Services, Structural Reform and Competition in the Digital Era

APEC Economic Committee and Group on Services

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Asia-Pacific
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Preface

The APEC Services Competitiveness Roadmap (ASCR) has been a cornerstone of APEC's services agenda since its endorsement by Leaders in 2016. It has ensured that services issues remain a priority across APEC fora. The Roadmap highlights a broad spectrum of initiatives critical to enhance services trade, including the pivotal role of structural reform in fostering regulatory cooperation and robust domestic and regional frameworks. The ongoing collaboration between the Group on Services (GOS) and the Economic Committee (EC) on services and structural reform facilitates the practical implementation of the Roadmap and creates opportunities to explore APEC contributions to addressing regional challenges and cross-cutting issues.

This policy brief summarizes the outcomes and discussions of a joint APEC GOS and EC workshop held online in December 2024. It covers crucial areas of the Roadmap, including competition policy initiatives and the role of technical standards in services trade. These topics are intrinsic to APEC's structural reform agenda, addressing barriers to inclusive growth by improving regulatory frameworks, fostering competition, and enhancing economic opportunities across the region. Earlier work in APEC on services and structural reform underscores the significance of regional regulatory compatibility. It highlights how alignment with international best practices and standards can reduce market fragmentation, boost innovation and productivity and foster greater regional economic integration.

Key areas of progress in 2024 include APEC's discussion of technical standards and sharing of good regulatory practices. In particular, the GOS advanced discussion on the development of effective principles for technical standards in services, including digital services, recognizing their importance in ensuring a seamless regional market with regional business interoperability and connectedness.

As APEC approaches the 2025 target date for the ASCR and the final review of the Enhanced APEC Agenda for Structural Reform (EAASR), this policy brief sets out pivotal issues to help shape future directions in APEC's services agenda and the next structural reform agenda in the services sector. It is designed to guide the GOS and the EC in building on recent achievements and ensuring the joint collaborative work continues to enhance the competitiveness of APEC economies in a rapidly evolving global landscape.

This policy brief was circulated informally in draft form as background material for a joint APEC GOS and EC Workshop held at APEC SOM 1 on 2 March 2025.

Summary

Based on discussions that were part of the APEC EC-GOS Project on Structural Reform, this policy brief focuses on international trade in digitally deliverable services, which are at the forefront of the digital revolution and Artificial Intelligence (AI) augmentation. The paper explores recent developments in digitally deliverable services trade, the impact of AI, policy and regulatory impediments, and the critical role of competition and technical standards-setting in shaping the future of services trade.

The paper highlights the significant growth in digitally deliverable services exports, which nearly doubled globally between 2014 and 2023, reaching USD4.25 trillion. APEC economies experienced similar rapid growth, with digitally deliverable services accounting for 54% of total services exports in 2022, up from 42% in 2014. The ratio of digitally deliverable services exports to GDP in APEC rose from 1.8% in 2014 to 2.3% in 2023.

AI is expected to have a profound impact on the services sector, particularly in business, professional, medical and financial services. Recent surveys show increasing AI adoption, especially among larger firms and in the context of information and communication services. AI is expected to reduce trade costs, transform trade patterns, increase demand for AI-related products, and reshape economies' comparative advantages. As AI adoption intensifies, it will likely enhance productivity across the services sector and intensify the shift towards digitally deliverable services trade.

Based on ideas raised as part of the APEC EC-GOS Project on Structural Reform, the paper identifies policy impediments to growth in digitally deliverable services, including access to digital infrastructure and competition issues. It discusses the historical context of competition policies in international governance of telecommunications services and the discussions surrounding the role of competition in digital services. The paper emphasizes the importance of balancing innovation with preventing anti-competitive practices in rapidly evolving digital markets.

In addressing competition issues raised by the digital economy, the authors recognize the importance of foundational competition policy principles while encouraging agility to adapt to the digital economy, facilitating information sharing and dialogue among governments, balancing predictability with experimental regulatory approaches, and remaining vigilant to new forms of market dominance.

The authors highlight the importance of standards in services, indicating their role in supporting best practices and setting minimum quality and safety requirements. It discusses the challenges of standardizing services compared to goods and the impact of digitalization on this process. The paper emphasizes the need for interoperable standards to facilitate cross-border trade and addresses the risks of premature standardization in emerging fields like AI.

Some economies suggested that potential contributions and next steps for APEC in addressing these issues could include organizing roundtable discussions, monitoring research, initiating public-private dialogues, discussing principles and developing guidance for good practices in competition policy, and exploring new ideas in standard setting. Some economies suggested that public-private dialogues could explore APEC's framework for addressing competition issues in the digital era, the possible value of a handbook of economy experiences and policy conversations, reviewing good regulatory practice principles, and priorities for ongoing capacity building.

Introduction

Following discussions that were part of the APEC EC-GOS Project on Structural Reform, this policy brief focuses on the evolution of international trade in services that are information and knowledge intensive, also referred to as digitally deliverable services. Their information intensity places them at the forefront of the digital revolution, augmented by artificial intelligence (AI). The AI-augmented digital transformation of this group of services provides new vehicles for them to enter global markets. AI-enabled services can be digitally delivered and are often made available via digital platforms. With a broad variety of services offered on digital platforms, consumers and businesses alike can easily find suppliers that suit their needs via online search.

Although face-to-face interactions are still important, platforms offer secure marketplaces where the collaboration between services suppliers and customers can take place virtually. Furthermore, pooling experience and data on platforms allows AI-assisted customization of services at scale and may thus open the possibility for mass customization of services. In other words, the digital transformation enables product differentiation and deepening specialization, which are major sources of productivity growth.

Scale may require access to cloud services and seamless data flows between suppliers and customers. Scale also requires that professionals and the digital products they produce are recognized in the potential markets that they serve. To reap these potential productivity gains and unleash the services growth engine, structural reforms may be needed as we discuss below.

Before doing so, the paper sets the context by observing recent developments in trade in digitally deliverable services – see the Box below. Noting the contribution of digitalization to these outcomes, the paper then explores the additional and positive effects on services trade of the next stage of its evolution in AI.

However, the paper also argues that the scope for growth of trade in these services is hampered by policy and regulatory impediments, which may have an impact on consideration of competition issues in this context and the appropriateness of regulatory frameworks. It includes a brief review of studies of impediments to trade and their implications for trade costs.

The paper then examines in more detail the critical role of competition policy and technical standards-setting in shaping the future of this modern form of services trade, and it outlines potential areas for APEC cooperation to foster a more competitive and inclusive services sector across the region.

Box: Trends in digitally deliverable services trade[1]

In world trade, digitally deliverable services[2] exports grew to USD4.25 trillion in 2023, up from USD2.22 trillion in 2014, nearly doubling over that period, according to WTO data.

The global story is matched by the APEC experience, where the region also experienced rapid growth of trade in such services. By 2023, digitally deliverable services stepped up to 54% of total services exports from 42% in 2014.

Their significance is also illustrated by their ratio to GDP. The ratio of digitally deliverable services to GDP in APEC rose from 1.84% in 2014 to 2.31% in 2023. However, this ratio remains below the global benchmark of 4.03%,

Digitally deliverable services export growth is observed across income groups in the APEC membership. The growth in exports from middle-income economies as a share of total services exports grew faster than that for low- and high-income economies.

The actual use of modes of supply varies by sub-category of digitally deliverable services. Mode 1 remains the most important for the largest sub-category, which is 'other business services'. Even where mode 3 has been important traditionally (for example, in financial services, ICT services and insurance services), the importance of mode 1 is rising rapidly.

Drivers of trade growth and the impact of artificial intelligence[3] (AI)

The information intensity of digitally delivered services, and its contribution to the scope for trade growth, has already been noted. The next likely emerging area of growth in the application of digital technology relevant to trade in services is the use of AI. Several recent studies[4] suggest that the most productive uses of AI will be found in the services sector. Amongst the most frequently mentioned sectors are business services (such as advertising, call centers, content moderation, design, data entry, research and development, software development, transcription and translation services), professional services (such as accounting, book-keeping, legal services and engineering) and financial services. These are industries where cognitive and information-intensive tasks are particularly common and where the routine elements involved in the services value chain seem especially primed for acceleration via AI.[5]

Measures of business uptake of AI vary by economy and by industry sub-sector. The most recent and comprehensive survey is from the European Union and shows that uptake rises sharply with firm size. While the share of firms using AI with more than 10 employees was 13.5% in 2024, more than 40% of large firms use AI. The sectoral composition shows that information and communication services firms are top of the ranking with close to half of all firms using AI, followed by professional, scientific and technical services at 30%. The first non-service sector in the ranking is manufacturing at 8th place with 10.5% uptake. Final consumers' use of large

[1] The topic of this Box has also been discussed in earlier Policy Briefs on Services and Structural Reform (see the papers available at APEC Services and Structural Reform). Data used here are being updated and extended and the results of that research will be reported in another forthcoming paper.
[2] Data in this paragraph are based on services trade data from the WTO, and from the 1980-2013 BOP5 data and the BOP6 series data afterward. Included are categories of (in order of importance) other business services, computer services, financial services, charges for use of IP, insurance, telecommunications. 'Other business services" encompasses a diverse range of professional services activities, including legal, accounting, engineering, architecture, management consulting, market research and public relations services, as well as various technical and services such as research and development, scientific consulting, environmental services like waste treatment, technical testing, photography, translation and advertising
[3] AI in this section refers to large language models and other generative AI tools.
[4] See for example "Evidence Shows Productivity Benefit of AI", Centre for Data Innovation, 11 June 2024
[5] WTO, Trade in Services Newsletter: "AI and Trade in Services", 2024.

language models (LLMs) and similar technologies has grown at a remarkable pace, facilitated by factors that seem collectively unique to AI, such as no necessity for new user hardware, free of charge access to basic LLMs and instant delivery of the technology at mass scale. The emergence of advanced models developed and implemented at lower cost may signal future availability of advanced AI at a lower price point.

AI-enabled digitalization also is likely to change the scope of trade in digitally delivered services. First, AI applications help digitize services tasks, bringing additional services activities into the digitally tradable markets. Second, AI has created new services activities such as AI prompting engineers, personalized medicine, synthetic media, precision farming and many more. Third, AI blurs the borderline between occupations, modes of supply and location of production. For instance, data analysts and software programmers are co-creating a host of services across sectors, including regulated professions such as medicine and legal services, changing the activities that the professionals undertake. By the same token, multidisciplinary teams collaborating virtually on AI-enabled digital platforms make the location of production hard to determine. These developments also have important implications for policy and the management of reform.

As the surveys of AI adoption indicate, adoption got off to a slow start but has increased rapidly over the past year. Impediments to adoption are insufficient digital infrastructure, inadequate skills, and regulatory uncertainty related to privacy and security.[6] Both the development and use of AI require access to data and computing power, for which most enterprises, especially MSMEs, increasingly rely on external cloud services, which relies on seamless cross-border data flows between the data businesses generate in their daily operations and the computing resources. Development of existing or new AI platforms may reduce the cost in terms of data and computing for developing AI applications, opening new opportunities for enterprises in developing economies to cross the digital gap.

The impact of AI adoption will likely be most dramatic for trade in digitally delivered services, as more services become digitally deliverable and services trade goes increasingly online, along with the underpinning cross-border data flows. AI will also impact trade in intermediates of both goods and services. New digital technologies such as AI are therefore likely to intensify the shift to trade in services which are digitally deliverable and expected increasingly to be so.

Clearly, digitally delivered services trade involves the management of data – collection, storage, processing and transmission, including across borders. As the digital transformation of the regional economy deepens, commercial applications of new digital technologies have become ever more dependent on data flows. AI is still expected to rely heavily on flows of large amounts of data, and its effectiveness increases as it accesses larger data sets.

In summary, AI is rapidly transforming digitally delivered services, especially in information-intensive sectors like business, professional, and financial services. Adoption rates are highest among large firms and information and communication services, with common uses including language analysis, machine learning, and workflow automation. Consumer use of AI tools is growing quickly due to easy, low-cost access. AI is expanding the range of tradable digital services, creating new roles and blurring traditional occupational and geographic boundaries. This will contribute to a transformation in the pattern of trade in services. However, challenges remain, such as limited digital infrastructure, skills gaps, and regulatory issues, though falling development costs and improved cloud access may help bridge these divides.

[6] See AI Preparedness Index (AIPI)

Impediments to trade

As the GOS and the EC continue their work together on services and structural reform, it is timely to take note of some key findings from a recent OECD review of the impediments to services trade and the potential for trade cost reductions from different reform scenarios, one with a sectoral orientation[7] and another with a focus on the policy environment relevant to digital delivery.

Over all services sectors, the OECD finds that about two thirds of restrictions relate to market access and domestic treatment measures. But one third concerns matters related to barriers to competition and to regulatory transparency.[8] There are, however, some sectoral variations here. The OECD uses a 4-way classification of clusters of sectors as follows, listed in order of their current average restrictiveness.

- Market Bridging and support services (banking, insurance, accounting, legal)
- Logistics and related services (transport, courier, logistics, distribution)
- Digital network services (telecommunications, computer services, broadcasting, motion pictures and sound recording)
- Physical infrastructure services (construction, architecture and engineering)

Restrictions associated with barriers to competition and regulatory regimes are considerably more important than average in digital network and physical infrastructure services (just over 40%). But they are about average for logistics and related services, and lower for market bridging and support services (25%).

Several studies have been undertaken on the impact of restrictions on the extent of services trade. One study[9] finds that a 10-percentage point increase in the OECD STRI leads to a 3.7% decrease in total import value. But the STRI in the exporting economy also matters – a 10 percent point increase in the STRI in the exporting economy also reduces exports by nearly 2%. The likely explanations lie in the impact of domestic regulation on trade costs for exporters or the extent of competition and therefore competitiveness. High STRI values in the exporting economy also raise the cost and reduce the use of imported services inputs, which reduces competitiveness. As noted, a large component of STRI scores relate to domestic regulation, including competition aspects. These regulations raise the entry and operational costs of local firms, as well as foreign firms, further reducing the competitiveness of exports.

Regulatory divergence across economies can also create significant barriers to international trade in services. Divergences in regulatory regimes increase compliance costs and administrative burdens, deterring companies from entering new markets. These differences do not necessarily emerge from protectionist motivations, but often from differences in historical paths of policy evolution, the use of different frameworks for decision-making and variations in capacity for building and operating the relevant institutions.

Research confirms the expectation that regulatory divergence between economies creates trade barriers and increases trade costs for firms exporting services to foreign markets.[10]

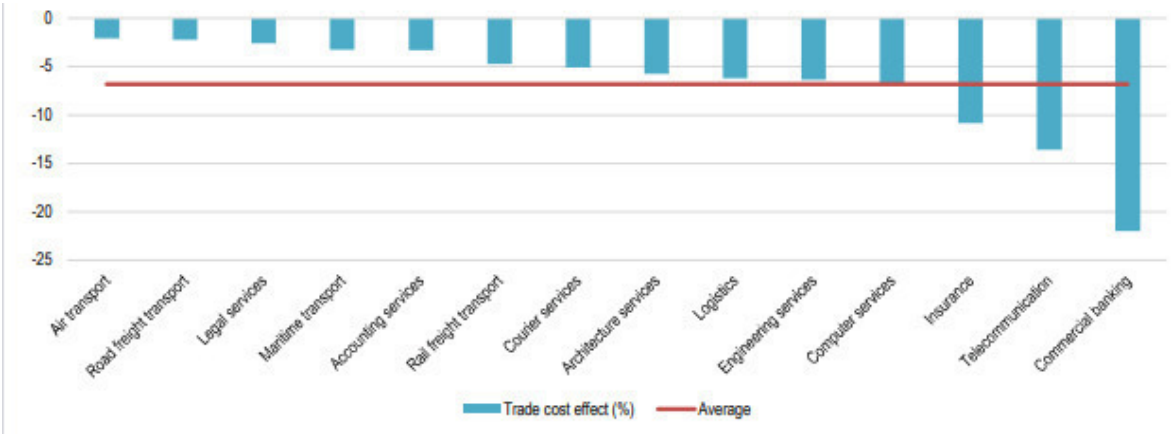
[7] OECD (2024), Revitalising Services Trade for Global Growth: Evidence from Ten Years of Monitoring Services Trade Policies through the OECD STRI, OECD Publishing, Paris, https://doi.org/10.1787/3cc371ac-en.
[8] Barriers to competition include for example minimum capital requirements for new companies, office opening hours, price regulations on certain products, government ownership, effectiveness of anti-trust policies, and advertising restrictions. Regulatory transparency includes factors such as documentation requirements and visa processing times, adequacy of public comment procedures for new regulations, hurdles for registering new companies, licensing and authorisation requirements and availability of online tax services for non-resident foreign providers.
[9] Chen, W.C., 2024. The impacts of policy restrictions on trade in services. *Applied Economics*, pp.1-16.
[10] Nordås, H.K. and Rouzet, D. (2017), The Impact of Services Trade Restrictiveness on Trade Flows. *The World Economy*, 40: 1155-1183.

Regulatory differences deter bilateral trade in services and have an effect which goes beyond that of the overall level of trade restrictiveness. In addition, the impact of regulatory differences depends on the overall level of trade restrictiveness in both the exporting and importing economy. Regulatory differences have a larger marginal impact on trade flows when the level of trade restrictiveness is lower in both economies. An implication is that for example as trade costs fall with digitalization the importance of regulatory differences will increase.

The OECD reports[11] that over the past decade, regulatory differences across economies affecting the digital network services cluster have increased. However, some other clusters have experienced varying degrees of convergence. Market bridging services have seen greater convergence, largely due to implementation of international financial and prudential standards. Construction services, engineering, and architecture, which form the physical infrastructure cluster, have also experienced increased convergence in recent years. In logistics and related sectors, there has been moderate convergence in aviation and maritime transport, but slower progress elsewhere.

The OECD has also examined the impact of reducing domestic regulatory burdens on services trade costs. Implementation of the WTO Reference Paper on Services Domestic Regulation is estimated to reduce trade costs of APEC members by an average of 7% across all sectors and economies (see Figure 1). The contributions of the telecommunications sector, as well as commercial banking, insurance and computer services, to the overall result are notable: the largest contributors in telecommunications are barriers to competition including the lack of an independent regulator and the role of state ownership.

Figure 1: Reductions in Trade Costs among APEC members

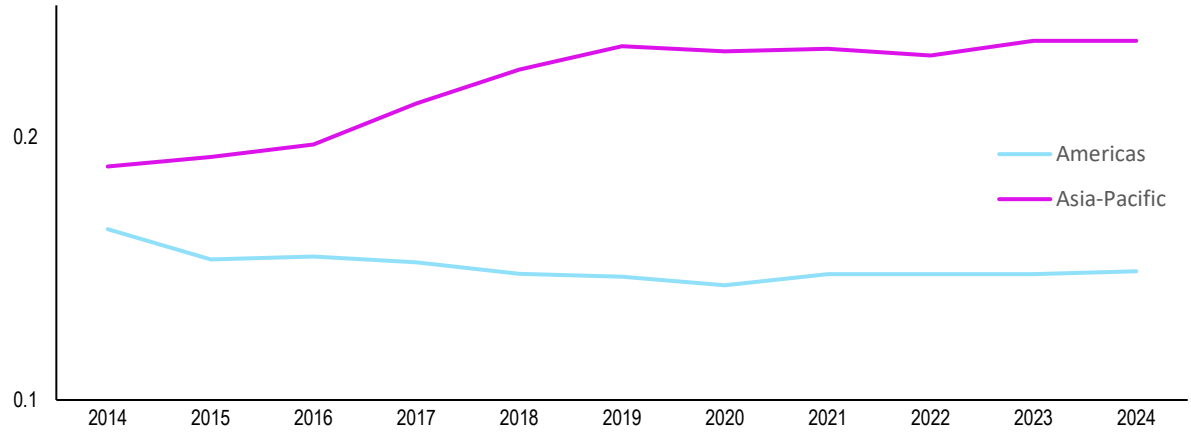


Source: OECD, 2021, Lowering APEC trade costs through services domestic regulation reform, Trade Policy Brief.

Turning specifically to impediments facing digitally delivered services, the OECD Digital Services Trade Restrictiveness Index (DSTRI) (see Figure 2) has data encompassing all the UN/World Bank regions and shows a dramatic 28% increase in restrictiveness in the first half of the last decade for the Asia-Pacific region[12], accompanied by a sustained reduction in the Americas, indicating the value of attention to the diverging experiences of various APEC member economies.

[11] OECD (2024), Revitalising Services Trade for Global Growth: Evidence from Ten Years of Monitoring Services Trade Policies through the OECD STRI, OECD Publishing, Paris, https://doi.org/10.1787/3cc371ac-en
[12] Economy groups in this figure are based on UN classifications, see DimCountries_All_Hierarchy

Figure 2: DSTRI by region, 2014 to 2024.



Source: Update from OECD (2024), Revitalizing Services Trade for Global Growth: Evidence from Ten Years of Monitoring Services Trade Policies through the OECD STRI, OECD Publishing, Paris, https://doi.org/10.1787/3cc371ac-en.

The most prominent contributors to global DSTRI scores are infrastructure and connectivity, followed by electronic transactions. Measures affecting infrastructure and connectivity include those applied to cross-border data flows, data localization, and lack of pro-competitive regulations on interconnections across communications networks. More than half of the economies in the OECD's dataset have state ownership of major telecoms providers, and more than a third host a regulator who is not independent.

Research[13], which examined the effects of the levels of the DSTRI on global trade in ICT-related services, confirms negative effects of barriers to trade imposed by both importing and exporting economies, although the latter effect is less. Restrictions related to intellectual property rights (IPR), followed by barriers related to payment systems had the most significant negative effects. While changes in levels of restrictiveness to infrastructure access showed a lesser impact, these restrictions bulk larger in the index than the IPR regime, so there is more space for policy change in relation to infrastructure.[14]

The impact of reforms has also recently been assessed by the OECD.[15] There are two elements to the scenarios considered, which involve both horizontal reforms and sector specific reforms. Implementation of these reform packages would generate significant economic benefits. Total global annual trade cost savings are estimated to be around 13% of global services trade value in 2023 or approximately USD1 trillion (1% of global GDP).

Earlier sections noted the scope for growth in trade in digitally deliverable services, and for a further rise in their significance in GDP. However, growth in those forms of trade increasingly involves access to infrastructure for the transfer of data. Studies of the relevant policy regimes consistently find evidence of significant restrictions in those areas, including in relation to

[13] Suh, J. and Roh, J., 2023. The effects of digital trade policies on digital trade. *The World Economy*, *46*(8), pp.2383-2407.
[14] In other interesting results, Suh and Roh find that trade in ICT-related services is less sensitive to geographical distance compared to overall services trade flows. However, when accounting for "digital distance" between economies (measured by differences in internet usage), these digital trade flows are sensitive to both geographical and digital distance. The study also finds evidence of a potential agglomeration effect, where economies more densely clustered with large economies tend to have higher levels of digital trade flows.
[15] OECD (2024), Revitalising Services Trade for Global Growth: Evidence from Ten Years of Monitoring Services Trade Policies through the OECD STRI, OECD Publishing, Paris, https://doi.org/10.1787/3cc371ac-en.

barriers to competition and regulatory issues. Aspects of these items are discussed in the following sections.

Competition policy issues

As identified by participants in the APEC EC-GOS Project on Structural Reform, important competition policy considerations affect both above elements of services trade restrictiveness.

The linkage of competition policy and trade is not a new idea. The widespread prevalence of public monopolies in several services sectors called for consideration of barriers to competition from the very outset in the WTO.

The GATS Annex on Telecommunications (the Annex) and the GATS Reference Paper on regulatory principles for basic telecommunications (the Reference Paper) were the first examples, and so far, remain the major templates for addressing competition issues in international trade governance. The process used to achieve them is instructive and the outcome demonstrates that principles can be open-ended and adaptable to regimes with different development stages and legal structures. The process drew extensively on the sharing of members' regulatory approaches and rules applied to distil these into commonly agreed principles that would underlie pro-competitive practices. The principles could, thus, be implemented in differing, or even novel, ways, contributing to innovation needed in a fast-changing sector.

The Annex, negotiated as part of the founding GATS, requires WTO members to ensure access to and use of public telecommunications networks and services on reasonable and non-discriminatory terms for all service suppliers. Its aim was to protect service suppliers benefitting from market access commitments from abusive practices in a sector in which monopolies were predominant at the time (early 1990s). It applies to all members whether they have committed telecommunications in their schedules or not. It was designed to allow for ex post and ex ante regulation.

Following the Annex was the Reference Paper which introduced additional legally binding competition policy provisions in global trade rules. It requires the establishment of an independent regulator, that general competition safeguards on major (aka dominant) suppliers be maintained in the sector, and that members ensure that major suppliers offer interconnection on non-discriminatory terms, rates, and quality. Finally, it sets rules for transparent and non-discriminatory implementation of universal service obligations and the allocation of scarce resources like spectrum. The provisions of the Paper apply to the economies that have committed to it by attaching it to their GATS schedules.

The creation of both the Annex and the Reference Paper came out of a concern that market access and domestic treatment commitments would be meaningless in markets with a monopolist or dominant suppliers that could abuse their market power.

The Annex and Reference Paper predate the Internet and the platform economy. Although the aim to avoid abuse of dominance remains ever relevant, the scope of entities covered by the rules is too narrow to apply fully to the digital landscape. The situation is now more complex, and a broader approach is required. For example, the Annex guarantees access to all committed services suppliers (including digital services) but only in relation to a basic telecommunications operator. Likewise, although the Reference Paper has stronger principles, it disciplines only the dominant operators, with respect to their treatment chiefly of other basic telecommunications providers.

A new element in the digital realm is data-driven economies of scope while economies of scale have taken on a new dimension - scale without mass. Data-driven economies of scope allow enterprises that have accumulated huge amounts of data to leverage these in new applications and products. As platforms grow, they may benefit from feedback loops where more users deliver more data, further improving services and attracting more users. Scale without mass implies that once digitized, a product can be produced and sold from anywhere to everywhere. Some APEC economies have indicated that it is important to strike a balance between the benefits from economies of scale and scope while ensuring competition and innovation. Smaller jurisdictions especially may have difficulty in responding. Furthermore, the landscape is changing fast and with it the effectiveness of policy interventions.

Against that background, some participants proposed that broader rules governing competition in digital services are needed, and this issue is best tackled at the international level. They observed that the most important lesson that can be drawn from the WTO rules is the process. Digital rules can borrow the information sharing and collaborative approach used to arrive at the Annex and Reference Paper. In the digital space, agreed-upon *core principles* can also be successfully applied to achieve innovative and flexible rules for more competitive digital trade.

Overall, in fast-moving digital markets, the focus for many governments remains on finding the right balance in which to foster innovation while preventing anti-competitive practices in the rapidly evolving digital services sector. Weighing trade-offs between static and dynamic competition requires careful balancing. The principles of the Annex and the Reference Paper continue to be of value, but they reflect the situation of that early period. The arrival of global platforms and of AI has led the attention to new potential models.

These are not the only policy issues emerging in the new digital environment. Governments are also trying, at the same time, to address various digital trust and related consumer issues, such as privacy and cybersecurity concerns, alongside these business-related challenges.

Policy approaches to advance digital services sector

The earlier telecoms and the current digital environments have similarities, but also fundamental differences where some have considered new approaches to competition and regulation. As recently argued[16] old-style regulation (e.g. of prices or rates of return) is impractical in the current digital environment and can impede innovation. At the same time, some participants observed that traditional competition is too slow and struggles to deal with market definitions in a network context. How then to make progress on developing a potential supplementary set of tools?

In this complex environment, information sharing among economies may be important to address issues in the digital economy. Different governments may implement varied measures based on their unique landscapes and stages of development. This is reminiscent of the earlier periods of the development of the telecommunications sector, where some governments prioritized the achievement of universal access and economy-wide service availability while others focused on bringing down prices long elevated by monopoly rents.

In the current digital landscape, with blurring boundaries between information and communication services, the International Telecommunication Union recommends a unified policy framework for the ICT sector. Efforts by governments to share information about their policy experiences, noting what strategies worked, what failed, and what areas need strengthening, are of great value.

Some policymakers have noted the need for governments to remain vigilant and adaptive in their approaches, learning from experiences to create an environment that supports competition and innovation in the digital services sector. At the same time there are, as examples above illustrate, many issues that might be considered, and around each of them there is debate on how to proceed.

While exploring good practices is valuable, it does not imply their blind adoption: instead, the situation calls for reflection and potential adaptation. This approach allows governments to:

1. Consider what strategies might work in their specific context
2. Learn from others' experiences
3. Experiment with innovative policy approaches

While governments need to maintain predictability, experimentation is also crucial to keep pace with rapidly evolving commercial models and technologies.

Options, therefore, for making progress on effective competition policy in the increasingly globalized digital era include:

- Uphold underlying foundational principles, including those embedded in international services trade governance, while allowing for agility and adaptation
- To encourage information sharing among governments, as appropriate
- To remain vigilant to new forms of market dominance
- To consider the unique challenges posed by network externalities and data advantages in digital markets

[16] Tirole, J., 2023. Competition and the industrial challenge for the digital age. *Annual Review of Economics*, *15*(1), pp.573-605.

By taking these issues into consideration, governments can better understand the complex competition issues arising in the digital economy.

The APEC region is home to the bulk of the world's largest and most successful "big tech" and simultaneously home to the many of the world's most vibrant digital start-up communities and digital applications unicorns. This suggests that all the ingredients are in place for fruitful regional dialogue with potential to lead global thinking on these topics

Standards in services: importance and challenges

Private including international standard developing organisations play an important role in fleshing out the practical details and the adoption of commonly used standards plays a crucial role in enabling seamless communication and trade across borders. Use of common standards ensures interoperability of equipment, software, and networks, allowing international exchange of goods and services as easily across as within borders.

For example, a kilogram is a universally consistent measure of weight and can be verified by third parties if needed. This principle extends, for example, to standards for food additives, or to pipes and valves designed to withstand extreme temperatures and pressures. These products can be tested to verify technical compliance with established standards. Common, harmonized, or interoperable standards facilitate the free movement of products fostering scale and competition.

Typically, services are more challenging than goods to measure and standardize. This difficulty contributed to the relatively slow development of services trade at arms' length, especially across jurisdictions where agreed measures of quality and quantity were lacking. As a result, customers (households and other businesses) often had to rely on known reputable suppliers for services.

These days, the adoption of common services standards increasingly enables and facilitates more arms-length trade, which by itself fosters competition. Conversely, markets in which transactions are based on contractual relationships between partners that learn about the reliability of each other's services through repeated transactions over time, are less competitive than anonymous spot markets. This is where cybersecurity or secure transactions also become an important factor for consumers.

The digital transformation is changing this landscape. Digitization requires codification, which itself is a step towards standardization. As services can now be delivered across borders via electronic networks, interoperable standards have become essential to facilitating trade. Examples of efforts to cooperate on the development of standards include the following. The ISO covers all sectors of the economy and has led the way on standardization of services[17]. The International Electrotechnical Commission (IEC) and the Institute of Electrical and Electronics Engineers (IEEE) play complementary more specialized roles in international standards-setting, with respect to ICT and digital applications and systems: JTC1, a joint technical committee of ISO and IEC focuses on Information Technology and is widely considered to be the preeminent standards setting body for ICT standards. JTC1 has published 3,561 standards, with a further 548 currently under development. This includes 34 standards

[17] In addition to "pure" services standards (standards that are clearly and only related to the provision of a service), ISO also develops standards that support the infrastructure necessary to the provision of a service, for example in the IT or transportation sectors (this is currently the largest category in the ISO catalogue) and horizontal standards such as management system standards that are applied to services and between them make up a far larger percentage of the ISO catalogue.

related to AI from JTC 1/SC 42, a subcommittee under JTC1 specializing in AI, including the highly influential ISO/IEC 42001:2023 - AI management systems. Specialized standard-setting bodies also include the ITU for telecommunications and the Financial Action Task Force for financial services (in particular, issues related to money laundering). AI Standards that emerge are built by international multistakeholder consensus.

The trade cost issues arise when governments get involved and link local standards to regulation, making them mandatory, and when they are not compatible with international ones. Trade agreements that have provisions that oblige parties to adopt international standards when relevant, as well as non-discrimination and transparency in domestic standard setting and conformity assessment, may help avoid this problem. Nevertheless, the new policy areas of data protection, cyber security and privacy have seen a recent flurry of local mandatory standards. Trade agreements including the JSIs reassure governments that they have the right to regulate but encourage interoperability. Interoperability after the fact is, however, easier said than done and much would be gained if economies could converge on common high-level principles while letting the international standard-setting bodies develop the technical standards.

At the same time, divergent standards are not insurmountable, and companies often find innovative ways to navigate them. A familiar example is the use of adapters for electrical sockets when traveling to economies with different standards. In the digital realm, there are virtual workarounds. For instance, accounting software now incorporates tax codes and accounting regulations for various economies. Users can download and select the appropriate rules, like choosing a language when installing software such as Microsoft Office. This approach extends to other fields, such as architecture and building design, where platforms include built-in local building codes.

As noted, standards have the purpose of coordinating on the best way of doing things. For new products, services and related policy and regulatory areas, the best way of doing things is often yet to emerge. In such cases, imposition of mandatory technical requirements would likely hamper on-going innovation. Premature regulation could inadvertently:

- Limit innovation and experimental approaches to addressing bias
- Create rigid frameworks that cannot adapt to technological evolution
- Impose one-size-fits-all solutions that might not work across different social contexts

In the field of AI, different jurisdictions have varying interpretations of what constitutes fair AI, which is why flexible frameworks are crucial. Such approaches allow different jurisdictions to define fairness while providing a general governance structure, thus preserving space for technological innovation.

This process of standardization facilitates AI-related trade, removing impediments to services generated with AI technology, and trade in AI services themselves, including those based on sharing of data across jurisdictions. The Box contains examples.

Box: AI, standards and trade

In the logistics industry, specific standards for AI model transparency and explainability are being developed to ensure that AI-driven route optimization and inventory management decisions can be understood and audited. These standards would require logistics companies to provide clear explanations of how their AI systems make predictions and recommendations, ensuring accountability and trust in AI-powered supply chain management.

In the financial services sector, AI-specific standards are being created to address fairness and bias in its use to assess credit worthiness. These standards would direct fintech companies to demonstrate that their AI algorithms do not discriminate against some groups of consumers and provide consistent non-discriminatory results. Additionally,

standards for AI model robustness and security are being developed to ensure that AI-powered financial services can withstand potential adversarial attacks or data manipulation attempts.

For healthcare diagnostics, AI-specific standards are being established to ensure the reliability and safety of AI-driven diagnostic tools. These standards would cover aspects such as AI model performance metrics, validation protocols for medical AI systems, and requirements for continuous monitoring and updating of AI models as new medical data becomes available. Furthermore, standards for AI interpretability in healthcare are being developed to ensure that medical professionals can understand and trust the AI-generated diagnoses and recommendations.

The alignment of these standards across borders facilitates the development of trust in and increases the confidence of partners in the security of these AI related services, which in turn facilitates trade also in the downstream services.

The existence of private standard setting bodies bolsters a competitive environment. Collaboration exists both between and within international standard-setting organizations. Standard-setting bodies and their industry stakeholders advance through consensus-building, bringing various ideas to the discussion on what standards should look like before converging on a consensus, which then becomes the standard.

Currently, some economies view standards from a strategic perspective, aiming to enhance their own competitiveness by attempting to impose their standards on the international market. The European Union has been particularly active in this regard. Other economies have similar strategies. But the experience is also that success in setting standards for the purposes of building markets depends on that process being driven by technical experts.

As noted, an important dimension of this issue is the relationship between voluntary standards and regulation. While most standards are privately adopted and not incorporated into mandatory requirements, in areas where legislation exists, practical ways of complying with regulations are needed. This is where non-government standard-setting bodies play a crucial role. For example, in privacy regulation, legislation sets objectives and rights, but standard-setting bodies develop practical implementation guidelines. They create checklists or sets of best practices for companies that help them comply with these regulations. Sometimes, legislation recognizes a private standard as compliant, but this is not always the case. Situations can arise where companies implement private standards and receive compliance certificates, but this may not guarantee legal compliance.[18]

There are challenges therefore in the presence of divergent standards and the relative absence of standards relevant to services. Options for resolving differences and filling gaps without adding to trade costs and without inhibiting innovation are important.[19] There is guidance on how to proceed from various sources. These include, as noted, provisions on standards in both the new WTO JSI Reference Paper on Services Domestic Regulation (and before it the APEC Non-binding Principles for Domestic Regulation of the Services Sector), in regional e-commerce chapters in RTAs and in various regional Digital Economy Agreements (DEAs) agreements. In the WTO there are principles for the development of standards for goods in the Technical Barriers to Trade Agreement as well as a set of principles for the development of international standards. There is value in consolidating and updating this material with application to services.

[18] The European Union has adopted a different approach particularly for regulation of AI. It increasingly sets regulations and then requests standard-setting bodies to develop standards based on these regulations, which then become law. This represents a top-down approach to standard-setting, contrasting with the bottom-up approach of private standard development.

[19] Recall that trade costs arise when companies must tailor their services to different standards and regulatory requirements depending on the market they wish to enter. This duplicates compliance costs and prevents firms from exploiting economies of scale. In addition, standards and the certification that often goes with it offer consumers information on the product and reassure them that the foreign product conforms to the standard, reducing search costs.

The value of cooperation and contributions by APEC economies

Development of governance of cross-border data flows, digital services standards and competition policy in the digital age is more effective when a global perspective is adopted. This is an important principle. As experience emerges with new regulatory interventions, analysts will have a better idea of what works in the digital era, how competition and innovation interact, and how to choose between flexibility and legal certainty. APEC has an opportunity to make the principle operational and to demonstrate options for its application in this new context.

Appropriate options for APEC at this stage include

- organize roundtables and discussions to gather evidence and share information and experience
- monitor the research frontier and
- initiate public/private dialogues with stakeholders to distil policy lessons.

This approach should allow for agility and innovation in government action and recognize that different economies may have different landscapes and starting points.

APEC, along with its various groups (GOS, EC, CLPG, DESG, SCSC), should also consider:

- The impact of new digital technologies such as AI on services productivity and trade and the progression of servicification:

- The interplay between competition and competitiveness
- How to ensure that competition thrives in domestic economies
- Ways to ensure good practices are applied to digital policy issues, as appropriate

APEC also has specific tools to hand which can be developed and refined. Mention has already been made of the ASCR and its partner, the structural reform agenda. In addition to the APEC Non-binding Principles for Domestic Regulation of the Services Sector, SCSC has also recently endorsed an APEC Good Regulatory Practice Blueprint which was written to 'pertain to regulation of both goods and services'. There are in addition APEC Non-Binding Guidelines on Logistics-related Services that Support the Movement of Essential Goods During a Public Health Emergency. APEC, with its diverse membership and focus on soft law principles and best endeavors, is well-positioned to continue to develop and explore new ideas in standard setting. Complementary activities include

- Monitoring and analyzing the impact of implementation of WTO services domestic regulation disciplines and e-commerce disciplines.

- Conducting case studies on successful efforts to construct internationally aligned services standards (with a variety of leadership models).

- Exploring aspects of the pre-standardization phase in new fields such as AI.

More specifically, options for next steps include the following:

1. A public-private dialogue meeting on APEC's practical framework for responding to the wider range of competition issues in the digital era, which

a. includes the views of industry stakeholders (who appreciate APEC efforts and welcome more engagement[20]), regulators and trade policy officials
b. organizes participation across APEC forums, including the GOS, EC, DESG and SCSC.
c. explores further the value of different forms of international cooperation in the APEC setting, and new ways of approaching the topics in the APEC Services Competitiveness Roadmap

2. Review APEC's good regulatory practice principles to consider their application to digital services in the emerging international context.

3. Develop the modelling of scenarios and consequences of reform using the APEC Index for Measuring the Regulatory Environment for Services Trade in the APEC Region and consider the usefulness of adding discriminatory domestic standards-related elements to the Index.

4. Continue technical assistance and capacity building efforts, utilizing frameworks like the Services Competitiveness Roadmap and Structural Reform Agenda

[20] For example, the Asia Pacific Services Coalition has written on multiple occasions over recent years to the SOM Chair's office, warning of the dangerous increase in regional barriers to digital services trade and stressing the need for APEC work on principles to facilitate data flows. ABAC has similarly given prominence to this matter in submissions to APEC Leaders.