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# Future-ready Growth in APEC: Unlocking New Drivers and Fortifying Resilience

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## KEY MESSAGES

- APEC's traditional growth engines are showing clear limits as sustainability issues, rapid technological shifts, demographic change, evolving skills needs, and supply chain vulnerabilities accelerate, increasingly interact, and reinforce one another. These overlapping pressures diminish the reliability of conventional growth drivers, highlighting the need to shift toward future-ready growth.
- These compounding disruptions are double-edged: heightening risks, but also creating opportunities to unlock new growth engines, strengthen institutions, and steer economic systems toward higher-quality, more adaptable, and technology-enabled growth pathways. Their reinforcing nature means that piecemeal or narrowly focused measures will not achieve the scale of adjustment needed for future-ready growth.
- The challenge is to manage transition pressures while capturing productivity and competitiveness gains from digitalisation, green transformation, and stronger human capital, in ways that strengthen resilience, support inclusion, and sustain long-term growth across the APEC region.
- A strategy centred on unlocking new drivers and fortifying regional response is critical. This may include ensuring resilient infrastructure, interoperable and secure digital systems, adaptive skills and labour market institutions, and transparent and reliable supply chains that can support economies' ability to absorb shocks and their transition to more durable, inclusive, and opportunity-rich growth engines.
- In parallel, sustaining future-readiness requires systematic monitoring of emerging pressures, timely and coordinated policy adjustments, and practical regional cooperation. A tiered readiness framework enables economies to assess institutional and technological capacities, identify feasible reforms, and move progressively toward more advanced, quality-enhancing and opportunity-driven growth systems.

## Rethinking Growth Beyond Traditional Engines

APEC confronts a new era of shifting global conditions and compounding disruptions. These structural pressures are evolving rapidly, reshaping the economic landscape and posing a significant challenge to the region's long-standing foundations of stability. The APEC Regional Trends Analysis (ARTA), which tracks key macroeconomic developments across the region, has consistently underscored these pressures over the years: from sustainability-related stress and rising inequality to the combined forces of rapid technological change, demographic shifts, and the evolving skills needs that arise from both, as well as recurring supply chain issues.<sup>1,2,3,4</sup>

Together, these challenges are redefining how growth is created and what is needed from economies to adapt and thrive. Traditional drivers of expansion such as trade-led growth, energy-intensive production reliant on fossil fuels, and demographic dividends are becoming less dependable and increasingly reshaped by global shifts and innovations, accelerated by artificial intelligence (AI) and its integration with other sectors. The speed with which these factors are interacting creates a more complex environment than in previous cycles of change. As governments work to maintain stability and preserve long-term growth prospects, APEC's commitment to quality and future-ready growth provides a steady and coherent foundation for navigating this multifaceted shift.

Quality growth is central to APEC's agenda. The 2010 APEC Growth Strategy set this direction by emphasising balanced, inclusive, sustainable, innovative, and secure growth.<sup>5</sup> The 2015 APEC Strategy for Strengthening Quality Growth reinforced these priorities by highlighting institution building, social cohesion, and environmental impacts as key accountability areas.<sup>6</sup> In 2020, APEC adopted the Putrajaya Vision 2040 and reaffirmed quality growth as a core component of regional prosperity, while the accompanying Aotearoa Plan of Action outlined steps to translate this vision into concrete actions (Figure 1).<sup>7,8</sup> This continuity provides a solid anchor as the region

moves through a period of considerable change and greater uncertainty.

Moreover, APEC's evolving approach to quality and future-ready growth allows for a reframing of actions toward a forward-looking agenda that reflects the scale, speed, interconnectedness, and impact of emerging pressures while cognizant of varying levels of economic and technological conditions across member economies.

Extreme weather events are becoming more frequent and costly, while rapid technological change is reshaping competitiveness and labour markets.<sup>9,10</sup> Demographic shifts are widening differences in labour supply and skills demand across economies, while supply chain vulnerabilities continue to expose gaps in logistics and infrastructure.<sup>11,12</sup> APEC has navigated earlier disruptions through openness, innovation, and cooperation, but today's landscape requires more coordinated and more forward-looking actions to unlock new growth engines and capture economic gains.



**Figure 1. APEC's commitment to quality and future-ready growth**

Source: Authors.

Quality and future-ready growth presents a guiding framework for regional economic prosperity and productivity by strengthening existing institutions, safeguarding hard-won gains and harnessing innovative technologies in ways that benefit the people, the environment, and the economy. This policy brief aims to examine the key challenges and disruptions confronting the region as well as suggests practical steps to help APEC stay ready for these shifts and enhance its capacity to capitalise on new opportunities.

<sup>1</sup> <https://www.apec.org/publications/2023/08/apec-regional-trends-analysis-august-2023>

<sup>2</sup> <https://www.apec.org/publications/2025/08/apec-regional-trends-analysis-august-2025>

<sup>3</sup> <https://www.apec.org/publications/2023/11/apec-regional-trends-analysis-november-2023>

<sup>4</sup> <https://www.apec.org/publications/2024/05/apec-regional-trends-analysis-may-2024>

<sup>5</sup> [https://www.apec.org/meeting-papers/leaders-declarations/2010/2010\\_aelm/growth-strategy](https://www.apec.org/meeting-papers/leaders-declarations/2010/2010_aelm/growth-strategy)

<sup>6</sup> [https://www.apec.org/meeting-papers/leaders-declarations/2015/2015\\_aelm/2015\\_annex-a](https://www.apec.org/meeting-papers/leaders-declarations/2015/2015_aelm/2015_annex-a)

<sup>7</sup> [https://www.apec.org/meeting-papers/leaders-declarations/2020/2020\\_aelm/annex-a](https://www.apec.org/meeting-papers/leaders-declarations/2020/2020_aelm/annex-a)

<sup>8</sup> <https://www.apec.org/meeting-papers/leaders-declarations/2021/2021-leaders-declaration/annex-aotearoa-plan-of-action>

<sup>9</sup> <https://www.apec.org/publications/2022/12/transitioning-to-a-sustainable-economy-while-ensuring-inclusion>

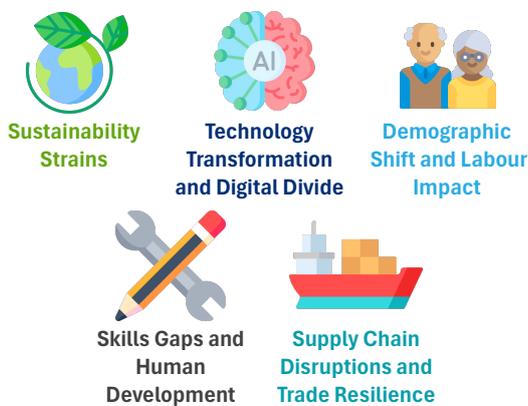
<sup>10</sup> <https://www.apec.org/publications/2025/04/artificial-intelligence-landscape-in-apec--balancing-development-and-oversight>

<sup>11</sup> <https://www.apec.org/publications/2025/06/addressing-demographic-change-in-the-apec-region>

<sup>12</sup> [https://www.apec.org/publications/2024/11/apec-supply-chain-connectivity-framework-action-plan-2022-2026-\(scfap-iii\)-mid-term-review](https://www.apec.org/publications/2024/11/apec-supply-chain-connectivity-framework-action-plan-2022-2026-(scfap-iii)-mid-term-review)

## Forces Redefining Pathways to Quality and Future-ready Growth

The road toward quality and future-ready growth is being redesigned by a set of structural forces that influence how economies create and sustain growth. It is important to recognise that these forces are not operating in isolation: APEC’s economic outlook is increasingly shaped by overlapping pressures, including natural disasters, digital transformation, demographic ageing, skills gaps, and supply chain fragilities (Figure 2). They are interacting in ways that heighten uncertainty and compound risks affecting productivity, fiscal stability, and competitiveness.



**Figure 2. Key forces shaping quality and future-ready growth**

Source: Authors.

As these pressures intensify, they complicate policymaking and narrow the space for relying on traditional growth engines.

Natural disasters, such as weather-related disruptions, strain infrastructure, weaken fiscal positions, and feed into supply chain and price pressures; technological change amplifies these effects when skills systems and digital readiness lag; and ageing population tightens labour supply even as firms need greater automation and adaptability. Moreover, these pressures reinforce one another: weather-related shocks undermine digital systems, digital divides slow resilience-building technologies, and fiscal burdens from ageing can crowd out needed investment in adaptation and infrastructure.

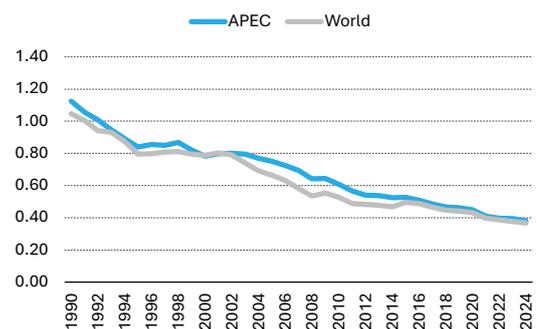
Understanding how these issues interact could shed light on the growing uncertainty that economies are facing, and why a future-ready approach to growth is increasingly necessary.

## Sustainability Strains

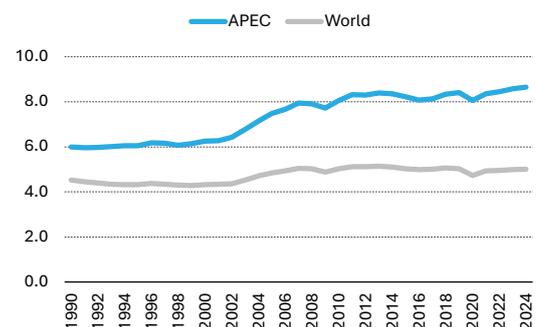
These pressures affect economic activity and human security. The widening gap between the region’s improving carbon intensity and its rising overall emissions is notable. On the one hand, the region has made steady progress in reducing CO<sub>2</sub> emissions per unit of GDP, dropping from 1.12 kg per US dollar in 1990 to 0.38 kg in 2024 (Figure 3). In comparison, global carbon intensity fell from 1.05 kg per US dollar in 1990 to 0.37 kg in 2024.

On the other hand, APEC’s total emissions nearly doubled over the same period, rising from 13.7 billion tonnes of CO<sub>2</sub>-equivalent in 1990 to 25.8 billion tonnes in 2024. This is equivalent to an increase in the region’s share of global emissions from 57 percent to 63 percent. Per capita emissions tell a similar story, climbing from 6.0 metric tonnes to 8.6 metric tonnes, compared with the rise in global emissions from 4.0 to 5.0 metric tonnes during the same period. This development indicates that economic expansion and energy demand continue to outpace improvements in efficiency.

**Panel A: APEC and World CO<sub>2</sub> emissions per unit of GDP (kg per US dollar), 1990–2024**



**Panel B: APEC and World CO<sub>2</sub> emissions per capita (metric tons per person), 1990–2024**



**Figure 3. APEC and World CO<sub>2</sub> emissions, 1990–2024**

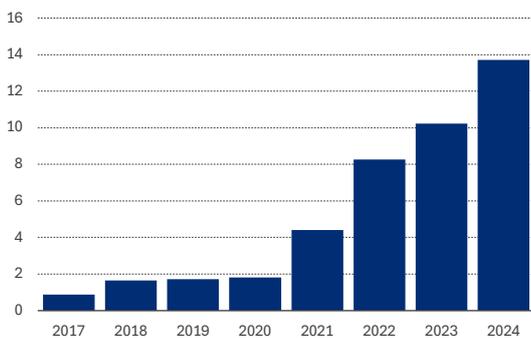
Source: Statistical Review of World Energy; World Bank; Economy Sources; APEC PSU staff calculations.

This tension between efficiency gains and aggregate outcomes matters for growth. It shows that the region is becoming more energy efficient, but not yet cleaner in aggregate and per capita terms. For policymakers, the implication is that sustainability is now an economic

necessity as well as a pressing environmental concern, otherwise social and economic risks are amplified.

Historical experience confirms that weather-related shocks leave economic scars. The ARTA August 2023 report shows that past El Niño episodes led to output losses, with the sharpest declines observed in the 1980s cycle, including an APEC-average drop of up to 5.7 percent in GDP per capita growth in 1988.<sup>13</sup> Even the more moderate 2016 El Niño event caused multi-year losses, showing that these episodes can suppress output long after the initial impact.

The transition toward cleaner growth is underway but remains uneven across APEC. For example, electric vehicle sales reached 13.7 million units in 2024 from just 1.6 million units in 2018 (Figure 4), an important milestone; however, most of these sales come from a small group of economies. Differences in charging networks, affordability, and policy incentives outline these patterns, revealing that gaps in adoption can slow the region’s overall emissions trajectory.<sup>14</sup>



**Figure 4. APEC electric vehicle sales (millions of units), 2017–2024**

Source: International Energy Agency; Economy Sources; APEC PSU staff calculations.

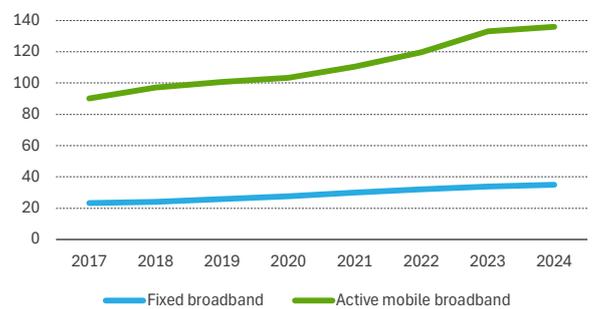
These developments highlight that sustainability issues sit at the core of discussions on future-ready growth; they are already reshaping economic conditions and will continue to influence resilience, investment choices, and competitiveness across the region for years to come.

### Technology Transformation and Digital Divide

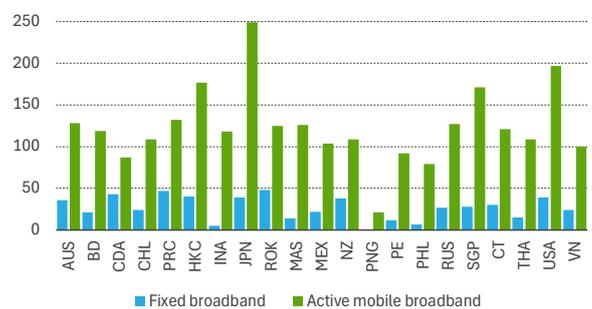
Digital transformation continues to advance quickly across APEC, with the region making tangible progress in strengthening digital connectivity. Active mobile broadband subscriptions rose from 90 per 100 people in 2017 to 136 in 2024 (Figure 5), which signals broad improvements in infrastructure supporting digital participation. Fixed broadband subscriptions also increased from 23 to 35 per 100 inhabitants, although these levels are modest by international standards.

These averages, however, mask wide variation across APEC members. In 2024, fixed broadband subscriptions ranged from less than 10 per 100 people in some economies to close to 50 in others. Active mobile broadband subscriptions showed an even sharper dispersion, from around 21 per 100 people at the low end to almost 250 in the most digitally mature markets. Connectivity is moving in the right direction, but access and quality remain uneven, and differences in broadband costs help explain part of this pattern. For example, in some APEC economies, fixed broadband costs range from around 0.26 to 0.39 percent of GDP per capita, while in more advanced economies they are typically about 0.03 to 0.06 percent.

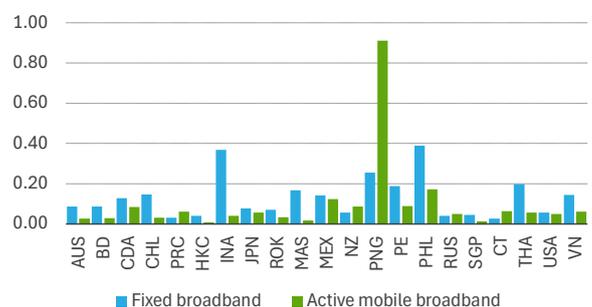
**Panel A: APEC broadband subscriptions (per 100 people), 2017–2024**



**Panel B: APEC broadband subscriptions (per 100 people) by economy, 2024**



**Panel C: APEC broadband cost (% of GDP per capita) by economy, 2024**



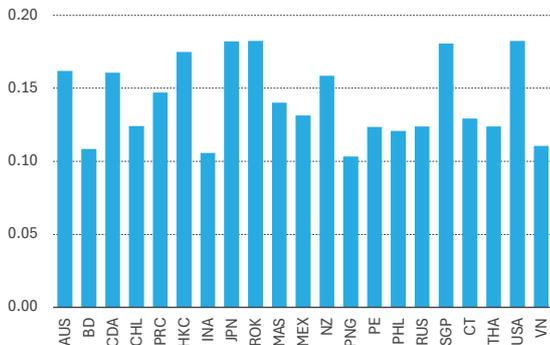
**Figure 5. APEC broadband subscriptions and cost, 2017–2024**

Source: International Telecommunication Union; World Bank; Chinese Taipei’s Directorate-General of Budget, Accounting and Statistics; APEC PSU staff calculations.

<sup>13</sup> <https://www.apec.org/publications/2023/08/apec-regional-trends-analysis-august-2023>

<sup>14</sup> <https://www.apec.org/publications/2022/09/policy-options-for-decarbonising-transportation-in-apec>

Connectivity is only the first layer of digital transformation. The next layer—AI-enabled innovation, production, and services—is now affecting competitiveness more directly. However, the IMF’s AI Preparedness Index dimension on innovation and economic integration (Figure 6) reveals sizeable gaps among APEC members in R&D intensity, frontier technology activity, scientific output, data ecosystems, and integration into global innovation networks.<sup>15</sup>

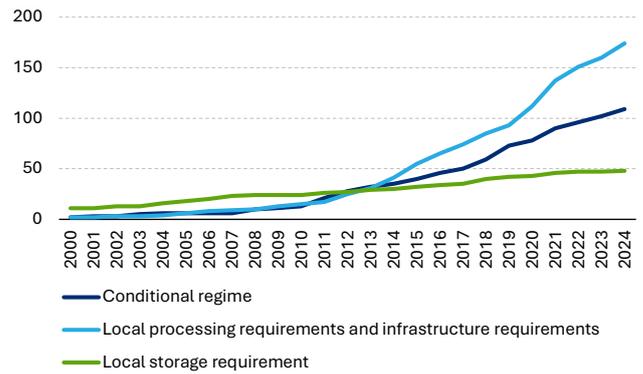


**Figure 6. AI Preparedness Index: Innovation and Economic Integration dimension, 2023**  
Source: AI Preparedness Index, International Monetary Fund.

While a third of APEC’s membership are supported by strong research systems, early technology adoption, and policy frameworks that encourage digital experimentation and frontier innovation, other economies in the region are building capacity but continue to face challenges in digital skills, data governance, research capabilities, and financing for technology adoption.

This asymmetry carries real economic consequences. Broadband access provides the foundation, but as the digital economy moves beyond basic connectivity and into AI-enabled production and services, the ability to deploy advanced technologies at scale increasingly determines which economies can capture the next wave of productivity gains.

In addition, concerns are growing as the digital economy becomes more data intensive, while restrictions on cross-border data flows continue to rise (Figure 7). For example, global data on local processing and infrastructure requirements show that the number of related regulations increased sharply from 41 in 2014 to 174 in 2024. Strengthening digital skills, upgrading interoperable digital infrastructure, removing unnecessary restrictions to cross-border data flows, and improving regulatory coherence will be essential to ensure that technological transformation supports inclusive, competitive, and future-ready growth across APEC.



**Figure 7. Global data localisation regulations, 2000-2024**  
Source: European University Institute Research Repository

### Demographic Shift and Labour Impact

Demographic change is one of the most urgent structural forces that is redefining APEC’s priorities and outlook. The region is ageing at a pace with few historical parallels. The population pyramids for 2025, 2050, and 2100 (Figure 8) make this unmistakable: a still broad working-age base today begins to contract by mid-century and eventually inverts into an older-heavy structure by 2100. This reflects sharp fertility declines, rising life expectancy, and slower population growth across many economies.

The shift is already evident in headline figures. The share of people aged 65 and above has doubled from 7 percent in 1990 to roughly 15 percent in 2025, with Northeast Asia seeing the steepest rise.<sup>16</sup> APEC’s population is expected to peak around 2035 and gradually fall toward 2.2 billion by 2100, introducing labour supply dynamics with long-term economic implications.

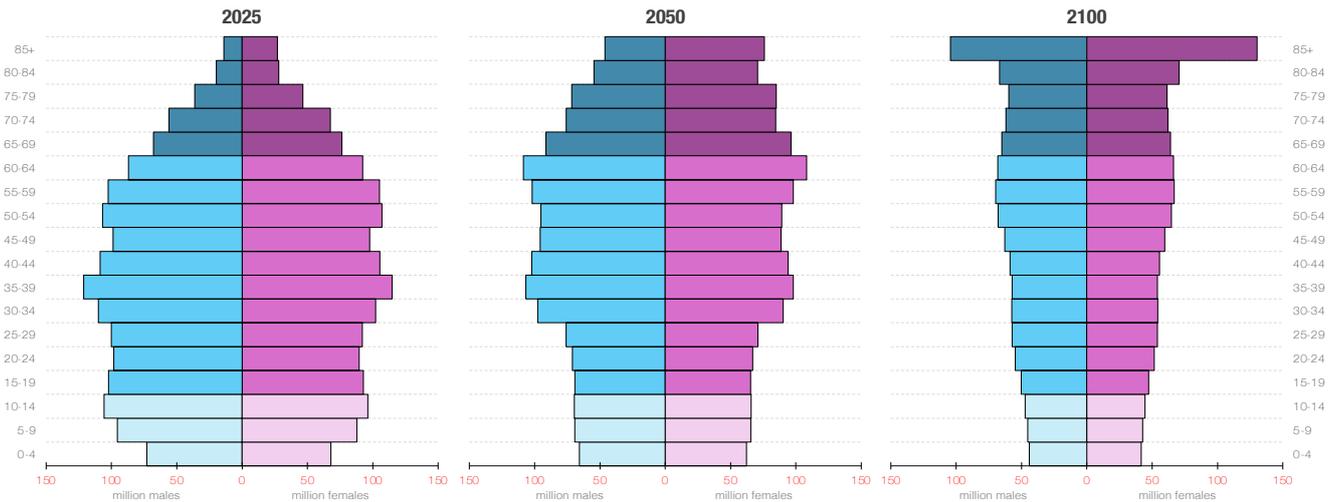
Indeed, recent studies find that ageing is already dampening growth in Asia-Pacific, with rising elderly shares associated with weaker per capita output and productivity performance.<sup>17,18</sup>

Ageing transmits through several channels. Labour supply pressures will intensify as working-age cohorts shrink, and skills gaps may widen if retirements outpace the entry of younger workers. Productivity may shift as firms adjust to older workforces and uneven technology adoption. The fiscal and financial burden could overwhelm if economies are caught unprepared: pension schemes face mounting sustainability risks, health spending is set to climb steadily, and ageing households will likely shift toward lower-risk assets, potentially reducing the pool of long-term capital needed for innovation and frontier investment.

<sup>15</sup> <https://www.imf.org/external/datamapper/IEI@AIPI/ADVEC/EME/LIC>  
<sup>16</sup> <https://www.apec.org/publications/2025/06/addressing-demographic-change-in-the-apec-region>

<sup>17</sup> <https://www.adb.org/sites/default/files/publication/784871/adr-vol39no1-4-demographic-change-economic-growth.pdf>

<sup>18</sup> [https://www.oecd.org/en/publications/enhancing-productivity-and-growth-in-an-ageing-society\\_605b0787-en.html](https://www.oecd.org/en/publications/enhancing-productivity-and-growth-in-an-ageing-society_605b0787-en.html)



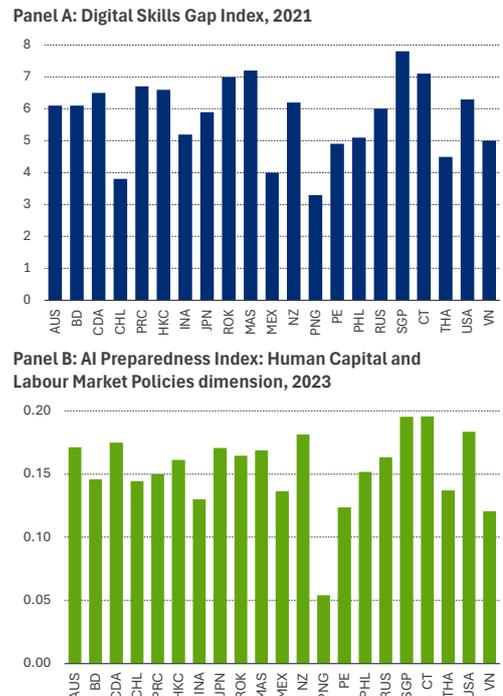
**Figure 8. APEC age pyramid projections, 2025, 2050, 2100**  
 Source: United Nations World Population Prospects 2024; APEC PSU staff calculations.

Taken together, the demographic transition is not a social trend on the margins—it is a structural transformation with economy-wide consequences. Managing it will require higher labour force participation, modernised skills systems, universal and lifelong access to healthcare, and updated pension and social protection frameworks.

### Skills Gaps and Human Development

Technological and demographic shifts are also exerting pressure on APEC’s skills systems and labour institutions. Beyond wider digital participation, there is rising concern on whether workers and firms have the capability and security to adapt as production, services, and job requirements change.

Digital skills gaps across APEC remain wide, revealing differences in workforce readiness for data use, coding, and other basic digital tasks (Figure 9). The IMF’s AI Preparedness Index dimension on human capital and labour market policies, which brings together indicators on education quality, STEM pipelines, digital skills, and labour market flexibility, also shows wide disparity across economies.<sup>19</sup> While some APEC economies show a high level of digital readiness, others are still dealing with gaps in foundational learning, access to retraining, and institutional capacity needed to help workers move into new tasks and sectors.

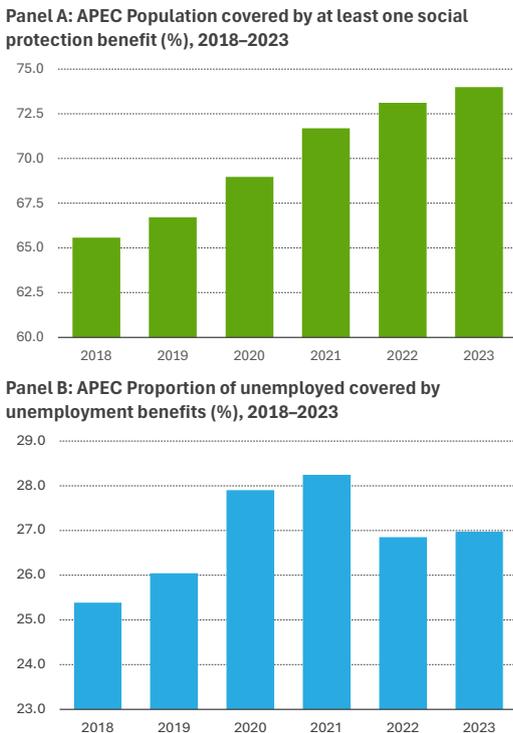


**Figure 9. APEC workforce capability and readiness, 2021, 2023**  
 Source: The Digital Skills Gap Index, Wiley; AI Preparedness Index, International Monetary Fund.

Skills gaps could lead to job insecurity, increasing reliance on social protection. In APEC, the share of the population covered by at least one social protection benefit has increased from about 66 percent in 2018 to roughly 74 percent in 2023 (Figure 10). Coverage by unemployment benefits also rose during the pandemic, with a slight decline from 28 percent in 2021 to 27

<sup>19</sup> <https://www.imf.org/external/datamapper/HCLMP@AIPI/ADVEC/EM/E/LIC>

percent in 2023. This means that more people now have some form of support, yet many workers, particularly those in informal or non-standard jobs, still face risks of unemployment or sharp income losses during shocks.



**Figure 10. APEC labour market security and protection, 2018–2023**

Source: International Labour Organization.

For a region that is ageing and digitalising at the same time, skills and social protection are two sides of the same adjustment story. Workers are more likely to invest in new skills and accept job transitions when they have access to income support, health cover, and active labour market programmes that help them retrain and match into new roles. Firms can reorganise and adopt innovative technologies more quickly when labour rules and institutions support mobility rather than lock workers into specific roles.

Strengthening human capital, recoupling productivity and wage growth, and modernising labour market policies contribute to quality and future-ready growth by raising productivity, enabling adjustment to shocks, and helping ensure that the gains from change are more evenly shared by people living in the region.

### Supply Chain Disruptions and Trade Resilience

Pressures on supply chains have become a characteristic feature of the region’s growth landscape. The disruptions observed in recent years exposed how tightly production networks are linked across borders

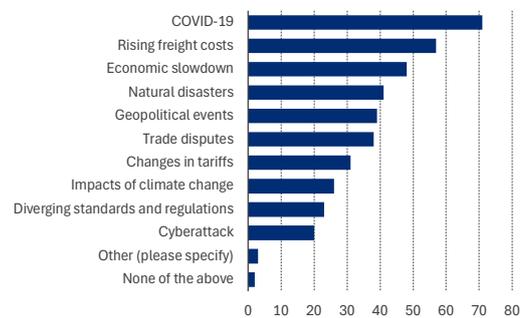
<sup>20</sup> <https://www.apec.org/publications/2024/01/helping-businesses-build-and-maintain-open-secure-and-resilient-supply-chains>

and how quickly shocks can cascade through them. APEC firms point directly to this fragility: in 2022, almost three-quarters of surveyed businesses cited COVID-19 as a major disruption (Figure 11), followed by rising freight costs and the broader economic slowdown.<sup>20</sup>

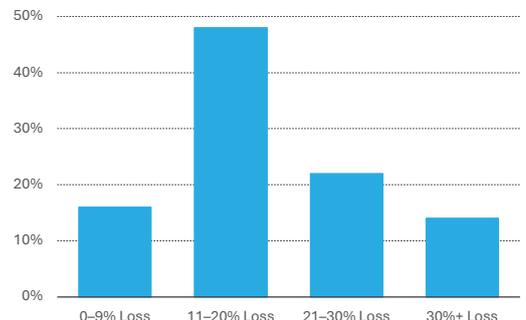
Natural disasters and geopolitical events also featured prominently, which highlights the wide range of shocks that impact supply chain reliability. These disturbances translate into almost half of firms in APEC reporting revenue losses of 11–20 percent, with others experiencing losses of more than 30 percent. This means that supply chain volatility has become an active drag on profitability and investment.

The ARTA May 2024 edition provides evidence on the role of natural disasters and geopolitical tensions in intensifying disruptions across major shipping routes.<sup>21</sup> Daily transit calls through the Suez Canal—one of the world’s major shipping arteries—fell sharply from about 75 vessels per day in early 2023 to roughly 35 by late 2023 amid the Red Sea crisis, and remained low through 2025 (Figure 12). Traffic through the Panama Canal also dropped as drought-driven water levels constrained vessel passage from late 2023 to mid-2024. Although the drivers differ, the economic repercussions are similar: longer transit times, rerouting costs, higher insurance premiums, and tighter inventory cycles.

**Panel A: Key supply chain disruptors (% of respondents), 2022**



**Panel B: Loss of sales and revenue due to supply chain disruptions (% of respondents), 2022**

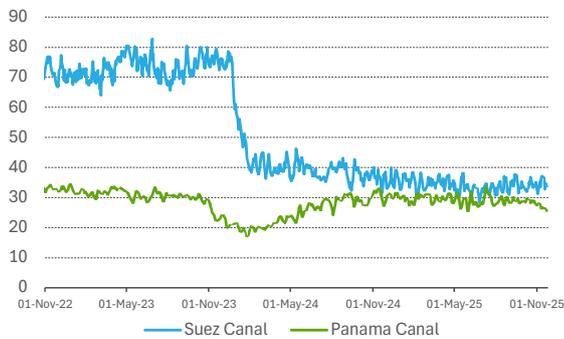


**Figure 11. APEC supply chain disruptions and business impacts, 2022**

Source: Helping Businesses Build and Maintain Open, Secure and Resilient Supply Chains, APEC PSU.

<sup>21</sup> <https://www.apec.org/publications/2024/05/apec-regional-trends-analysis-may-2024>

The challenge is structural. The region's supply chains are simultaneously global, concentrated, and exposed to geopolitical, logistical and weather-related shocks. Firms are responding by diversifying suppliers, boosting buffers, digitising logistics, and re-evaluating location strategies. But the pace of adjustment is uneven, with smaller firms having to deal with higher costs and weaker bargaining power.



**Figure 12. Daily transit calls (number of ships), 2022–2025**

Source: United Nations Global Platform, International Monetary Fund Port Watch.

Policies can help close these gaps. Strengthening trade facilitation, including digitalising trade systems and procedures; investing in resilient infrastructure; and deepening regulatory cooperation such as standardising processes and requirements as well as simplifying cross-border procedures, can ease pressure points to make trade flow faster and cheaper. At the same time, greater transparency in logistics data and stronger risk management frameworks can help firms assess risks effectively and anticipate disruptions rather than simply react to them.

Having an open and interconnected production system in the APEC region can provide a strategic advantage to boost growth, but it requires investment in infrastructure and data, regulatory coherence, and coordinated policy action to enhance reliability amid more frequent and more complex shocks.

## Positioning Economies on Shared Readiness Trajectories

As the region moves through multiple challenges, economies increasingly need a practical way to understand what they have, where they stand and how prepared they are should pressures intensify. The pace of change may differ across APEC, but the nature of the transition is shared. A common readiness approach offers a structured lens for economies to situate themselves within this broader landscape, assess institutional and technological capacity, and identify areas where cooperation can accelerate progress. It also provides policymakers with a clearer view of how

suggested policy actions discussed earlier might evolve as conditions grow more complex, and which measures are feasible given domestic realities.

The factors behind APEC's growth will continue to evolve, and the pace is unlikely to slow. Preparing for what comes next requires a steady, forward-looking approach that recognises the interplay of these forces while strengthening infrastructure and institutions to fortify the region's responsiveness.

Responding to growth challenges calls for more than a collection of reform ideas. Economies need a guiding structure that reflects how sustainability, technology, demographics, skills, and supply chains shape one another in real time. For example, a tiered readiness framework in Figure 13 can support this by helping economies assess current capabilities and align them with policy actions that are feasible at their level of institutional and technological development. It also creates a common reference point that allows economies to understand their position relative to the region, identify priorities as well as the pace and sequence of needed reforms given domestic conditions, without imposing rigid timelines or fixed benchmarks.

The framework consists of three tiers. Tier A describes essential readiness, where the priority is establishing the foundational systems needed to withstand fast-moving shocks. These foundations include reliable digital connectivity, basic digital public infrastructure, early skills development, sustainability and resilience planning, and the digitalisation in trade and logistics.

Tier B reflects adaptive readiness, where economies have begun to adjust their systems to demographic, climate, and technological transitions. Capacities at this stage include scalable and interoperable digital platforms, strengthened data governance and cybersecurity, transition-focused skills pathways, clean-technology adoption, resilient infrastructure, and supply chains guided by risk-based processes.

Tier C represents frontier readiness, where economies can unlock new growth engines through high-capacity, innovation-oriented systems. These systems include advanced digital and AI ecosystems, integrated economy-wide data services, strong innovation and R&D capacity, green value chains and climate-tech deployment, and predictive, seamless trade networks.

Across all tiers, institutional readiness is the anchor. Strong governance, coherent and predictable rules, accountable public institutions, stable macroeconomic conditions, and effective regional cooperation determine how quickly economies can act, how well reforms are implemented, and how resilient systems remain as pressures become more complicated.



**Figure 13. Readiness tiers for future-ready growth**

Source: Authors.

Movement across these tiers is not linear, and economies will advance at different speeds and in different areas using different channels. The purpose of the tiered readiness framework is not to rank economies, but to help them prioritise reforms, sequence investments, and identify opportunities for cooperation that support smoother transitions amid increasing structural pressures. This approach recognises the variation in starting points while promoting a shared understanding of the capabilities needed for future-ready growth.

## Unlocking New Drivers and Fortifying Resilience

In an environment marked by economic uncertainty, technological disruption, and accelerating sustainability risks, unlocking new growth engines is critical to maintaining dynamism while ensuring continued and inclusive progress. As traditional growth drivers, including trade expansion and industrial upgrading face new constraints, APEC’s next wave of growth will depend on harnessing innovation, digitalisation, sustainability, connectivity, and human capital to power productivity and competitiveness.

At the same time, it is imperative to strengthen APEC’s responsiveness and readiness in addressing intertwining and overlapping pressures by acting on

mutually reinforcing priorities that together form the backbone of future-ready growth (Figure 14).

Mapping these policy priorities into the tiered readiness framework provides economies with a concrete and actionable tool to assess institutional and technological capacity, sequence reforms strategically, and identify targeted opportunities for cooperation—without forcing a one-size-fits-all pathway. This approach recognises differing starting points and speeds, while keeping economies aligned around a shared objective: maximising the gains from emerging growth engines and strengthening long-term resilience.

### **1. Accelerate technology adoption and close readiness gaps.**

Technology is reshaping production, services, trade, and public sector capacity.<sup>22</sup> Connectivity across APEC has improved, but the next phase of digital transformation requires deeper capabilities. Expanding access to affordable broadband, particularly fixed broadband, can help firms adopt cloud services, automation, and AI tools that require stable high-capacity networks.<sup>23</sup> At the same time, frontier innovation ecosystems matter: economies with stronger R&D systems, testbeds, and supportive regulatory environments are better positioned to capture

<sup>22</sup> <https://www.worldbank.org/en/region/eap/publication/services-unbound>

<sup>23</sup> <https://coruzant.com/infrastructure/ai-cloud-xr-driving-fiber-network-upgrades/>

productivity gains from AI-enabled services and production.<sup>24,25</sup>

Economies that identify under Tier A could focus on ensuring basic access and functionality, enabling wider participation. This may include expanding affordable fixed and mobile broadband, especially in rural and underserved areas, to support basic cloud use and digital services. In parallel, economies may establish foundational digital public infrastructure covering e-payments, digital IDs, and early data governance frameworks.



**Figure 14. Policy options toward future-ready growth**

Source: Authors.

Meanwhile, Tier-B economies could look into scaling systems and improving interoperability across sectors and borders. This would require upgrading digital public infrastructure to interoperable platforms that connect payments, IDs, tax and social systems while strengthening cybersecurity systems to support cross-border data flows and digital trade.

Economies under Tier-C should be able to leverage advanced innovation systems to accelerate productivity across sectors, including developing advanced AI and data ecosystems supported by high-performance computing, open data platforms and trusted data-

sharing arrangements. Enabling seamless, predictive trade networks using real-time logistics data, AI-enabled risk management, and end-to-end digital communication could greatly improve market access and trade activity.

Technological adoption should also encompass supply chain connectivity, a continuing priority in APEC. The mid-term review of the APEC Supply Chain Connectivity Framework Action Plan III showed strong progress in paperless trade facilitation and improvements in internet and liner connectivity, but major gaps persist. Uneven digitalisation, infrastructure shortfalls, and stagnant integration of micro, small and medium enterprises (MSMEs), largely reflected in low participation in single windows and trade facilitation committees, continue to pose challenges.<sup>26</sup>

Economies could greatly benefit from digitalising trade processes through interoperable single windows, streamlined border procedures, and greater use of data-driven risk management.<sup>27</sup> Institutional capacity also remains relevant: better coordination between line agencies, transparent regulatory processes, and early-warning tools can reduce uncertainty for firms operating across multiple jurisdictions.

Given the broad impact of digitalisation, the region should work together to narrow disparities in AI readiness.<sup>28,29</sup> Gaps in data ecosystems, research capability, and digital skills risk widening productivity dispersion across economies.<sup>30</sup> Targeted investment in interoperable platforms and talent pipelines, along with cross-economy cooperation on standards can help close these divides. Policymakers may also consider improving competition and market access in the digital space, which can lower prices, increase innovation, and broaden access to digital tools.<sup>31</sup> This direction recognises that digital transformation is a critical driver of growth, resilience, and inclusion, underscoring that economies benefit when technology is integrated across sectors.

## **2. Strengthen resilience in infrastructure, institutions, and supply systems.**

Resilience needs to move from an ad hoc topic to an ongoing, core policy priority.<sup>32,33</sup> Weather-related shocks, logistical disruptions, digital outages, and demographic pressures increasingly interact, and

<sup>24</sup> <https://www.mckinsey.com/capabilities/tech-and-ai/our-insights/tech-forward/scientific-ai-unlocking-the-next-frontier-of-r-and-d-productivity>

<sup>25</sup> <https://www.adlittle.com/sg-en/insights/report/smart-regulation-gateway-frontier-innovation>

<sup>26</sup> [https://www.apec.org/publications/2024/11/apec-supply-chain-connectivity-framework-action-plan-2022-2026-\(scfap-iii\)--mid-term-review](https://www.apec.org/publications/2024/11/apec-supply-chain-connectivity-framework-action-plan-2022-2026-(scfap-iii)--mid-term-review)

<sup>27</sup> [https://www.usitc.gov/publications/332/journals/wto\\_trade\\_facilitation\\_agreement.pdf](https://www.usitc.gov/publications/332/journals/wto_trade_facilitation_agreement.pdf)

<sup>28</sup> <https://www.ibm.com/think/insights/ai-readiness-overcoming-ai-barriers>

<sup>29</sup> <https://aisingapore.org/innovation/airi/>

<sup>30</sup> [https://www.rand.org/pubs/research\\_reports/RRA1533-1.html](https://www.rand.org/pubs/research_reports/RRA1533-1.html)

<sup>31</sup> <https://www.oecd.org/en/topics/competition-and-digital-economy.html>

<sup>32</sup> <https://www.mckinsey.com/industries/public-sector/our-insights/rethinking-resilience-ten-priorities-for-governments>

<sup>33</sup> <https://www.apec.org/publications/2023/05/policy-paths-toward-low-emission-multimodal-transportation-in-apec>

economies can reduce risk through transparent governance and robust cross-border connectivity.<sup>34</sup>

Investments in resilient transport networks, electric vehicles and reliable energy systems, water security, and digital backbone infrastructure can help reduce the amplification of shocks across sectors.<sup>35</sup> Equally important, when infrastructure is dependable and institutions are accountable, public trust solidifies, allowing needed reforms to thrive. Firms become more confident to invest, diversify production, and adopt technologies that raise productivity.

The priority for economies in Tier-A is to ensure continuity of essential services by reducing vulnerability to disruptions. This requires investing in resilient transport, energy and water infrastructure, and putting in place disaster preparedness planning that includes strengthened coordination across government agencies to improve crisis response and policy coherence.

Tier-B economies should be able to anticipate and manage risks more proactively by integrating sustainability considerations into infrastructure planning and urban development. They can also strengthen resilience by developing diversified energy systems such as renewables as well as using data-driven tools to identify supply chain fragilities and guide the diversification of suppliers and routes.

Under Tier-C, economies move toward predictive and adaptive systems, with the capacity to deploy smart infrastructure using AI, sensors, and real-time monitoring to anticipate and counter disruptions. Economies at this level would also be able to build resilient green infrastructure that supports new industries such as EV ecosystems.

### **3. Expand opportunities for workers and firms to adjust, adapt, and move into higher-value activities.**

Demographic change, technology shifts, and supply chain reconfiguration are altering the skills profile needed for the next decade of growth.<sup>36,37</sup> Policies that support people through transitions can ease adjustment pressures and help firms reorganise without losing competitiveness.

Economies may need to invest in more adaptive skills systems—blending foundational learning, digital competencies, green skills, and industry partnerships—

<sup>34</sup> <https://www.imf.org/en/publications/wp/issues/2024/04/05/this-is-going-to-hurt-weather-anomalies-supply-chain-pressures-and-inflation-545462>

<sup>35</sup> [https://www.oecd.org/en/publications/infrastructure-for-a-climate-resilient-future\\_a74a45b0-en.html](https://www.oecd.org/en/publications/infrastructure-for-a-climate-resilient-future_a74a45b0-en.html)

<sup>36</sup> <https://www.apec.org/press/blogs/2025/How-aging-and-ai-are-rewriting-the-economics-of-health>

<sup>37</sup> <https://www.weforum.org/publications/the-future-of-jobs-report-2025/in-full/1-drivers-of-labour-market-transformation/>

<sup>38</sup> <https://www.worldoftvet.com/blog/embedding-digital-green-and-entrepreneurship-skills-into-a-nqf>

to ensure workers have the capabilities needed for changing tasks and sectors.<sup>38</sup> Lifelong learning mechanisms, modular credentials, and targeted reskilling programmes can also help workers remain mobile as labour markets evolve.

In particular, economies in Tier-A could focus on strengthening foundational education and vocational training as well as digital literacy. Piloting targeted reskilling programmes for workers affected by automation or economic shocks could also be conducted to prevent exclusion during transitions and crisis episodes.

Economies in Tier-B could develop modular, industry-linked training and certification systems that support lifelong learning while realigning skills policies to support green and digital transitions.

At level Tier-C, economies are poised to leverage human capital as a growth engine. This would require building advanced talent ecosystems that link universities, research institutions and innovative firms, investing in frontier skills such as AI engineering and data science, among others, as well as facilitating cross-border mobility of skilled workers through mutual recognition and digital credentials.

Flexible labour markets and strong labour institutions also matter. On the one hand, flexible labour markets promote formal hiring. On the other hand, unemployment insurance, income support, and active labour market programmes can reduce the risk of long-term detachment during transitions and shocks, especially as automation and ageing reshape job structures.<sup>39,40</sup> At the same time, support for quality job creation by expanding investments in green infrastructure and promoting digital entrepreneurship can mitigate job insecurity in a changing environment. Social protection systems can fortify resilience, enabling more people to participate in new opportunities and reducing the distributional pressures associated with technological and demographic changes.<sup>41,42</sup>

For firms, policies that support management upgrading, digital onboarding, and access to finance can enable, in particular MSMEs, to shift into higher-productivity activities and participate in evolving regional value

<sup>39</sup>

[https://www.ilo.org/sites/default/files/wcmsp5/groups/public/@ed\\_em/p/documents/genericdocument/wcms\\_doc\\_elm\\_are\\_mkt\\_en.pdf](https://www.ilo.org/sites/default/files/wcmsp5/groups/public/@ed_em/p/documents/genericdocument/wcms_doc_elm_are_mkt_en.pdf)

<sup>40</sup>

<https://thedocs.worldbank.org/en/doc/9c1462c00ab0d8dc0ed712c58964c9c9-0200022022/related/SPJ-Aging-Brochure-World-Bank.pdf>

<sup>41</sup> <https://socialoutlook.unescap.org/data-and-research/blog/empowering-change-and-resilience-social-protection-age-megatrends>

<sup>42</sup> <https://www.asiapathways-adbi.org/2024/08/social-protection-for-the-informal-economy-in-south-asia/>

chains.<sup>43,44</sup> This highlights that human capital and firm capability are not separate agendas; together, they determine how effectively economies capture the benefits of structural change.

#### **4. Improve the reliability and adaptability of regional cooperation.**

The reliability of APEC's open and interconnected production system is being tested by overlapping pressures which necessitate that economies implement practical measures to improve activity, coordination, and adaptability across borders.

Trade has always been central to APEC's pursuit of economic growth. Even as new challenges emerge and global trade patterns evolve, APEC has steadfastly worked toward advancing open and fair trade that creates jobs and fosters innovation. Trade facilitation could benefit from technology to increase connectivity and efficiency while broadening opportunities. For example, expanding the use of digital trade tools such as e-invoicing, electronic certificates, real-time logistics platforms, and interoperable data frameworks can reduce delays, improve transparency, and cut compliance costs for firms of all sizes.<sup>45,46</sup> Enhancing regulatory coherence and mutual recognition arrangements can also lower friction for goods, services, and skilled workers.<sup>47,48</sup>

Different actions are needed from economies across various tiers. For example, economies under Tier-A could implement basic trade facilitation measures such as simplified procedures and electronic customs submission to reduce friction.

Tier-B economies could focus on enhancing reliability and adaptability by expanding the use of digital trade tools such as e-invoicing and real-time logistics platforms, improving regulatory coherence and mutual recognition arrangements for goods, services, and skills, and implementing supply chain diversification as well as sustainability standards.

Economies in Tier-C could help shape future regional systems by taking the lead in the development of interoperable regional data frameworks and digital trade standards. Shared platforms and analytics would enable seamless and predictive regional supply chains as well

as cooperation on green value chains and sustainable financing initiatives, while also moving toward strong regional early-warning and crisis-response mechanisms.

Supply chain resilience may further benefit from greater diversification across suppliers, routes and production locations, improvements in port and logistics infrastructure, and strengthened cooperation on sustainability standards.<sup>49,50</sup> Targeted investments guided by data and risk assessments ensure timely response to issues. Comprehensive cooperation efforts can widen the benefits of regional connectivity and help build a more adaptable growth model.<sup>51,52,53</sup> This recognises that trade and cooperation remain vital to APEC's economic strength while allowing the system to evolve and stay reliable in spite of heightened uncertainty.

It is important to highlight that the suggested policy directions discussed in this brief depend on each economy's development level, technological readiness, institutional capacity, available resources, and domestic priorities. Although pathways will differ, the direction remains clear: APEC economies will need to fortify response and readiness, strengthen adaptability, and build institutions capable of managing faster and more complex transitions and, at the same time, capturing economic gains from these shifts.

Practical cooperation remains a crucial factor. APEC's record shows that steady, incremental progress delivers durable convergence. In a period of uncertainty, such cooperation can help economies keep reforms on track and maintain openness to new forms of sustainable and technology-enabled growth.

With 61 percent of global GDP and nearly half of world trade, APEC has both the scale and mandate to make future-ready growth a defining feature of regional prosperity. By investing in innovation, resilience, adaptability, and institutional readiness, APEC economies can safeguard development gains and expand opportunities while positioning themselves to capture the benefits of the next wave of regional and global change.

<sup>43</sup> <https://repository.unescap.org/items/3bbaf61-8eec-4d55-9c11-0bc80d7d2f9f>

<sup>44</sup> <https://www.bcg.com/publications/2023/southeast-asia-digital-lending-for-msmes>

<sup>45</sup> <https://www.channelnewsasia.com/brand-studio/turning-trade-paperwork-digital-potential-5479516>

<sup>46</sup> [https://asean.org/wp-content/uploads/2023/06/9DTSCWG-06-IMDA-ASEAN-E-Invoicing-Landscape-Final-Report\\_For\\_Circulation\\_v2.pdf](https://asean.org/wp-content/uploads/2023/06/9DTSCWG-06-IMDA-ASEAN-E-Invoicing-Landscape-Final-Report_For_Circulation_v2.pdf)

<sup>47</sup> [https://www.oecd.org/en/publications/the-contribution-of-mutual-recognition-to-international-regulatory-co-operation\\_5jm56fqsfxm-en.html](https://www.oecd.org/en/publications/the-contribution-of-mutual-recognition-to-international-regulatory-co-operation_5jm56fqsfxm-en.html)

<sup>48</sup> <https://www.adb.org/publications/mutual-recognition-arrangements-asean>

<sup>49</sup> <https://www.imf.org/en/publications/wp/issues/2025/05/23/supply-chain-diversification-and-resilience-567065>

<sup>50</sup> [https://www.oecd.org/en/publications/oecd-supply-chain-resilience-review\\_94e3a8ea-en.html](https://www.oecd.org/en/publications/oecd-supply-chain-resilience-review_94e3a8ea-en.html)

<sup>51</sup> <https://www.apec.org/publications/2023/07/digital-transformation-to-generate-new-business-opportunities-opening-to-new-markets-in-the-msmes-and-gender-focused-cooperatives-in-response-to-the-economic-crisis-caused-by-covid-19>

<sup>52</sup> <https://www.oecd.org/en/topics/smes-and-entrepreneurship.html>

<sup>53</sup> [https://www.oecd.org/en/publications/strengthening-women-s-entrepreneurship-in-asean\\_8113106d-en.html](https://www.oecd.org/en/publications/strengthening-women-s-entrepreneurship-in-asean_8113106d-en.html)

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