. Energy flows started to become less efficient as everyone started transitioning. Now we're seeing energy flows shift again. And with the Middle Eastern crisis, it's hard because you can't replace 12 million barrels a day of oil. There's no possible way to replace that in any quick amount of time.

You're starting to see countries that can buy and can pay for energy to source it from faraway places because shipping is high and supply is really limited. Once this war is over and the Strait [of Hormuz] opens up, you're going to see a lot of infrastructure being built in the Middle East to take everything away from the Strait. So right now, the Saudis have a pipeline that takes flows to the Red Sea so that they can export out. But I anticipate that we'll see the Saudis build even more infrastructure to avoid the Strait. And Iraq will build more infrastructure. The UAE will build more infrastructure. Everyone will start building more infrastructure to move things away from the Strait, which means that trade flows will start to change again.

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That's energy security. But will there be a shift or an increasing shift to renewable energy or non-fossil fuel energy? And what impact will that have on trade?

There already is a boom in energy demand due to AI generation and all of the new data centres. The talk about energy security started even before the war, and everyone knew that China had transitioned into more of an electrified economy – whereas the US is heavy in fossil fuels and most of the world is heavy in fossil fuels. Now that there's an energy security crisis, everyone's going to be trying to look for alternative energies, whether it's solar or wind or nuclear or fusion. And China is the leader in solar and wind technology, which means that I anticipate that we'll see more of that being exported out of China and more countries will become more dependent on China when it comes to sourcing very quick and alternative sources of energy.

Do you expect shipping costs and the increase insurance that goes with it to drive shifts in trade?

No. And the reason why I say no is because if shipping costs were important to global trade, we wouldn't have seen a big shift during Russia-Ukraine. Security of energy was more important. And security of energy is going to become more important to people than price. While freight rates will remain high because of insurance, they'll also remain high because inefficient flows just create expensive freight. We're going to continue to see countries prioritising energy security over costs.

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SECTION 2

WHO CONTROLS THE INPUTS, CONTROLS THE TRANSITION

Critical minerals are the hidden foundation of the clean energy economy. Lithium, cobalt, nickel, copper, rare earth elements, graphite – these are not peripheral inputs. They are the essential raw materials of EVs, batteries, wind turbines, solar panels, grid transformers and the semiconductor supply chains that underpin AI. Without them, the energy transition stalls. Without secure access to them, every national clean tech strategy is contingent on the goodwill of a small number of supplier nations. That contingency is now being actively exploited, and the trade consequences are already reshaping the economics of the transition.

Businesses are watching this closely. In our Future of Trade survey, critical minerals concentration ranked as the second most significant sustainability-related factor expected to shape trade flows, cited by 21% of respondents, behind only clean energy investment and manufacturing capacity at 30%. Taken together with divergent industrial policies at 18%, these three factors account for nearly 70% of responses. The picture that emerges is consistent: businesses are not primarily focused on carbon pricing or compliance. They are focused on who controls the physical inputs, the manufacturing capacity and the policy levers that will determine the terms of the transition.

Without secure access to critical minerals, every national clean tech strategy is contingent on the goodwill of a small number of supplier nations. That contingency is now being actively exploited.

4.2.1

A DEMAND SURGE THE MARKET CANNOT MEET

The clean energy transition is creating mineral dependencies that dwarf anything the fossil fuel economy produced. Demand for critical minerals from clean technologies alone is projected to rise two to four times by 2040 as electricity networks, EVs and battery storage expand.³⁷⁶ But these are conservative estimates. The IEA has warned that if all-solid-state batteries – next-generation technology replacing liquid electrolytes for safer, denser EV power – commercialise quickly, lithium demand could reach 51 times today's levels. Cobalt and graphite may see up to 30 times higher demand depending on the direction of battery chemistry.³⁷⁷ The numbers reflect the structural reality that the clean energy economy is extraordinarily mineral-intensive, and the world has not begun to build the

supply infrastructure required to meet projected demand at scale.

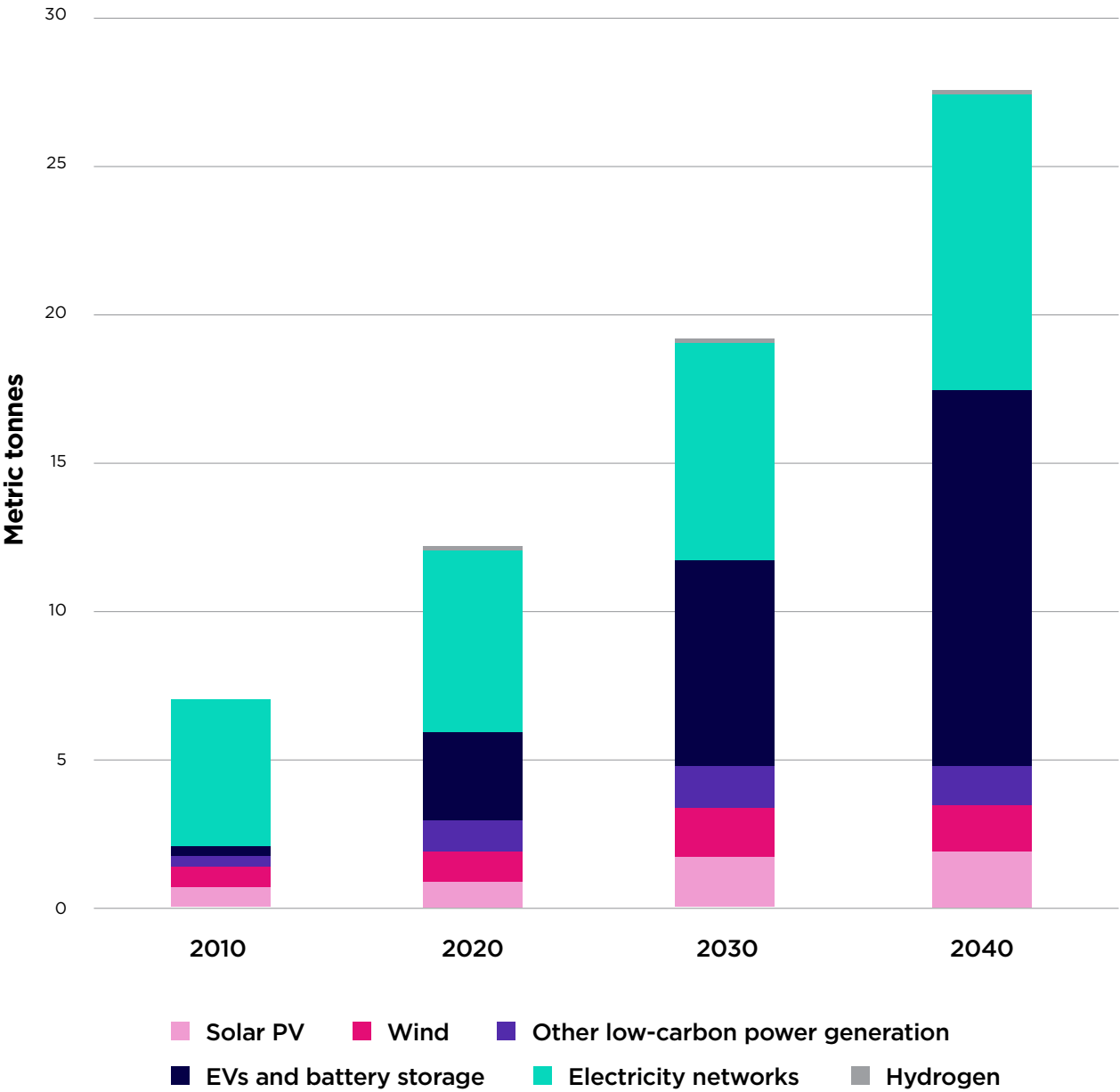
Supply cannot respond at the pace demand requires. Existing mines and those currently under construction already fall short of projected needs. New facilities face an average lead time of around 16 years from discovery to production. The gap between the minerals the transition requires and the supply the market can deliver is a structural brake that will shape the pace and geography of the energy transition for decades. It is also a leverage point: whoever controls existing supply, processing capacity and the chokepoints along the value chain holds structural power over every government and company trying to build a clean energy economy.

Demand for critical minerals from clean technologies alone is projected to rise two to four times by 2040 as electricity networks, EVs and battery storage expand.

³⁷⁶ IEA, 2021a
³⁷⁷ IEA, 2021a

Figure 49

Total mineral demand for clean energy technologies, 2010-2040³⁷⁸



Source: IEA, 2021b

³⁷⁸ 2030 and 2040 projections under Sustainable Development Scenario. Minerals including chromium, copper, major battery metals (lithium, nickel, cobalt, manganese and graphite), molybdenum, platinum group metals, zinc, rare earth elements and others.

4.2.2

GEOGRAPHY IS KEY

Critical mineral supply chains were built around geology, not geopolitical convenience. Mining is concentrated where the minerals happen to be: Africa dominates copper, alumina and lithium; Latin America lithium and copper; Russia nickel and platinum; Australia lithium.³⁷⁹ China dominates rare earth elements, graphite and silicon – the minerals foundational to EV motors, battery anodes and solar panels – and is also a major producer of tin and manganese. Beyond just a manufacturing advantage, this reflects decades of investment in extraction, processing and manufacturing at a scale and speed that no other world economy has yet matched.

But the real chokepoint is not mining but refining. This is where China's advantage becomes structural rather than merely geographical. China leads refining for 19 of 20 strategic minerals tracked by the IEA, holding around a 70% average share, and more than 90% for graphite and manganese. It controls more than 90% of global refined rare earth output and 94% of permanent magnet production. Russia and the United States lead in platinum refining; Indonesia and Australia in nickel; Chile and the DRC in copper.³⁸⁰ But for the minerals that matter most to the clean energy transition, the ore leaves the ground in Africa, Latin America or Australia, and the value is added in China.

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³⁷⁹ DMCC, 2025
³⁸⁰ DMCC, 2025

“

China has built a very preeminent position in both the use and demand for these metals and their processing. Look at any industrial metal and China will be the biggest buyer, biggest manufacturer, user and the biggest processor ... Copper is one of the biggest metals. You get 1% copper for every kind of copper ore that you mine. That gets concentrated to about 20-30% on site, and then that gets shipped to a smelter and a refinery. Most likely that refinery and smelter will be in China. And that's kind of been the picture for the last 10, 15 years.”

📍 **Roundtable participant**
London, March 2026

The concentration of processing in a handful of countries creates fragility that runs through the entire clean energy supply chain.

The concentration of processing in a handful of countries creates fragility that runs through the entire clean energy supply chain. When any single country accounts for the majority of refining for a given mineral, any disruption, whether from policy change, political instability, natural disaster or deliberate export restriction, translates rapidly into shortages and price spikes for manufacturers thousands of miles away with no short-term alternatives. And unlike a port closure or a shipping disruption, a processing bottleneck cannot be rerouted. Building alternative refining capacity requires years of investment in infrastructure that does not yet exist at meaningful scale. By the time a shortage materialises, it is already too late to respond quickly.

4.2.3

WEAPONISED SUPPLY CHAINS

The IEA estimates that more than half of energy-related minerals are now subject to some form of export controls globally. China's contribution to that total has escalated sharply. In 2024, Beijing restricted exports of gallium, germanium and antimony, all key inputs for semiconductors and defence systems. In early 2025, further controls followed on tungsten, tellurium, indium and seven heavy rare earth elements, each timed to coincide with escalating trade tensions with the United States. In October 2025, five more rare earths were added to the export control list. The message is deliberate: China is willing to use its processing dominance as leverage, and it has enough of that dominance to make the leverage hurt.

China is not alone in weaponising mineral supply. Indonesia, which accounts for nearly a quarter of the world's nickel supply, banned raw nickel exports in 2020 to force domestic smelting investment, triggering supply shortages particularly in the EU.³⁸¹ Zimbabwe and the DRC have imposed similar bans on key minerals. Russia's dominant position in nickel and platinum has introduced additional uncertainty since Western sanctions were imposed following the war in Ukraine. The weaponisation of mineral supply chains is not a Chinese-specific phenomenon. It is the emerging logic of a world in which resource control has become geopolitical leverage.

The response from resource-dependent nations has been assertive but largely long-term in its impact. The United States launched Project Vault, a \$12 billion initiative to stockpile 60-90 days of supply for critical minerals including lithium and copper.³⁸² At the inaugural Critical Minerals Ministerial in February 2026, 54 countries signed 11 frameworks aimed at strengthening supply chain resilience and expanding processing capacity.³⁸³ Japan has cut its reliance on Chinese mineral imports from 90% to around 60% following a 2010 embargo – a decade-long effort – and is now pursuing seabed mining, retrieving mineral-bearing sediment from 6,000 metres below the Pacific in February 2026.³⁸⁴ Chile has mandated public-private partnerships across its full lithium supply chain.³⁸⁵ The EU's Critical Raw Materials Act targets 10% of strategic mineral extraction and 40% of processing within EU borders by 2030. The UK's Critical Minerals Strategy sets comparable domestic production targets by 2035.³⁸⁶ These are credible long-term responses. However, they are not solutions to a near-term constraint.

³⁸¹ Gupta, 2023
³⁸² Schwartz and Baskaran, 2026
³⁸³ Looker, 2026

³⁸⁴ Tagami and Solís, 2026
³⁸⁵ Vásquez, 2023
³⁸⁶ Department for Business & Trade, 2026

The weaponisation of mineral supply chains is not a Chinese-specific phenomenon. It is the emerging logic of a world in which resource control has become geopolitical leverage.



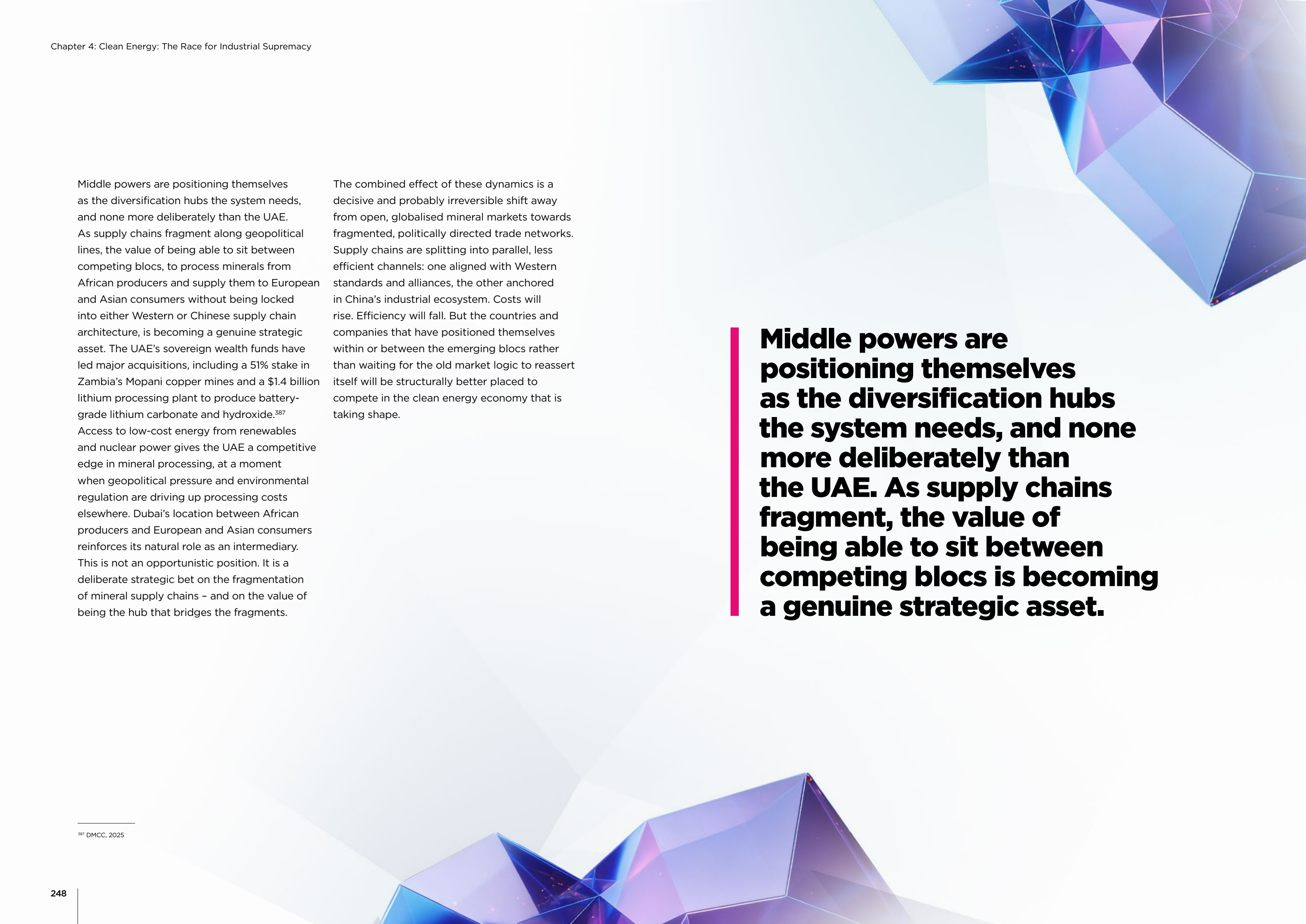
Quite early on in the Trump administration, there was a realisation of China's dominant position in many of these metals. Essentially, what they wanted to do was ensure that all the smelting and processing of these metals would take place in either the US or in friendly countries. That's a big ask. It's a big ask because Chinese smelters are extremely competitive."



Roundtable participant
 London, March 2026

Middle powers are positioning themselves as the diversification hubs the system needs, and none more deliberately than the UAE. As supply chains fragment along geopolitical lines, the value of being able to sit between competing blocs, to process minerals from African producers and supply them to European and Asian consumers without being locked into either Western or Chinese supply chain architecture, is becoming a genuine strategic asset. The UAE's sovereign wealth funds have led major acquisitions, including a 51% stake in Zambia's Mopani copper mines and a \$1.4 billion lithium processing plant to produce battery-grade lithium carbonate and hydroxide.³⁸⁷ Access to low-cost energy from renewables and nuclear power gives the UAE a competitive edge in mineral processing, at a moment when geopolitical pressure and environmental regulation are driving up processing costs elsewhere. Dubai's location between African producers and European and Asian consumers reinforces its natural role as an intermediary. This is not an opportunistic position. It is a deliberate strategic bet on the fragmentation of mineral supply chains – and on the value of being the hub that bridges the fragments.

The combined effect of these dynamics is a decisive and probably irreversible shift away from open, globalised mineral markets towards fragmented, politically directed trade networks. Supply chains are splitting into parallel, less efficient channels: one aligned with Western standards and alliances, the other anchored in China's industrial ecosystem. Costs will rise. Efficiency will fall. But the countries and companies that have positioned themselves within or between the emerging blocs rather than waiting for the old market logic to reassert itself will be structurally better placed to compete in the clean energy economy that is taking shape.



Middle powers are positioning themselves as the diversification hubs the system needs, and none more deliberately than the UAE. As supply chains fragment, the value of being able to sit between competing blocs is becoming a genuine strategic asset.

³⁸⁷ DMCC, 2025

SECTION 3

THE CONTEST FOR CLEAN TECH

The contest for clean tech supremacy is being decided in electric vehicle factories in Shenzhen, battery gigafactories in Hungary, grid transformer queues in Germany and solar panel manufacturing lines where Chinese cost advantages have made Western competition structurally unviable. The two most consequential battlegrounds – EVs and grid infrastructure – reveal both the scale of China's current advantage and the specific vulnerabilities that will determine whether that advantage can be challenged or whether it becomes permanent.

4.3.1

THE EV RACE

China both leads the global electric vehicle (EV) market and controls the value chain from which that market is built. In 2024, seven out of ten EVs sold globally were made in China.³⁸⁸ China was responsible for 80% of global battery cell production and supplies 85-90% of the critical components from which those cells are made.³⁸⁹ Its dominance extends upstream into the critical minerals processing that Chapter 4.2 describes, and downstream into the charging infrastructure, software ecosystems and financing models that are accompanying Chinese EVs into emerging markets. This is not a manufacturing advantage that tariffs can displace but a vertically integrated position that has been built over more than a decade of coordinated industrial policy and that would take a comparable commitment of time and capital to replicate.

The sales data reflects that advantage. A record 21 million EVs were sold globally in 2025, a rise of 20% on 2024.³⁹⁰ The global EV fleet reached almost 58 million by end-2024, already displacing around 2.3 million barrels of oil per day in 2025.³⁹¹ By 2030, the IEA projects around 250 million EVs on the world's roads – roughly four times today's stock.³⁹² EVs drove the largest share of clean tech investment in 2025, with \$893 billion spent on vehicles and charging infrastructure.³⁹³ And the underlying economics are now doing the heavy lifting: in a world of high and volatile fuel prices, EVs offer lower and more predictable running costs that are proving increasingly attractive to consumers regardless of policy support.

In 2024, seven out of ten EVs sold globally were made in China. China was responsible for 80% of global battery cell production and supplies 85-90% of the critical components from which those cells are made.

³⁸⁸ IEA, 2025b
³⁸⁹ IEA, 2025b
³⁹⁰ IEA, 2025b; IEA, 2026a

³⁹¹ Rathi and Millan, 2026
³⁹² IEA, 2025b
³⁹³ BloombergNEF, 2026

India, Morocco and countries across Southeast Asia are building EV manufacturing capacity without fully committing to either side.

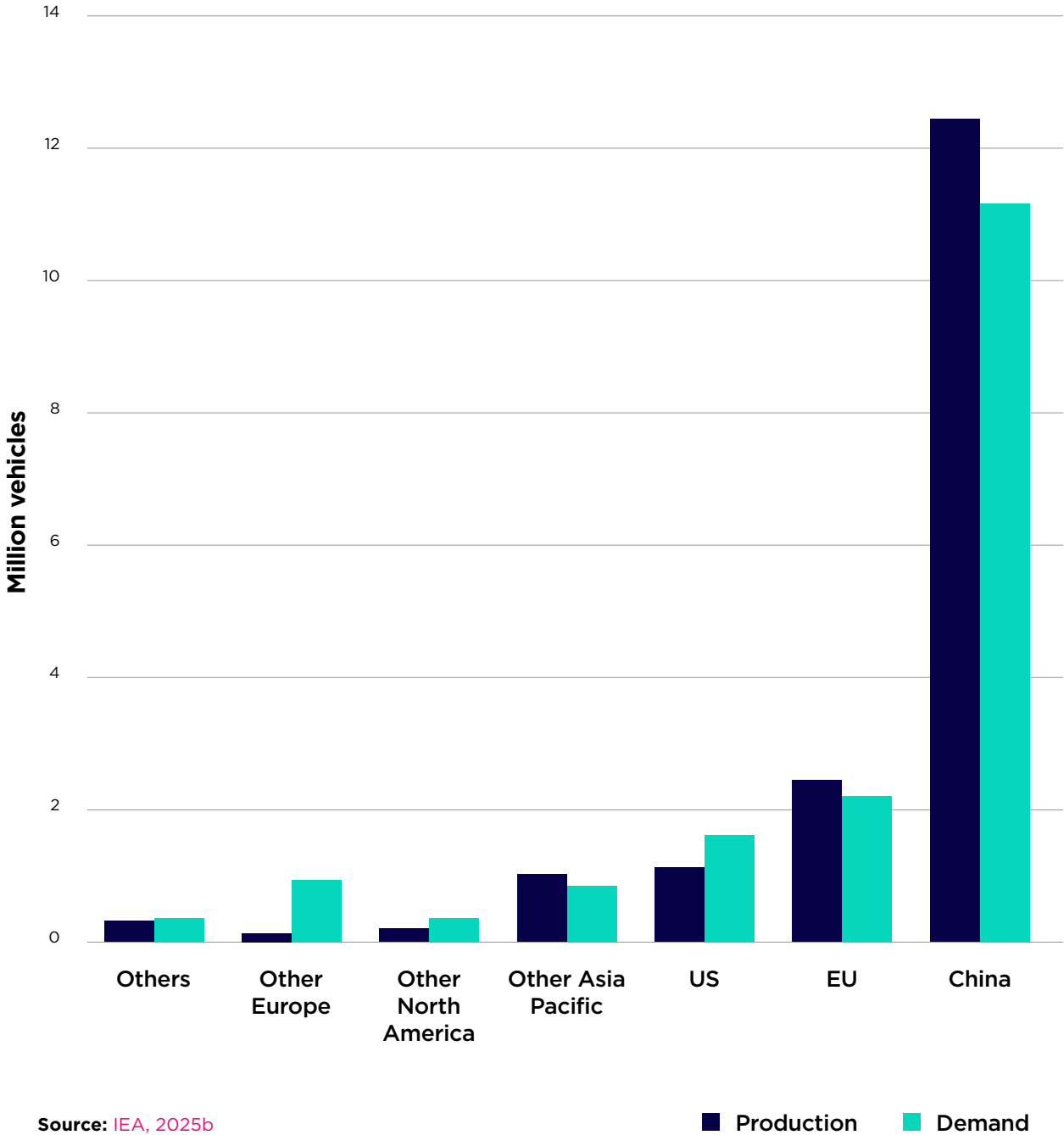
The United States and the EU have responded with trade barriers. The EU has imposed effective duties of up to 45% on some Chinese battery electric vehicles.³⁹⁴ The U.S. 100% levy has effectively ruled out direct Chinese exports to that market.³⁹⁵ But alternative entry routes are emerging. A new Canada-China trade deal has reduced Canadian tariffs on Chinese EVs to 6.1%, providing potential indirect access to North American markets.³⁹⁶ President Trump has signalled willingness to allow Chinese carmakers to build U.S. factories and hire Americans. These countermeasures are creating a more fragmented EV market without closing the fundamental gap: parallel production networks are expensive to build, slow to scale

and lack the vertical integration that gives Chinese manufacturers their cost leadership. Middle powers are navigating this contest carefully. India, Morocco and countries across Southeast Asia are building EV manufacturing capacity without fully committing to either side.³⁹⁷ They are positioning themselves as alternative manufacturing locations by capturing investment from both Western and Chinese firms seeking to diversify production, all the while maintaining the diplomatic flexibility to trade with both blocs. This is the middle power playbook applied to clean tech: capture redirected investment without triggering the geopolitical costs of choosing sides.

³⁹⁴ Nardelli et al., 2024
³⁹⁵ Sherman, 2024
³⁹⁶ McLoughlin, 2026
³⁹⁷ IEA, 2025b

Figure 50

Production, demand and net trade of EVs in major global markets, 2024



The downstream implications extend well beyond the auto sector. Estimates suggest EVs could displace around 5 million barrels per day of oil demand by the end of the decade.³⁹⁸ For the three-quarters of the world's population living in fossil fuel-importing countries, this represents a structural reduction in energy import bills estimated at more than a third, or around \$600 billion per year.³⁹⁹

The transition from oil to EVs is not just a technology story. It is a fundamental restructuring of the commodity flows that have underpinned global energy trade for a century. Countries that lead in EV manufacturing, battery supply chains and charging infrastructure will gain influence; those reliant on oil exports will face gradual erosion of demand.

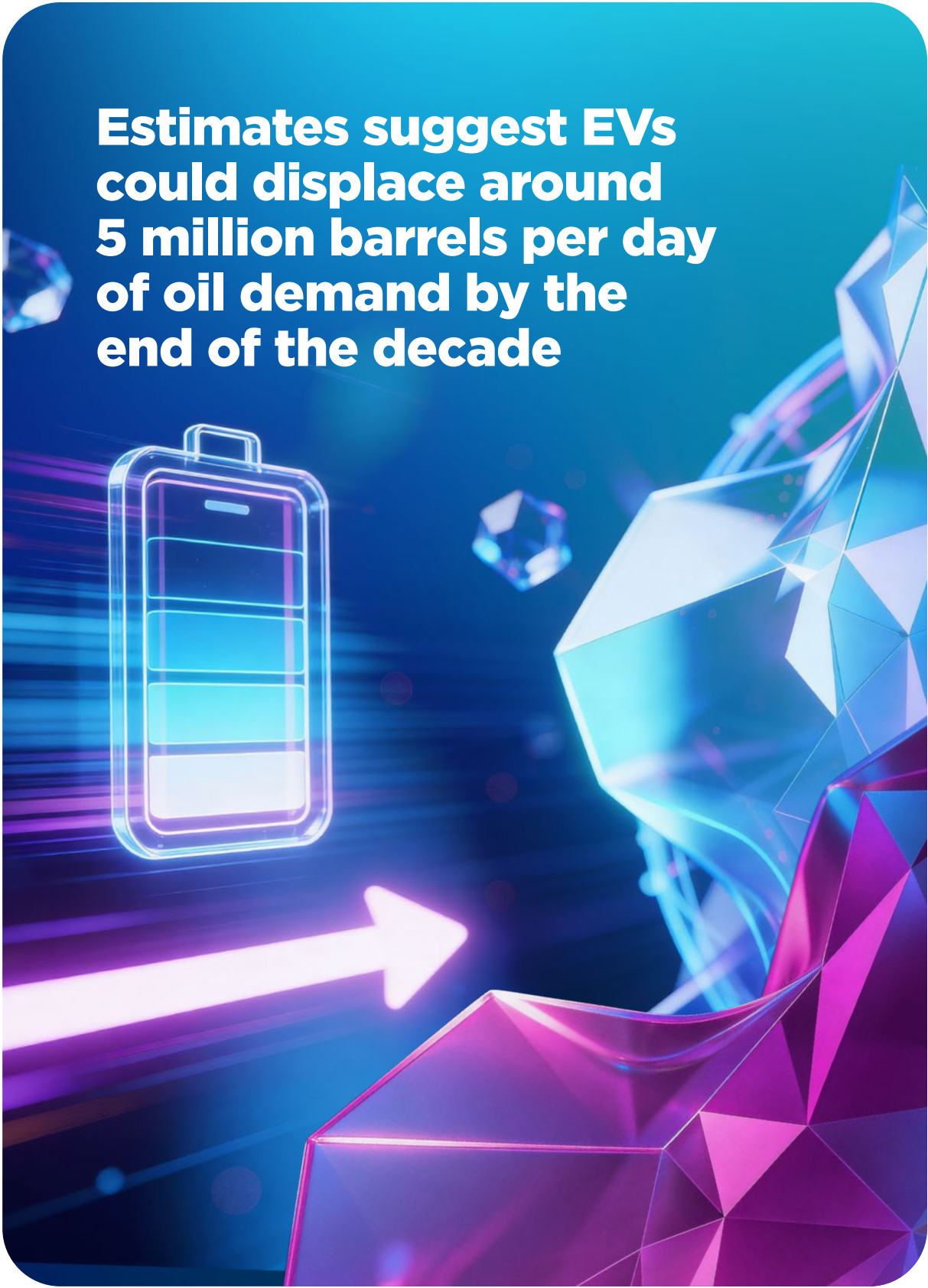
“

Energy security across the globe is going to be the highest priority... You may not want to rely on fossil fuels anymore, which means that trade with China is going to increase, whether that's solar panels, wind farms or EVs. Trade dependence on China is going to be significantly higher than what we've seen in a long time.”

 **Roundtable participant**
New York, April 2026

³⁹⁸ IEA, 2024
³⁹⁹ Walter et al., 2026

**Estimates suggest EVs
could displace around
5 million barrels per day
of oil demand by the
end of the decade**





INTERVIEW Shan Guo

Partner, Hutong Research

How is China positioning itself in terms of global trade over the next two or three years?

It's a very different time we're at right now. And when we think about China's plan, it has long term plans – not affecting just the next two to three years, but probably even longer. China is looking to expand international circulation. So by that, we think China is going to invest overseas – not just export – and that investment will actually drive more imports of Chinese products in those countries. From this perspective, we think that China is going to become a driver of global trade in the next two to three years.

China investing internationally to manufacture internationally – what impact will that have on global trade?

The data is already reflecting some of the changes. Last year, China's exports were really strong, and it was in part because of the U.S. tariffs and China diversifying. One of the strongest markets we saw was in Africa – China has invested a lot in Africa. And for countries like those in Africa, when they started to industrialise, they also purchase from China. We also see that China is investing more in ASEAN as well as in Europe and Latin America. So these destinations are becoming the new drivers for the global trade.

Last year, China's exports were really strong, and it was in part because of the U.S. tariffs and China diversifying. One of the strongest markets we saw was in Africa – China has invested a lot in Africa

The level of the RMB is a critical component in terms of trade. What's your Outlook?

For the past few years, China had to rely on exports and has been very careful about renminbi depreciation or appreciation, trying to maintain stability. But in the past year, starting from April, we have seen the RMB has been appreciating against the dollar very gradually. We think that China will actually support a stronger renminbi going forward. If we apply last year's lesson, that probably means 40% over the next decade. And by appreciating renminbi, China will be able to import more and facilitate its investment overseas.

What about new alliances? What's going to be the focus for China? What regions, what countries will benefit?

We think that the primary destination to benefit from China is ASEAN, the Asian market. First of all, they're close, so they're very easy destinations for Chinese investment. If we look at Vietnam, it's one country that you can go there by road from China. So that makes it easy for transportation, logistics. And also, the ASEAN market is a very good one. If you want to access the European or U.S. market, you probably want to build your factories in ASEAN. And these countries have very good trade relations with other countries. So you start from ASEAN and invest and trade with other countries. And in addition to accessing the global market, ASEAN is also itself a growing market. So invest in there, secure your near-term opportunities, as well as long-term future.

Do you see the South-South trading bloc as increasing in importance over the next two years?

Yes. Look at China for over a decade. From 2013 to 2018 the corporate conversations in Shanghai were mostly about China for the world. That means you produce in China, you export to the U.S. and UK and the EU. From 2018 to 2023 – the first trade war – the conversation was China for China, because you can't lose this market. You have to produce here to continuously support this market. Starting from 2024 the conversation is in China for Global South. This is profound change. I'm talking about the conversation among not only the Chinese companies, but also the foreign companies with exposure in China. For them it's a new opportunity, because production costs in developed countries are still very high. So for a lot of them, the most cost-efficient strategy is to produce in China and export to the Global South.

For foreign companies, the most cost-efficient strategy is to produce in China and export to the Global South.

4.2.3

THE GRID BOTTLENECK

Every EV on the road, every data centre running AI workloads, and every gigafactory producing batteries, all require grid capacity that most countries have not built and are not building fast enough. The grid has become the defining bottleneck of the clean energy transition: not because the investment case is unclear, but because the planning, regulatory and financing systems required to deliver it at pace were designed for a different era. The countries solving this bottleneck are positioning themselves as the manufacturing and investment destinations of the next decade.

The scale of what is required is staggering. Electricity demand from EVs alone could reach 780 TWh by 2030 – four times today’s level.⁴⁰⁰ That is on top of the surging demand from data centres and AI infrastructure described in Chapter 3. Forecasts expect an extra 50% more annual electricity demand in the next five years than the entire past decade.⁴⁰¹ Europe operates the world’s largest interconnected power grid, spanning over 11 million kilometres, but around 40% of grids in Europe and the United States are more than 40 years old, designed for a world of large centralised generators rather than distributed renewables, EV charging and AI-driven demand spikes.^{402,403}

The gap between what the transition requires and what the grid can currently deliver is already visible in the data: 1,700 GW of renewable energy projects across European countries were stuck in grid connection queues in 2025. This is more than three times the capacity needed to meet the EU’s 2030 climate targets.⁴⁰⁴

The investment gap is enormous and the timeline is compressed. The EU projects more than €580 billion in grid investment will be needed by the end of the decade simply to keep pace with rising demand and decarbonisation targets.⁴⁰⁵ Between 2031 and 2035, average annual grid investment is forecast to run 60% higher than today, outpacing investment in clean energy generation assets themselves.⁴⁰⁶ Transformers, cables and transmission infrastructure – the components that actually move electricity from where it is generated to where it is needed – face order backlogs of six years or more across European markets. The supply chain for grid components is itself a bottleneck within the bottleneck.

⁴⁰⁰ IEA, 2025b
⁴⁰¹ IEA, 2026b
⁴⁰² European Commission, n.d.-a
⁴⁰³ Entsoe, 2025

⁴⁰⁴ E3G, 2025
⁴⁰⁵ Entsoe, 2025
⁴⁰⁶ IEA, 2026c



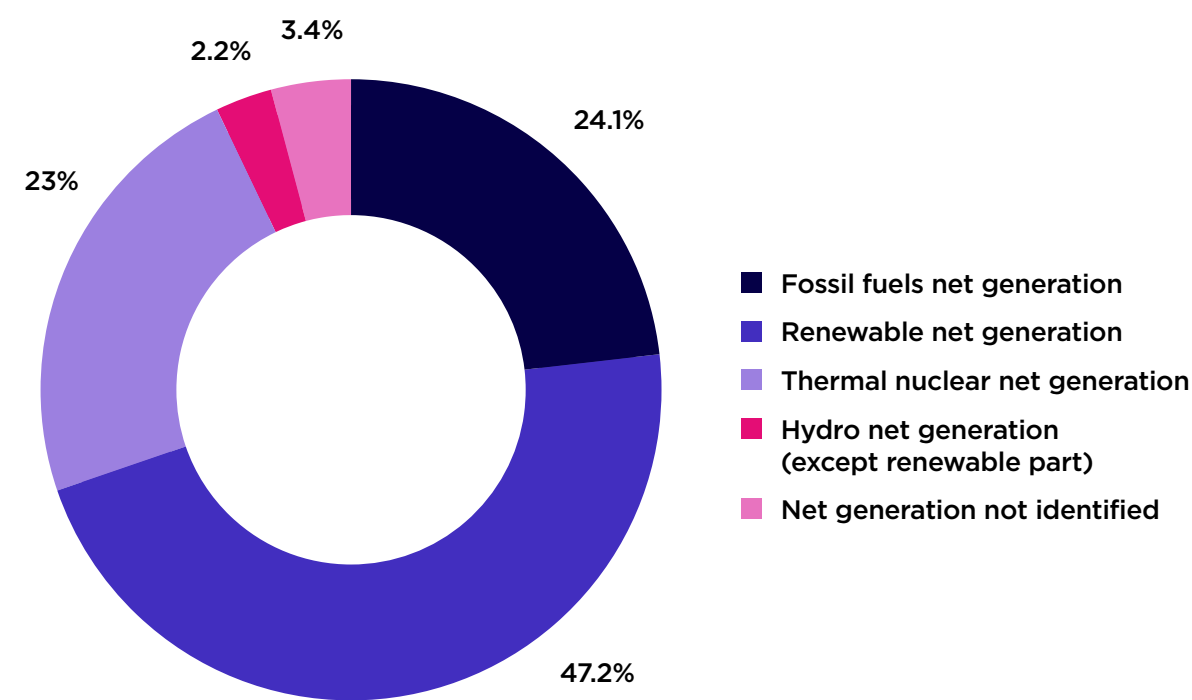
Germany alone will need to invest €800 billion in grid refurbishment, just to make sure that the renewable energy from the north reaches the industrial centres in the south. And this is just to keep the lights on... If you order a transformer now, which is a key component of the grid, you have a waiting period of six years and you pay 30% upfront now.”

 **Roundtable participant**
Frankfurt, March 2026

Between 2031 and 2035, average annual grid investment is forecast to run 60% higher than today, outpacing investment in clean energy generation assets themselves.

Figure 51

Power mix in European grid, 2024



Source: Entsoe, 2025

Renewable energy’s inherent variability compounds the challenge. Solar and wind generate power only when the sun shines or the wind blows. When output spikes, excess energy is curtailed and prices can fall below zero. When output collapses, grids scramble for alternatives, more often fossil fuel plants held in reserve specifically for this purpose. Managing the swing from full production to near-zero requires grids that are fundamentally more intelligent and flexible than anything currently in operation at scale: high-voltage transmission lines, AI-based demand forecasting, advanced battery storage

and smart metering deployed across millions of endpoints simultaneously.

The countries making those investments now are determining where the next wave of industrial investment lands.⁴⁰⁷ Energy availability and cost have become among the leading factors in site selection for manufacturers of batteries, EVs and clean tech equipment.⁴⁰⁸ China’s sustained grid buildout, including transmission lines built to move clean electricity from wind and solar hubs in the west to industrial demand centres in the east, has been central to its dominance in clean tech manufacturing.⁴⁰⁹

Managing the swing from full production to near-zero requires grids that are fundamentally more intelligent and flexible than anything currently in operation at scale.

The winners in the grid race will attract the factories, the investment and the jobs that come with them. The losers will find that their clean energy ambitions stall not for lack of generation capacity, but for lack of the infrastructure to make that capacity useful. Vietnam, for example, built up its renewable capacity at speed, briefly ranking among

the top three solar markets globally, but grid infrastructure failed to keep pace.⁴¹⁰ Africa faces a similar problem: although the continent holds 60% of global renewable energy potential it attracts less than 3% of global clean energy investment.⁴¹¹ Rather than a lack of resources, this gap reflects a lack of grid infrastructure needed to make those resources investable.

The winners in the grid race will attract the factories, the investment and the jobs that come with them. The losers will find that their clean energy ambitions stall not for lack of generation capacity, but for lack of the infrastructure to make that capacity useful.

⁴⁰⁷ World Economic Forum, 2025
⁴⁰⁸ Miller, 2025

⁴⁰⁹ Xin, 2026

⁴¹⁰ Gonçalves and Kaldjian, 2021
⁴¹¹ Bohra and Roche, 2025

4.3.3

THE EMERGING CLEAN TECH HIERARCHY

The clean tech order taking shape is different from the previous order in one fundamental respect: it is being built by design, not geology. It has also been shaped by deliberate decisions over the past decade in capital allocation, manufacturing strategy, grid investment and supply chain control. Those decisions have now compounded, with the hierarchy that is emerging reflecting them.

China

China leads comprehensively and structurally. It accounts for nearly 60% of global renewable capacity growth and is on track to reach its 2035 wind and solar targets five years early. It controls large parts of the clean energy value chain from mineral processing through component manufacturing to final assembly, capturing value at every stage. Only four countries and the EU account for 80-90% of global manufacturing capacity in clean energy technologies, including solar PV, wind, batteries, electrolyzers and heat pumps – and China leads across all of them.⁴¹² CO₂ emissions in China have been flat or falling for 18 months, with clean power covering nearly all of the growth in electricity demand. China is not just transitioning — it is industrialising the transition, turning it into a competitive advantage that other economies will struggle to dislodge. The evidence is already in the emissions data. China’s CO₂ output has been flat or falling for 18 months, with clean power covering nearly all of the growth in electricity demand in recent

quarters.⁴¹³ It is on track to reach its 2035 wind and solar targets five years ahead of schedule.⁴¹⁴ The transition, in China, is no longer a projection but a fact on the ground.

United States

The United States retains significant advantages in high-value segments but has surrendered the manufacturing contest. Its combination of technological innovation, deep capital markets and a vast internal market keeps it competitive in software, advanced manufacturing equipment and grid technologies. But the retreat from clean energy industrial policy has pushed manufacturing investment offshore and is creating import dependencies in sectors the United States will need domestically for its own energy security. The gap between U.S. innovation capacity and U.S. manufacturing capacity in clean tech is widening and at some point that gap will become a strategic vulnerability.

Only four countries and the EU account for 80-90% of global manufacturing capacity in clean energy technologies, including solar PV, wind, batteries, electrolyzers and heat pumps – and China leads across all of them. CO₂ emissions in China have been flat or falling for 18 months, with clean power covering nearly all of the growth in electricity demand.

Europe

Europe has policy ambition without financing scale. The bloc aims for 42.5% of energy demand from renewables by the end of the decade. Renewable energy already represents more than a quarter of EU energy consumption. But European manufacturing costs remain structurally higher than Chinese equivalents across most clean tech categories, and the financing mechanisms to close the gap have not materialised.⁴¹⁵ The risk for Europe is not that it fails to deploy clean

energy but that it becomes a consumer rather than a producer in the clean tech economy, dependent on imports for the technologies at the centre of its own industrial strategy. As a case in point, Chinese wind turbines are at least 20% cheaper than European equivalents⁴¹⁶, a cost gap that reflects not just wage differentials but the accumulated manufacturing scale and supply chain integration that a decade of coordinated Chinese industrial policy has produced. Europe is not losing this contest on ambition, but it is currently losing on cost.

⁴¹² IEA, 2023
⁴¹³ Myllyvirta, 2025
⁴¹⁴ Jugé et al., 2025

⁴¹⁵ Jugé et al., 2025
⁴¹⁶ Marketwire, 2024

The Gulf

The Gulf states occupy the most strategically distinctive position in the hierarchy. They are simultaneously the world's largest hydrocarbon exporters and among its most active clean tech investors, using revenues from the old energy order to build positions in the new one. That dual positioning gives them options no other major economy has: they can operate credibly across both fossil fuel and clean tech supply chains, attract investment from multiple blocs and deploy sovereign capital at a scale and speed that private markets cannot match. As the clean tech order fragments along geopolitical lines, the value of being able to bridge competing

blocs, rather than being anchored in either, is becoming one of the most important strategic assets in global trade.

The direction of travel is clear but the race is not over. China's advantages are structural and will not be reversed easily. But the clean tech hierarchy is still being built. Grid infrastructure, battery chemistry, AI-driven energy management and the geopolitics of critical mineral processing are all still in flux. The economies and companies that understand which parts of the value chain are still contestable – and deploy capital and policy accordingly – have a narrowing but still meaningful window to establish positions. Those waiting for the hierarchy to stabilise before acting will find that the positions worth having have already been taken.

That dual positioning gives the Gulf options no other major economy has: they can operate credibly across both fossil fuel and clean tech supply chains, attract investment from multiple blocs and deploy sovereign capital at a scale and speed that private markets cannot match.

The economies and companies that understand which parts of the value chain are still contestable – and deploy capital and policy accordingly – have a narrowing but still meaningful window to establish positions. Those waiting for the hierarchy to stabilise before acting will find that the positions worth having have already been taken.



It's good sense to not rely on fossil fuels now. It's not just about climate, it's about security. Therefore renewable energy behind the grid is what everybody's going after."



Roundtable participant
London, March 2026

SECTION 4

WHEN CLIMATE POLICY BECOMES TRADE POLICY

The energy transition is no longer primarily driven by climate ideology – it is driven by energy security, industrial strategy and the fear of strategic dependency. That reframing has happened quietly but decisively, accelerated by the war in Ukraine, the subsequent energy price shock and the closure of the Strait of Hormuz. The question governments are asking is no longer primarily how to reduce emissions but more how to avoid being dependent on hostile suppliers for the energy and technology that economies require. The answers to that question are producing a significant divergence in industrial and trade policy with direct and measurable consequences for global trade flows.

“

When we think about energy transition, this has been the agenda for a long time. But since the Ukraine crisis, and now intensified by the Iran war, a lot of governments are not just talking about energy transition, they are talking about energy security as well.”



Roundtable participant
Singapore, March 2026

4.4.1

THE REFRAMING OF THE TRANSITION

The energy transition has undergone a quiet but consequential rebranding. What was framed for two decades as a climate imperative to reduce emissions, meet targets, and honour international commitments is now being driven primarily by energy security calculations. The shift was catalysed by the war in Ukraine, which turned European energy dependency from a political abstraction into an economic emergency overnight. It has been accelerated by the Iran conflict and the Strait of Hormuz closure, which demonstrated in real time what it means to have critical energy flows dependent on a single chokepoint. The result is a fundamental change in the political economy of the transition: governments that once justified clean energy investment through the language of climate are now justifying it through the language of strategic autonomy, supply security and industrial competitiveness.

This reframing has significant trade consequences. With climate as the primary motivator, the logic pointed towards coordination: shared standards, technology transfer, multilateral frameworks, carbon pricing mechanisms designed to apply consistently across borders. With security as the primary motivator, the logic now points increasingly towards protection: domestic manufacturing mandates, export controls on strategic technologies, bilateral deals structured around strategic alignment rather than market efficiency, and a suspicion of dependencies on suppliers from different blocs. The transition from climate logic to security logic is not merely a rhetorical shift. It is producing a measurably more fragmented, protectionist and politically directed set of trade policies across every major economy simultaneously.

Governments that once justified clean energy investment through the language of climate are now justifying it through the language of strategic autonomy, supply security and industrial competitiveness.

The transition from climate logic to security logic is not merely a rhetorical shift. It is producing a measurably more fragmented, protectionist and politically directed set of trade policies.

The WTO's declining authority has removed the one institutional mechanism that might have moderated this fragmentation. With multilateral rules weakening and dispute settlement effectively defunct, the constraints on unilateral industrial policy have largely disappeared. Major economies are free to deploy subsidies, localisation requirements, export controls and border measures with minimal institutional pushback. The result, as Section 4.1 describes in detail, is a set of capital strategies that are

pursuing the same broad objective for clean energy self-sufficiency through fundamentally incompatible approaches. What matters for trade is not just which strategy each economy is pursuing, but the collective effect of all of them being pursued simultaneously: duplicated supply chains, rising costs, deteriorating interoperability between national clean tech ecosystems and a growing divergence between the clean energy standards, specifications and financing models of competing blocs.

The security-first framing also changes what businesses must prepare for. In a climate-driven transition, the primary risk was regulatory: being caught on the wrong side of a carbon price, failing to meet disclosure requirements, or missing supply chain sustainability standards. Those risks remain real. But in a security-driven transition, the primary risks are structural: finding that key inputs are subject to export controls, that preferred suppliers are on the wrong side of a geopolitical divide, that access to a major market depends on the carbon intensity of a production process or the nationality of technology partners. These are risks that require the same strategic attention as tariff exposure, supply chain diversification and market access planning.

For all its costs, the security-first reframing has one significant benefit: it has made the case for clean energy investment politically durable in a way that climate arguments alone never achieved. Renewable energy behind the meter, domestic battery manufacturing, grid modernisation – these are no longer contested as climate expenditures. They are defended as security investments. That political durability is likely to sustain investment in the transition even through periods of climate policy retreat, keeping the direction of travel intact even as the speed and coordination of the journey remain deeply contested.

The security-first reframing has one significant benefit: it has made the case for clean energy investment politically durable in a way that climate arguments alone never achieved.

“

Sustainability is becoming a market asset requirement, and it is fundamentally reshaping trade. Right now there are many new regulations. For example, deforestation regulations are no longer environment policy, but they have become trade policy in practice.”



Roundtable participant
Hanoi, March 2026

4.4.2

THE CBAM EFFECT

In our Future of Trade survey, carbon pricing and border measures ranked last among sustainability-related factors expected to shape trade flows, cited by just 9% of respondents. More strikingly, 42% of businesses have not modelled the impact of carbon pricing on their operations at all (Figure 40). The strategic pressure businesses feel is directed at who controls the minerals, the manufacturing capacity and the grid infrastructure that the transition depends on. Carbon pricing is not where that contest is being decided.

That said, carbon pricing is becoming a trade friction businesses can no longer treat as a compliance afterthought. The EU's Carbon Border Adjustment Mechanism, which came into force in January 2026, is the clearest signal of that shift. The CBAM extends carbon costs to imports of steel, aluminium, cement, fertilisers and electricity, effectively imposing a carbon price on trading partners that do not price carbon domestically. It is a trade policy instrument dressed in climate language, and its consequences are already being felt in procurement decisions and supplier relationships across European industry. Its expansion to further sectors is anticipated. For businesses exporting to the EU, the carbon intensity of production is now a market access variable and a present commercial reality.

The broader carbon pricing landscape is converging, but also adding complexity rather

than coherence. The EU's Emissions Trading System (ETS) 2 will extend carbon costs to fossil fuels used in buildings and transport from 2028.⁴¹⁷ China's national emissions trading system now covers roughly 20% of global emissions and is expected to expand beyond the power sector.⁴¹⁸ Japan's voluntary ETS became mandatory in April 2026.⁴¹⁹ The United States lacks a federal carbon price but proposed border adjustment legislation would levy carbon costs on high-polluting domestic firms and apply equivalent charges on carbon-intensive imports, waiving fees for partners with comparable domestic policies.⁴²⁰ The result is a patchwork of overlapping mechanisms that affects where companies produce, how much they pay and who they can competitively trade with, without providing the regulatory predictability that would make carbon costs a rational basis for long-term investment decisions.

The strategic implication is straightforward. Carbon pricing will not determine who wins the clean tech industrial contest – that is being decided by capital allocation, manufacturing scale and grid investment, as this chapter has argued. But it will increasingly determine the terms on which goods cross borders, particularly into the EU and potentially into the US. The businesses best placed to navigate this are those that have moved carbon cost modelling from the sustainability team to the commercial and procurement function, treating CBAM exposure as a supply chain risk to be managed rather than a regulatory requirement to be reported.

Carbon pricing will not determine who wins the clean tech industrial contest – that is being decided by capital allocation, manufacturing scale and grid investment

⁴¹⁷ European Commission, 2025; De Boer, 2025
⁴¹⁸ ICAP, n.d.

⁴¹⁹ ICAP, 2026; Kang, 2026; Kiko Network, 2026
⁴²⁰ DelBene, 2025

SECTION 5

TRADE IN ENVIRONMENTALLY SOUND TECHNOLOGIES



Cebr has analysed trade in environmentally sound technologies (ESTs) to understand which economies are driving the acquisition and diffusion of green technologies worldwide. This analysis draws on data covering 144 EST goods based on the UN's definition⁴²¹ from a variety of sources.

Analysis of the most recent UN Comtrade data from 2024 shows that international trends are similar to where they were in 2022, which was commented on in the Future of Trade 2024 report, with China leading the world in exports of ESTs, followed by Germany and the United States. More generally, the ranking of top EST exporters is almost entirely unchanged compared to two years ago, with the only significant change being France overtaking the Netherlands and United Kingdom to move into eighth place.

⁴²¹ UN Environment Programme, 2018

Table 3

Largest exporters of ESTs, 2024

Rank	Country	Value (\$ billion)
1	China	183.3
2	Germany	101.5
3	United States	81.7
4	Italy	44.5
5	Japan	33.7
6	Mexico	27.1
7	Republic of Korea	25.3
8	France	23.1
9	Netherlands	22.9
10	United Kingdom	21.6

Source: UN Comtrade Database, Cebr analysis

Table 3 list contains seven of the top ten largest economies by nominal GDP, with the top three being the world’s largest, albeit not in order. It outlines the evident correlation between trade in ESTs and economic size. China and Germany’s outperformance of the United States is also likely a reflection of the respective countries’ strong manufacturing capabilities amongst all goods categories, rather than just in ESTs. That said, both economies have set emissions targets and climate commitments, suggesting that policy also plays a role. China in particular has committed to rapid electrification of its energy systems, paving the way for renewables, particularly solar, to assist with energy generation. Germany has also introduced household incentives to move away from fossil fuels, in the aim of meeting its 2045 net zero emissions target.

Exports of ESTs were analysed as a share of national GDP. Table 4 provides a better indication of national prioritisation and specialisation in ESTs. Here, trends previously described with 2022 data also appear to be robust, with Trinidad and Tobago maintaining its place as the largest exporter of ESTs as a share of its GDP, at 5.5% in 2024. This does mark a 0.4 percentage

point decrease compared to its value in 2022. Trinidad and Tobago’s hydrocarbon-intensive economy was identified in its 2030 development strategy document as a key domestic challenge, citing exposure to commodity price volatility and the compromising of growth in the non-energy economy. Renewable energy and climate change initiatives have thus seen significant prioritisation in the country, evidently to great effect.

The rest of the top four reflect continued leadership from the European Union on sustainable development goals. Several of the bloc’s major manufacturers (notably excluding Germany and Poland) make up the rest of the top five, while a further market, Denmark, sits in eighth. Free access to the European market, containing many of the world’s top importers of ESTs, will also drive leadership in exports of sustainable technologies as a percentage of GDP.



Table 4

Largest exporters of ESTs as a share of GDP, 2024

Rank	Country	Value (% GDP)
1	Trinidad and Tobago	5.5
2	Hungary	4.1
3	Slovakia	3.9
4	Czech Republic	3.7
5	Slovenia	3.4
6	Singapore	3.2
7	Hong Kong	2.6
8	Denmark	2.3
9	Thailand	2.3
10	Malaysia	2.2

Source: UN Comtrade Database, Cebr analysis

Two major commodities hubs place among the largest exporters of ESTs as a share of GDP, those being Hong Kong and Singapore. Both hubs have high trade intensities, with exports making up well over 100% of GDP. This is driven by strong institutional factors in both hubs, which support innovation and improve competitiveness for EST exports.

Turning attention to major importers, again trends remain largely similar to those seen in 2022, with the United States first, followed by China, Germany, and Mexico (see Table 5). The top ten countries are unchanged, with only small changes to the order, such as the United Kingdom overtaking France, and Japan falling to tenth behind the Republic of Korea and the Netherlands. Japan’s drop in EST imports reflects weakening domestic demand amidst increased labour market slack and meagre real earnings growth. Since the 2020 Future of Trade report, which used data from 2018, Japan’s import of ESTs has fallen by five places relative to global competitors. Meanwhile, the value fell by 8.3% in nominal terms between 2022 and 2024.

Table 5

Largest importers of ESTs, 2024

Rank	Country	Value (\$ billion)
1	United States	135.7
2	China	63.5
3	Germany	54.7
4	Mexico	30.8
5	United Kingdom	27.6
6	France	26.2
7	Canada	24.0
8	Republic of Korea	20.9
9	Netherlands	19.9
10	Japan	19.9

The United States remains by far the largest importer of ESTs, reflecting strong domestic demand while also suggesting that U.S. manufacturing is skewed away from ESTs, requiring them to be imported. In 2024, the United States imported ESTs valued at \$135.7 billion, growing by 8.7% nominally compared to 2022 and greater than the imports of China (\$63.5 billion) and Germany (\$54.7 billion) combined. This was likely to be driven by strong investment into renewables from the Inflation Reduction Act over that period. That said, a change in administration has seen renewables fall significantly in the policy agenda and import-disincentivising tariffs introduced in a heavy capacity.

Outside of the top three, imports of ESTs among the United Kingdom, France, Canada and the Republic of Korea all sit between \$20 billion and \$30 billion, while Japan and the Netherlands saw values below \$20 billion. Of note is the decline in import of ESTs across several of the countries compared to 2022. China, Germany, Mexico, Japan, the Netherlands, and Canada all saw imports decline in nominal terms.

Cebr analysed the import performance of notable trade hubs, using the ten countries analysed in the Commodity Trade Index (see Figure x). Four of the trade hubs were in the top ten importers of ESTs globally. The ranking here has changed slightly compared to 2022, with

Singapore overtaking Hong Kong, and the UAE overtaking Switzerland in the rankings, at \$9.4 billion and \$9.0 billion, respectively. Both Hong Kong and Singapore saw the value of their EST imports fall between 2022 and 2024, with the largest contribution for both coming from ESTs within HS code 53, electrical machinery and equipment and parts thereof. In this instance, the reduction in Hong Kong far outmatched Singapore's, resulting in it being overtaken in the ranking.

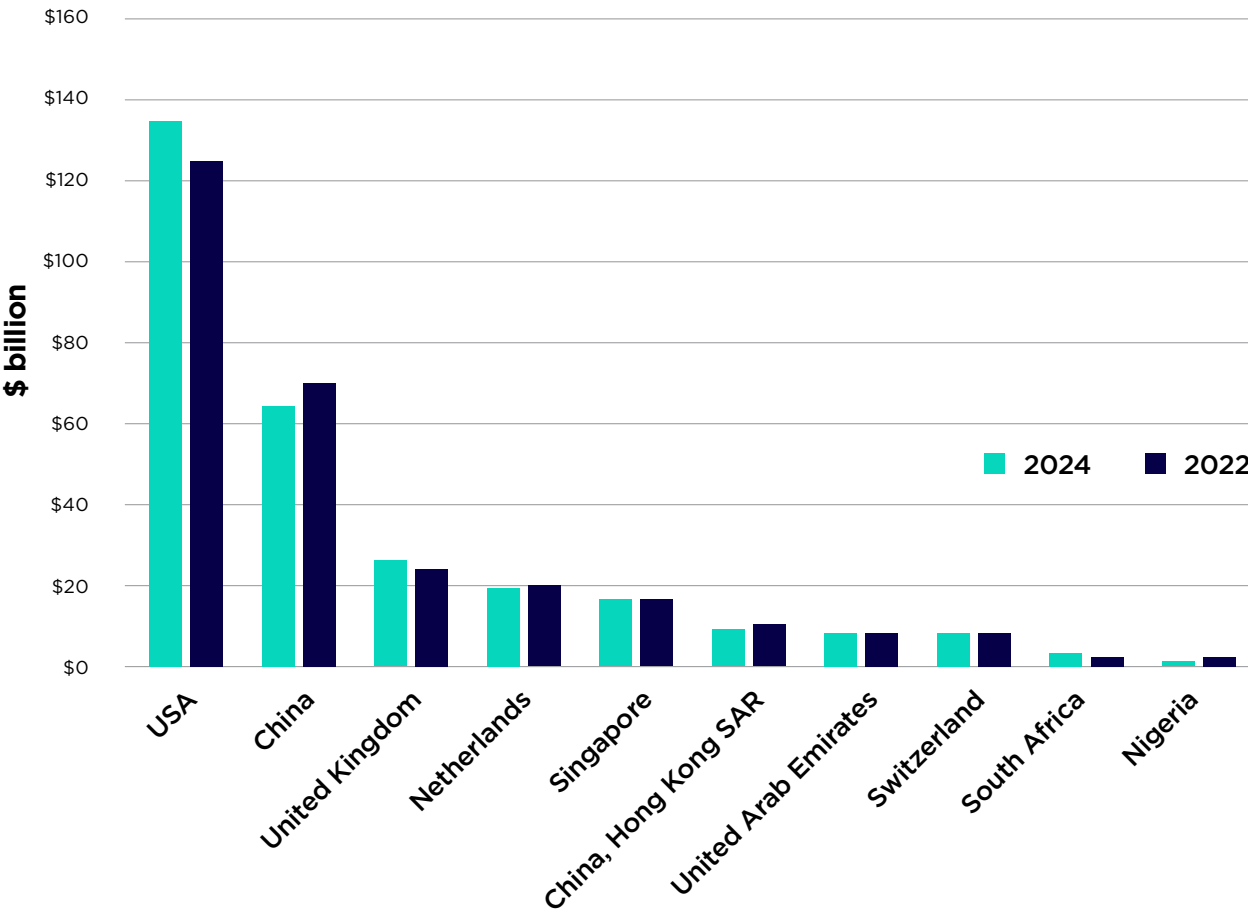
The UAE reported a \$0.4 billion net increase in EST imports. By far the most significant driver of this change came from a \$0.7 billion increase in imports of ESTs within HS code 84, relating to nuclear energy. Rising imports in this sector align with the development of the country's nuclear programme, with the Barakah Nuclear Power Plant's fourth and final commercial nuclear reactor coming online in 2024. When fully operational, the plan provides approximately 25% of the country's electricity⁴²².

The final two trade hubs of strategic importance, South Africa and Nigeria, imported ESTs in 2024 with a value of \$4.2 billion and \$2.1 billion, respectively.

⁴²² Zawya, 2024

Figure 52

Value of imports of environmentally sound technologies, 2024, trade hubs⁴²³



Source: UN Comtrade Database, Cebr analysis

UN Comtrade data reveals the fastest-growing imports and exporters of ESTs in 2024. Given the relatively small values of exports and imports of such goods, near-term growth rates tend to be more volatile. This is reflected in 2024’s results, whereby none of 2022’s fastest growing exporters remain in the top ten. Some trends remain, such as the

strong presence of African nations, reflecting the continent’s rapid pace of growth and development. Change is also evident in more developed, hydrocarbon-rich states, such as Qatar and Norway, as they diversify their economies away from oil and gas. The fastest-growing exporter was Panama, showing a rebound from 2023.

Table 6

Fastest growing exporters of ESTs, 2024, annual growth

Rank	Country
1	Panama
2	Zambia
3	Namibia
4	Lesotho
5	Guyana
6	Qatar
7	Morocco
8	Senegal
9	Zimbabwe
10	Norway

Source: UN Comtrade Database, Cebr analysis

Looking at the fastest growing importers, only Guyana remains from the top ten in 2022’s data and moves into the top spot for import growth in this sector. Zambia and Namibia are also of note, seeing as they feature in both

the top ten fastest growing importers and exporters. The list shows substantially more diversity of continents compared to 2022, although Asia and Africa remain the heaviest contributors.

⁴²³ Trade data for the UAE is only accessible from Comtrade up to 2023

Table 7

Fastest growing importers of ESTs, 2024, annual growth

Rank	Country
1	Guyana
2	Zambia
3	Pakistan
4	Oman
5	Namibia
6	Ukraine
7	Saudi Arabia
8	Samoa
9	Belize
10	Uganda

Source: UN Comtrade Database, Cebr analysis

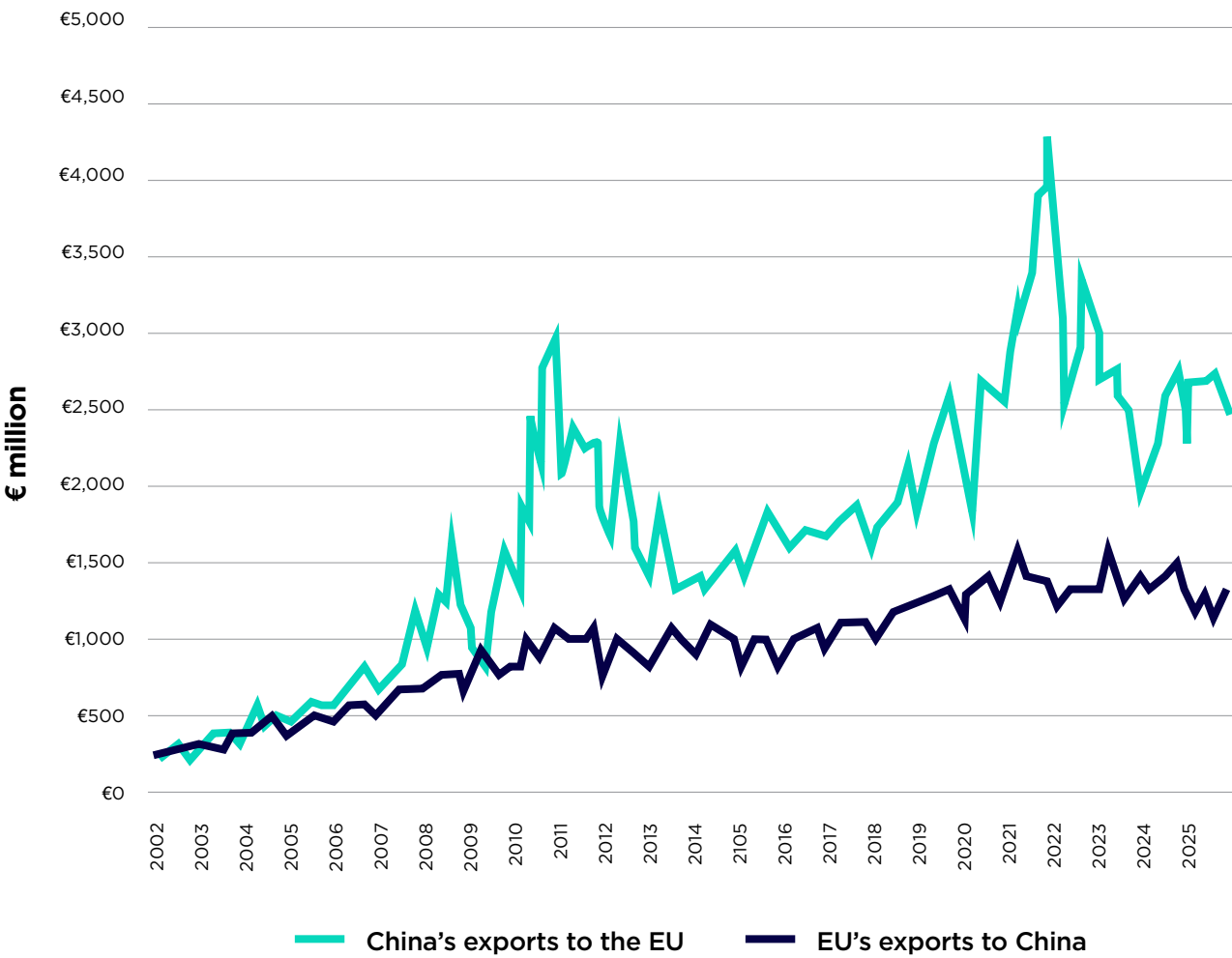
Sustainable trade over time

Cebr employed Eurostat data to analyse how trade in ESTs has evolved since the turn of the century. The purpose of this section is to analyse trends in EST trade across the tree

largest EST importers and exporters, Germany, the United States, and China. Eurostat’s up-to-date and comprehensive monthly database allows for analysis with smaller time lags and a larger timeframe, with the caveat being that trade flows must be analysed through the EU.

Figure 53

EU/China trade in environmentally sound technologies



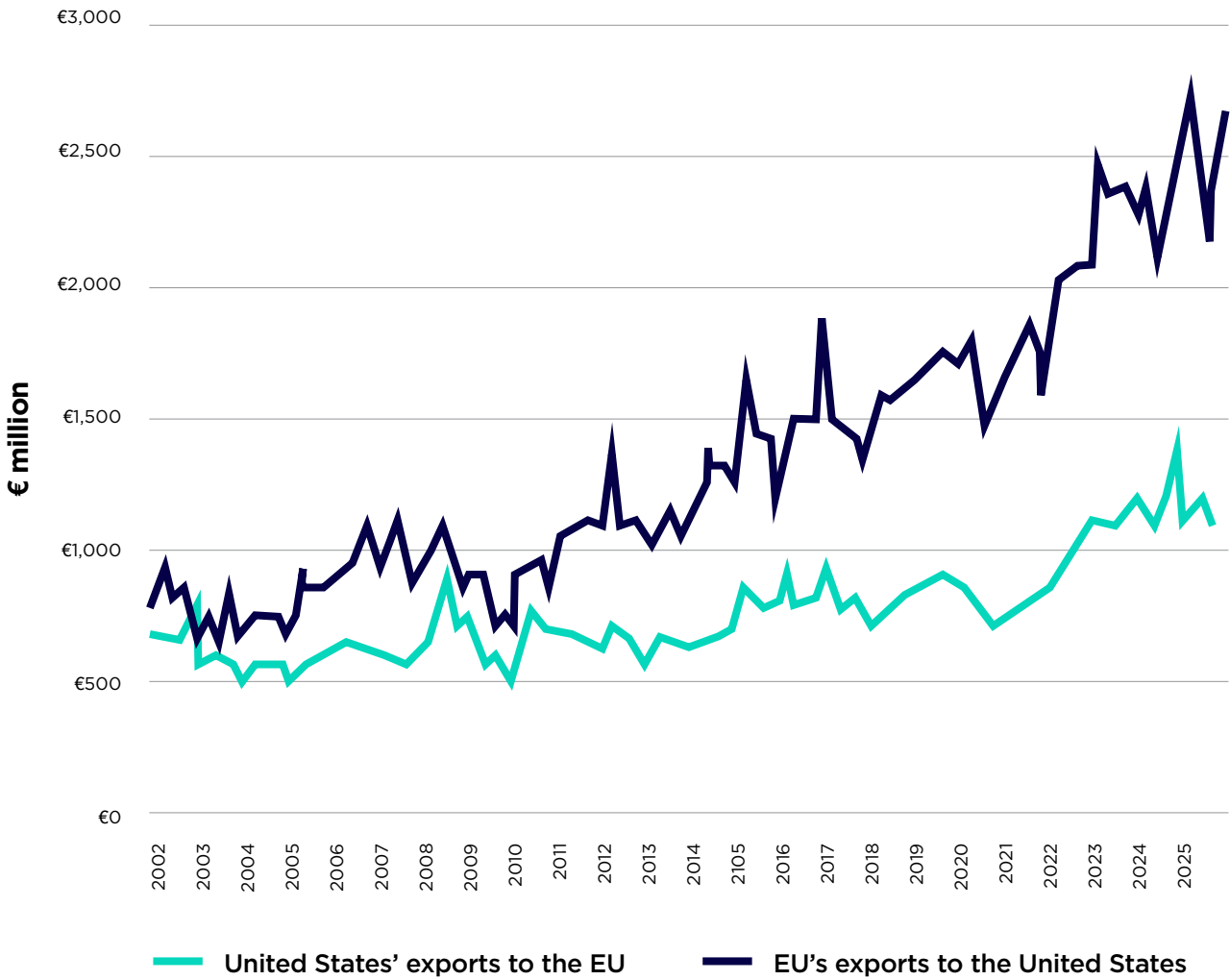
Source: Eurostat, Cebr analysis

Trends in EST trade between China and the EU reflect much of the former’s ongoing expansion as a powerhouse in manufacturing. The growing trade surplus with the EU highlights the difference in competitiveness, as heavily subsidised Chinese industry competes

with the greater regulation facing European manufacturers, even in the supply and export of ESTs. The 2021 boom in Chinese EST exports to the EU reflects both the recovery in global demand following the pandemic, and China positioning itself to meet this demand for ESTs.

Figure 54

EU/U.S. trade in environmentally sound technologies



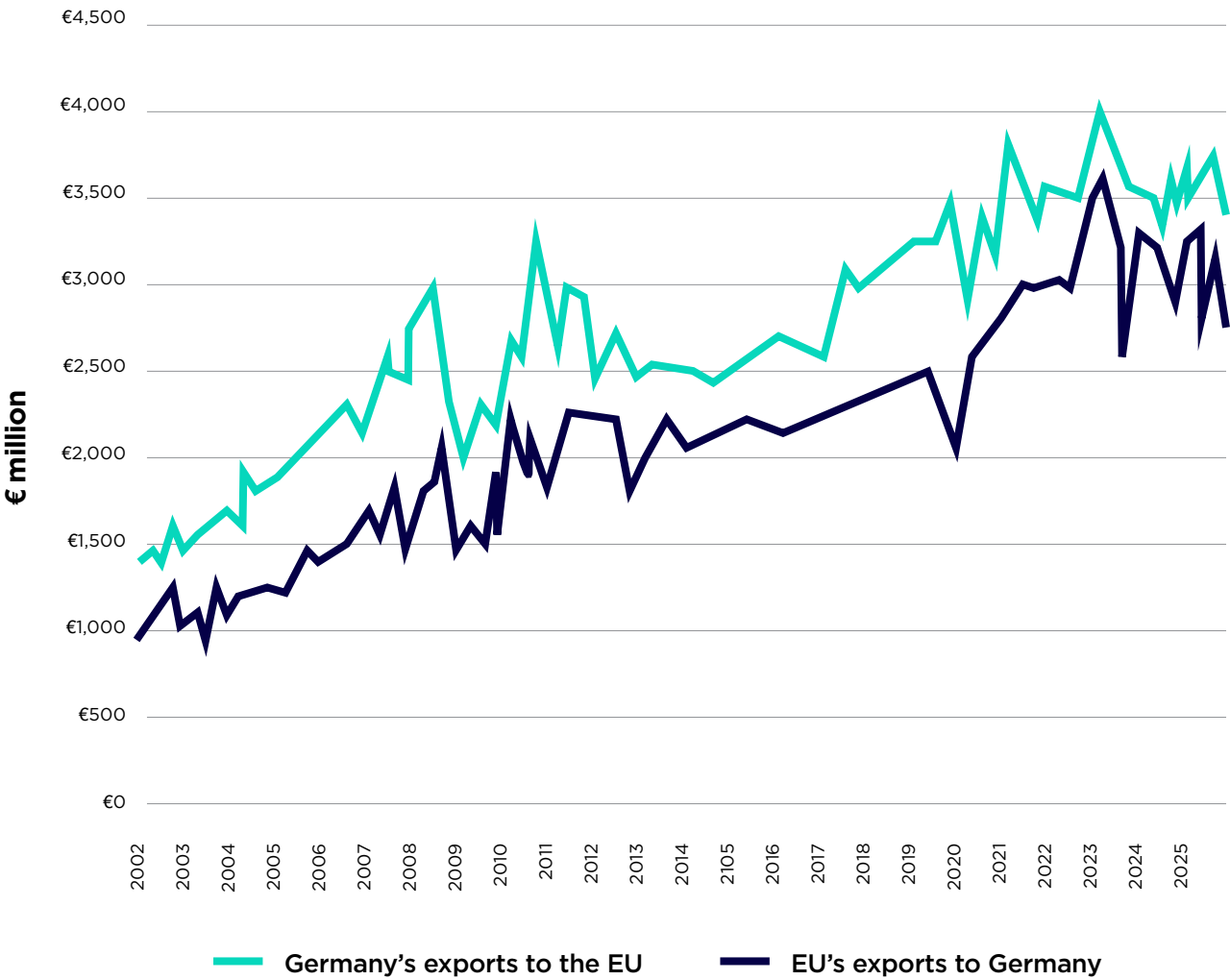
Source: Eurostat, Cebr analysis

By contrast, the United States shows almost the reverse of this trend, building up a substantial deficit in EST trade with the EU. Interestingly, with data reaching up to the end of 2025, this shows U.S. demand for EST exports from the EU, and its trade deficit with the EU, not significantly

affected by either tariff chaos post April 2025 or the increasingly anti-climate-change rhetoric coming from Washington. The Eurostat data would give reason to believe that the U.S.'s position as by far the largest importer of ESTs in the world should be expected to continue.

Figure 55

Germany/rest-of-EU trade in environmentally sound technologies



Source: Eurostat, Cebr analysis

By comparison, the dynamics of trade with the rest of the EU for Germany appear to be far more regular, driven by the fact that many of the various economic pressures facing the country would be reflected in the wider bloc. Germany's manufacturing leadership makes it

a net exporter to the rest of the EU. However, growth in both exports and imports has been more limited in recent years, suggesting a relative loss of momentum for Europe when compared to the rapid import and export growth of the United States and China, respectively.

The future of sustainable trade

Global trade currently faces significant challenges from a geopolitical perspective. Increasingly anti-globalist sentiment has prevailed in the United States, with sweeping tariffs a worrying omen for trade hubs around the world. More recently, disruption to the Strait of Hormuz stemming from conflict in Iran has not only led to significant disruptions to global shipping but may have caused much longer-lasting damage to the perceived viability of the passage. With this in mind, the landscape for global trade in the short run, including EST, looks challenging.

In the medium term, Cebr considers that trade in ESTs, as well as movements in sustainable development more generally, may develop under three potential scenarios:

Scenario One: Sustainable trade as a pathway to competitive advantage

In the first most likely scenario, Cebr envisages that current volatility surrounding commodity prices, particularly in oil and gas, drives an increasing move to diversify, in order to shore up supply chains and improve self-sufficiency. In a short six-year span, the world has seen a collapse in oil prices during the pandemic, followed by wars in Ukraine and Iran driving a global energy crisis. An interest in self-sufficiency and insulation from supply shocks may drive a push towards sustainable trade in the medium term.

Analysis from the Hinrich-International Institute for Management Development Sustainable Trade Index from 2025 suggests that developed economies have already engaged in practices that facilitate transition towards “higher-value, less resource-intensive trade profiles”⁴²⁴. Additionally, the UN’s Voluntary Sustainability Standards, as discussed in the 2024 Future of Sustainable Trade report⁴²⁵, appear to have been expanded beyond smaller scale private adoption into more expansive mandatory features of access to developed markets. The analysis of trade in ESTs shows how global leaders can emerge and benefit from investment into sustainability. China, the world’s largest exporter of ESTs, continues to see its economy grow at a pace to overtake the United States by 2045, according to Cebr forecasts.

The first scenario faces limitations on the adoption of sustainable technologies through this mechanism. Developing and emerging nations continue to see that competitive advantage and development trajectories remain heavy on emissions and natural resources.

Scenario Two: Sustainable trade accelerates through multinational cooperation

In the second scenario, sustainability can only be delivered through international cooperation, both in relation to developed and developing countries. This requires buy-in to international institutions and laws that may hinder short-term growth objectives in order to maximise the uptake of sustainable technologies.

Legally binding trade rules are present both in institutions and smaller scale international pacts. A recent example of the latter is the Agreement on Climate Change, Trade and Sustainability (ACCTS) signed by Costa Rica, Iceland, New Zealand, and Switzerland. It covers controls on fossil fuel subsidies, alongside the expansion of free trade in certain environmental goods. It serves as an example of using trade rules between countries to pursue wider sustainability goals. These goals are also found in broader institutions, such as the UN and WTO. The latter’s Trade and Environmental Sustainability Structured Discussions have made progress in incentivising trade in sustainable goods⁴²⁶.

Scenario Three: Sustainable Trade Decelerates due to Economic Concerns

A third scenario sees immediate economic priorities being championed. This shifts the balance of growth and sustainability trade-offs and may result in greatly reduced progress in sustainable development.

Two key examples are the United States and the UK. The former has introduced sweeping tariff legislation in an attempt to revitalise manufacturing. This has damaged free trade, a facilitator of the transition, to prop up often carbon-intensive industry against international competition. Pledges to support hydraulic fracking to maximise oil and gas production have also highlighted that current jobs and wellbeing are being prioritised over future sustainability commitments. In the UK, two major opposition parties to the current government are running on the promise to scrap net zero targets on the basis that the cost in the short run for economic growth and inflation are too great. Inflationary pressures from the conflict with Iran could also add considerable weight to these arguments.

An important addition to this is that such actions may increase short-run competitiveness, which increases the incentives for other nations to do the same, at the risk of losing their edge in the international market. Under this scenario, progress in trade sustainability would be greatly endangered.

⁴²⁴ Tippig, et al., 2024
⁴²⁵ UN, 2025

⁴²⁶ WTO, 2026

KEY TAKEAWAYS AND RECOMMENDATIONS

Key Takeaways

- **The energy transition has been reframed from climate to security.** What was a climate agenda is now an industrial and security contest. That shift is producing measurably more protectionist trade policy, more unilateral industrial strategy and a faster fragmentation of clean tech supply chains than the climate framework ever generated.
- **China has built a structural lead in the clean tech race that tariffs can slow but not reverse.** Its vertical integration from mineral processing through battery manufacturing to finished EVs, combined with grid infrastructure that is already absorbing the transition at industrial scale, gives it cost leadership and supply chain control that took a decade to build and will take at least as long to challenge. The contest is not over, but the window for serious competition is narrowing.
- **Critical minerals are the most immediate and least solved constraint on the transition.** Export controls on rare earths, gallium, germanium and a growing list of strategic minerals are an increasingly durable expression of structural leverage. Supply diversification is the right response, but with 16-year average lead times from discovery to production, it is a long-term solution to a near-term problem. The gap between what governments are announcing and what the market can actually deliver is significant.
- **Grid infrastructure has become the binding constraint on clean tech competitiveness.** One of the more glaring bottlenecks is the transmission, storage and smart grid investment required to make generation capacity useful at industrial scale. The economies solving this problem fastest are already pulling ahead in their ability to attract clean tech manufacturing investment. Those managing grid constraints from past decades are losing ground regardless of their renewable energy ambitions.
- **Carbon pricing cannot be ignored but is not where the strategic contest is being decided.** The EU's CBAM has turned carbon intensity into a border cost. Similar mechanisms are developing elsewhere. Businesses that have not yet moved carbon cost modelling from the sustainability function to commercial and procurement planning are accumulating an exposure they will eventually have to address.

Recommendations

- **Map clean tech supply chain dependencies across every tier.** Businesses should map processing dependencies for each critical input and identify where single-country exposure exists at the refining stage. Policymakers should prioritise bilateral processing capacity agreements over mining agreements and provide clear investment frameworks for third partner refining infrastructure that can attract private capital at scale.
- **Determine which product lines require dual-bloc sourcing.** Solar components, batteries, EV parts and grid equipment are increasingly exposed to competing tariff regimes, export controls and supply chain fragmentation. Businesses should identify which product lines face genuine dual-bloc exposure, model the cost and operational implications of parallel sourcing and make an explicit decision rather than deferring it.
- **Factor grid reliability, connection timelines and power cost into clean tech manufacturing location decisions before committing capital.** Businesses should require grid capacity assessments, including connection queue positions and timeline projections, as a standard component of site evaluation. Policymakers should publish clear, binding grid connection timelines and create fast-track approval mechanisms for strategic clean tech manufacturing investments.
- **Integrate CBAM exposure into procurement and commercial planning.** Businesses should model CBAM exposure across their supplier base, identify which relationships become less competitive under rising carbon costs and begin engaging suppliers on decarbonisation pathways where the commercial case supports it. Policymakers should provide clear forward guidance on CBAM expansion timelines to allow businesses to plan supply chain transitions with adequate lead time.
- **Treat Gulf sovereign capital as a strategic partner in clean tech supply chains.** For businesses in logistics, commodity processing, trade finance and clean tech infrastructure, the Gulf's position – bridging hydrocarbon revenues and clean energy investment, operating across competing blocs, deploying patient capital into supply chain nodes – creates genuine partnership opportunities that go beyond conventional financing relationships. Businesses should track where Gulf sovereign capital is flowing in clean tech supply chains, identify areas of strategic overlap with their own operations and explore co-investment or partnership structures where commercial alignment exists.
- **Deploy blended finance instruments to close the clean energy equity gap in emerging markets.** Development finance institutions and multilateral banks should prioritise blended finance structures that de-risk private clean energy investment in high-growth emerging markets, particularly across Africa, South Asia and Southeast Asia.
- **Lock in clean tech standards and interoperability requirements.** Policymakers should treat clean tech standards as a strategic negotiating priority in every bilateral and regional trade agreement currently under negotiation, and should coordinate with trade partners to develop common standards frameworks before divergence becomes entrenched.

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Appendix: Commodity Trade Index

Commodity Trade Index methodology

The ten commodities trading hubs analysed are:

- United States
- United Arab Emirates
- Switzerland
- Singapore
- Hong Kong
- Netherlands
- United Kingdom
- China
- South Africa
- Nigeria

For each indicator the same set of steps is followed, allowing us to assign a value between 0% and 100% to each hub:

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 factors, commodity endowment factors and institutional factors) which are weighted equally to give the overall index score.

Previous editions of the Commodity Trade Index have used different methods to calculate the weighted mean tariff rate. The original index utilised World Bank data that have since been discontinued, causing the 2024 results to utilise data from the World Integrated Trade Solution database. However, these data again have not been updated since 2023. The most up-to-date data come from the World Trade Organization Tariff database, offering most-favoured-nation average tariff rates for most countries up to 2024, applied to a range of goods categories. These were mapped to match the primary goods categories used for the 2024 index, with adjustments made where necessary, such as to implement the most recent changes to US tariff policy.

The full effects of trade disruptions both from tariffs in 2025 and war in the Middle East in 2026 are yet to be fully covered in official data. The most up-to-date data both on US tariffs and global trade volumes is used, with tariff rates adjusted where necessary to align with more recent trade agreements relevant to major hubs. Where official trade data were not available, high-frequency freight volume data from the IMF was used to anchor an estimate for the evolution of trade up to April 2026. These data capture the various disruptions, particularly surrounding the Strait of Hormuz, that would be necessary to consider when creating such an estimate. However, these are still estimates of official data, using available information to create a 'nowcast'. Further shocks or other unknowns may cause divergence between trade estimates and official data when it is released.

The World Bank Logistics Performance Index, the key input for the 'logistics performance' sub-pillar has seen significant structural changes since the 2024 report that mean it is not comparable to previous iterations. It also does not present sufficient data for some of the considered trade hubs. It has thus been replaced with an alternative indicator from the OECD on trade facilitation. While it serves the same functional purpose, differing constructions of the metric, as well as different variable definitions and measurement methods, may result in mechanical changes to the index since 2024.

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 based on total turnover in 2025.	Various commodities trading companies' websites	2026
	Proximity to markets (based on commodity export data)	The sum-product of the share of each hub's commodity exports by trading partner, nowcasted to April 2026, and distance to trading partner is calculated and then assigned an index value.	Commodities export data: UN, Cebr Analysis Distance data: CEPII	Latest (2026)
	Commodity trade partner tariffs on primary goods	The sum-product of the share of each hub's commodity exports by trading partner, nowcasted to April 2026, and each trading partner's average tariff on primary goods is calculated and then assigned an index value.	Commodities export data: UN, Cebr Analysis Primary goods tariff data: WTO, Cebr Analysis	Latest (2026)
Commodity endowment factors	Tons of oil exported annually	Total annual crude oil exports by weight, by hub, nowcasted to 2026	UN, Cebr Analysis	2026
	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, plastic, rare earths, and copper trade by value, by hub, nowcasted to 2026	UN, Cebr Analysis	2026
	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 nowcasted to 2026 using Cebr forecasts.	World Bank, Cebr Analysis	2026
Institutional factors	Financial services infrastructure (measured by domestic credit to private sector)	The extent to which domestic lenders are willing to lend to the private sector.	World Bank	2025
	Attractiveness of the tax regime (measured by rate of corporation tax)	Analyses the rate of tax businesses must pay to operate in each trading hub.	Tax Founda-tion	2025
	Strength of regulatory enforcement	This indicator measures how the rule of law is experienced and perceived worldwide based on household and expert surveys in 139 countries and jurisdictions. In particular, we focus on regulatory enforcement.	World Justice Project	2025
	Logistics performance	Measures how easy or difficult it is in each country to transport general merchandise.	OECD	2025



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