Regional and Sub-Regional Approaches to the Digital Economy: Lessons from Asia Pacific and Latin America

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Executive Summary

There is broad consensus on the significance of the digital economy for countries' economic growth and social development. This is recognised not only by individual countries, which have been launching increasingly ambitious digital economy strategies and plans, but also by regional and sub-regional economic forums and trade alliances.

The European Union (EU) is a clear example of this approach, where the creation of a 'single market' has been pursued through a decades-long path of economic, social and political integration, based on the EU Treaties, and implemented and enforced by a common set of laws, institutions and rules.

As analysed in the study "Building a Digital Single Market for Latin America" (2016)[1], the EU is currently undergoing a deep review of its policies and legal and regulatory frameworks in order to remove existing barriers hampering the creation of a single EU digital market. The Digital Single Market (DSM) strategy adopted in 2015 has identified multiple actions: from the reform of the existing regulatory frameworks for electronic communications and audiovisual media services to revised legal approaches for copyright, data protection, and privacy. The strategy also envisages new measures and funding programmes to boost connectivity and innovation, increase the use of cloud computing, analyse the application of horizontal rules for new technologies and applications, such as the internet of things (IoT) or connected cars, and set new specific rules for these services if necessary.

In the same study, we concluded that in Latin America the digital economy is the sum of individual country efforts. Most countries have adopted policies fostering broadband internet connectivity and accessibility. Many have significantly modernised relevant parts of their legal and regulatory frameworks in order to incentivise investment in networks and new applications, boost electronic commerce, stimulate competition, and protect consumers. Some countries of Latin America have started exploring new opportunities in emerging digital economy areas, with substantial innovations in entire sectors of the economy, in cities and society at large.

In this rather fragmented scenario, there is no single pan-American institutional framework with binding powers which might support a better regional integration of the respective digital economies.

Nevertheless, in addition to a quest for increased economic integration, in recent years, all Latin American countries have been showing an interest in the new growth opportunities that are tied to the digital economy at regional level. Many Latin American countries have also seen the potential of introducing more harmonized efforts within regional and sub-regional partnerships.

Objectives and content of this study

This study aims to:

- describe the status and key aspects of the digital economy in regional and sub-regional contexts, including Asia Pacific, Central America and, as a region, Latin America;

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[1] Cullen International for the CAF Development Bank of Latin America, Building a Digital Single Market for Latin America http://scioteca.caf.com/handle/123456789/980?sthash.3YZ3oIk2.mjjo

- understand the rationale, objectives and implementation approach of ICT-related strategies, plans or activities launched by regional and sub-regional cooperation initiatives involving one or more Latin American countries; and

- identify existing gaps, and possible approaches and actions towards a more effective regional digital economy integration.

The study consists of four parts:

In the **first part**, we provide an overview of the status of the digital economy in Asia Pacific, with a special focus on five Asia Pacific countries: Australia, China, Japan, Singapore and South Korea. In addition to investment, connectivity and accessibility policies, we briefly present how Asia Pacific countries are creating a flourishing B2C e-commerce environment and fostering policies towards more effective cross-border trade relations. In this chapter, we also discuss how individual countries in the region have adopted appropriate legal and regulatory frameworks fostering the protection of e-shoppers through secure e-payments, data protection in cross-border flows of data, and have promoted intellectual property protection and innovation.

In the **second part** of this study, we shift our focus to Latin America. We describe the main features of the digital economy in the whole region, while also providing insights on its status in the Central American sub-region. As in the first part, we provide an overview of the main policies and approaches adopted by individual countries as regards both aspects of the digital economy, including connectivity and e-commerce.

In the **third part** of this study, we analyse digital economy plans and approaches implemented by selected regional and sub-regional partnerships, alliances or cooperation initiatives involving Latin American countries. The partnerships under the scope of this study are: the Pacific Alliance, the Trans-Pacific Partnership (TPP), the Asia Pacific Economic Cooperation (APEC), the Mercosur, the Central American Integration System (SICA) and the Mesoamerica Integration and Development Project (MIDP). In this part, we also provide a general overview of the functioning, governance and funding of each of these cooperation schemes.

In the **fourth part** of this study, we try to find an answer to a number of questions:

- What are the main lessons to be learned from regional digital development in Asia Pacific? How does this region compare with Latin America?

- What are the main gaps hampering the growth of the digital economy in Latin America?

- What are the current digital economy priorities and activities, if any, in the agendas of regional and sub-regional partnerships?

- What are the recommended steps to move forward towards the creation and concrete implementation of a regional digital strategy?

Asia Pacific

All economies that are part of APEC have achieved the goal of tripling internet access in the region by 2010. Countries are currently concentrating their efforts to reach the goal of universal access to broadband and to increase connectivity speed.

South Korea, Singapore and Japan are already concrete examples of 'Gigabit societies'[2] while all surveyed countries in the Asia Pacific region have at least one government plan or significant initiative on broadband connectivity.

A similar level of advancement is observed in e-commerce. Six out of the top ten countries in the world for B2C commerce are APEC economies.

Among the countries monitored in this study, regulatory frameworks for e-commerce are rather consolidated, with only the exception of China, where the regulatory framework is undergoing a significant transformation.

Although most Asia Pacific countries have long adopted comprehensive and robust privacy frameworks, only Canada, Japan, Mexico and the US have fully aligned their national legislations in accordance with the APEC Privacy Framework of 2004. Very diverse privacy frameworks are still observed across the Asia Pacific, including on the rules affecting cross-border flows of personal data.

APEC economies are undergoing a profound transition towards cashless societies, driven by the spread of mobile devices, increasing access to the internet, and the emergence of digital payments. Nevertheless, as a region, APEC presents a very diverse landscape for e-payments. While the US and Singapore rank at the top in terms of regulatory and consumer protection robustness, e-payments in China are mainly based on new, domestically-driven mobile payment and e-wallet applications.

Despite the many regional and sub-regional efforts across Asia Pacific to harmonise rules and provide a better level of protection, intellectual property (IP) infringements, including counterfeiting and online piracy, remain controversial issues. Countries in the region have been intensifying their efforts by engaging in different forms of collaboration at both bilateral and multilateral levels.

Within APEC, some countries are world leaders in terms of the industrial exploitation of patents, while other countries are lagging behind. From 2015, China has become the top nation in the world in terms of patents granted each year, with the US now in second place. Korea, Japan, Canada, Russia, Australia, and Singapore are also economies that show excellence in terms of their research and development (R&D) and innovation.

One of the main points of strengths of the Asia Pacific region lies in its capacity to innovate and exploit the use of ICTs commercially. Several countries in the region are showing the willingness and capacity to cooperate at regional, sub-regional and bilateral levels, despite the diverse ICT policies and regulatory environments in the region. This aspect is probably the most important lesson for Latin America.

Central America and Latin America

Compared with Asia Pacific, in Latin America, we see a digital economy framework characterised by diversity and fragmentation.

Several economies of Latin America are experiencing negative growth or growth close to zero, with particularly complex situations currently observed in some of the Mercosur countries.

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[2] As a comparison, the EU Commission has set a goal of providing speeds of at least 100 Mbps to all European citizens, upgradable to 1 Gbps, by 2025. A 1 Gbps target was achieved in Japan and Singapore in 2015. South Korea has already set targets at 10 Gbps for fixed broadband, and 1 Gbps for mobile broadband by 2020.

Even at sub-regional level, despite relatively homogeneous geo-demographic and social backgrounds, the state of the digital economy differs across the eight economies that are part of the SICA.

Diversity and fragmentation are reflected in the digital economy regional landscape. Broadband policies and related speed targets in Latin America tend to be far less ambitious than in Asia Pacific, generally being focused on basic broadband coverage and speeds. Similar to APEC countries, mobile connectivity is much higher than fixed but penetration rates show a great deviation within Latin America.

Connectivity is a priority in Central America, not only at the regional level, but also in individual countries' policies. Some countries have adopted a single and comprehensive broadband plan. Other countries have been promoting multiple initiatives, including projects funded by universal service funds.

The mobile market is open to competition and foreign investment in all Central American countries.

E-commerce has good growth potential in Latin America, including in Central America, thanks to increasing internet connectivity, economic growth and the rise of the middle classes. However, a few countries in Central America still lack basic broadband plans, as well as adequate legislation enabling a more secure use of e-commerce, e-payments, or social networks by their citizens.

The largest Latin American B2C e-commerce market is currently Brazil, followed by Mexico and Argentina. Nevertheless, on average, B2C e-commerce represents only 2% of global retail sales in Latin America. This is still a negligible amount when compared with Asia Pacific, North America or Europe.

At national level, all researched Central American countries have laws, regulations or legislative initiatives to increase efficiency and trust in e-commerce. Costa Rica, Honduras, El Salvador, Guatemala, Nicaragua and the Dominican Republic are members of the CAFTA-DR agreement[3], which imposes obligations related to the electronic supply of services and trading in digital products.

All monitored countries have passed laws allowing the use of electronic signatures. The two main trading blocs of South America - the Andean Community and Mercosur - have also included provisions regarding the harmonisation of the regional framework of digital signatures as means to promote e-commerce.

In general, Central American countries have personal data protection rules. Nevertheless, these are not sufficiently aligned at regional or sub-regional levels.

In Central America, current data protection frameworks are quite developed in Costa Rica and Nicaragua. Across the region, Mexico and Colombia also have relatively well consolidated personal data protection environments. Mexico has had a specific privacy regulator in place since 2003.

Peru is one of the few countries in Latin America with a framework that ensures the 'right to be forgotten'. In Chile, a deep reform of the current privacy rules is pending in Congress, including privacy rules for new services and technologies, and the creation of a specific data

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[33] The Dominican Republic–Central America Free Trade Agreement (CAFTA-DR) is a free trade agreement between the United States, five Central American countries and the Dominican Republic.

privacy regulator. The regulation of cross-border flows of personal data also varies significantly across Latin America.

Latin America has a rather advanced environment for e-payments, including mobile payments. In some cases, these are aimed at financial inclusion rather than specifically to foster e-commerce.

Although the main focus of ICT policies in most Latin American countries remains on connectivity and accessibility, some countries have started introducing innovative topics, such as IoT or smart cities in their national agendas. This is a sign that national priorities are evolving. New opportunities tied to innovation and digital transformation could be optimised if R&D and harmonisation efforts were conducted at the regional level.

Regional and sub-regional cooperation

All Latin American countries are involved in bilateral and multilateral cooperation agreements.

Cooperation agreements may vary in scope: while some are exclusively focused on the elimination of trade and non-trade barriers, others also aim at the free movement of people and capitals.

Each of the cooperation agreements analysed in this study have their own characteristics, ultimate goals and levels of implementation. Some of those agreements are more ambitious in scope, aiming at a high level of integration of the participating economies and societies. Other agreements are focused on fewer and more achievable cooperation objectives.

All regional and sub-regional partnerships analysed in this study have been cooperating - in one way or another - on digital economy projects and initiatives. However, the level of commitment to the creation of a common approach towards the digital economy varies significantly across these partnerships, as further discussed in part 3 of this study.

In only four years, the **Pacific Alliance** not only managed to eliminate 92% of trade tariffs, but it also successfully promoted a common digital economy vision among Mexico, Colombia, Chile and Peru.

The Additional Protocol to the Framework Agreement of the Pacific Alliance includes a chapter on telecommunications and one on electronic commerce. The main measures in the telecommunications chapter address issues such as non-discriminatory interconnection and international roaming. The chapter on electronic commerce applies to electronic transactions for both goods and services, including digital products.

The Pacific Alliance was created with the explicit purpose of establishing closer relations with the Asia Pacific region. The digital economy might be one of the sectors where more integration with Asia Pacific economies could be particularly beneficial.

Among the 30 chapters covering trade- and non trade-related issues in the **TPP** Agreement, some explicitly include reference to electronic commerce, intellectual property and competitiveness. The TPP Agreement includes obligations designed to promote the digital economy through a free and open internet, and commerce without borders. Specific

provisions for the digital environment include security and privacy, distance selling of digital goods and services, as well as copyright trademark and patent regulation and enforcement[4].

Despite the current uncertainties around the future of the TPP[5], this partnership is an example of an innovative and digitally-oriented approach to economic cooperation, a possible model and inspiration for future cooperation in Latin America.

APEC is another interesting example of strong regional engagement for the digital economy. As a multilateral economic forum, APEC has a track record of an almost 30-year cooperation between 21 economies bordering the Pacific Ocean[6].

APEC recognises the role of the internet economy to fulfil growth and development among its members, and has a commitment to the goal of a seamlessly and comprehensively connected and integrated Asia Pacific region by 2025. Over the years, APEC has promoted the lowering of trade barriers, fostering e-commerce though common privacy guidelines, ICT innovation, and standardisation.

Rather than being a mere customs union, the **Mercosur** aims at creating an integration model for the free movement of goods, capital, services and people among Argentina, Brazil, Uruguay, Paraguay, Bolivia and Venezuela. This ambitious approach – now made even more difficult due to the recent suspension of Venezuela - makes policy making and the concrete functioning of the Mercosur particularly challenging. The effects of the difficulties of the Mercosur are clearly visible also in terms of the limited action and slow progress in the field of the digital economy.

The **SICA** currently integrates eight countries of Central America[7], with the founding purpose being to achieve the integration of Central America in order to "transform the area into a region of peace, liberty, democracy and development, based firmly on the respect and promotion of human rights". Since 1993, SICA's countries have committed to create, in a voluntary, gradual, progressive and complementary way, the Economic Union of Central America. Until today, SICA's agenda and activities have seen limited cooperation in the digital economy sectors.

The **MIDP**, on the other hand, integrating SICA's countries plus Mexico and Colombia[8], is giving a new impetus to sub-regional digital economy efforts. One of the main projects supported by the Mesoamerica Project is REDCA, a major regional infrastructure project co-funded by the CAF Development Bank of Latin America. REDCA is a unique project in Latin America, as it offers neutral carriers' carrier services with regional transport capabilities.

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[4] The TPP is a trade agreement signed in February 2016 by twelve countries bordering the Pacific Ocean (Australia, Brunei, Canada, Chile, Japan, Malaysia, Mexico, New Zealand, Peru, Singapore, the United States and Vietnam). The agreement has not come into force yet.

[5] In January 2017, US President Donald Trump signed a Presidential Memorandum to withdraw the US from the TPP. Under the original rules, US ratification is required for entry into force of the agreement. The remaining 11 countries continued negotiations without the US and, in January 2018, they announced they would sign a new cooperation agreement in March 2018, called "Comprehensive and Progressive Agreement for Trans-Pacific Partnership". The new agreement would however exclude from the scope some of the original provisions of the TPP.

[6] Among these, Mexico, Chile, and Peru for Latin America. The other economies are: Australia, Brunei, Canada, China, Chinese Taipei, Hong Kong, Indonesia, Malaysia, New Zealand, Papua New Guinea, Russia, Singapore, South Korea, Thailand, the Philippines, Vietnam, and the United States.

[7] Guatemala, Belize, El Salvador, Honduras, Nicaragua, Costa Rica, Panama, Dominican Republic

[8] The Mesoamerica Integration and Development Project (MIDP) was created in 2008 and aims to strengthen regional integration, and to promote economic and social development among the ten participating countries

More cooperation between Asia Pacific and Latin America?

It should be noted that, although the Pacific Alliance, the TPP and APEC identify objectives and actions in most of the areas of the digital economy analysed, only the Pacific Alliance among the three currently has the decision making capacity – in terms of aggregation, structure, and governance – to make swift decisions on and to implement coordinated regional strategies.

An enlargement of the Pacific Alliance to include selected Asia Pacific countries would be in line with its founding spirit, and might further strengthen its commitment in the field of e-commerce, and in innovative areas of the digital economy, where Latin America has still much to learn from consolidated forums of cooperation such as APEC or the APT[9].

The uncertainties around the future of the TPP and the ongoing renegotiation of the NAFTA[10] might generate possible incentives for Latin American countries to explore and consider strategic new regional and sub-regional opportunities.

Towards a single digital regional agenda

In this study, we often observe that, despite the current efforts at national, regional and sub-regional levels to create the conditions for a flourishing digital economy, as a whole, Latin America still presents considerable fragmentation and, to some extent, duplication of efforts.

The regional agendas and strategies developed by the partnerships analysed in this study address some of the gaps we identified in the 2016 CAF study[11].

Table 1 - Improving connectivity within a regional strategy

	International roaming	**Spectrum harmonisation**	**Connectivity/ IP interconnection**	**Regulatory frameworks**
Pacific Alliance	✓ Dialogue to promote transparency and competition in the market, identify strategies, international cooperation	✓ Promote fair allocation and use of scarce resources	✓ Create infrastructure necessary for the creation of IXPs IPv6 adoption Encourage investment, PPPs Evaluate joint actions enabling high-speed network investment (competition, sector regulation, obstacles)	✓ Encourage net neutrality adoption
TPP	✓	✓		✓

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[9] Asia Pacific Telecommunity

[10] The North American Free Trade Agreement (NAFTA) is a trade agreement that sets the rules of trade and investment between Canada, the United States, and Mexico. Since the agreement entered into force on January 1, 1994, NAFTA has eliminated most tariff and non-tariff barriers to free trade and investment between the three NAFTA countries. The NAFTA agreement is currently under renegotiation following a request sent by the US to Mexico and Canada in May 2017 https://ustr.gov/about-us/policy-offices/press-office/press-releases/2017/july/ustr-releases-nafta-negotiating

[11] Cullen International for the CAF Development Bank of Latin America, Building a Digital Single Market for Latin America http://scioteca.caf.com/handle/123456789/980?sthash.3YZ3oIk2.mjjo

	International roaming	**Spectrum harmonisation**	**Connectivity/ IP interconnection**	**Regulatory frameworks**
	Reduce IR rates between members, promote competition in the market, including possibility for TPP members to benefit from low regulated wholesale roaming rates	Commitment to procedures for the allocation and use, in an objective, timely, transparent and non-discriminatory manner		Members to implement pro-investment, robust regulatory environments Encourage net neutrality adoption
APEC	✓ Analyse/exchange information	✓ Promote efficient use of spectrum resources	✓ Pilots and exchange of information on NGN	✓ Analyse/exchange information on policies, competition
Mercosur	✓ Reduce IR rates between members No roaming charges in border areas, by use of shared networks	✓ Legislation and exchange of information on the use and administration		✓ Study and exchange information on tariffs, prices and taxes on telecommunications services, reference cost models (regulatory accounting), interconnection. Analysis on possible harmonisation on QoS, BB plans, net neutrality, user rights
SICA/MIDP	✓ IR reduction within Comtelca		✓ REDCA Project Promote universal access to broadband	

Table 2 - Aiming for better access to online goods and services

	e-commerce contracts, digital signatures, e-payments	**Privacy and data protection**	**IP, copyright and online piracy**	**Cybersecurity**
Pacific Alliance	✓ Information and cooperation on digital identity, digital signatures e-government and open data			✓ Mainly focused on government services and applications
TPP	✓ Countries to adopt and maintain enforceable consumer protection rules No technology barriers: technology choice and	✓ Countries to adopt and maintain privacy rules No data localisation barriers Source code of software not	✓ Copyright, patents, trademarks, Industrial designs, rules to prohibit countries from requiring companies to transfer their	✓ Help build cybersecurity capacity to prevent cyber-attacks and malware distribution

	e-commerce contracts, digital signatures, e-payments	Privacy and data protection	IP, copyright and online piracy	Cybersecurity
	encryption solutions (including digital signature and electronic payments solutions).	required to be transferred or accessed	technology, production process. Enforcement systems/establish criminal procedures and penalties	
APEC	✓ Remove barriers to trade Statistical evaluations Paperless trading, use of digital custom forms Platforms, support to MSMEs, projects on e-payments, external collaborations	✓ APEC privacy framework, cross-border privacy enforcement arrangement, cross-border privacy rules system, APEC-EU Working Committee	✓ Several projects and initiatives on IP protection. Joint efforts in R&D	✓ Cybersecurity framework Several projects
Mercosur	✓ Mercosur Digital fostering e-commerce	✓ Reunion of authorities on information privacy and security (RAPRISIT) created in 2014. No specific common initiatives yet		✓ RAPRISIT but no specific common initiatives yet
SICA/MIDP	✓ Platforms offered by SIECA[12] on facilitation of trade (customs information and declarations, Centro American commerce network).			

Several actions and approaches to the digital economy are also implemented by other regional and sub-regional Latin American partnerships, alliances or forums of cooperation, including, ECLAC, OAS, CITEL, CAN, and CAFTA, among others.

Most national governments are also committed to the development and implementation of national strategies and plans, although often with different priorities and levels of advancement. Some countries have started introducing more ambitious plans, including new

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[12] SIECA is integrated by six Central American countries (Costa Rica, El Salvador, Guatemala, Honduras, Nicaragua and Panama) which are pursuing, on a gradual and voluntary basis, the creation of the Central American Economic Union.

topics, actions and programmes in their respective (approved or draft) national agendas, including in Panama, Costa Rica, Colombia, Mexico, Argentina, Chile, and Brazil.

An improved coordination of all these regional, sub-regional, and national efforts might considerably facilitate agreement on a single regional strategy. Furthermore, a single strategy, identifying common objectives, joint actions, and a precise roadmap, might represent a significant step towards the creation of a much more integrated regional market.

In consideration of the lack of a binding framework on a regional scale in Latin America, implementation can only be voluntary. Nevertheless, sub-regional partnerships – especially the ones with the capacity to adopt binding decisions on members - might facilitate commitments around groups of countries and their subsequent gradual, modular adoption at regional level. In terms of methodology, we identified five key 'enablers' for the adoption and concrete implementation of a regional digital strategy, including endorsement, leadership, modularity and flexibility, and inclusive regional coordination.

Abbreviations used in this report

ALADI	Latin American Integration Association
APEC	Asia Pacific Economic Cooperation
APT	Asia Pacific Telecommunity
CAFTA-DR	Central America Dominican Republic Free Trade Agreement
CAF	Corporación Andina de Fomento, CAF Development Bank
CAN	Andean Community
CITEL	Inter-American Telecommunication Commission
DSM	Digital Single Market
ECLAC	Economic Commission for Latin America and the Caribbean
EU	European Union
FTTC, FTTH	Fibre to the Curb, Fibre to Home
FTA	Free Trade Agreement
GEALC	Electronic Government Network of Latin America and Caribbean
GSMA	GSM Association
IADB	Inter-American Development Bank
ICT	Information and Communications Technology
IMF	International Monetary Fund
IP	Intellectual Property
ISP	Internet Service Provider
ITU	International Telecommunications Union
MIDP	Mesoamerica Integration and Development Project
NAFTA	North America Free Trade Agreement
OAS	Organization of American States
R&D	Research and Development
SICA	Central America Integration System
SIECA	Central America Economic Integration Secretariat
TPP	Trans-Pacific Partnership
TRIPO	Trilateral Patent Office
TRIPS	Agreement on Trade-Related Intellectual Property Rights
UNCTAD	United Nations Conference on Trade and Development
WIPO	World International Property Organization
WTO	World Trade Organization

1. Asia Pacific

1.1. Introduction

There is no precise definition of 'Asia Pacific' as a region, with the countries included varying depending on the context.

The Asia Pacific region typically includes much of East Asia, South Asia, Southeast Asia and Oceania, but may also include Russia, as well as part of the American continent.

The Asia Pacific Economic Cooperation (APEC), the largest and most important Asia Pacific cooperation organisation, currently encompasses 21 economies, most of them in East and Southeast Asia (Figure 1).

APEC includes Australia and New Zealand, Russia, and five countries from the Americas region (Chile, Peru, Mexico, Canada and the United States of America). China takes part in APEC through three separate economies: People's Republic of China, Hong Kong, and Chinese Taipei (Taiwan). Most economies joined APEC between 1989 and the early 90s. The most recent to become members - Russia, Peru and Vietnam - joined in 1998.

Figure 1 - APEC member economies (Cullen International)
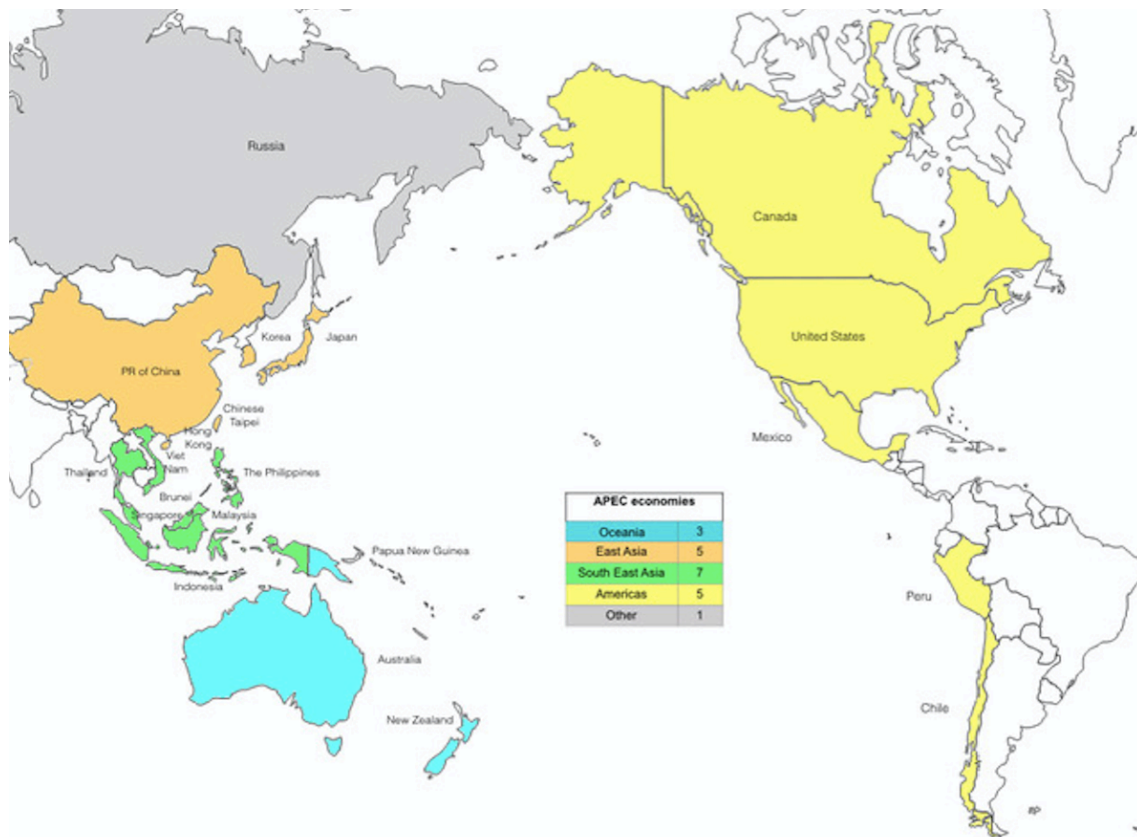
APEC economies present very diverse geographies, societies, and economic development conditions[13].

In 2015, APEC territories had a population of almost 2.85bn, representing over one-third of the world population. China, Taiwan and Hong Kong alone represent about 50% of the whole APEC population.

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[13] APEC - http://statistics.apec.org/

APEC economies' total GDP exceeded US$43.46 trillion in 2015[14]. However, the United States alone represented 41% of this amount, and the combination of US, China and Japan represented almost 78% of the total APEC GDP in 2015.[15]

Annual economic growth also varies considerably across the region (Figure 2). According to the most recent IMF economic growth forecasts, despite a slowdown over the past years, China, Vietnam and the Philippines show an annual growth exceeding or close to 8% in 2016. More mature economies such as Singapore and South Korea present an annual growth of 3.3% and 4.2% respectively.

The slowest growth is observed in Japan, at approximately 2%. Among APEC countries in Latin America, Peru shows the highest growth rate, with a 3.3% and 5.8% GDP growth forecast for 2016 and 2017 respectively.

Figure 2 - Y/Y GDP growth in selected APEC economies (IMF Forecasts 2016 - 2017)
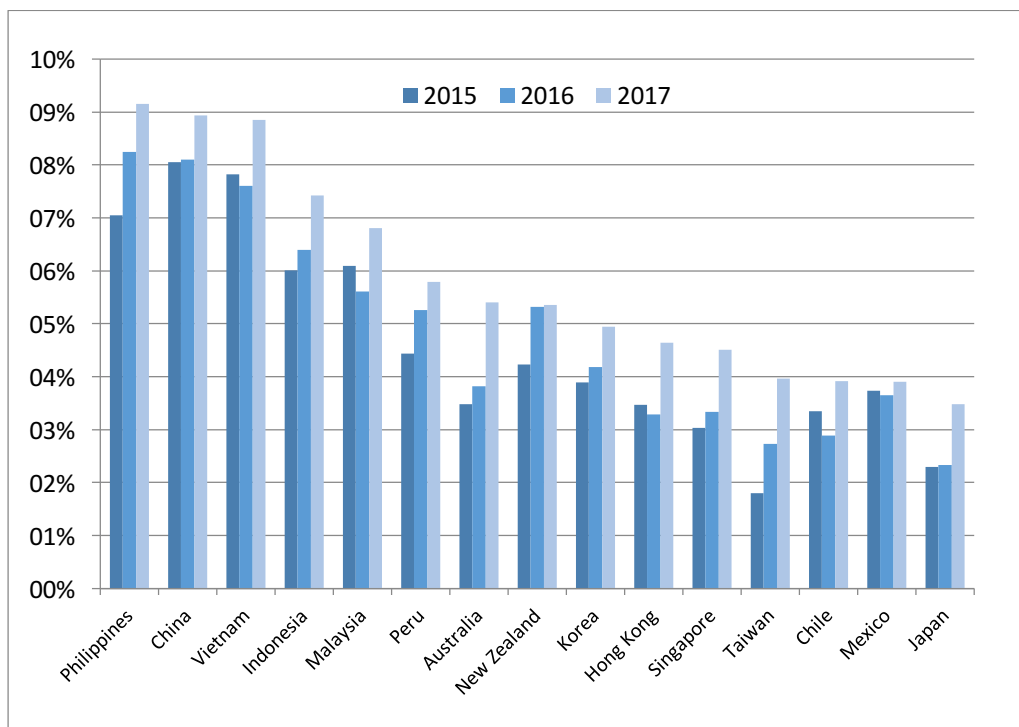
The different size, population and GDP levels observed for individual APEC economies are reflected by very different per capita GDP levels (Figure 3).

Among the Latin American APEC economies, Chile has the highest per capita GDP. This is, however, significantly below the levels observed in more developed economies, such the US, Singapore or Australia. Mexico has a per capita GDP comparable to China and Russia. Peru is one of the countries ranking at the lowest levels, very close to Thailand, but still ahead of Indonesia, the Philippines and Vietnam.

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[14] Source: APEC
[15] IMF: GDP values at current prices, in US$.

Figure 3 - Annual GDP per capita, current prices, in US$ (IMF, current prices US$, 2016)
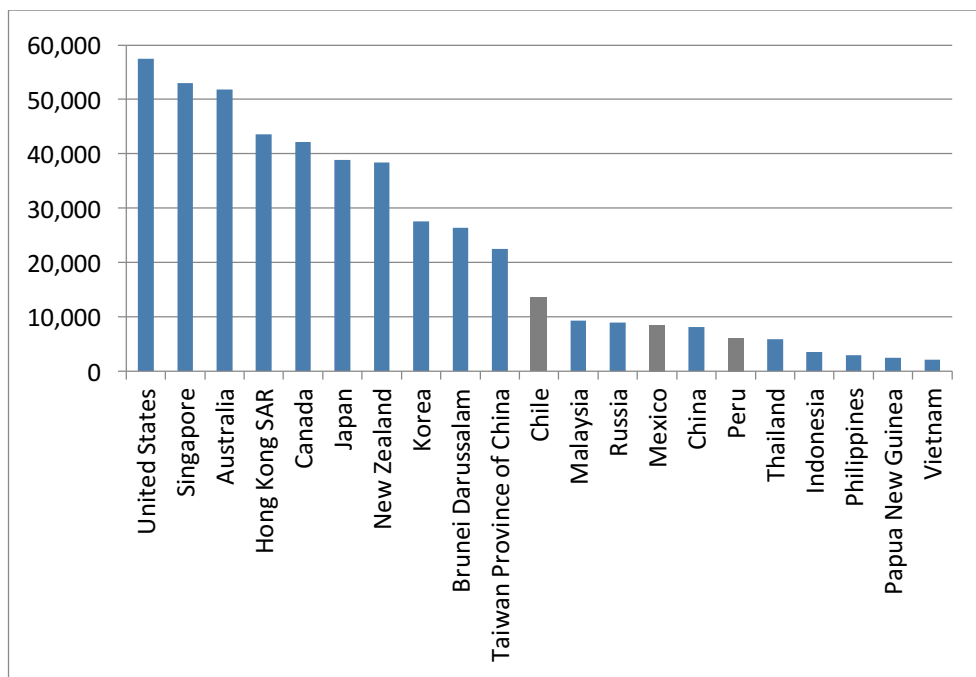
Sub-regional dimensions

According to the WEF's most recent Global Information Technology report, titled "Innovating the Digital Economy"[16], there are significant differences among individual Asia Pacific countries when we look at the status of their respective digital economies.

While Singapore ranks first worldwide, several other economies in the region are among the top 20, including Japan, South Korea, Hong Kong, Taiwan, New Zealand, and Australia. Chile is the best Latin American performer in this ranking, occupying 38th place but Mexico and Peru only rank at 76th and 90th out of 139 countries in total.

Similar results can be observed in the ITU's Global ICT Index, which is available for 175 countries. The index is calculated, taking into account countries' statistics on fixed and mobile telephony subscriptions, fixed and mobile broadband subscriptions, internet users, computer household penetration, and on the level of education (secondary or tertiary enrolment, mean years of schooling).

In the ITU ranking, South Korea comes first, while Singapore is in 20th position. Asia Pacific economies in the 'top 20' list include Hong Kong, Japan, Australia, and New Zealand. Chile is in 56th position and is one of the best performing Latin American countries, according to this index. Mexico and Peru also fall into the lower part of the ITU rankings, respectively in 92nd and 101st positions, and are performing at levels comparable with those of Indonesia, the Philippines and Vietnam.

Figure 4 presents the current positioning of selected APEC economies, taking into account:

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[16] The WEF measurements and rankings are conducted by using 53 indicators, grouped into four main "pillars": environment (political, regulatory, business and innovation); readiness (infrastructure availability; services affordability; IT skills among the population); usage (level of adoption by consumers, businesses, and government); and impacts (economic and social).

- their current level of ICT development, based on the rankings in the ITU's Global Development Index; and

- GDP growth in 2016 (IMF)[17].

Based on simple quantitative indicators[18], as is shown in Figure 4, four main "clusters" exist within the region:

(i) Area 1: highly developed ICT contexts, combined with relatively low GDP growth (Japan, United States, Canada, Singapore);

(ii) Area 2: developing ICT markets, combined with a GDP growth below the median of the countries covered (Mexico, Chile, Russia);

(iii) Area 3: economies with above median GDP growth but with relevant gaps still observed in the ICT sector (Peoples' Republic of China, the Philippines, Malaysia, Vietnam, Indonesia and Peru); and

(iv) Area 4: Highly developed ICT contexts, combined with economies that are growing at 2.5% or more (New Zealand, South Korea, Australia);

Figure 4 - ICT index and GDP growth (Cullen International)

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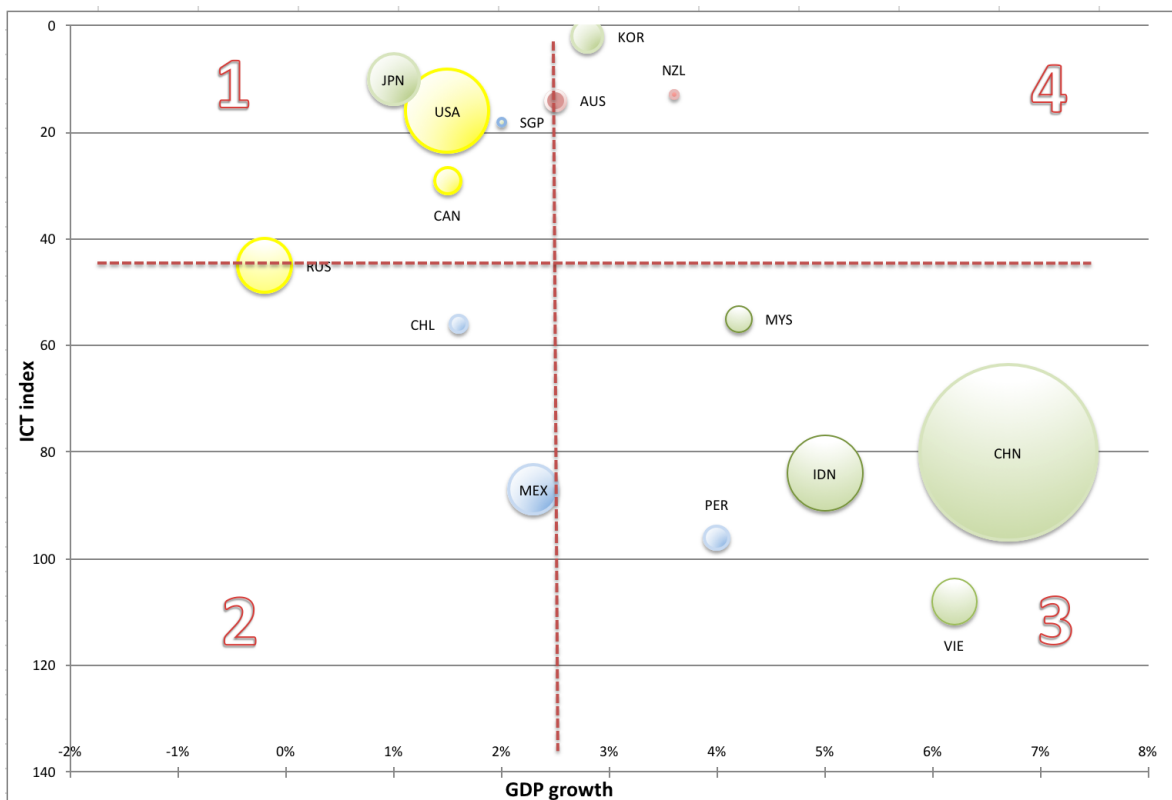
[17] IMF - World Economic Outlook Oct. 2017. On average, in 2016, GDP growth worldwide was of 3.2% https://www.imf.org/en/Publications/WEO/Issues/2017/09/19/world-economic-outlook-october-2017
[18] Sources: 2016 GDP growth: IMF data. ICT Index 2016: ITU. In the infographic, the size of the bubbles is an approximate indication of the size of the countries analysed by population. The lines show the boundaries of the four areas, calculated as the median among the countries covered.

Countries placed in areas 1 and 4 are already leveraging a strong ICT position, while trying to keep their economies growing. However, countries in area 3 have not yet fully leveraged ICTs to boost even further their already sustained economic growth. Countries in area 2 still need to improve their ICTs, while currently facing a more limited economic growth (negative in the case of Russia).

The key challenge for all countries is to achieve very high economic growth with high ICT performance, and possibly how to attain and remain stable in that situation.

In the next chapter, we will discuss how specific components of the digital economy, including connectivity, e-commerce or innovation, are being addressed in Asia Pacific and across selected Asia Pacific countries.

1.2. Connectivity in Asia Pacific

Connectivity is broadly considered as a corner stone for the development of digital markets.

According to statistics published by the ITU in 2017 and relating to 2016, on average 53.6% of households in the world have access to the internet. Access varies considerably from one region to another (from 84% in Europe to 65.3% in the Americas region, 48.1% in Asia Pacific, and 18% in Africa) and depending on whether countries are economically developed or still developing.

Nevertheless, there is also great diversity within regions as regards infrastructure availability, services affordability and the consequent use of ICT services. This is also the case in Asia Pacific.

All APEC economies achieved the goal of tripling internet access in the region, originally set by APEC leaders in their Brunei Declaration of 2000. The Declaration also included the goal of universal internet access in 2010. Countries are currently concentrating their efforts on reaching the goal of universal access to broadband, originally targeted for 2015, and thereafter to increase the speed of connectivity.

Fixed broadband

Fixed broadband connectivity is very high in Korea, Japan, Singapore and Australia, while in China it is still much closer to the levels observed in the three Latin American countries that are part of APEC (Figure 5).

Figure 5 - Broadband internet subscriptions per 100 inhabitants 2016 (Cullen International based on ITU)
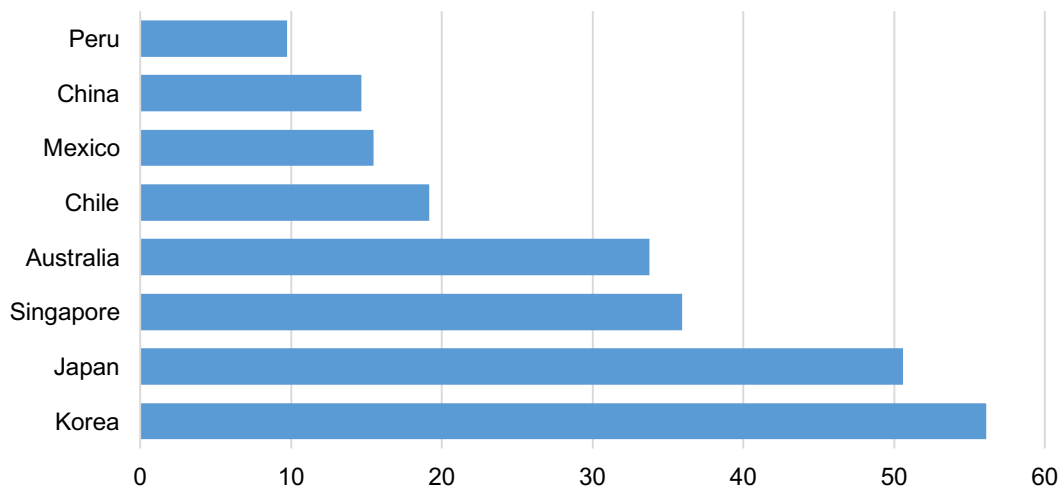
Mobile service penetration

According to a recent GSMA report that covers Asia Pacific countries[19], mobile technologies and services generated 5.4% of GDP in the Asia Pacific region in 2015, showing high penetration rates, continuous growth and rapid adoption of new technologies (4G and 5G).

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[19] GSMA, The Mobile Economy Asia Pacific, 2016

The Asia Pacific region accounted for 2.5bn subscribers of mobile services at the end of 2015, a mobile penetration of 62%, and with a growth rate above the world average.

Mobile broadband penetration was also high, reaching 45% of the population in 2015 and expected to reach 60% in the next years. The region more than doubled 4G subscriptions in 2015. South Korea, Japan and China are leaders in 4G adoption and are now fostering the development of 5G mobile technologies[20].

The telecoms sector in the region is also very important in terms of revenues generated by the largest telecommunications operators. As reported by Forbes in April 2016, 32 out of the 59 largest telecoms operators in the world are based in APEC economies, with total annual sales of US$957bn[21].

Among the top-ranking firms are two US companies (AT&T and Verizon with total sales respectively of US$146.8bn and US$131.8bn), one Chinese operator, China Mobile (US$107.8bn) and two Japanese operators, NTT and Softbank (US$94.2bn and US$74.7bn respectively).

Mexican group América Móvil occupies the sixth place and is the only Latin American company ranked among the 'big telecoms companies" by Forbes, with total sales amounting to US$56.3bn.

For a subset of selected countries, the penetration of mobile subscriptions in the region is above 80% and above 100% for some countries (Figure 6 and Figure 7).

Figure 6 - Mobile cellular subscriptions per 100 inhabitants (Cullen International based on ITU, 2016)
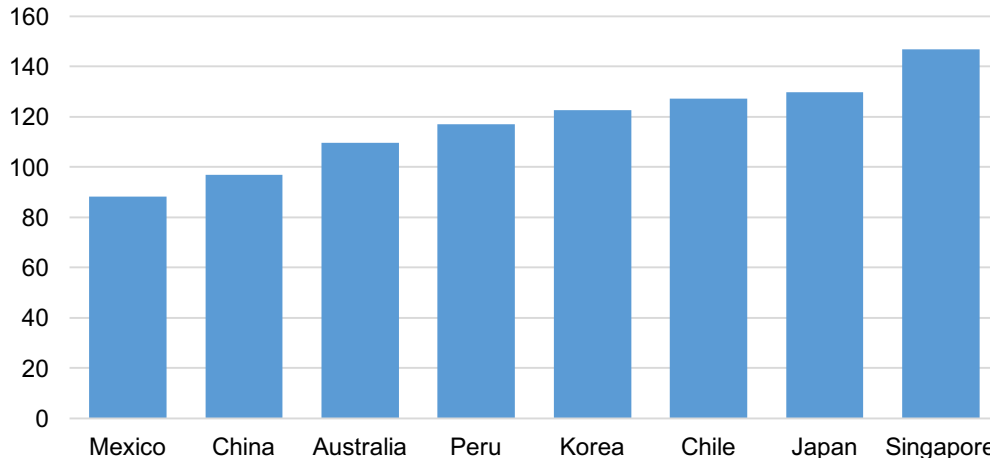
In general, fixed telephony penetration also tends to be above the world average in Asia Pacific countries (Figure 7).

(https://www.gsmaintelligence.com/research/?file=5369cb14451e0db728bd266c7657a251&download)
Asia Pacific as defined in the report: Australia, Hong Kong, New Zealand, South Korea, Japan, South and South-East Asia market
[20] SK Telecom, KT, NTT DoCoMo and China Mobile carried out trials in 2016 and 2017, and expect 5G commercial launch in 2020.
[21] Forbes, The World's Biggest Public Companies, 2016
(https://www.forbes.com/global2000/list/#industry:Telecommunications%20services
Forbes' calculation of market value is as of April 2016. All figures are consolidated and in US dollars. Forbes' ranking is based on the companies' latest-12-month financial data (sales, profits and assets).

Figure 7 - Fixed and Mobile telephone penetration (Cullen International based on ITU, 2016)
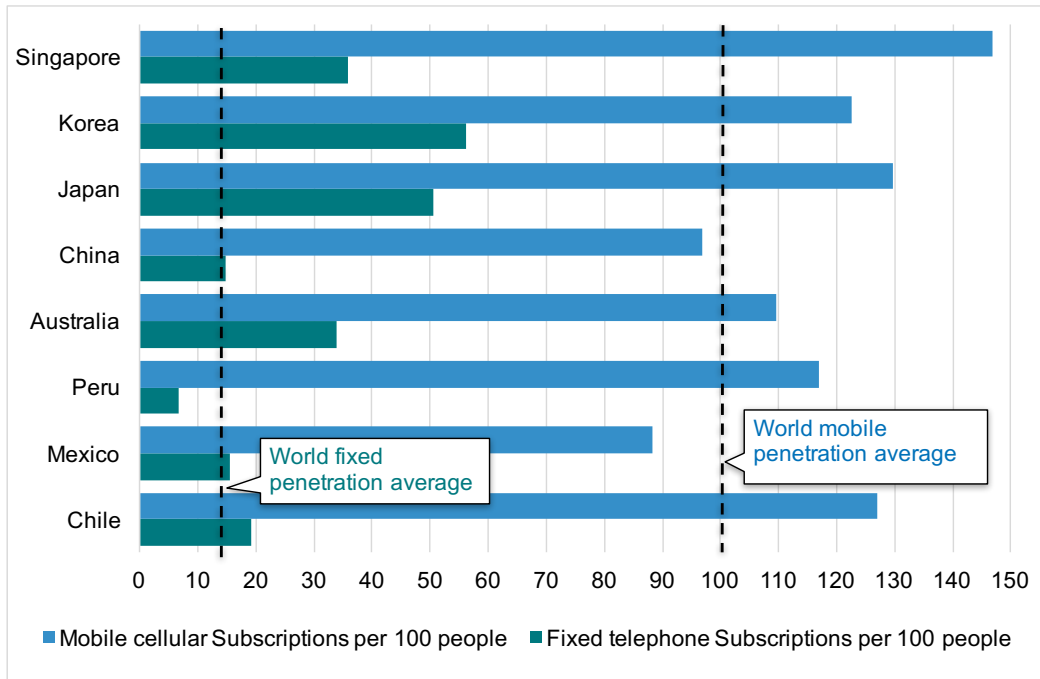
In most Asia Pacific countries, broadband deployments include both public and private efforts

In most Asia Pacific countries, broadband deployments include both public and private efforts. However, considerable differences in approach exist across countries. APEC reports that broadband infrastructure investment by governments in 14 APEC economies in the period 2010-2015 reached US$251bn[22]. The People's Republic of China accounted for over 72% of that amount (Figure 8).

Figure 8 - Governments' telecoms infrastructure investment 2010-2015 (US$bn - APEC)

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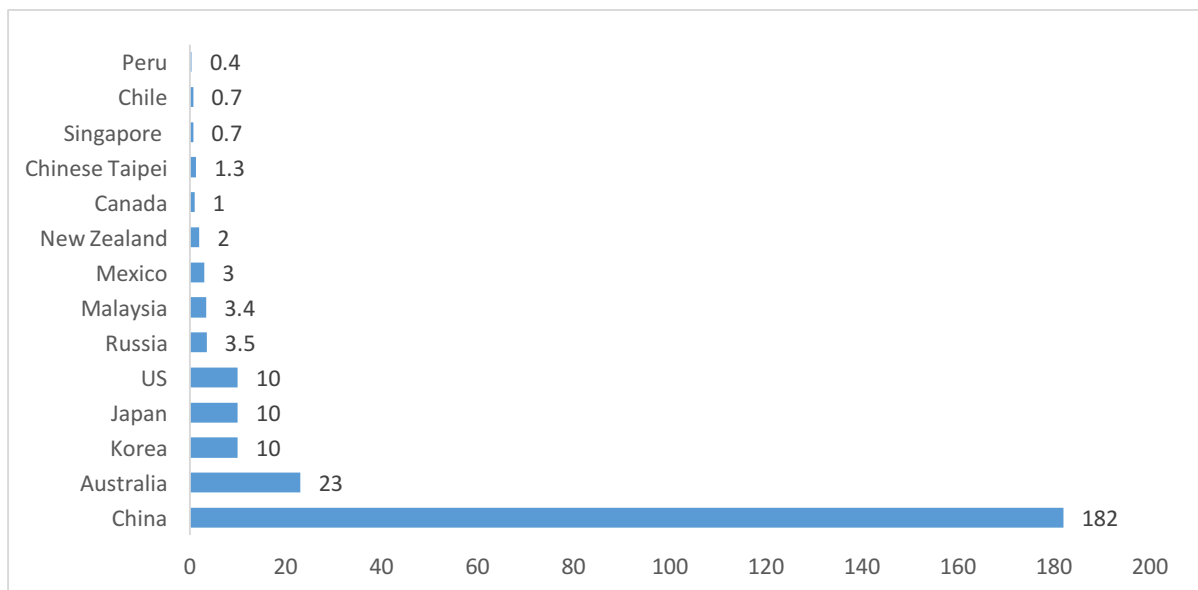
[22] Report of the 3rd Meeting of the Ad Hoc Steering Group on the Internet Economy, February 2017

While all countries have opened their telecoms sector to free competition, some countries still set limits to the foreign ownership of relevant companies in the sector.

Among the five Asia Pacific countries analysed, only Singapore is fully open to foreign investment in the telecoms sector. By comparison, in the three Latin American APEC economies, the telecoms sector is fully private and open to foreign investment, a trend broadly observed throughout Latin America. Mexico was the last large Latin American country to lift all foreign ownership restrictions in the telecoms sector in the framework of a major sector reform carried out in 2013[23].

It should also be noted that, as opposed to the other monitored countries, Chile and Peru currently have four mobile network operators (MNOs), compared with the three operators generally observed in other countries. Mexico had four mobile operators until 2015, and now has three as a result of the acquisition of Iusacell and Nextel by AT&T. A new mobile network operator, Altán, operating purely as a wholesaler, should start activities from 2018[24].

Table 3 – Telecoms industry in selected APEC economies

Country	Network	Main network operator(s)	Public participation?	Foreign investment limitations?
Australia	Fixed incumbent(s)	Telstra	No Fully private since 2011	Yes, for Telstra[25]
	MNOs	Telstra Optus (Singtel) Vodafone	No	
Chile	Fixed incumbent(s)	Telefonica Entel	No	No
	MNOs	Movistar (Telefonica) Claro (America Movil) Entel WOM (entrant)		
China	Fixed incumbent(s)	China Telecom China Unicom	Yes The state has a majority participation[26].	Yes, maximum foreign
	MNOs	China Mobile		

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[23] Decree modifying the Mexican Constitution, June 11, 2013 and amendments to the Regulation of the Foreign Investment Law, October 31, 2014

[24] The new wholesale player is the result of a PPP between the Mexican government and a private consortium

[25] Only the incumbent Telstra is subject to specific foreign-ownership restrictions. No more than 35% of its shares may be held by foreign entities, and no more than 5% by any single foreign entity.
https://www.legislation.gov.au/Details/C2016C00903
https://www.sec.gov/Archives/edgar/data/1046126/000104612602000013/exchange.htm

[26] Several strategic partnerships. China Mobile has an alliance with Vodafone. China Unicom has a partnership with Hutchison Whampoa of Hong Kong, and an alliance with Australia's Telstra. China Telecom has a strategic partnership with Deutsche Telekom. China Netcom has links with Singapore Telecom. China's government has almost completed the reform of state-owned companies (SOEs), mandating the restructuring of companies (including the organisation of management and production). The reform includes structural changes, including the merger of state-owned conglomerates and reconstituting 'mixed ownership' companies, allowing (and encouraging) private companies and foreign investors to own part of SOEs.

Country	Network	Main network operator(s)	Public participation?	Foreign investment limitations?
		China Telecom China Unicom		ownership is 49%[27]
Japan	Fixed incumbent(s)	NTT	Yes, NTT[28]	Yes, only for NTT[29]
	MNOs	NTT DoCoMo KDDI Y!Mobile (Softbank)	No	
Korea	Fixed incumbent(s)	KT	No	Maximum 49% foreign ownership in telecoms[30]
	MNOs	SK Telecom KT Freetel LG Uplus	No	
Mexico	Fixed incumbent(s)	Telmex (America Movil)	No	No
	MNOs	Telcel (America Movil) Movistar (Telefonica) AT&T Altán (wholesale)		
Peru	Fixed incumbent(s)	Telefonica	No	No
	MNOs	Movistar (Telefonica) Claro (America Movil) Entel (entrant) Viettel (entrant)		
Singapore	Fixed incumbent(s)	Singtel[31]	Yes[32]	No[33]
	MNOs	Singtel Starhub M1	No	

[27] Foreign ownership restrictions are periodically revised. A number of sectors, including telecommunications, are part of a "Catalogue" of goods and services where a number of regulations and restrictions apply. The Catalogue was last revised in 2015 (in force from March 1, 2016). Currently a 49% limit for basic telecommunications services and a 50% limit for value added services applies.

[28] The Government had a 32.4% participation in NTT as of Dec. 2016. There is also indirect minority participation in NTT DoCoMO, as NTT is its main shareholder.

[29] Foreign ownership restrictions apply to NTT: the aggregate voting rights of shares in the NTT Corporation may not be held by any person who does not have Japanese nationality; any foreign government or its representative; any foreign juridical person or entity; or other persons or entities with shares directly held by foreign persons or entities may not exceed one-third of the total voting rights of the issued shares of NTT Corporation.

[30] For more information https://www.state.gov/e/eb/rls/othr/ics/2016/eap/254289.htm

[31] In February 2017, Singtel announced an IPO. By April 2018, SingTel must divest its stake in NetLink Trust (formerly named OpenNet) to below 25%. NetLink owns and operates, as a wholesale operator, an ultra-fast broadband fibre network. Although currently 100% owned by Singtel, NetLink Trust is managed and operated by CityNet Infrastructure Management as trustee-manager. NetLink Trust was created by Singtel in 2011 after the regulator mandated effective open access requirements under Singapore's Next Generation National Broadband Network.

[32] Singtel majority is owned by Temasek holding. Temasek was incorporated under the Singapore Companies Act in 1974 to own and commercially manage investments and assets previously held by the Singapore Government, with its main shareholder being the Singapore Ministry of Finance.

[33] The Telecoms Competition Code opened the industry in 2000

Ambitious broadband plans

All surveyed countries in the Asia Pacific region have at least one government plan or significant initiative on broadband connectivity. Although coverage speed targets and timing may differ among Asia Pacific countries, all broadband agendas have common characteristics:

- programmes include different technologies, with fibre deployment being the most used technology for fixed broadband networks, and rollout of 4G technology the most common approach for mobile networks;

- they all focus on deployments in rural or underserved areas; and

- strong focus on guaranteeing broadband access by residential and business users, with broadband connection being seen as a basic and indispensable service to bridge economic and social divides.

In Latin America, speed targets tend to be far less ambitious than in the most advanced Asia Pacific economies, and are generally focused on basic broadband coverage and speeds. (Table 4 and Figure 9).

Table 4 – Ultra-broadband coverage targets in selected APEC economies

Country	Coverage target	Year
Australia	100% households with 25 Mbps 90% households with 50 Mbps (several fixed and wireless technologies)	2019
Canada	90% population: - 50 Mbps download - 10 Mbps upload	2021
Chile	90% households with fixed broadband with 10 Mbps (20% with fibre connections)	2020
China	70% households fixed broadband coverage 85% household mobile (3G/4G) coverage 300 million household covered with fibre network speed of 1Gbps in urban areas	2020
Japan	100% households: - 100 Mbps for mobile network - 1Gbps for fixed network Development enhanced mobile broadband (eMBB)	2015
Mexico	70% of households 85% of SMEs and microenterprises (undecided speed) Altán offered: - to provide coverage to 92.2% of the Mexican population in five years (i.e. Nov. 2021): - population coverage of at least 30% of the Mexican population by March 31, 2018; and	2018

Country	Coverage target	Year
	• provision of minimum broadband speeds of 4 Mbps download and 1 Mbps upload at peak hours.	
Peru	MCTIC has proposed a new broadband plan until 2021 (not yet adopted as of December 2017), • Districts covered by fixed broadband: 90% of districts (52% in 2016) • Districts with at least one optical fibre node: 90% (from 19% in 2016) • Districts covered by mobile broadband: 50% (from 33.1% in 2016) • Fixed service penetration: 50% of the population (from 24.7% in 2016) Mobile service penetration: 90% of the population (from 57.8%)	2021 (proposed)[34]
Singapore	100% households, companies and schools with fixed broadband • 1 Gbps download • 500 Mbps upload 20,000 free hotspots 5 Mbps (download)	2015 (fixed NGN) 2018 (mobile)
South Korea	Widespread use of: • 10 Gbps for fixed network • 1 Gbps for mobile network	2020
United States	90% population: • 50 Mbps download • 10 Mbps upload	2020

National strategies, PPPs, and deployment of 'wholesale only' networks

Several Asia Pacific countries have been implementing (ahead of other regions) approaches that involve public private partnerships (PPPs) for very high-speed infrastructure deployments, while adapting their competitive framework in order to ensure that such targeted initiatives do not frustrate other forms of private investment and competition. In general, these networks complement private networks by increasing backbone capacity or by deploying an access network in low profitability areas.

In **Australia**, the current broadband plan is focused on the deployment of a national wholesale-only, open access broadband network. Its rollout is based on a mix of technologies (FTTP, FTTC, HFC, satellite, fixed-wireless) on an area-by-area basis, prioritising development in areas with poor connectivity.

According to the latest reports[35], the project has met or exceeded targets set for 2016, reaching 2.9m premises ready for service and more than 1m users. 70% of the premises ready for service are in non-metro areas of the country. The NBN will deliver access of at least 25

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[34] New national broadband and ICT plan until 2021, proposed by the Ministry of Communications and Transport in November 2017. Under public consultation until Dec. 13, 2017. http://www.mtc.gob.pe/comunicaciones/regulacion_internacional/regulacion/proy%20normativos/RM_1134-2017-MTC-01-03.pdf

[35] http://www.nbnco.com.au/corporate-information/about-nbn-co/corporate-plan.html

Mbps downstream to 100% of premises and at least 50 Mbps downstream to 90% of fixed line premises by 2020.

China's 'Internet Plus' strategy was launched by the President in 2015.[36] The country's broadband plan also targets broadband infrastructure development for both fixed and mobile networks. The next milestone is set for 2020 (phase II of the project) and includes coverage targets for fixed and mobile broadband, specific targets for fibre backbone network, and a special fund to develop infrastructure in rural areas[37]. Broadband speed in the main cities is set at a target level of 1 Gbps.

For some years, **Japan** has been setting 5-year strategies, aimed at promoting internet connectivity and infrastructure deployments. I-Japan set connectivity targets until 2015: 100% coverage with 100 Mbps speed for mobile networks, and 1 Gbps for the fixed network by 2015. These ambitious coverage targets were set in order to facilitate digital inclusion and innovation throughout the economy and society.

As of March 2015, 55.9m households (99.98% of total) were covered with ultra-high broadband. In June 2008, FTTH subscriptions surpassed DSL subscriptions. In December 2015, FTTH subscribers were 27.6m (74% of total broadband connections). LTE subscribers reached 82.8m, representing 70% of all mobile broadband connections, with an annual growth close to 34% from December 2014[38].

Figure 9 - Broadband targets in selected APEC economies (Mbps, Cullen International)
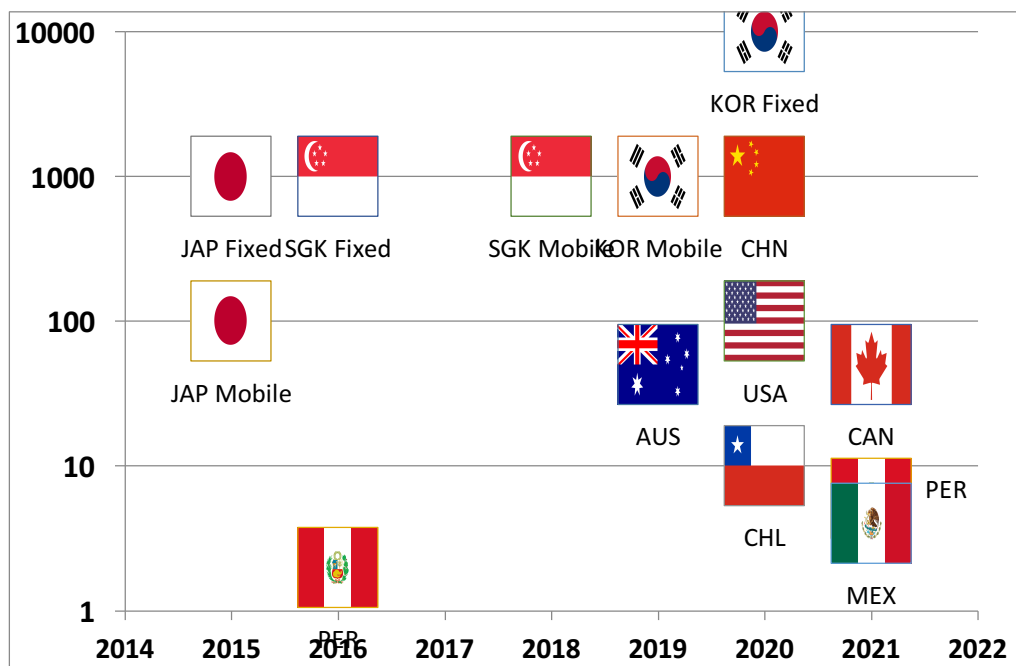
South Korea has set different strategies since 2009, starting with a strategy to increase ubiquitous fixed broadband coverage at a speed up to 1 Gbps by 2013. The "Giga-Korea

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[36] http://english.gov.cn/2016special/internetplus/

[37] the fund amounts to CNY 140bn (US$21.2bn) until 2020 http://www.chinadaily.com.cn/china/2015-10/15/content_22188940.htm

[38] http://www.cto.int/media/events/pst-ev/2016/broadbandasia/Broadband%20Policy%20in%20JapanSeiji%20Takagi%20Broadband%20Policy%20in%20JapanSeiji%20Takagi%20v1.pdf

Project" was launched in 2013. It increased speed targets to 10 Gbps for fixed broadband, and to 1 Gbps for mobile broadband until 2016 and 2020 respectively.

The project includes a roadmap not just for upgrading network infrastructure, but also for pursuing shared growth in all areas of the IT ecosystem, and also to prepare for the 2018 Winter Olympics. The implementation of the Giga-Korea project is under the responsibility of the Giga-Korea Foundation, involving six government agencies (Ministry of Knowledge Economy, Korea Communications Commission, Ministry of Culture, Sport and Tourism, Ministry of Public Administration and Security, and Ministry of National Defense), as well as academia, and state-funded research institutes.

The implementation of the project will require the government and the private sector to invest a combined KRW 550.1bn (approximately US$550m) at a ratio of 75:25 during the period between 2013 and 2020[39].

Box 1 – Australia's national broadband network (NBN)

The NBN was established in 2009 to design, build and operate Australia's high-speed broadband network. The main objective is to connect Australia and to bridge the digital divide, by ensuring that the entire Australian population has access to fast broadband as soon as possible, at affordable prices, and with a cost efficient infrastructure deployment.

The NBN is structured as a wholesale-only, open-access broadband network, available on equivalent terms to all access seekers. This initiative aims to create better competitive conditions in the Australian telecommunications markets.

Since its creation, the NBN has increased rollout and used mixed technology to achieve connectivity in different Australian areas, prioritising infrastructure deployments in areas with poor connectivity.

According to an August 2017 report by the Australia Competition and Consumer Commission (ACCC)[40], the entity overseeing the NBN project, in the fiscal year ended 30 June 2017, the NBN recorded revenues of AUD 1bn (US$783m), more than double the 2016 revenues and ahead of its target of AUD 900m (US$705m)[41].

The report also confirmed that 5.71 million premises are now classified as ready for service, up from 2.89 million at end-June 2016. The company's fibre-to-the-node (FTTN) rollout helped drive the coverage expansion, with the technology now available to 2.49 million homes and businesses by the end of the reporting period, up from less than 700,000 a year earlier. Meanwhile, the number of subscribers served over the NBN more than doubled in the year to 30 June 2017 to 2.44 million, up from 1.09 million at mid-2016.

The main objective of the NBN is to connect the whole Australian population to broadband with speeds of at least 25 Mbps by 2019.

The NBN Co is a wholly-owned Commonwealth company, a Government Business Enterprise. It is represented by Shareholder Ministers, including the Minister for Communications and the Minister of Finance. The Australian government foresees the use of public funds to support NBN's infrastructure deployment and operation only until 2018. After that date, no more public funding is foreseen.

The NBN is made available on a wholesale access basis under the NBN Special Access Undertaking (SAU). The current SAU, which was accepted by the Australian Competition and Consumer

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[39] http://www.gkf.kr/english/english_6.asp Exchange rate: 1 KRW = 0.000937964 USS

[40] https://www.accc.gov.au/media-release/accc-releases-quarterly-report-on-the-nbn-wholesale-market-3
[41] Exchange rate 1 AUD = 0.7833 US$

Commission (ACCC) in 2013[42], currently covers fibre-to-the-premises (FTTP), fixed wireless, and satellite technologies.

The ACCC held a public consultation until August 25, 2017 on a revised SAU proposed by the NBN. The new SAU incorporates fibre-to-the-node (FTTN), fibre-to-the-basement (FTTB) and HFC technologies , so as to reflect the current NBN model and to extend the existing pricing structure to these technologies[43].

In **Singapore**, the government launched two specific infrastructure projects. One is based on a fixed network (Next Gen NBN). The approach is similar to that of other countries, with the government funding deployment and with the operation of a wholesale broadband network that allows access to different retailers throughout Singapore. NetLink Trust, the Next Gen NBN Network Company (NetCo), is deploying fibre to all homes in Singapore. By 2013, the network had already covered the country, providing coverage to 1.2m premises[44].

Wireless@SG is Singapore's largest free Wi-Fi network. The Wireless@SG programme was coordinated by the telecoms regulator, Infocomm Media Development Agency, IMDA, in collaboration with venue owners and service providers. Wireless@SG speed was recently increased from 2 Mbps to 5 Mbps to keep up with increasing demand. In addition, to increase the accessibility of the service, IMDA required the number of Wireless@SG hotspots to be doubled from 10,000 to 20,000 across Singapore by 2018[45].

Some of the Latin American countries that are part of APEC, as well other Latin American countries, have over the past few years also been promoting government-sponsored 'wholesale only' infrastructure models.

Mexico provides a very interesting example, with its innovative 'Red Compartida' project. The Mexican government has signed a public-private partnership (PPP) with the Altán consortium (including Mexican and foreign investors) to deploy and operate a wholesale-only wireless network. In the PPP contract, Altán was assigned a 20-year concession to deploy, operate, and exploit the wholesale mobile broadband network. This includes the right to exploit, under a lease agreement with government entity Promtel, 90 MHz of spectrum in the 700 MHz band, and the right to exploit, under a lease agreement with state owned company Telecomm, a pair of fibre optic cables from Telecomm's backbone network.

The project aims to increase mobile coverage and to address connectivity gaps in all parts of Mexico, including rural areas, with commitments to cover 92.2% of the Mexican population by 2022. It also seeks to boost service-based competition in the highly concentrated domestic mobile market.

In **Peru**, the government selected TV Azteca to design, deploy and operate a national fibre backbone (RDNFO). The fibre backbone includes 13,571 km of fibre backbone network covering 22 regional capitals and 180 provinces of Peru, and is still ongoing. The RDNFO represents 31% of all optical fibre deployed in the country (other optical fibre transport networks are owned and operated by Viettel, Telefonica and America Movil, amongst others).

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[42] https://www.accc.gov.au/regulated-infrastructure/communications/national-broadband-network-nbn/nbn-co-special-access-undertaking

[43] https://www.accc.gov.au/media-release/accc-invites-feedback-on-nbn-co%E2%80%99s-revised-special-access-undertaking-variation

[44] https://www.imda.gov.sg/industry-development/infrastructure/next-gen-national-infocomm-infrastructure/wired/next-gen-nbn/what-is-next-gen-nbn/deployment/homes

[45] https://www.mci.gov.sg/portfolios/infocomm-media/initiatives/infrastructure/wireless-at-sg

All the wholesale network projects described above mandate that wholesale access to the new network must be granted at non-discriminatory terms and conditions and at a fixed wholesale price throughout the country. Similar initiatives have been carried out or are underway in several other Latin American countries, driven by the awareness that a connectivity gap is still one of the main impediments to establishing a flourishing digital economy throughout the Latin American region.

Regional and international connectivity

There is a strong focus to increase connectivity in the Asia Pacific region, with regional initiatives including enhancing submarine cable connectivity within the region and with other regions, the deployment of IXPs, and agreements and policies aimed at decreasing international roaming prices.

According to a recent Telegeography report, international internet capacity was 240.4 Tbps in 2016. The top 50 international connectivity routes are mainly located between Europe and North America, with Europe holding the greatest capacity. Singapore, Hong Kong and Tokyo are the top hubs in Asia Pacific. These hubs have a similar international capacity as that of the United States' hubs and double the level of the Latin American hubs[46].

Figure 10 - IXPs and international internet capacity per region (Cullen International based on Telegeography, 2016)
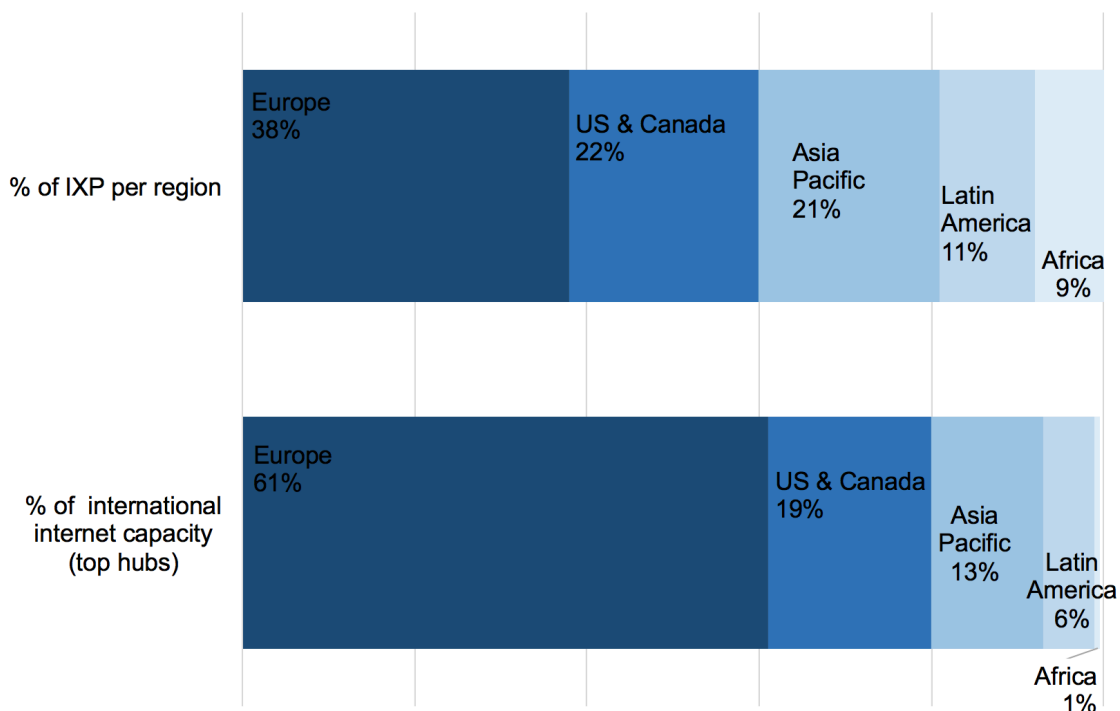
Presence of internet exchange points

According to a public database maintained by Packet Clearing House, there is a very diverse landscape in Asia Pacific when we consider the presence of active internet exchange points

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[46] Source: Telegeography Global Internet Map, 2016 (http://global-internet-map-2017.telegeography.com)

(IXPs). IXPs differ in number but also in their stages of development, with some having only two participants while others have more than 170[47].

Over half of active IXPs in the Asia Pacific region are concentrated in developed markets, like Japan, Australia and New Zealand. The US alone has over 70.

Most emerging economies in the region either have one or two IXPs, some of them, especially in the Pacific, have none.

According to the database, Australia currently has 18 active IXPs, Japan 11, and New Zealand six. China, with its huge internet traffic, has nine IXPs, although four of them are located in Hong Kong and three in Taiwan. Singapore has four active IXPs, South Korea and Vietnam have three each. Malaysia, Papua New Guinea, Sri Lanka, Cambodia have one IXP.

It should be noted that only a minority of IXPs are carrier-neutral, i.e. established and managed by entities that are not carriers (typically government or non-for profit entities).

The Internet Society (ISOC) notes that in **South East Asia** incumbent carriers dominate the market in many economies, running their own internet transit points and not always providing equitable access to competing ISPs. According to ISOC, this situation has generated access bottlenecks to international gateways and cable landing stations. Competing carriers may need to connect indirectly to the incumbent's network, paying premium rates while facing bandwidth restrictions.

The lack of carrier-neutral internet exchange points (IXPs) in the sub-region forces smaller ISPs to transit their traffic through the incumbent's network even when traffic is domestic. While many countries in the sub-region enjoy access to submarine cables, countries like Cambodia, Laos and Myanmar either do not have landing stations, or depend on aging and low-capacity connections[48].

ISOC reports on a few initiatives to set up carrier neutral IXPs in developing Asia Pacific countries, including in the Philippines and Thailand[49] but is concerned that overall the situation needs substantial improvement. Having carrier-neutral IXPs helps to reduce costs and delays associated with having to rely on international transit providers to exchange local traffic and also helps to create a more competitive playing field, especially for smaller ISPs. As a general policy, ISOC recommends supporting the development of carrier neutral internet exchange points to help reduce transit costs and remove bandwidth bottlenecks.

As for the three Latin American countries that are part of APEC, Chile has three active IXPs, while Mexico and Peru have one each.

Mexico introduced a new policy in 2017, when the Mexican regulator, IFT, approved new rules mandating America Movil (the 'preponderant' agent in the telecommunications sector) and all operators designated in the future as having significant market power in the relevant market for internet traffic interconnection, to establish a physical presence in all internet traffic IXPs nationwide.

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[47] https://www.pch.net/ixp/dir
[48] ISOC, Improving Broadband Access in South East and Central Asia, June 2016 https://www.itu.int/en/ITU-D/Regional-Presence/AsiaPacific/Documents/Events/2016/May-RDF2016/Presentation/SINGH%20ITU-RDF%20Connectivity%20in%20ASEAN%20and%20Central%20Asia%20Jun16.pdf
[49] See ISOC: "IXPs Level Up in Emerging Asia-Pacific, February 2016 https://www.internetsociety.org/blog/2016/02/ixps-level-up-in-emerging-asia-pacific/

The new rules, in force from July 25, 2017[50], aim to allow ISPs to exchange traffic in a more efficient and affordable way, as established in article 138 of the Federal Telecommunications and Broadcasting Law.

Submarine Cables in Asia Pacific

As of early 2017, there are approximately 428 submarine cables in service around the world (over 1.1m km). Submarine cables were traditionally owned by telecom carriers formed in various consortia.

Specialised companies eventually entered the business, building private cables and selling capacity to users. Lately, content providers have also been building their own private submarine cables. In today's market, both the consortia and private cable models co-exist. Asia accounts for a large percentage of the lit capacity of submarine cables[51].

Figure 11 - Transpacific submarine cables (Telegeography)
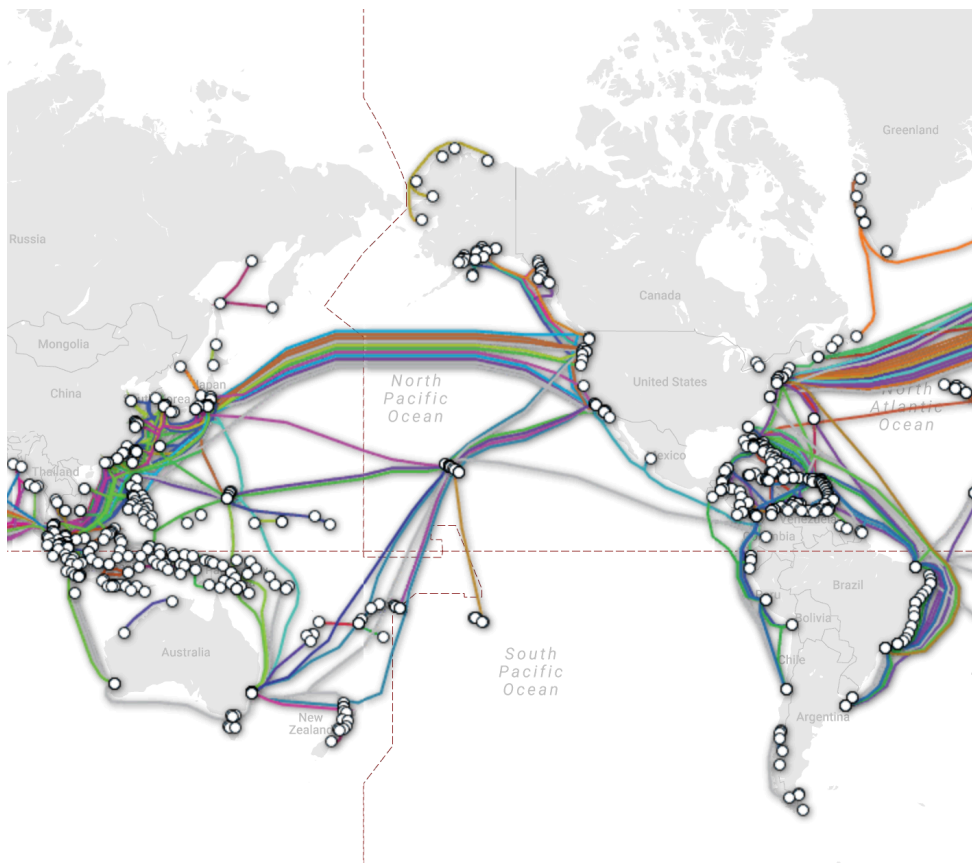
When looking at Telegeography's submarine cable map[52], there is a clear link missing: Asia is almost unconnected with Latin America. There is a submarine cable connecting Hawaii

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[50] http://www.dof.gob.mx/nota_detalle.php?codigo=5491665&fecha=24/07/2017

[51] Lit capacity is the amount of capacity that is actually running over a cable. It is usually lower when compared to the potential capacity (i.e. the total amount of capacity that would be possible if the cable's owner installed all available equipment at the ends of the cable), since cable owners tend to upgrade their cable capacity gradually, depending on customer demand.

[52] Source: Telegeography https://www.submarinecablemap.com/#/

with **Panama** and **Chile** (the South America Pacific Link) and Huawei has recently announced[53] plans to connect **China** and **Chile** with a new submarine cable. This cable was announced in early 2016, when the Chilean and the Chinese governments signed a memorandum of understanding to cooperate on ICT issues[54].

Asian submarine cables connect with Europe, within Asia and with the US (with the transpacific submarine cables). The first transpacific cable was put into service in 1964, linking Japan with the United States. Many other cables connect Japan, China and other Asian countries with the US.

Transpacific submarine cables represented almost 20% of worldwide capacity in 2016. Moreover, when adding all submarine cables, the region represents around 50% of the lit capacity, fibre pairs, and total cables globally[55].

Figure 12 – Submarine cables per region (Cullen International based on Telegeography, 2016)
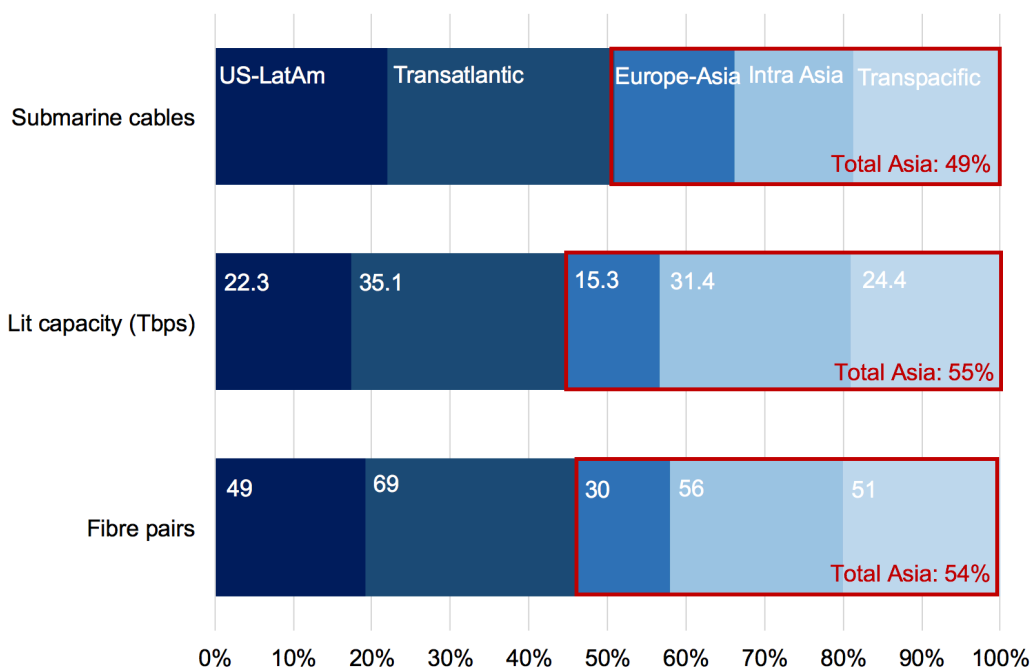
International roaming

Asia Pacific faces similar challenges to Latin America with respect to the international roaming market[56]. According to a GSMA study from 2012[57], the low percentage of travellers within the total population represents a restraint for the growth of the international roaming market.

In addition, GSMA identified technical and structural barriers to be addressed by operators and regulators to promote the development of an international roaming market in the region,

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[53] http://www.infraestructurapublica.cl/el-plan-huawei-para-unir-shangai-y-chile-con-un-cable-submarino/

[54] http://www.subtel.gob.cl/chile-y-china-firman-importante-acuerdo-bilateral-de-colaboracion-tecnologica/

[55] Source: Telegeography 2016 (http://submarine-cable-map-2016.telegeography.com)

[56] CAF, "Building a Digital Single Market Strategy for Latin America", 2017

[57] International Roaming explained, Asia Pacific, GSMA

including double taxation, high costs of international gateways, fraud, and interoperability issues.

The Asia Pacific region has worked on different initiatives with a special focus on increasing transparency to users and to promote a wider use of international roaming. Other initiatives include bilateral agreements between countries, industry guidelines, and recommendations from international bodies and regional trade blocs.

The APEC Telecommunications and Information Working Group (TEL) developed in 2011 the Guidelines for the Provision of Consumer Information on International Mobile[58] to raise mobile user awareness on the use of mobile services while travelling abroad. APEC's action plan 2016-2020 also includes specific actions to work on the reduction of mobile roaming rates between APEC economies[59].

The Asia Pacific Telecommunity (APT) has a specific working group on international roaming[60], that has conducted surveys and seminars. In 2012, APT published a set of guidelines for regulators and operators to provide information on international roaming services. The working group also published recommendations to address mobile bill shocks, and on bilateral and multilateral international roaming agreements.

The ASEAN Telecommunication Regulators Council (ATRC) has included since 2011 mechanisms to facilitate the reduction of mobile roaming charges. The meeting of ministers of telecommunications and ICTs encouraged the signing of multilateral agreements between member states to take appropriate steps for further reductions in mobile roaming charges across ASEAN with the view to facilitate the establishment of single telecommunications market[61].

In December 2017, the ministers adopted the ASEAN International Mobile Roaming Framework, which will provide travellers and businesses with transparent and more affordable access to international mobile roaming services within ASEAN[62].

Several bilateral agreements in the region propose both retail and wholesale price reductions, as detailed in Table 5 below[63].

Table 5 – Bilateral agreements on international roaming

Countries	Targets	Year
Singapore, Malaysia	Reduce international roaming rates: 30% for voice calls, 50% for SMS	2011, 2012
	Roam like at home initiative	2015
Brunei Darussalam, Singapore	Reduce international roaming rates (data, SMS and voice) both at wholesale and retail levels	2012, 2013, 2015
Cambodia, Thailand	Define a single flat rate for international roaming in both countries	2016

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[58] https://www.apec.org/-/media/Files/Groups/TEL/2010_IMR_ConsumerGuidelines_TEL42.doc
[59] APEC Telecommunications and Information Working Group Strategic Action Plan 2016-2020
[60] Working group report:
http://www.apt.int/sites/default/files/2012/05/APT_IMR_Working_Group_Report_Final.pdf
[61] http://asean.org/storage/2017/01/TELMIN-14-JMS-Final-cleared.pdf
[62] http://asean.org/storage/2012/05/14-TELMIN-17-JMS_adopted.pdf
[63] Bourassa F. et. al "Developments in International Mobile Roaming" OECD Digital Economy Papers, 249, OECD publishing, Paris (2016).

Spectrum harmonisation

The Asia Pacific region encompasses ITU Region 3 but also parts of Region 1 and 2. In Region 3, which covers most Asian and South Asian countries plus Oceania[64], spectrum harmonisation activities[65] are carried out by the Asia Pacific Telecommunity (APT)[66].

The APT Wireless Group (AWG) deals with various aspects of emerging wireless systems, including IMT/IMT-Advanced, to support the upcoming digital convergence era in the region. The main objectives of the AWG include working towards the regional harmonisation of spectrum usage, and assisting and supporting APT Members in using radio frequency spectrum effectively.

A sub-group within AWG is specifically involved with the review of spectrum availability and harmonised approaches for new system technologies and applications, which may be included in APT recommendations or reports. The sub-group also carries out specific actions and assists countries on harmonisation and the elimination of harmful interference.

A specific group within the AWG works on the regional positions and proposals for the ITU World Radiocommunication Conferences that are held every four or five years.

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[64] https://www.itu.int/en/ITU-R/terrestrial/broadcast/PublishingImages/bcd%20images/ITU%20regions.jpg
[65] Spectrum harmonisation consists of the uniform allocation of radio frequency bands across countries and regions. Coordinated spectrum policies aim to avoid interference between services in border areas and to allow the portability of services using spectrum, i.e. international roaming for mobile services. Harmonisation also helps to develop integrated markets for equipment and services, cutting costs for consumers and boosting business competitiveness.
[66] The Asia-Pacific Telecommunity (APT) is an intergovernmental organisation, founded on the joint initiative of the United Nations Economic and Social Commission for Asia and the Pacific (UNESCAP) and the International Telecommunication Union (ITU). APT serves as the focal organisation for ICT in the region, assisting members in the preparation of global ITU conferences, including the World Radiocommunication Conference (WRC). The APT is also involved in promoting regional harmonisation.

1.3. Overview of trade and e-commerce in Asia Pacific

B2C e-commerce sales worldwide reached US$2,273bn in 2015. In the same year, B2C e-commerce sales in Asia Pacific reached US$1,056.8bn, representing 46.5% of the world market, up 28.4% from 2014. China alone had B2C e-commerce sales of US$766.5bn, 72.5% of the total Asia Pacific sales[67].

In contrast, B2C e-commerce sales in 2015 in Latin America[68] reached only US$46.3bn, representing 2% of the world market and a 28.5% growth overall. Brazil is the top market in the region, accounting for US$15.89bn in 2015, followed by Mexico with US$13.3bn in sales. Argentina and Chile had US$4.8bn and US$2bn in turnover, respectively. Other Latin American countries had B2C sales amounting to US$10.3bn in the same year.

It is important to point out that six out of the ten top countries in global B2C commerce are APEC economies: China, USA, Japan, Korea, Canada and Russia (Figure 13).

Figure 13 - Top 10 countries in the global B2C e-commerce market (Cullen International based on eCommerce Foundation data, 2015)
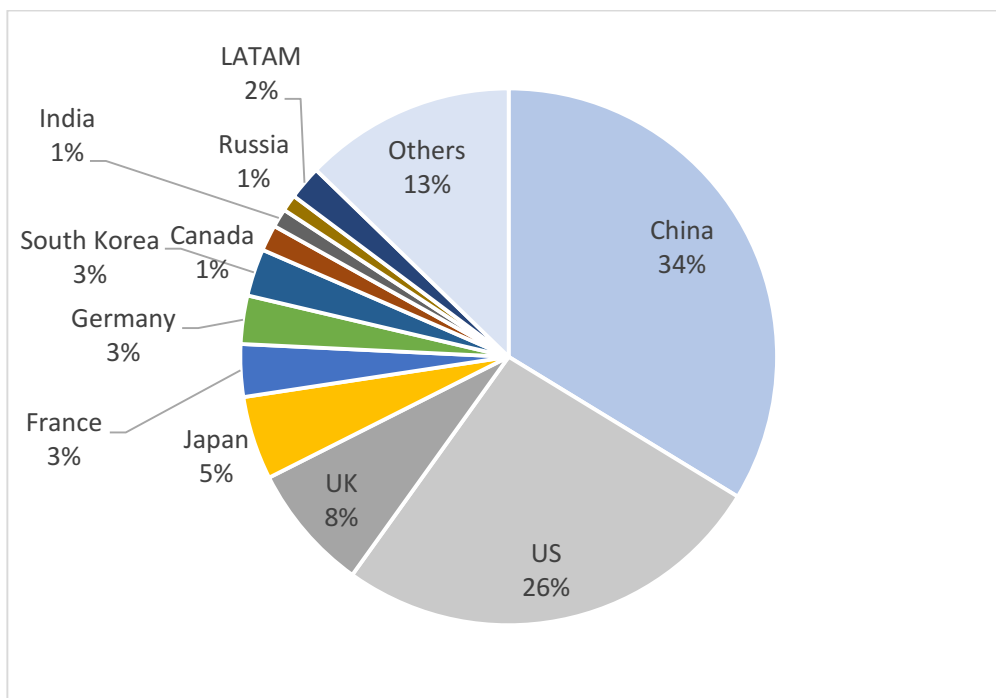
The considerable development of e-commerce in Asia Pacific is confirmed by UNCTAD's business to consumer (B2C) e-Commerce index[69].

The index measures the development potential of e-commerce, taking into account for each country four indicators: (i) the share of the population using the internet, (ii) the share of the

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[67] eCommerce Foundation, Global B2C Report 2016. The Ecommerce Foundation is an independent non-profit organisation, initiated by worldwide national e-commerce associations and online and omnichannel selling companies from industries such as retail, travel and finance.
https://www.ecommercewiki.org/wikis/www.ecommercewiki.org/images/5/56/Global_B2C_Ecommerce_Report_2016.pdf

[68] eCommerce Foundation, Global B2C Report 2016

[69] UNCTAD B2C e-commerce index, 2016 http://unctad.org/en/PublicationsLibrary/tn_unctad_ict4d07_en.pdf

population over-fifteen who use credit cards as a form of payment, (iii) the presence of secure internet servers; and (iv) postal service reliability.

The highest ranking Asia Pacific countries according to the index are Japan (5th), South Korea (7th), New Zealand (10th) and Australia (12th). It is worth noting that Korea and Japan rank first and second, respectively, in the postal reliability score. Interestingly, China is ranked only at 64th place, mainly due to the low percentage of the population using credit cards (although there are other electronic money solutions), poor postal service and the continued lack of pervasive internet connectivity.

Uruguay and Chile are the first and the second highest ranking countries of Latin America but they rank only at 39th and 43th places, respectively. Mexico and Peru occupy the 63rd and 76th places, after Brazil, Costa Rica and Argentina.

Among the Latin American countries at the bottom of the list of 137 countries are Nicaragua (114th place) and Guatemala (111th place). These findings are summarised in Figure 14, where green dots represent high ratings, while yellow and red ones represent below average and much below average ratings.

Figure 14 - UNCTAD's business to consumer (B2C) e-Commerce Index in selected APEC economies (Cullen International based on UNCTAD)

Country	2016 rank	Share of individuals using Internet	Share of individuals with credit card	Secure Internet servers per 1 million people	UPU postal reliability score	Comments
Canada	4	🟢	🟢	🟢	🟢	Shows a stable position, with good values for the four indicators
Japan	5	🟢	🟢	🟢	🟢	Ranks better than in 2014 (12th position), second position in postal reliability
South Korea	7	🟢	🟡	🟢	🟢	Slight improvement from 2014. Share of individuals using a credit card is below other top-ranked countries (56%). Ranks 1st on postal reliability
New Zealand	10	🟢	🟢	🟢	🟢	Slight improvement from previous rankings
United States	11	🟢	🟢	🟢	🟢	Slight improvement from previous rankings
Australia	12	🟢	🟡	🟢	🟢	Went down from 6th place in 2014. Share of individuals using a credit ranks is below other top-ranked countries (59%)
Singapore	23	🟢	🟡	🟢	🟢	Slight improvement from previous rankings. Very good connectivity and postal reliability values. Percentage of individuals using credit cards is low (35%)
Chile	43	🟢	🟡	🟢	🟢	Slight deterioration from previous rankings. Low percentage of individuals using credit card (21%)
Mexico	63	🟡	🔴	🟢	🟢	Low percentage of individuals using the internet (44%) and credit cards (18%)
China	64	🟡	🔴	🟡	🟢	Low percentage of individuals using credit cards (16%). Electronic money and e-wallet solution highly used. Lower internet use and postal reliability than in other Asian countries.
Peru	76	🟡	🔴	🟢	🟢	Improvement from previous rankings but there is still need to increase connectivity, credit card use, and postal service reliability.

🔴 Areas that need strong efforts
🟡 Areas that can easily improve
🟢 Top performance

A fast growing B2C e-commerce environment

According to 2016 statistics by Statista, e-commerce in Asia Pacific represents over 12% of total retail sales, against 8.3% in Europe, 8.1% in North America and only 1.9% in Latin America[70].

The rapid growth[71] of the B2C market in Asia Pacific is mostly driven by the rising middle classes in several countries, including China and Indonesia, and the increasing popularity of mobile devices. Both factors are allowing more and more people to go online throughout the region.

Digital retail sales in Asia Pacific are growing faster than in any other region, and more than ten percentage points faster than the worldwide average rate. China and Indonesia are the main drivers of growth in the region, with an annual growth in 2015 of 33.3% and 65.6% respectively.

Figure 15 shows for each country the number of B2C e-commerce users (green dot), the number of consumers with internet access (dark grey dot), and the total population (light grey dot).

Figure 15 - B2C e-commerce potential in selected economies (Cullen International based on eCommerce Foundation data, 2015)
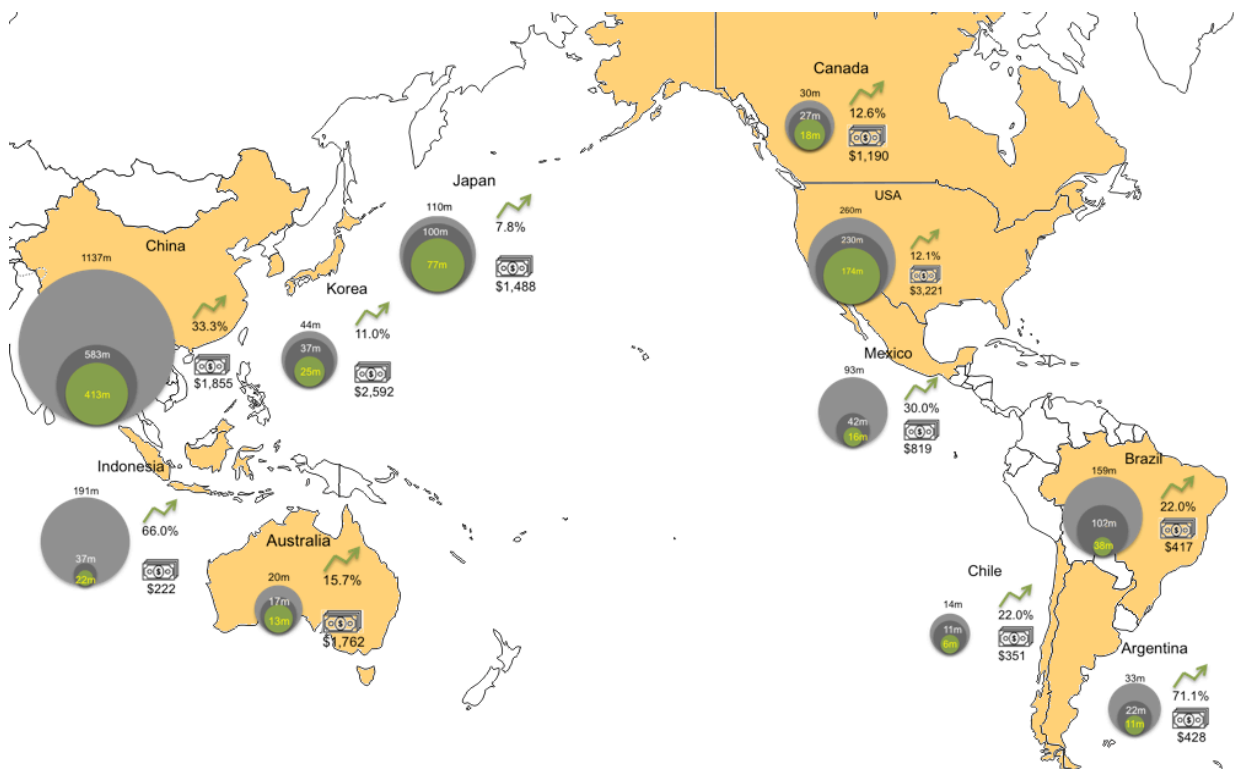
The graphic shows that, in more developed countries such as the US and Canada, the vast majority of the population has access to the internet and is buying on the internet. These countries can be considered 'mature', especially when compared with countries such as

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[70] Source: Statista

[71] AliResearch estimates that B2C e-commerce sales in Asia Pacific grew from US$ 71bn in 2014 to US$218bn in 2017, according to a report available at:
http://unctad.org/meetings/en/Presentation/dtl_eweek2016_AlibabaResearch_en.pdf

China, Indonesia or Mexico, where a large portion of the population does not have access to the internet and does not yet buy on the internet. Emerging economies show a huge potential for e-commerce growth worldwide.

The average annual purchase value generated by e-commerce users in each country varies. For example, the average annual e-commerce spending, per e-commerce user in the US exceeded US$3,000 in 2015 and was close to US$2,000 in China and Australia. In Latin America, the average e-commerce spending is much more modest. Nevertheless, it is growing fast.

A comparison between 2015 and 2014 data shows that all countries (except Japan) had double digit e-commerce sales' growth, meaning that e-commerce, even in more mature markets, is becoming increasingly important for the economy.

In the US, Canada and Mexico, total B2C e-commerce sales in 2015 reached US$ 644bn. Mexico has the smallest share of this regional amount, with a total B2C e-commerce sales of only 13.27bn (but sales in Mexico are growing fast, at some 30% compared with 2014, while e-commerce growth in the US and Canada was 13% on average). E-commerce is still growing in Mexico, with estimated sales in 2016 for US$16.85bn (+27%).

If we add Mexico to the other Latin American countries monitored by the eCommerce Foundation, total B2C e-commerce sales amounted to US$46.3bn in 2015 in Latin America. Brazil and Mexico together represent 63% of this amount. Despite the economic recession, in Brazil, B2C e-commerce sales increased by 22% in 2015. In Argentina, sales are more modest in absolute terms but e-commerce growth in 2015 surpassed 71% in the country.

Annual expenditure per e-shopper varies, on average, from less than US$250 in Indonesia to over US$3,000 in the United States[72].

Figure 16 - Average annual expenditure per e-shopper (2015, US$)

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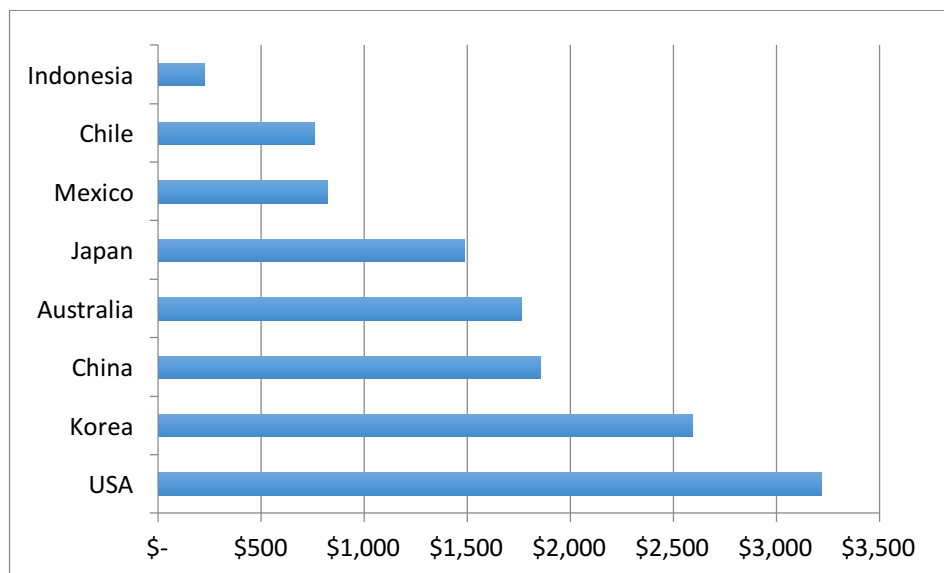
[72] Source: eCommerce Foundation. Figures include East and South East Asian markets only. https://www.ecommercewiki.org/wikis/www.ecommercewiki.org/images/5/56/Global_B2C_Ecommerce_Repor t_2016.pdf and https://www.ecommercewiki.org/Global_Ecommerce_Figures

Leading the world economy through external trade

Although no comprehensive statistics are currently available on cross-border B2C e-commerce, current statistics on general trade of goods still show considerable cross-border dynamism among Asia Pacific economies.

If we look at total imports and exports for selected Asia Pacific economies, as well the four largest trading partners for each country, we see that in some economies trade is extremely diversified. This is the case of China, for example, where 18% of exports, totalling US$2,098,161m in 2016, were directed to the US, 16% to the EU, 13% to Hong Kong and 6% to Japan (Figure 17).

NAFTA countries are significant trade partners of the US if we consider that 18% of exports and 13% of imports are with Canada, and 16% of exports and 13% of imports are with Mexico (Figure 18).

Figure 17 Total imports and exports, and main trade partners of China (Cullen International based on WTO data, 2016)
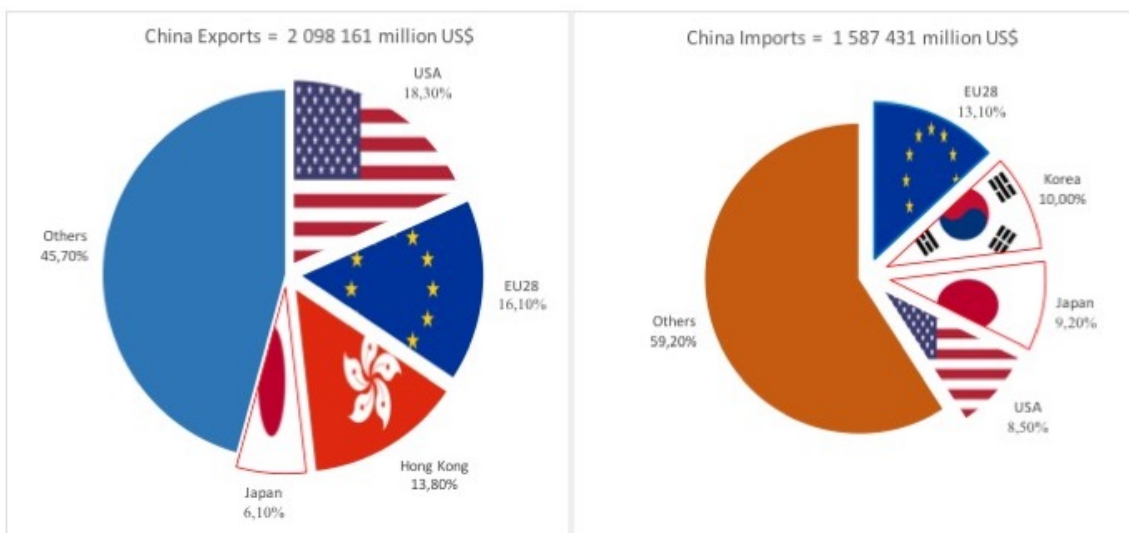
Figure 18 Total imports and exports, and main trade partners of the US (Cullen International based on WTO data, 2016)
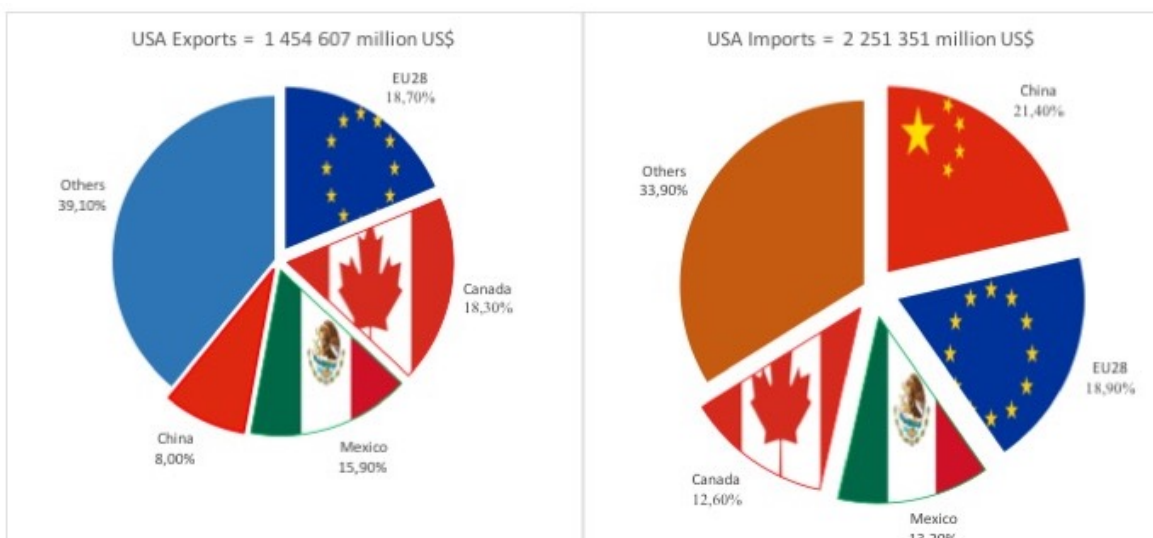
In the case of Mexico, trade relations are more concentrated than for other countries. Mexican exports to, and imports from, the US represent 81% and almost 47% of their total, respectively (Figure 19).

Figure 19 - Total imports and exports, and main trade partners of Mexico (Cullen International based on WTO data, 2016)
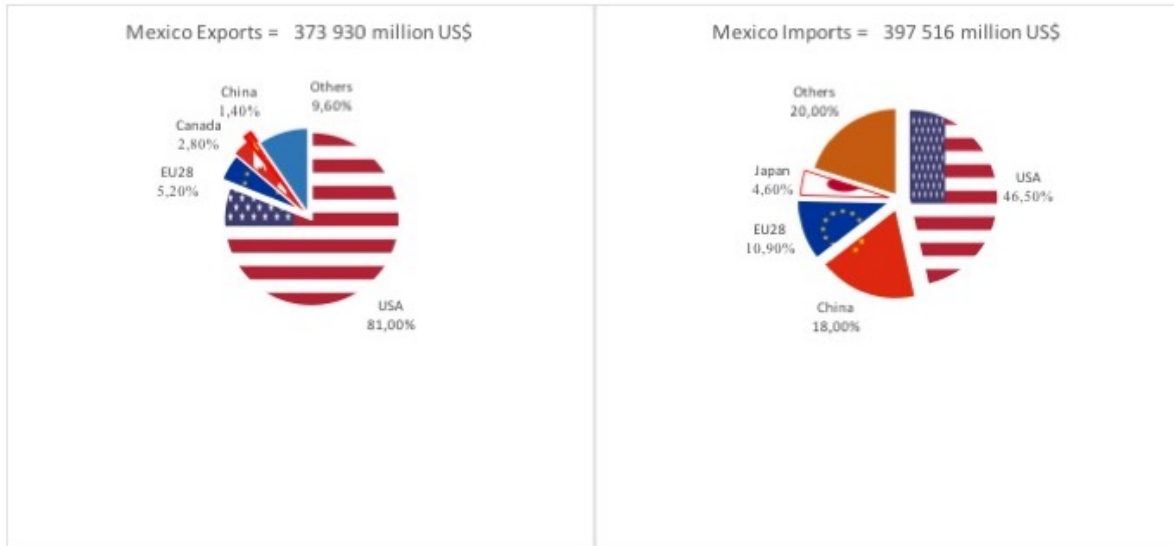
A trusted e-commerce legal framework

The well-developed and fast-growing Asia Pacific e-commerce environment is combined with generally advanced legal and regulatory frameworks.

Among the monitored countries, China is the only one with a regulatory framework for e-commerce still under construction. In its new initiative, China is also aiming to set rules on the fast-developing cross-border e-commerce environment.

Japan adopted a law on "Special Provisions to the Civil Code Concerning Electronic Consumer Contracts and Electronic Acceptance Notice" in 2001 (Act N. 95 of June 29, 2001)[73], and adopted a Law on Electronic Signatures and Certification Services in 2000. The country has Interpretative Guidelines on Electronic Commerce and Information Property Trading[74].

Revised in 2015, the Guidelines explain how the relevant laws and regulations, including the Civil Code, are applied and interpreted with respect to various types of legal problems in the field of electronic commerce in Japan. The Guidelines aim to facilitate transactions by enhancing predictability for the parties involved.

Australia is another example of a country with long standing 'contractual best practice' for e-commerce. In addition to the Australian Consumer Law (ACL, 2011), generally applying to consumer protection and fair trading, the country adopted Guidelines for Electronic Commerce (2006)[75] that specifically apply to B2C e-commerce.

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[73] http://www.japaneselawtranslation.go.jp/law/detail/?id=116&vm=04&re=01
[74] http://www.meti.go.jp/english/press/2015/pdf/0427_01a.pdf
[75] https://archive.treasury.gov.au/documents/1083/PDF/australian_guidelines_for_electronic_commerce.pdf

The Guidelines update and replace the Australian E-commerce Best Practice Model of 2000. They seek to enhance further consumer confidence in electronic commerce by providing guidance to businesses on how to deal with consumers when engaged in business-to-consumer electronic commerce, including as regards fair business practices, accessibility and disability access [76,] engaging with minors, advertising and marketing practices, privacy principles, transparency on the identity and location of the business, the terms and conditions of contracts, payment, security and authentication mechanisms, and redress mechanisms and the applicable used law to resolve contractual disputes.

Singapore first adopted an Electronic Transactions Act (ETA) in 1998. Re-enacted in 2010 and last amended in 2011[77], the ETA follows closely the UN Convention on the Use of Electronic Communications in International Contracts (2005)[78]. The ETA clearly defines the rights and obligations of the transacting parties. It also addresses the legal aspects of electronic contracts and the use of specified security procedures (including digital signatures).

To facilitate the use of electronic transactions in the public sector, the ETA contains an omnibus provision, through which government departments and statutory boards can accept electronic filings and electronic versions of documents without having to amend their respective Acts. It also allows public bodies to issue permits and licences electronically, and specifies that network service providers will not be subject to criminal or civil liability for third-party material, in relation to which they are merely the host. The clause, however, will not affect the obligations of a network service provider under any licensing or other regulatory regime established under the law.

For security procedures such as public key infrastructure (PKI) and biometrics, the ETA provides for the appointment of a controller to enable regulations to be made for the licensing and accreditation of specified security procedure providers, such as certification authorities (CAs), and including the recognition of foreign CAs[79].

In **South Korea**, the Act on Consumer Protection in Electronic Commerce (E-Commerce Act)[80] aims to protect consumers in online transactions and is the main law that governs B2C contracts on the internet.

Standard terms and conditions are also regulated under the Regulation of Standard Contracts Act (RSCA)[81]. Under the RSCA, a business entity using a standard consumer contract may not claim any rights or benefits under the general terms and conditions if it failed to explain the "important contractual items" properly.

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[76] Accessibility means ensuring "*that the delivery of goods or services can be achieved without specialised software or hardware, unless the requirement for such specialised software or hardware is made clear to the consumer beforehand*", while disability access means making "*reasonable adjustment in the provision of goods and services to ensure that they are accessible to people with a disability*".

[77] ETA 1998 and 2011 amendements ('Chapter 88')

[78] From the UNCITRAL website: "*The Electronic Communications Convention builds upon earlier instruments drafted by the Commission, and, in particular, the UNCITRAL Model Law on Electronic Commerce and the UNCITRAL Model Law on Electronic Signatures. These instruments are widely considered standard legislative texts setting forth the three fundamental principles of electronic commerce legislation, which the Convention incorporates, namely non-discrimination, technological neutrality and functional equivalence*." These principles set criteria to aimed at making electronic forms as valid as written documents.

[79] https://www.imda.gov.sg/regulations-licensing-and-consultations/acts-and-regulations/electronic-transactions-act-and-regulations

[80] Most recent Amendment Act No. 11461, 1 June 2012

[81] Most recent Amendment Act No. 14141 of 29 March 2016

The Korean Supreme Court ruled that "important items" means the contractual terms that would typically affect a reasonable consumer's decision to enter into a contract, or how prices are set for the concerned transaction (including, for example, any product warranty or disclaimer of liability). In addition, the RSCA generally provides that unfair provisions in standard consumer contracts are invalid, including a non-exhaustive list of specific provisions that will be invalid if included in a standardised contract.

In **China,** a draft e-Commerce Law was published for public consultation on December 27, 2016[82]. As of August 2017, the law has not yet been approved. Based on the draft, which might still be subject to modification, the scope of the e-Commerce Law encompasses both domestic e-commerce and cross border e-commerce (to which a specific Chapter, the fifth, is reserved). It sets specific obligations on:

- platforms (defined as "*legal person or other organisation providing cyber space, virtual business premises, transaction matching, information distribution and other services to two or more parties to an e-commerce transaction so that the parties may engage in independent transactions*"); and

- e-commerce operators (which are defined as "*any natural or legal person or other organisation, other than an e-commerce business entity, that sells goods or provide services through the internet or other information networks*").

The draft law will also apply to foreign e-commerce websites that target Chinese customers, or a foreign e-commerce platform that allows Chinese vendors to trade on it.

The main obligations of platforms, under the draft law, include to:

- examine and supervise the operational activities of e-commerce operators residing on the platform;

- formulate and publish fair and clear rules for transactions conducted through the platform;

- take necessary measures to provide stable and secure platform services, and keep operation records properly; and

- establish credit evaluation mechanisms, emergency response, and mechanisms for a vendor to terminate its trading activities through the platform.

The draft law:

- sets out the requirements concerning electronic contracts, electronic payments, and delivery services;

- emphasises the importance of personal data protection, specifying the requirements for utilising data generated in e-commerce activities; and

- sets out requirements concerning the authenticity of information, quality control of goods and services, use of standard contracts, and security deposits for customer protection.

Through a dedicated Chapter on cross-border e-commerce, the draft law aims to increase the digitalization and convenience level of customs clearance, tax collection, inspection and quarantine procedure. Electronic receipts and certificates will have the same legal force as paper ones.

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[82] On 27 December 2016, the Standing Committee of National People's Congress (NPC) issued the draft E-commerce Law for public opinion. The draft E-commerce Law will be submitted to the National People's Congress Standing Committee in August 2017 for its second review.

Business operators shall be submitted to the Chinese Regulation, especially regarding the protection of personal information and business data when they carry out cross-border e-commerce activities. The draft law does not include any provisions, however, on product compliance (in terms of product features, quality or labelling).

Privacy and data protection: state of play in Asia Pacific

Recognising the importance of the development of effective privacy protections that avoid barriers to information flows and ensure continued trade and economic growth in the Asia Pacific region, APEC's ministers endorsed common privacy rules in 2004.

The APEC Privacy Framework[83] was last updated in 2015 in order to address the gaps in policies and regulatory frameworks on e-commerce and to ensure that the free flow of information and data across borders is balanced with the effective protection of personal information, essential to trust and confidence in the online marketplace. Ministers endorsed the revised rules in Lima, in November 2016.

Although most Asia Pacific countries have long adopted comprehensive and robust privacy frameworks, only Canada, Japan, Mexico and the US have fully aligned their national legislation to the APEC Privacy Framework of 2004.

Box 2 – APEC: a 'regional' Privacy Framework since 2004

The APEC Privacy Framework promotes a flexible approach to the protection of information privacy across APEC member economies, and the facilitation of cross-border flows of information within APEC. The Framework covers nine key principles, including:
- preventing harm to individuals
- notice
- collection limitation[84]
- uses of personal information
- choice of individuals
- integrity of personal information
- security safeguards
- access and correction
- accountability, and guidance for domestic and international implementation.

The framework leaves flexibility to member economies as regards the enforcement of the rules, that are *"… meant to be implemented in a flexible manner that can accommodate various models of enforcement, including through Privacy Enforcement Authorities, multi-agency enforcement bodies, a network of designated industry bodies, courts and tribunals, or a combination of the above, as member economies deem appropriate*"[85].

Progress on the **implementation** of the APEC Privacy Framework at national level includes the application of information privacy individual action plans (IAPs). To date, 14 economies have published their respective IAPs but only four APEC member economies - Canada, Japan, Mexico and the United States - have fully aligned their privacy laws with the APEC Privacy Framework[86].

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[83] APEC Privacy Framework http://www.apec.org/Groups/Committee-on-Trade-and-Investment/~/media/Files/Groups/ECSG/05_ecsg_privacyframewk.ashx.

[84] From the APEC Privacy Framework: "*The collection of personal information should be limited to information that is relevant to the purposes of collection and any such information should be obtained by lawful and fair means, and where appropriate, with notice to, or consent of, the individual concerned*".

[85] APEC Privacy Framework, 2015 http://mddb.apec.org/Documents/2016/SOM/CSOM/16_csom_012app17.pdf

[86] http://www.apec.org/Groups/Committee-on-Trade-and-Investment/~/link.aspx?_id=CB717EE6184848D396F31DBB814E5C90&_z=z

Cross-border flows of information within APEC: a long way to go

APEC's privacy framework has, among its aims, the facilitation of cross-border flows of information while ensuring privacy and data security.

APEC has established a cross-border privacy enforcement arrangement (CPEA), administered by the US. Participation in the CPEA is voluntary (currently, authorities from nine economies are participating)[87]. The CPEA aims to facilitate information sharing among authorities, provide mechanisms to promote effective cross-border cooperation, and encourage information sharing and cooperation on privacy investigation and enforcement with authorities outside APEC.

The APEC Cross Border Privacy Rules System (CBPR) goes one step further, as it requires the privacy policies and practices of companies operating in the APEC region to be assessed and certified by a third-party verifier (known as an 'accountability agent')[88]. By applying this commonly agreed-upon baseline set of rules, the system aims to bridge domestic differences that may exist amongst domestic privacy approaches.

Four economies are today part of the CBPR. The **United States** was the first formal participant, with the Federal Trade Commission as the first authority to serve as an enforcement authority, from 2013. **Japan**'s Institute for Promotion of Digital Economy and Community (JIPDEC) was approved as the second accountability agent in January 2016. The other two economies are **Canada** and **Mexico**, through the Office of the Privacy Commissioner and the Federal Institute for Access to Information and Data Protection, respectively.

To become an accountability agent, a member economy must comply with a number of prerequisites[89], including full compliance with APEC's Privacy Framework.

International transfer of personal data: different approaches across the Asia Pacific

Very diverse privacy frameworks are still observed across the Asia Pacific. This is also for the regulation of cross-border flows of personal data.

Figure 20 summarises the regulatory approaches on cross-border transfers of personal data, showing whether there is a specific restriction on cross-border flows of personal data. For instance, in some countries, one can only transfer personal data to a country offering a similar level of protection. In other countries, the consent of the data subject is required to allow cross-border flows of personal data. Other countries have mixed or specific requirements for cross-border transfers of data.

In the **US**, there are no specific restrictions. Similarly, **Canada**'s privacy law (PIPEDA) contains no rules prohibiting or restricting cross-border data transfers, although the Federal Privacy Commissioner has issued (non-binding) guidelines stipulating that notice of such transfers be given to affected individuals. In **Chile**, there are currently no restrictions, although a proposal for a more stringent approach is pending in Congress.

Under **Singapore**'s Personal Data Protection Act (PDPA), no organisation can transfer personal data to a country or territory outside Singapore unless to a country or territory where the recipient organisation will provide a standard of protection for the personal data that is comparable to the level of protection prescribed by the rules.

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[87] Australia, New Zealand, US, Hong Kong, Canada, South Korea, Mexico, Singapore, and Japan
[88] http://www.apec.org/Groups/Committee-on-Trade-and-Investment/~/media/Files/Groups/ECSG/CBPR/CBPR-PoliciesRulesGuidelines.ashx
[89] For details see: http://www.cbprs.org/GeneralPages/APECCBPRSystemDocuments.aspx

A similar framework to Singapore exists in **Peru** (art. 15, Personal Data Protection Law of 2011), as well as in **Australia**, where the current privacy rules[90] set out specific requirements for the disclosure of personal information to a person who is not in Australia or an external territory. These are based on a 'reasonable steps' test, assessing that the level of protection in place in the receiving country is similar to the protection mandated in Australia.

In South **Korea**, the user's consent for the transfer of data outside the country is required under Article 17(3) of the Personal Information Protection Act. In addition, under the IT Network Act of 2015, the user's consent is required for the following types of personal information: (a) provision of personal data to a third party (for the third party's benefit) (including cases where the personal information of Koreans is accessed from abroad); (b) outsourcing of processing; and (c) storage of personal data outside of Korea. In cases of (b) and (c), exemptions may apply[91]. Data localisation requirements also apply.

Figure 20 - Regulatory approaches in Asia Pacific on cross-border transfers of personal data (Cullen International)

Country	No specific restrictions	Same level of protection	Data subject consent	Case by case assessment
Australia		●		
Canada	●			
Chile	●			
China				●
Japan		●		
Korea			●	
Mexico			●	
Peru		●		
Singapore		●		
US	●			

In **Mexico**, under the Federal Data Protection Law of 2010, the data controller can only transfer personal data to a third party within or outside Mexico if compliance with the privacy rules agreed by the data owner is ensured[92].

Japan's 2003 personal data protection Law (APPI) was amended in September 2015, and cross border personal data transfers are now subject to more restrictive rules. The APPI

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[90] https://www.oaic.gov.au/agencies-and-organisations/app-guidelines/chapter-8-app-8-cross-border-disclosure-of-personal-information

[91] http://www.law.go.kr/lsInfoP.do?lsiSeq=176679&chrClsCd=010203&urlMode=engLsInfoR&viewCls=engLsInfoR#0000

[92] Some exceptions apply, according to Art. 37 of the Mexican Federal Data Protection Law, including if the data transfer is allowed by an international treaty signed by Mexico. More information available at: http://www.diputados.gob.mx/LeyesBiblio/pdf/LFPDPPP.pdf

prescribes three types of legitimate transfers of personal information to a third party in a foreign country:

- transfers to a country that the data protection authority, PPC, has designated as having an acceptable level of data protection;

- transfers to a third party in a foreign country in circumstances in which actions have been taken to ensure the same level of data protection as in Japan (such as entering into a data transfer agreement, imposing obligations on the transferee meeting the requirements of the APPI); or

- transfers with the data subject's consent.

China still lacks a unified national data protection law. A large number of provisions governing the processing of personal information have emerged across a range of laws and regulations: there are currently about 40 laws, 30 regulations and 200 articles regarding personal data collection, storing and use[93].

A new Cybersecurity Law[94] adopted by the Chinese Congress on November 7, 2016 and in force from June 1, 2017 addresses a number of aspects regarding privacy, data protection and transfer of data outside the country. The new Law has created concerns among international investors[95].

Box 3 – New Cybersecurity Law in China

The Cybersecurity Law contains a number of cybersecurity requirements and key provisions regarding:

- critical information infrastructure

- security requirements for network operators

- personal information protection and data localisation requirements

- restrictions on the transfer of personal information and business data overseas

- administration and enforcement.

Real-name system and personal information protection

According to the law, where network operators provide network access and domain registration services for users, handle network access formalities for fixed-line or mobile phone users, or provide users with information services, instant messaging services and other services, they shall require users to provide true identity information when signing agreements with users or confirming the provision of services.

If any user fails to provide his or her true identity information, the network operator shall not provide him or her with relevant services. "Network operator" means the owners and administrators of the network as well as network service providers. This definition includes telecommunications operators, online service providers, and may also include financial institutions that collect personal data and providers of cybersecurity services[96].

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[93] https://wenku.baidu.com/view/b09d6796da38376bae1fae5d.html
[94] www.npc.gov.cn/npc/xinwen/2016-11/07/content_2001605.htm
[95] Some have commented that the new Law will increase costs for multinationals, leave them vulnerable to industrial espionage, and give Chinese companies an unfair advantage. See for example: https://www.ft.com/content/b302269c-44ff-11e7-8519-9f94ee97d996
[96] See Overview of China's Cybersecurity Law by KPMG. Available at: https://assets.kpmg.com/content/dam/kpmg/cn/pdf/en/2017/02/overview-of-cybersecurity-law.pdf

The Law covers how network operators shall keep personal information on users collected by the operators strictly confidential and protected. The Law establishes a ban on the collection and sale of users' personal information, and prevents information leakages, damages and loss. It restricts the amount of personally identifiable information that any network operator can collect, sets limits on personal information transfers, and gives individuals the right to request that personal information be deleted if mishandled.

Restrictions on the transfer of personal information and business data overseas

Personal information and important data collected and produced by critical information infrastructure operators[97] during their operations within the territory of the People's Republic of China must be stored in China.

International data transfers for business requirements are subject to security assessment in accordance with the measures developed by the national cyberspace administration in conjunction with relevant departments of the State Council (unless it is otherwise prescribed by any law or administrative regulation).

The Law further states that where any overseas institution, organisation or individual attacks, intrudes into, disturbs, destroys or otherwise damages the critical information infrastructure of the People's Republic of China, causing any serious consequence, the violator shall be subject to legal liability. The public security department of the State Council and relevant departments may decide to freeze the property of or take any other necessary sanctioning measure against the institution, organisation or individual.

Administration and enforcement

The National Cyberspace Administration (NCA) also known as the central internet oversight and control agency for the China, is responsible for the overall planning and coordination of cybersecurity work, and relevant supervision and administration.

The NCA shall also develop and release the catalogue of key network equipment and specialised cybersecurity products, promoting the mutual recognition of security certification and security detection results to avoid repeated certification and detection.

Different levels of adoption of e-payments

The availability of secure, trusted and affordable e-payment systems is one of the most significant enablers for B2C e-commerce adoption and growth. There are four main types of online retail payments:

- card payments: made with a debit or credit card;

- e-wallets: like the American PayPal and the Chinese Alipay, which are among the fastest growing online payment instruments around the world[98];

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[97] Definition: "*Regarding cybersecurity protection, the state emphasises the protection of critical information infrastructure in public communications and information services, energy, finance, transportation, water conservation, public services and e-governance, as well as other critical information infrastructure that could cause serious damage to national security, the national economy and public interest if destroyed, functionality is lost or data is leaked*". See Overview of China's Cybersecurity Law by KPMG.

[98] According to a 2017 report by Worldpay, the use of electronic wallets has surpassed debit card use in the US by 7%, and will overtake credit cards within the next five years. Worldwide, the use of e-wallets will however grow faster in other regions. Between 2017 and 2021, the US market is expected to have a compound annual growth rate (CAGR) of 9.8%, while the global market will see a CAGR of 11.1% over the same period, with e-wallets accounting for 45.9% of the payments market in 2021. These trends are due to the US market not growing as fast as before, while Latin America will see a CAGR of 19% over the forecast period, and Asia Pacific will see a 12% CAGR.

- mobile payments (m-payments), made with a mobile device, which can either be remote payments (via internet or SMS) or payments at the point-of-sale, using technologies such as NFC (Near Field Communication) with specially equipped phones; and

- bitcoin and other digital currencies, created and held electronically, managed anonymously by a peer to peer network and with an open technology platform.

According to a study by Australia's RMIT University and TRPC consultancy and with the support of PayPal, APEC economies are undergoing a profound transition towards cashless societies, driven by the spread of mobile devices, increasing access to the internet, and the emergence of digital payments[99].

Nevertheless, APEC is a very diverse landscape for e-payments. While the US and Singapore rank at the top in terms of the robustness of regulatory and consumer protection, e-payments in China are mainly based on new, domestically-driven mobile payment and e-wallet applications.

What makes the e-payment systems of Asia Pacific countries so unique?

In **Australia**, the ePayments Code regulates consumer electronic payment transactions, including ATM, EFTPOS and credit card transactions, as well as internet and mobile banking. Australia Securities and Investment Commission (ASIC) is responsible for the administration and periodic update of the ePayments Code.

Although a voluntary code of practice, the Code has been playing an important role in the regulation of electronic payment facilities in Australia since 1985.

It complements other regulatory requirements, including financial services and consumer credit licensing, advice, training and disclosure obligations under the Corporations Act 2001 and the National Consumer Credit Protection Act 2009. The Code:

- requires subscribers to provide consumers with the applicable terms and conditions, information about changes to terms and conditions (such as fee increases), receipts and statements;

- sets out the rules for determining who pays for unauthorised transactions; and

- establishes a regime for recovering mistaken internet payments.

In 2009, **Singapore** started promoting the use of Contactless e-Purse Applications (CEPAS), traditionally used in public transport services, for uses going beyond transport, with a number of new contactless point-of-sales terminals being made available across various cash-based segments, such as food courts, provision shops and convenience stores across Singapore. In 2010, the terminals already generated over 94 million e-payment transactions per year, converting a significant number of cash-based payments to e-payments.

In 2016, the government adopted a new roadmap to 2020 for the creation of an "e-payments society"[100]. The roadmap aims to create a single regulatory framework, strengthening consumer protection, and making regulation more targeted, based on the specific payment activities that businesses need to undertake.

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[99] The "*APEC Fintech E-payment Readiness Index: Ecosystem Assessment and Status Report*" is a specific index on e-payments measuring APEC economies. It analyses each economy from four different perspectives (regulatory and policy environment, infrastructure availability[99], demand[99], and innovation), assuming that there is a strong and growing link between e-payment penetration and economic growth.
[100] http://www.mas.gov.sg/News-and-Publications/Speeches-and-Monetary-Policy-Statements/Speeches/2016/An-Electronic-Payments-Society.aspx

Under the new regulatory framework, providers of payment services require only one licence to conduct multiple payment activities in Singapore. Safer conditions for financial information against cyber-attacks and the interoperability of theft and e-payment services are other key elements of Singapore's roadmap.

Box 4 – China: e-Payments are supporting e-commerce growth

Driven by the explosive growth of internet finance, China is witnessing a boom in its e-payment market. The value of Chinese third-party mobile payments at the end of 2016 reached 38 trillion yuan (US$5.5 trillion)[101].

With 400m users, **Alipay,** created by the leading e-commerce group Alibaba, is the world's leading third-party payment platform founded in 2004. In 2014, Alipay was rebranded Ant Financial Services Group. Ant Financial is "dedicated to creating an open ecosystem, enabling financial institutions and partners to make rapid progress towards inclusive financial services to small and micro enterprises and individual consumers"[102].

Businesses operated by Ant Financial and its invested/controlled companies include Alipay, Ant Fortune, Zhima Credit, MYbank and Ant Financial Cloud, covering payment, wealth management, independent credit scoring and reporting, private bank and cloud computing services. Alipay is now also providing online payment and tax refund services for overseas Chinese tourists by teaming up with local payment agencies and businesses.

The platform has also signed cooperation deals with payment service providers in the US, the UK, Germany, France, Japan, South Korea, Australia, New Zealand, Russia and Brazil[103].

China's **WeChat Wallet** service was created by WeChat, China's most popular chat app, with over 889 million users at the end of 2016[104].

The company, owned by the Chinese Tencent group, launched the WeChat Wallet e-payments service in 2013. While Alibaba's Taobao and Tmall remain the most popular e-commerce websites in China, WeChat has turned into a platform of ecommerce platforms. Small business owners have opened up online stores in the platform, including Alibaba rival JD, which has moved its e-commerce site there. In addition, many retailers have adopted WeChat's payment system as an alternative to cash and credit cards. Tencent now accounts for 37% of China's mobile payment industry[105].

Outside China, the WeChat Wallet service is currently available in Hong Kong and South Africa but account registration in mainland China is currently needed.

Observing successful APEC experiences on e-payments, we can conclude that key enablers to boost the use of electronic payments include:

- **Specific e-payments guidelines**: including codes of practice, best practices and even specific rules. It is essential that the guidelines are regularly adapted to the new technologies and means of payment available in the market, and that there is a simple licensing procedure to become an e-payment intermediary.

- **Transparency**: users are duly informed about terms and conditions of e-payments.

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[101] Source: Financial Times. The newspaper underlines that the rise of Chinese mobile payments has been driven by both online shopping and internet financial services, such as peer-to-peer lending and online money market funds, and that over half of all mutual funds in China are now sold online, up from only 5 per cent in 2012. https://www.ft.com/content/00585722-ef42-11e6-930f-061b01e23655
[102] https://www.antfin.com/introduction.htm?locale=en_US
[103] http://www.chinadaily.com.cn/business/tech/2017-02/27/content_28359080.htm
[104] According to WeChat, 50% of users spend on average 90 minutes per day inside the app.
[105] http://www.iresearchchina.com/content/details7_32187.html

Transparency rules do not need to be e-payment-specific: transparency rules from general consumer protection laws or the finance sector can apply to electronic payments.

- **Government support**: e-payments are allowed and fostered in government services. Possible examples include payment of taxes and other administrative fees, public e-procurement platforms and even e-payment solutions for public transportation and other public services.

In chapter 2.3 of this study, we describe the main e-payment approaches in Latin America and discuss how they compare with the corresponding practices in the Asia Pacific region.

A litigious intellectual property environment

APEC's strategic roadmap for achieving free and open trade and investment in the Asia Pacific region includes activities to strengthen intellectual property rights (IPR)[106].

APEC included IPR in the 1995 Osaka Action Agenda and, in 1996, the Committee on Trade and Investment (CTI) promoted informal discussions on IPR, which one year later became an official working group, the Intellectual Property Rights Experts' Group (IPEG).

IPEG activities are carried out to ensure that the principles contained in the World Trade Organisation's (WTO) Agreement on Trade-Related Aspects of Intellectual Property Rights (TRIPS Agreement) are fully implemented by APEC's members[107].

All APEC's member economies are part of the WTO, and consequently are also parties to the TRIPS Agreement (TRIPS accession is mandatory upon request of membership to the WTO). APEC economies jointly agreed to cooperate in the implementation of the TRIPS agreement in 2000[108].

In 2005, Ministers endorsed[109] APEC's Anti-Counterfeiting and Piracy Initiative and endorsed the model guidelines[110] to stop international trade in counterfeit and pirated goods, reduce on-line piracy, and prevent the sale of counterfeit and pirated goods over the internet.

Economies recognised that e-commerce creates a new channel for the distribution of counterfeit and pirated goods, and that such use of the internet not only causes serious infringement of intellectual property rights but also threatens the health and safety of consumers.

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[106] Intellectual property (IP) refers to creations of the mind, such as inventions, literary and artistic works, designs, symbols, names and images used in commerce. IP comprises industrial property rights (such as patents and utility models for inventions, industrial designs, trademarks, geographical indications and protection against unfair competition), copyright (also referred to as author's right) and related rights (also referred to as neighbouring rights, protect the legal interests of persons or legal entities that contribute to making works available to the public. It also encompasses works which contain a sufficient level of creativity or organisation skills that justify the recognition of a copyright-like property right).

[107] TRIPS, like most of the WTO's agreements, is the outcome of the 1986-94 Uruguay Round (when the WTO was established). It is the first agreement to introduce intellectual property (IP) rules into the multilateral trading system. For more information, see https://www.wto.org/english/tratop_e/trips_e/trips_e.htm
It should be noted that TRIPS does not derogate the existing IP obligations that members may have to each other under the Paris Convention, the Berne Convention, the Rome Convention, and the Treaty on Intellectual Property in Respect of Integrated Circuits (administered by WIPO). A WTO-WIPO cooperation agreement was signed by the two organisations in 1995 to establish mutual support on the implementation of IP provisions.

[108] Declaration in Darwin, Australia, June 2000 http://www.apec.org/Meeting-Papers/Sectoral-Ministerial-Meetings/Trade/2000_trade/annex_c.aspx

[109] http://www.apec.org/Meeting-Papers/Leaders-Declarations/2005/2005_aelm

[110] http://www.asianlii.org/apec/other/agrmt/tmgaaapi593/

Since then, APEC economies have conducted common efforts to share information and enhance customs border enforcement, to fight counterfeiting and piracy and to strengthen IPR enforcement at borders[111].

APEC, through IPEG, has taken responsibilities to:

- facilitate technical cooperation for the implementation of the TRIPS Agreement by APEC's members;

- exchange information on the status of IPR protection and administrative systems; and

- study measures for the effective enforcement of IPR.

IPEG has also been dedicating part of its discussions to the enforcement of IP in the digital environment. Facilitation of rights, awareness tools, information sharing and transparency in the digital era are some of the topics covered by some of APEC's IPR projects.

Despite the many regional and sub-regional efforts across Asia Pacific, IP protection, counterfeiting and copyright remain very controversial issues, with major litigations involving industrial groups from many of the countries that are part of APEC.

Copyright protection at regional level

Statista has drawn a global ranking of the ten countries with the highest number of media piracy site visits in 2016[112]. According to Statista, the top country was the Unites States, with about 20.36bn visits to media piracy sites, followed by the Russian Federation and India.

Brazil is the only Latin American country appearing in Statista's list, ranking fourth with 8.37bn visits. The other countries in the list are European countries. As discussed in a 2016 study by the CAF,[113] several Latin American countries currently cooperate at a regional level in the field of movie production and distribution.[114]

Copyright protection and online piracy are a significant concern, and the industry has been promoting, including through the Alianza Initiative[115], several initiatives to fight copyright infringements, mainly affecting an otherwise flourishing pay TV sector.

In the Asia Pacific region, the Asia Pacific Screen Academy[116] is an industry-led initiative promoting awareness and knowledge sharing on intellectual property rights and their relevance for a flourishing creative industry.

Established in 2008, the initiative aims to encourage dialogue and collaboration among the region's filmmakers. The Academy gathers over 1,000 film experts and practitioners from the region.

Nevertheless, in Asia Pacific, as in Latin America, geo-blocking remains the most common approach to fight copyright infringements involving access from another country to

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[111] See http://www.mofa.go.jp/policy/economy/apec/2005/initiative-1.pdf and http://www.apec.org/Groups/Committee-on-Trade-and-Investment/Intellectual-Property-Rights-Experts-Group/~/media/Files/Groups/IP/06_sccp_IPR_Strategies_Inventory.ashx

[112] https://www.statista.com/statistics/786046/media-piracy-site-visits-by-country/

[113] Building a Digital Single Market for Latin America (a study by Cullen International for CAF)

[114] The establishment of an Iberoamerican audiovisual market is an example seen in *Programa Ibermedia* which intends to launch a VOD platform of regional movies, supported by *Conferencia de Autoridades Cinematográficas de Iberoamérica* (CACI): http://caci-iberoamerica.org/

[115] http://www.alianza.tv/es/

[116] http://www.asiapacificscreenawards.com/the-academy/?_ga=2.95700892.128684132.1506688305-1395336553.1506688305

copyright-protected content (considering copyright licences are usually assigned at national level).

<div style="border:1px solid">

Box 5 - Regulation of content production and distribution in China

China has introduced specific rules on content production and distribution, setting limitations on non-Chinese content distribution. Rules introduced by the Administration of Radio Film and Television (SARFT[117]) in 2014 reportedly helped to set some limits to online piracy in the country.

The 2014 regulations established that no user self-generated content would be allowed to be distributed online. The decision aimed to bring the regulatory scenario of online video distribution in line with regulations applying to open and pay TV services.[118] Broadcasters and streaming services are also not allowed to dedicate more than 30% of their programming to foreign content.[119]

In 2016, the economic contribution of the TV and movie industry to the Chinese economy was led by free to air (FTA) television services, followed by other TV services[120], cable TV and IPTV. Over the top (OTT) services were last on the list of contributions to the GDP, the creation of jobs and the collection of taxes[121].

Video on Demand (VoD) revenues in China equated to 9% of cable TV revenues in 2016, confirming that OTT services have a great potential to grow. However, whereas world leading video platforms and subscription VoD services are gaining ground worldwide, the largest subscription VoD services providers in China are national platforms: YouKu Tudou (31%), iQiyi (34%) and Tencent Video (20%).

The largest worldwide video sharing platform, YouTube, has been blocked in China since March 2009. Chinese regulators also blocked Netflix from operating in the country, and the company has entered into an agreement with national platforms, such as iQiyi and Sohu, to distribute part of its content for Chinese viewers.[122]

</div>

The EU is the only region in the world having promoted a regulation, binding on all EU member states, on the cross-border portability of online content services in the internal market[123].

The regulation requires providers of portable online content services offered against payment, such as Netflix and Sky Now TV, to offer to their subscribers who are temporarily outside their country of residence the cross-border portability of the services they have subscribed to in their country of residence, at no additional charge. Services provided for free, such as the BBC iPlayer, could opt into the portability system under certain conditions.

Providers do not need to seek an additional copyright licence (for the country of temporary presence) but must verify the country of residence of the subscriber by choosing (maximum two) of the listed verification means (e.g. bank details), unless otherwise agreed with the rightsholders. Residence verification can be repeated (after the conclusion or the renewal of the contract) in case of reasonable doubt.

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[117] http://in.china-embassy.org/eng/mt/jyjs/t61109.htm

[118] https://www.forbes.com/sites/ericxlmu/2014/07/17/new-sarft-regulations-worry-internet-tv-industry/#601135fd714e

119 https://techcrunch.com/2016/09/06/lost-in-translation-streaming-in-china/

[120] Television production and technical services

[121] https://www.mpaa.org/wp-content/uploads/2017/12/MPAA_China_2016_WEB-2.pdf

122 http://money.cnn.com/2017/04/26/technology/netflix-china-baidu-iqiyi/index.html

[123] Regulation (EU) 2017/1128 of the European Parliament and of the Council of 14 June 2017 http://eur-lex.europa.eu/legal-content/EN/TXT/?uri=uriserv:OJ.L_.2017.168.01.0001.01.ENG&toc=OJ:L:2017:168:TOC

> ### Box 6 - Copyright protection: APEC model guidelines
>
> In 2005, APEC ministers endorsed specific model guidelines, which, although not binding on member economies, should provide guidance on how to reduce on-line piracy, protect against unauthorised copying in digital form, and promote a safe and secure environment for the continued growth of electronic commerce.
>
> The model guidelines are meant to be "indicative references that may be useful to members in improving IPR protection and enforcement regimes; however, they do not mandate changes to existing law"[124].
>
> As regards copyright protection, in sum the guidelines recommend to:
>
> - empower rights holders to secure their creative expressions in the digital environment by granting rights holders exclusive rights to authorise or prohibit direct or indirect reproduction, rental and the making available to the public of their works, including by means of on-demand, interactive communication;
>
> - provide in law and in fact civil, criminal, and, where applicable, administrative enforcement procedures and penalties in connection with online piracy that are available, effective against unauthorised copying in digital form, and that are sufficient to deter infringement in the digital environment; and
>
> - support consumer education campaigns to discourage infringement of copyrights and neighbouring rights.
>
> Nevertheless, national legal frameworks for copyright protection in the digital environment are still not sufficiently harmonised across the region.

ACTA

Several Asia Pacific economies are signatories to the Anti-Counterfeiting Trade Agreement (ACTA), a multilateral treaty establishing international standards for intellectual property rights enforcement.

ACTA aims to establish an international legal framework for targeting counterfeiting infringements, including copyright infringements on the internet, and would create a new specific governing body for enforcement purposes.

The agreement was signed in October 2011 by nine countries (eight of which are APEC countries): Australia, Canada, Japan, New Zealand, Singapore, South Korea and the United States). Other countries joined in 2012, including Mexico.

However, to date, Japan is the only country to have ratified the agreement, which needs ratification by at least six signatories in order to come into force.

Sub-regional cooperation

Individual countries in the region have been engaging in different forms of collaboration in the field of IP protection.

There is full awareness that, within APEC, some countries are world leaders in terms of the industrial exploitation of patents, while other countries are lagging behind. From 2015, China has become the top nation in the world in terms of patents granted each year, with the US now in second place. Korea, Japan, Canada, Russia, Australia, and Singapore are also

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[124] APEC model guidelines, 2005 http://www.asianlii.org/apec/other/agrmt/tmgaaapi593/

economies that show excellence in terms of R&D, innovation, and related industrial exploitation. This is not the case of the smaller and much poorer APEC economies, which are net recipients of technical assistance projects from the most advanced ones.

Box 7 – Korea's "Appropriate Technology" project

The appropriate technology project was endorsed by the APEC Intellectual Property Experts Group (IPEG) in 2013 and is self-funded by Korea. The objective is "to narrow the development gap between APEC member economies and to boost global prosperity".

The project is about finding and adapting IP information to the needs of developing communities within APEC.

The Korean Intellectual Property Office has been supporting developing communities to find examples of pre-existing technologies, including inventions with expired patents, and adapt them to their local needs.

The idea behind the project is that "*expired patents are often an ideal resource for developing economies, simply because the logistics, skills and components required to keep cutting-edge, patented technologies working are unavailable*".

The Korean Intellectual Property Office has been building a database of appropriate technologies[125], accessible through its website.

Within APEC, they have so far supported projects in the Philippines, Papua New Guinea, Vietnam and Indonesia.

Collaboration also exists among more advanced APEC economies. One example is the trilateral cooperation between China, Japan and South Korea.

Box 8 - Japan, China and South Korea's trilateral patent office ("Tripo")

The trilateral cooperation between the Japan Patent Office (JPO), the State Intellectual Property Office of the People's Republic of China (SIPO), and the Korean Intellectual Property Office (KIPO) was established in 2003.

Since then, the three countries have established the www.tripo.org website to provide information on the respective countries' laws, regulations and training information, in the English language.

Under a (rotating) leadership, the offices gather annually to agree on the cooperative plans to be submitted to the Trilateral Policy Dialogue Meeting.

In their November 2015 meeting, the three offices published their assessment of requirements for amending patents applications, a study expected to be useful for users who intend to file applications and secure exclusive industrial property rights in the three countries.

The offices also discussed possible further cooperation in a wide variety of fields, including patent examinations, appeals and trials. Cooperation under the Trilateral Cooperation focuses on three pillars, in accordance with a Roadmap adopted in 2011[126]:

• IP laws and practices, such as patent examination;

• automation, such as machine learning; and

• services to users, such as training and seminars and public access to the Tripo website.

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[125] http://www.kipo.go.kr/kpo/user.tdf?a=user.english.html.HtmlApp&c=910162&catmenu=ek02_04_02_02
[126] http://www.tripo.org/secondpage/sjhzlxt.html#pos

Collaboration has also been taking place bilaterally. The recent collaboration signed between China and Australia is one of many examples.

Box 9 - Australia-China cooperation on IP

China and Australia have agreed on a common framework against cyber-enabled theft of intellectual property, trade secrets or confidential business information.

The two countries have agreed to share information and conduct potential joint law enforcement operations to fight transnational cybercrime and stop industrial hacking[127]. Industrial hacking of western businesses in China, including the theft of intellectual property, has been estimated to cost up to US$160bn a year[128].

Among the milestones of this cooperation is the formal Dialogue on Innovation Agreement signed between the countries in March 2017[129]. China and Australia will cooperate at government, business and research sectors levels.

Both countries will contribute up to AUD 6m (US$4.7m) over three years, to fund projects developed by the joint research centres working under the Australia-China Science and Research Fund (ACSRF). The fund supports strategic science, technology and innovation collaboration.

Australia and China have also established a new Memorandum of Understanding on Intellectual Property to strengthen the bilateral cooperation on the protection of intellectual property.

The new enhanced Memorandum of Understanding was signed between the State Intellectual Property Office of the People's Republic of China and IP Australia. The new agreement deepens the existing cooperation between Australia and China on intellectual property matters and supports the role of a newly created Australian IP Counsellor to China.

Excellence in R&D in individual APEC economies

Countries fostering research and development (R&D) are usually also the ones with the highest standards in IPR protection. Although R&D encompasses many different areas, policies fostering investment and research in ICT-related areas are among the largest in the Asia Pacific region. Topics of interest currently include big data, cybersecurity, e-government, smart cities and the internet of things (IoT).

Among the countries surveyed, **Japan** created the first government agency focused on ICT issues. IT strategic headquarters were established in 2001 and are supervised by the Prime Minister of Japan and his Cabinet. Since then, Japan has been adopting multi-annual strategies for ICT development. The latest ICT strategy, Smart Japan, sets the priority ICT policies until 2020.

The Ministry of Internal Affairs and Communications (MIC) is funding R&D activities under its "Strategic Information and Communications R&D Promotion Programme (SCOPE)". The programme has been fostering projects on standardisation, network infrastructure technologies, big data, communications platform technologies for smart grids, high-speed large-capacity and low-power optical network technology, electromagnetic wave sensing technologies, neural information communications technologies, technologies for achieving

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[127] https://www.itnews.com.au/news/australia-china-ink-agreement-to-stop-industrial-hacking-459387
[128] https://www.itnews.com.au/news/aussie-mining-tech-firm-counts-cost-of-chinese-hacking-405753
[129] http://minister.industry.gov.au/ministers/sinodinos/media-releases/dialogue-strengthen-innovation-ties-between-australia-and-china

ICT networks that are resilient to disasters, and space communication technologies, amongst others[130].

The MIC has also proactively been promoting international adoption of ISDB-T, Japan's standard for digital terrestrial broadcasting television.

Japan has many ICT research and development collaborations, including with:

- ASEAN countries[131] since 2004 - the Japan-ASEAN ICT Fund invests in human resource development and joint research on ICT issues and the Japan-ASEAN Integration Fund[132] (JAIF) was created in 2006 with an announced contribution by the government of Japan of JPY 7.5bn (US$68.32m) and is used to support the ASEAN coordinating centre for humanitarian assistance on disaster management (AHA Centre), and

- the EU, under a bilateral R&D agreement signed in 2011[133].

In **Singapore**, the National Research Foundation (NRF) is responsible for promoting ICT research and innovation under the umbrella of the Research, Innovation and Enterprise Council (RIEC), chaired by the Prime Minister.

Government continues to sustain its R&D spending at about 1% of GDP. The National Research Foundation (NRF) recently announced the Research, Innovation and Enterprise 2020 (RIE2020) master plan, with a SGD 19bn (US$13.5bn) budget until 2020.

RIE2020 has a special programme on Services and Digital Economy, funding research in areas related to the digital economy, including urban mobility, healthcare and data mining.

Smart Nation is a national initiative on smart cities launched by the Prime Minister in 2014[134].

Singapore has identified five key sectors in which digital technology is deemed having a significant impact on the city: transport, home and environment, business productivity, health, the elderly and citizen services. In this programme, the government offers "infrastructure, policies and enablers to encourage innovation".

Government spending in R&D has increased dramatically in Singapore over the past 20 years, as is shown in Figure **21**[135].

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[130] http://www.soumu.go.jp/english/gisb/
[131] Currently Indonesia, Malaysia, the Philippines, Singapore, Thailand, Brunei, Cambodia, Laos, Myanmar and Vietnam.
[132] The fund has the following purposes: (i) support efforts of ASEAN countries to promote ASEAN integration; (ii) support activities of the ASEAN Security Community (ASC), the ASEAN Economic Community (AEC) and the ASEAN Society and Culture Community (ASCC) to rectify the disparities within the region; (iii) promote cooperation between Japan and ASEAN countries; and (iv) support activities of regional and sub-regional organisations. The fund has been investing to promote cooperation within the region on a number of topics: competition law, education exchange, human rights and disabled people, etc. More information available at: http://www.mofa.go.jp/mofaj/area/asean/j_asean/jaif.html&prev=search
[133] http://ec.europa.eu/research/iscp/pdf/policy/japan_agreement.pdf#view=fit&pagemode=none
[134] https://www.smartnation.sg/about-smart-nation/enablers
[135] Exchange rate: 1 SDG = US$0.713

Figure 21 - Singapore government spending in R&D (nominal value in US$ billion. Cullen International, based on APEC)
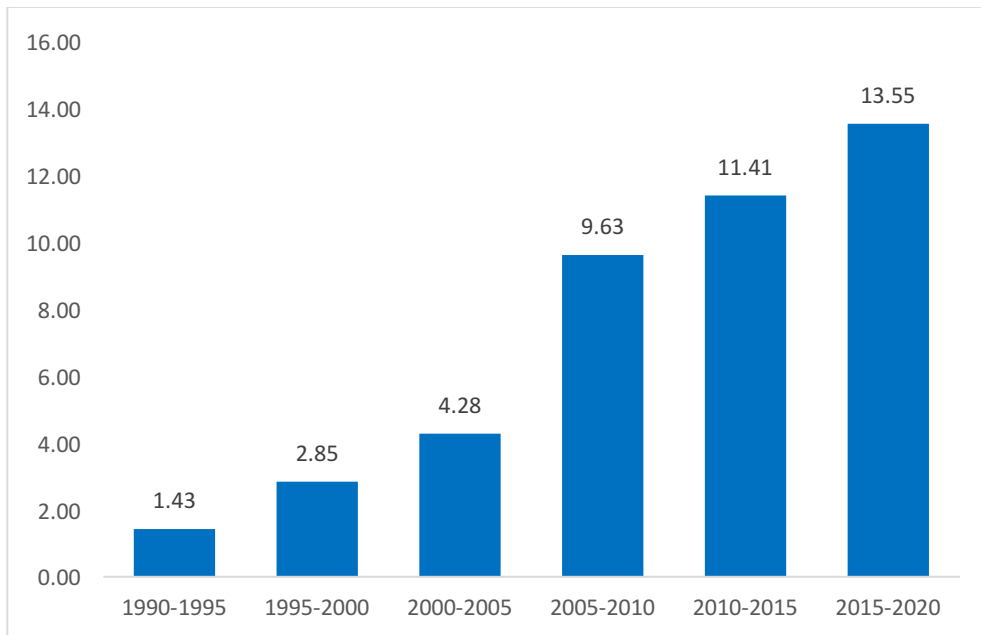
In **South Korea**, digital economy policies are led by the Ministry of Science, ICT and Future Planning (MSIP). Within its "Creative Economy Policy" the government committed to invest approximately US$8.1bn from 2013 to 2018 to promote ICT research and development. The Creative Economy Policy is very comprehensive, ranging from 5G mobile communications, smart vehicles, or intelligent robotics to deep-sea offshore plants and intelligent semiconductors.

South Korea agreed in June 2015 to conduct a US$80m joint research programme with the European Union. Areas of interest for this cooperation include: 5G-next generation communication networks, IoT, cloud services, CO2 capture technologies and nano-safety.

China has a single government agency promoting ICT research and development, the Ministry of Information Industry (MIIT). The MIIT has broad competences, as it is responsible for the regulation and development of the postal service, internet, wireless, broadcasting, communications, production of electronic and information goods, software industry and the promotion of the national digital economy.

The main responsibilities of the ministry include: China's industrial planning, policies and standards; monitoring of the daily operation of industrial branches; promotion of the development of major technological equipment and innovation in the communication sector; providing guidance on the construction of information system; and safeguarding China's information security.

Australia has a wide range of policies related to digital economy topics, ranging from smart cities and cybersecurity, to big data and e-government. Policies are implemented using a complex institutional framework with a number of government agencies involved.

The Smart Cities Plan, the cybersecurity strategy, and the e-government initiative are managed by the Department of the Prime Minister and Cabinet, suggesting these policies have a high-priority status for the administration.

The Smart Cities Plan[136] was launched in 2016 and comprises City Deals to coordinate investments between the federal, state and local governments. The policy is inspired by the UK's City Deals[137]. On November 17, 2017, the Assistant Minister for Cities and Digital Transformation announced that 52 projects will benefit from a total of AUD 28.5m (approx. US$21.7m)[138] in Australian Government funding through the Smart Cities and Suburbs Program[139], which invests in technology development for smart cities. These projects will be co-funded by partners including local governments, industry, research organisations and the private sector. A second funding round is expected to open for applications in the first half of 2018.

Australia's cybersecurity strategy[140] was launched in April 2016. Australia also engaged in a policy dialogue with New Zealand on this matter[141].

Overall, three institutional aspects are remarkable among the countries surveyed.

First, ICT-related research and development projects benefit from a high political priority in several countries, often deserving of the significant attention of the prime minister. For example, in Singapore, the Smart Nation initiative was launched by the prime minister. In Australia, the Smart Cities Plan, the cybersecurity strategy and the e-government initiative are managed by the Department of the Prime Minister.

This political priority is also demonstrated by the large budget allocated to ICT-related research and development initiatives, and by the long-term planning timeframe in some countries surveyed (e.g. in Japan and South Korea). ICT-related research and development projects have a long history in some APEC economies (e.g. Japan). This experience of specific countries is presumably shared with other economies, contributing to improving the performance of the cooperation arrangement.

Secondly, we can highlight the close cooperation between government, research institutes and local and foreign companies, leading to a more effective investment in research and development activities that are either demanded by the industry in the short term or deemed as disruptive technologies in the medium or long term.

Finally, APEC economies tend to include under the scope of research and development initiatives a wide range of issues, although only a few topics remain as the most frequently addressed, including big data, cybersecurity, e-government, smart cities and the internet of things (IoT). There seems to be a significant level of consensus that these issues are top priorities, although APEC economies tend to diversify their R&D efforts also to include issues of domestic interest.

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[136] https://cities.dpmc.gov.au/smart-cities-plan/documents/48080/download
[137] https://www.gov.uk/government/collections/city-deals
[138] More information about the criteria to select projects is available at: https://www.business.gov.au/~/media/business/smart-cities-and-suburbs/smart-cities-and-suburbs-program-guidelines-round-one-PDF
[139] https://cities.dpmc.gov.au/smart-cities-program
[140] https://cybersecuritystrategy.dpmc.gov.au/index.html
[141] https://www.dpmc.gov.au/news-centre/cyber-security/australia-new-zealand-cyber-policy-dialogue

2. Central America and Latin America

2.1. Introduction

Central America is the subcontinent separating North from South America, and comprising the seven countries south of Mexico and north of Colombia. However, the United Nations geo-scheme for the Americas defines the region as "all states of mainland North America south of the United States", i.e. also including Mexico[142].

For the purposes of this study, we will analyse:

- the sub-region covering the countries that are part of the Central American Integration System (SICA). The SICA consists of a regional integration institutional framework, currently including eight countries: Costa Rica, El Salvador, Guatemala, Honduras, Nicaragua, Panama, Belize and the Dominican Republic; and

- the countries that are part of the Mesoamerica Development Project (MIDP), a more recent partnership integrating the eight SICA countries, plus Colombia and Mexico; and

- in broader terms, how the Central American and Mesoamerican sub-regions relate with the rest of Latin America.

Figure 22 - SICA and Mesoamerica Project member countries (Cullen International)

Especially when compared with APEC, the eight Central American economies that are part of the SICA present a relatively more homogeneous geographic and socio-economic background.

Their total population amounts to 58.3m people, which is approximately 10% of the total population of Latin America. The smallest country in terms of population is Belize (3m) and the largest is Guatemala (16.3m). If we add the population of Mexico and Colombia, the total population of Mesoamerica reaches 234m.

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[142] https://unstats.un.org/unsd/methodology/m49/

The IMF estimated a total GDP for the eight SICA countries that exceeded US$316bn in 2016[143].

The weighted GDP annual growth for SICA countries was 5.3% in 2016 (4.9% forecast for 2017).

Figure 23 - Y/Y GDP growth in SICA countries (Cullen International based on IMF)
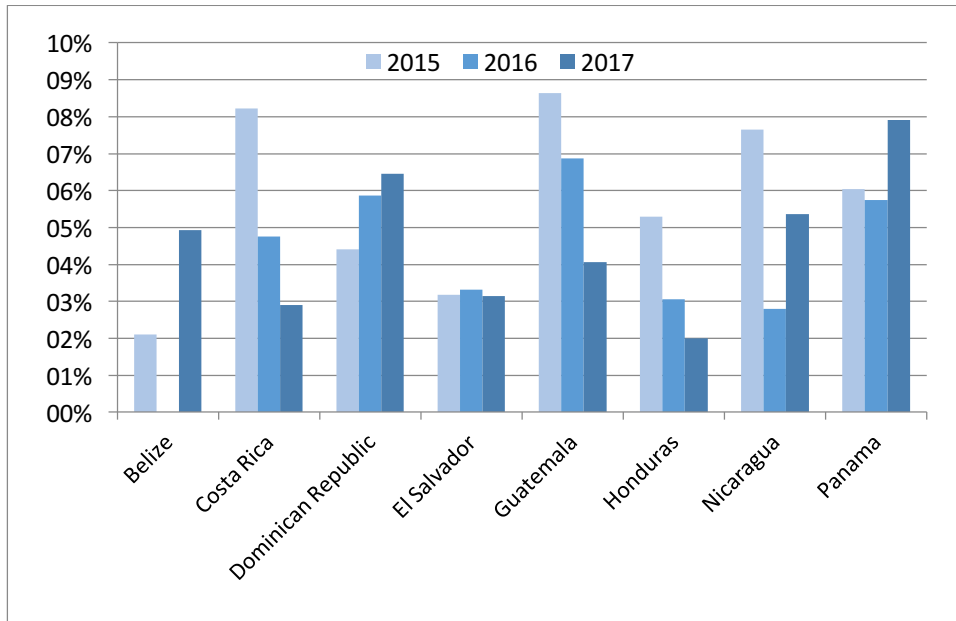
Panama and Costa Rica are among the Latin American countries with the highest levels of per capita GDP, comparable with Uruguay, Chile, and Argentina. Nicaragua and Honduras have the lowest levels of per capita GDP of Latin America, well below US$3,000 per year (Figure **24),** close to those of Bolivia and Paraguay.

Figure 24 - Annual GDP per capita in US$ (Cullen International based on IMF data, 2016)

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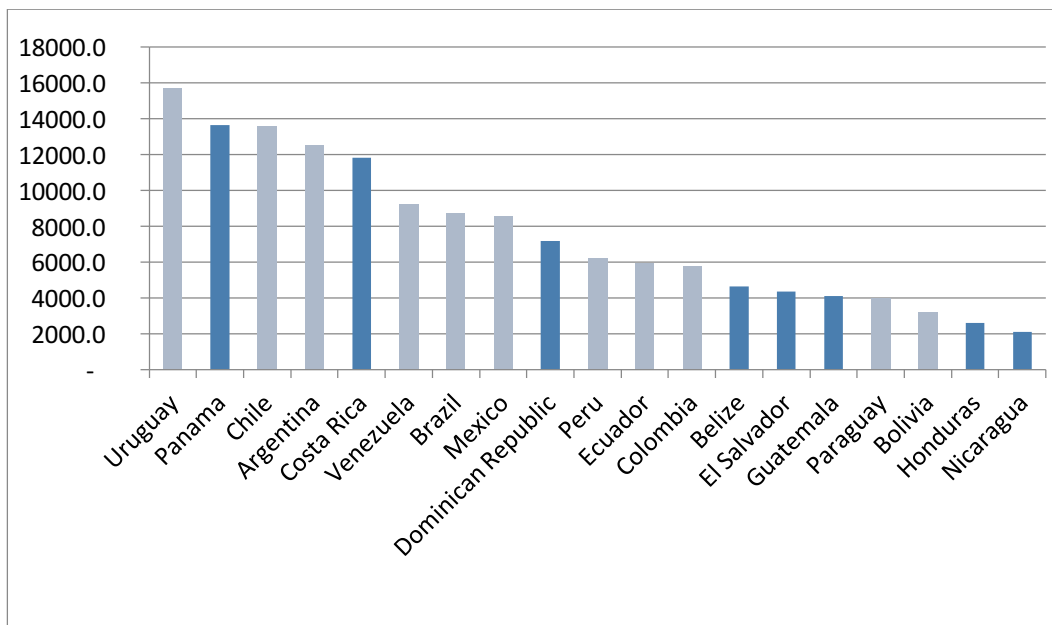
[143] Current prices, US$. Source IMF (2017) https://www.imf.org/external/data.htm

ICT and economic growth in Central America and Latin America

Compared with Asia Pacific, Central American economies present less heterogeneity with respect to the respective countries' rankings in the ICT and e-commerce indexes developed by major international organisations.

A remarkable difference still exists between Panama and Costa Rica on one hand, and the remaining six economies on the other. Panama and Costa Rica show ICT rankings that are comparable with those of larger and more economically developed Latin American economies.

Latin America as a whole is characterised by high diversity and fragmentation, combined with high economic instability. Several economies are experiencing negative growth or growth close to zero. Particularly complex political and economic situations are especially observed in some of the Mercosur countries.

Venezuela and Brazil are in recession, while Argentina is experiencing lower growth, especially when compared with other large Latin American countries, such as Mexico or Chile (which are experiencing economic growth) or some of the Central American countries, such as Costa Rica, Panama and Dominican Republic.

Similar to Asia Pacific, in Latin America, we observe fragmentation not only at regional level (diversity between Latin American countries) but also at sub-regional level (diversity within Central America and Mesoamerica and diversity among Mercosur countries).

The ITU's Global ICT Development Index shows that some Latin American countries have a ranking above the median, while a larger group of countries, including most Central American countries, are ranked below. Central American countries are the Latin American countries that experienced the highest GDP growth in 2016, comparing starkly with other Latin American economies in recession, such as Venezuela and Brazil[144]:

In Figure 25, the four clusters indicate, for 2016:

- Area 1: sufficiently developed ICT contexts, combined with negative GDP growth;

- Area 2: negative economic growth, combined with developing ICT markets;

- Area 3: economies with growing GDP but needing improvement in the ICT sector; and

- Area 4: more developed ICT contexts, combined with economies that are growing.

Compared with Figure 4, this figure only considers (generally less developed) ICT in a Latin American context. No Latin American country is among the top 40 economies in terms of ICT development. Nevertheless, countries in area 4 still show a much better ICT position compared with the majority of Latin American countries, which appear in areas 2 and 3.

Countries in area 3 have not yet fully leveraged ICTs to boost their economic growth even further. It should be noted that Mexico and Panama are placed at the border between areas 3 and 4, as their ranking is close to the median among these countries.

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[144] IDI is a composite index that combines 11 indicators into one benchmark measure, with three main sub-indices: i) ICT readiness (including infrastructure and access indicators); ii) use (to measure ICT intensity, and includes three intensity and usage indicators); and iii) skills (to measure capabilities which are important for ICTs).
http://www.itu.int/en/ITU-D/Statistics/Pages/publications/mis2016/methodology.aspx

Figure 25 - ICT index and GDP growth in Latin America, 2016 (Cullen International)
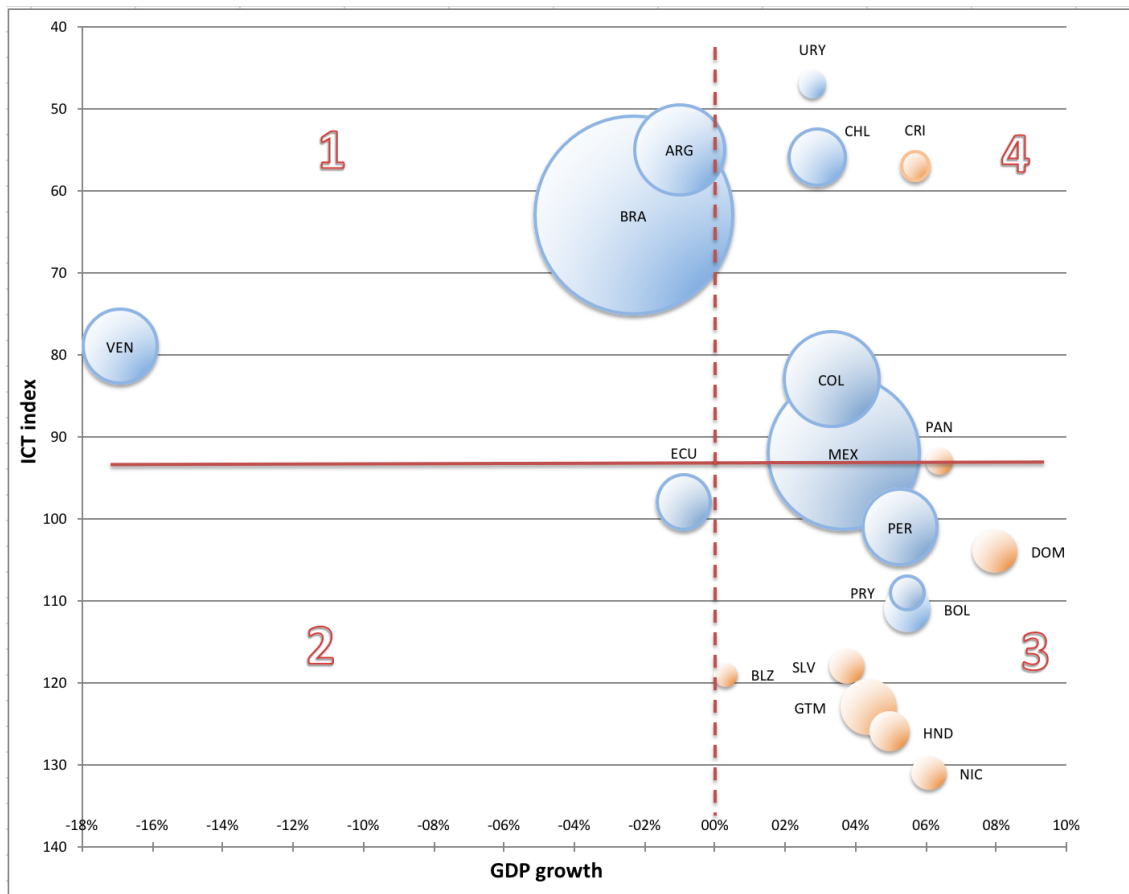
All Central American countries except Belize are experiencing a GDP growth above 2%. In most cases, GDP growth is above 4%, with the highest growth observed in the Dominican Republic, at 8% in 2016[145].

However, Central American countries are also among the lowest ranking economies in terms of ICT development. This means that more ICT availability and better use might help some of these small economies diversify, and also increase cross-border trade opportunities and growth even further. Belize is among the lowest ranking countries in South America in terms of ICT but is also characterised by very modest economic growth.

Looking closer at the ICT Development Index (IDI), we see that in Central America only Costa Rica ranks among the top ten countries in the Americas region, and is ranked 57th when compared to the rest of the world. On the other hand, the two Mesoamerican countries, Colombia and Mexico, rank 17 and 19in the Americas, just ahead of Panama and far better than all the other Central American countries.

2.2. Connectivity in Central and Latin America

Fixed telephony penetration varies between 6 and 17 subscriptions per 100 people, with a penetration rate that is well below the world average in Nicaragua, Honduras and Belize.

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[145] IMF - Latin America and Caribbean Regional Economic Outlook, October 2017

El Salvador, Panama and Costa Rica, on the other hand, have the highest rates and are above the world average for penetration, but below the average for other Latin America and Caribbean (LAC) countries. As in APEC countries, mobile connectivity is much higher than fixed, with mobile being the main vehicle for connectivity in the Central American region.

However, penetration rates show a great deviation within the region, ranging from 61% in Belize up to 174% in Panama. Costa Rica, Panama, El Salvador, Nicaragua and Guatemala have more mobile subscriptions per 100 people than the world average and the LAC average (Figure 26).

Figure 26 - Fixed and mobile service penetration in Mesoamerica (Cullen International based on ITU, 2016)
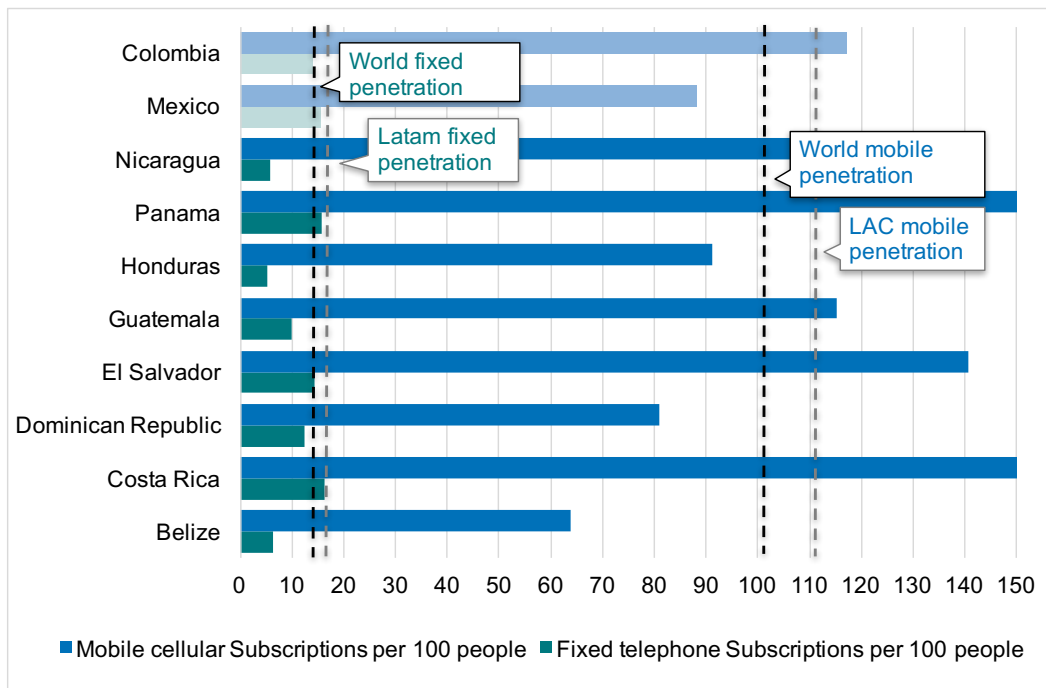
Figure 27 - Fixed broadband penetration in Mesoamerica countries (source Cullen International based on ITU, 2016)
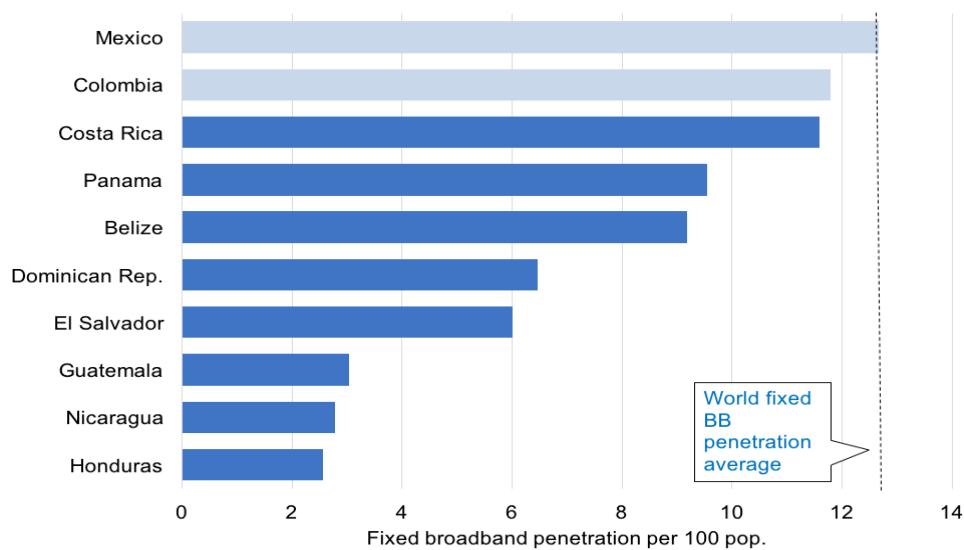
Fixed broadband penetration also varies across Central America. Costa Rica shows the highest fixed broadband penetration, with more than 11 subscriptions for every 100 people.

Nicaragua and Honduras show the lowest penetration with around 2 subscriptions for every 100 people. The remaining Central American countries are placed between 2.5 and 9 subscriptions per 100 people.

A comparison with the two other Mesoamerican countries shows that Mexico has the highest fixed broadband penetration, with almost 13 lines per 100 people, while Colombia has penetration levels similar to those of Costa Rica (Figure 27).

According to a GSMA report[146], there are 13m mobile broadband subscriptions in Central America[147], corresponding to 23% of the region's population. The report highlights that another 66% of the population (about 38 million people) are covered by mobile broadband service but have no access, while 11% of people in Central America have no mobile broadband coverage at all (3G or 4G technologies).

As regards mobile broadband connectivity, Costa Rica shows the highest penetration in Central America, with 50% of the population having a mobile broadband subscription. This penetration rate is high when compared with other Central American countries, where penetration ranges from 13 to 30% of the population, and also when compared with the overall Latin America and Caribbean (LAC) average, which reached 32.7% in 2015[148].

Other Latin American countries with above average mobile broadband penetration are Chile (half of the population), and Brazil with 87m subscribers (Figure 28).

Figure 28 - Mobile broadband penetration (Cullen based on GSMA, 2015)

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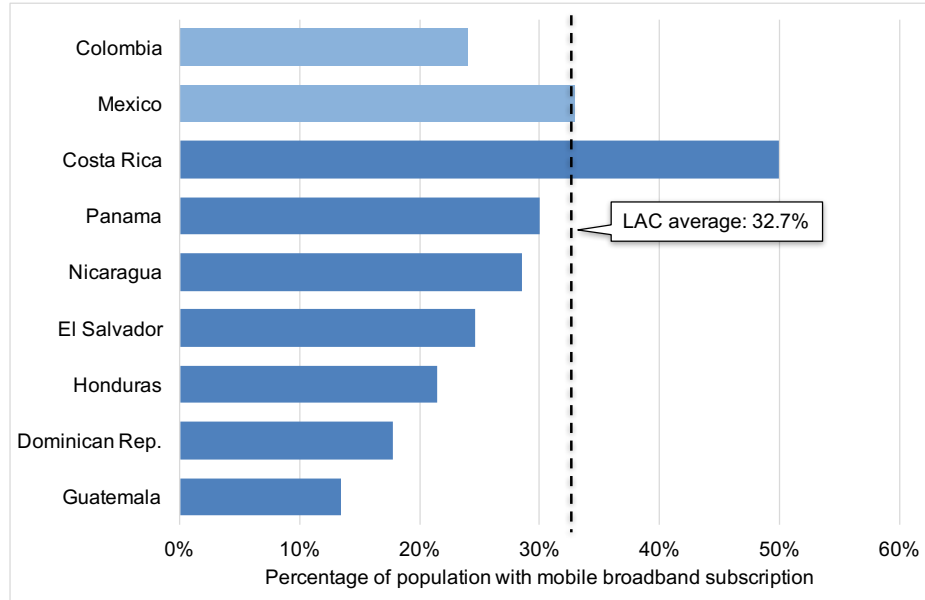
[146] GSMA, "Connected Society Digital inclusion in Latin America and the Caribbean", 2016: https://www.gsmaintelligence.com/research/?file=895f6c0a1efa7a25f5d6b4ff874e92f1&download. GSMA shows the percentage of mobile subscribers who also have mobile broadband (connection > 256 kbps).
[147] GSMA report covers almost SICA countries, except Belize.
[148] According to the report, in Latin America and the Caribbean, 206.7m people subscribe to a mobile broadband service, 362.8m people are covered but do not use the service, and 63.8m are not covered.

The structure of the telecoms industry varies considerably across Central America

Both Costa Rica and Honduras have strong state-owned players in the fixed telecoms market. Costa Rica's state-owned operator ICE also has a strong presence in the mobile telephony market.

In the fixed telephony market, some countries have a single, or a very strong incumbent operator (Costa Rica, Honduras), while others have other mobile operators and/or cable companies also actively competing in this market (Panama, Dominican Republic, Nicaragua).

The mobile market is open to competition in all Central American countries. Only Nicaragua and Belize have just two mobile network operators currently active in the country, while in most markets there are at least three operators.

Apart from Costa Rica, there are no longer exclusive rights in the telecoms sector among the monitored countries. Limits to foreign investment are only imposed as regards the two state owned operators in Costa Rica and Honduras.

In addition to Claro and Telefonica, which are present in most countries of Latin America, mobile operators active in several Central American and Caribbean countries include Tigo, Liberty Global, and Digicel.

Table 6 – Telecoms industry in selected Central American countries

Country	Networks	Main network operator(s)	Public participation	Competition: Any exclusivities?	Foreign investment: Any limitations?
Costa Rica	Fixed telecoms	ICE	Yes 100%	Yes (monopoly, VoIP not included)	Yes, in the state-owned operator
	Mobile telecoms	Kölbi (ICE) Movistar Claro	Yes Kölbi 100% Other operators are private	No However, all spectrum licences owned by the state-owned operator were granted for free.	Yes, in the state-owned operator
Dominican Republic	Fixed telecoms	Claro Codetel Tricom Trilogy Dominicana Skymax Wind Telecom	No	No	No
	Mobile telecoms	Claro Codetel Orange (Altice) Tricom (Altice) Viva (Trilogy Dominicana)	No	No	No
Honduras	Fixed telecoms	Hondutel	Yes 100%	No	Yes, in the state-owned operator
	Mobile telecoms	Tigo Claro Hondutel	Yes Hondutel 100%	No	Yes, in the state-owned operator

		Digicel	Other operators are private		
Nicaragua	Fixed telecoms	Claro Movistar	No	No	No
	Mobile telecoms	Claro Movistar	No	No	No
Panama	Fixed telecoms	Cable & Wireless Cable Onda Digicel Panama Movistar Columbus Networks Galaxy Communications NetUno	No	No	No
	Mobile telecoms	Cable & Wireless Movistar Claro Digicel	No	No	No

Connectivity is a priority in Central America

Connectivity is a priority in Central America, not only at the regional level, but also in individual countries' policies. Some countries have adopted a single and comprehensive broadband plan. Other countries have been promoting multiple initiatives, including projects funded by universal service funds.

Costa Rica has defined a general plan for telecoms development until 2021, which includes a chapter on broadband connectivity. Costa Rica aims to reach 80% take-up with an average speed equal to the one observed for OECD countries. Infrastructure deployments are mainly funded by the private sector and by the universal service fund (Fonatel), with state-owned operator ICE still playing a fundamental role in terms of new infrastructure deployments.

Panama is the only surveyed country from Central America which has a plan specifically focused on broadband. The plan includes a broadband penetration target of 47% of the population by 2022 (speed unspecified).

Honduras and Nicaragua are working towards a comprehensive national broadband plan and in the meantime, have launched some specific connectivity projects, targeting connectivity of public buildings and spaces (including public schools), and rural areas.

Table 7 - National broadband plans for increased connectivity in Central America

Country	Initiative	Supply side targets	Funding mechanisms
Central America			
Costa Rica	National Telecoms Development Plan 2015-2021	2021: 80% of population connected at OECD average speed (20 Mbps)	Private investment in networks Public funding in rural areas and for specific targets (schools, public libraries, free Wi-Fi)

Country	Initiative	Supply side targets	Funding mechanisms
Dominican Republic	Digital Agenda 2016-2020[149]	2020: 70% of population uses the internet 25% of households have internet access 50.85% of population with an internet (fixed or mobile) subscription	Public and private
Honduras	Conatel is working on a broadband plan and launched a call for consultancy project in Feb. 2017. Digital Agenda 2014-2018 has a chapter on connectivity, which however does not set any specific broadband targets. Other initiatives: "Internet for People": project launched in 2014. It provides internet access to public schools and other public places.	Undefined	Public: FITT (Fund for ICT and telecoms investments. 1% of telecom operators' turnover goes to the FITT every year)
Nicaragua	Telecoms regulator Telcor is working on a connectivity project (CARCIP), funded by the World Bank. Other initiatives: • "Rural connectivity project": completed in Dec. 2015	2022: Provide connectivity to 48 cities (CARCIP)	Public funding, World Bank loan
Panama	Broadband strategic plan (BBSP): designs actions to achieve universal connectivity and increase the adoption and use of broadband and ICTs.	2022: broadband penetration (fixed and mobile) of 47% of population; internet penetration of 83.5% of population; connection speeds between 5-100 Mbps.	Public The plan is being implemented by the National Authority for Government Innovation – AGI with IADB assistance

There are equally diversified approaches in Central America as in other Latin American countries:

• some countries have set national broadband plans with specific connectivity targets (Colombia, Ecuador and Peru);

• Brazil is consulting on a new broadband plan (targets are not defined yet);

• the Chilean government has adopted a comprehensive Digital Agenda, while Mexico and Paraguay have also set broadband objectives within their general development programmes for telecommunications; and

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[149] Agenda 2016-2020 http://www.gob.do/index.php/politicas/2014-12-16-20-55-59
In October 2017, the regulator, Indotel, adopted a telecoms sector strategy. Indotel has set a number of specific targets until 2021. For more details https://indotel.gob.do/media/9846/pes-final-web.pdf

- Argentina completed its broadband strategy in 2015 and currently has different initiatives to encourage broadband deployment and use.

Table 8 - National broadband plans for increased connectivity in Latin America

Country	Initiative	Supply side targets	Funding mechanisms
Other countries in Latin America			
Argentina	No general plan, several plans and initiatives: Federal internet plan (Ministry of Communications) Digital country plan (Ministry of Modernisation) Access to mobile internet programme (Presidency) Connectivity programme (Enacom) Fibre deployment plan (Ministries of Communications and Public Works)	General target to improve broadband speed. Connect 1,100 towns to fibre backbone by 2018	Different funding sources: • public budget from Ministries • universal services fund • state-owned operator Arsat
Brazil	National Broadband Plan (PNBL, completed in 2014) A new broadband strategy is in preparation.	PNBL targets: 70% households covered with 1 Mbps fixed broadband 100% of schools and a number of other institutions Affordable broadband (special price schemes) Fibre backbone (Telebras) Geostationary Satellite for Communications and Defence (SGDC). New proposals include higher speed targets.	Different funding sources: • Federal funding resources • Private sector • Fiscal incentives More flexible use of existing telecoms funds (universal service) under evaluation. New infrastructure funding mechanisms as a result of: • conversion of administrative fines into new investment ('TAC') • conversion of concessions into individual licences.
Chile	Digital Agenda 2020 Optical Fibre project (deployment of one submarine cable and three terrestrial fibre networks to improve transport connectivity in the southern part of Chile)	2020: 90% households with fixed broadband, with 10 Mbps (20% with fibre) 90% of Chilean communities with free WiFi 100% of public schools.	Public funding and subsidies
Colombia	Vive Digital (2014-2018)	Connectivity targets: 27m internet subscribers, up from 9m in 2014;	Public and private

Country	Initiative	Supply side targets	Funding mechanisms
		Increase the average broadband speed to 4 Mbps, from 1 Mbps in 2014; 100% municipalities must have 4G mobile coverage and free WiFi areas.	
Ecuador	National Broadband Plan included in Ecuador Digital 2.0 policy	2017: broadband coverage of 100% population (speed unspecified)	Public
Mexico	National Development Plan 2013-2018 Communications and Transport Sector Plan 2013-2018	2018: 70% households plus 85% of MSMEs (speed unspecified) Access at 80,000 public sites. Wholesale wireless broadband network ('Red Compartida') has a deployment schedule until 2022	Public funding Public-Private
Paraguay	National Telecommunications Plan 2016-2020	2020: Coverage targets 80% population with mobile broadband, and increase of fixed coverage Take-up targets: 40% of the population and 70% of companies 100% of government bodies and health care institutions 2,500 secondary schools.	Public and private
Peru	National Broadband Development Plan 2011-2016	2016: 59.7% of households with 2 Mbps (4m subscribers)	FITEL Fund, direct public funding, and others. (FITEL is funded by telecoms operators with 1% of total annual revenues).

International connectivity in Latin America

As in the Asia Pacific region, Latin America is aiming to increase broadband connectivity. However, according to statistics, in Latin America there is also a need to increase international internet capacity, encourage the deployment of IXPs, and to optimise intra-regional traffic.

Figure 29 - IXP and International Internet Capacity per region (Cullen International based on Telegeography, 2016)

International internet capacity
(top hubs per region compared with worldwide capacity)

Latin America
Asia Pacific
United States
Rest of the world

0   50000   100000   150000   200000   250000

Gbps

IXPs per region
(compared with worldwide IXPs)

Latin America 47
Asia Pacific 87
US & Canada 92
Rest of the world 195

0   100   200   300   400

IXPs
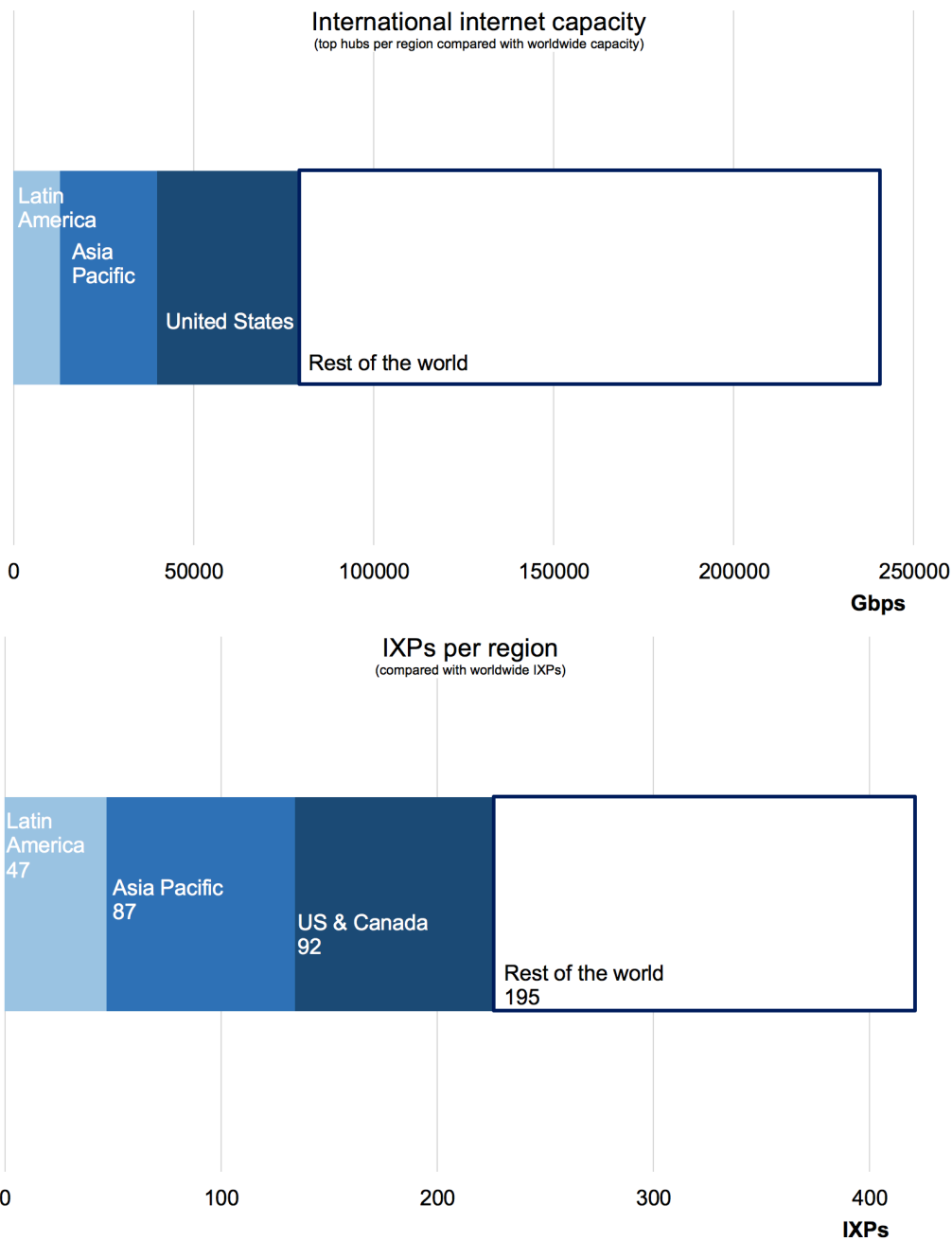
According to a 2014 CAF study on international internet connectivity[150], 85% of the traffic generated in Latin America must travel through international connections with the United States, due to the scarce capacity of the local or regional interconnection existing in the region.

The region has been working to increase interconnection infrastructure in Latin America that would help reduce costs for the final user and to increase the speed of data transmission. The

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[150] CAF, "Expansion of regional infrastructure for the interconnection of Internet traffic in Latin America", 2014

use of the regional and national IXPs would allow internet service providers to interconnect without the need to use international circuits.

Telegeography's global internet map[151] identified São Paulo, Buenos Aires and Rio de Janeiro as the top hubs in the region, confirming 2014 predictions that most of the international internet connectivity from Latin America is with the US.

International roaming in Latin America

The 2016 CAF study on strategies towards a single digital market[152] identified international roaming as one of the areas of improvement for increased connectivity in Latin America. Among the key obstacles, prices remain high and double taxation is still an issue in many countries. There are several organisations and governments working towards the reduction of international roaming prices and to increase transparency.

There are several bilateral and regional initiatives to lower international roaming prices, in some cases driven by the initiatives and offers of operators.

In April 2015, Claro (América Móvil) removed roaming charges between some of the Central American countries where it operates (Costa Rica, El Salvador, Guatemala, Honduras, Nicaragua and Panama). By mid-2016, Claro launched 'Sin Fronteras' ('without borders'), a plan that eliminates on-net international roaming charges in Chile, Colombia, Ecuador, Argentina and Brazil. It became the first operator to have 'roam like at home' plans in both Central and South America.

Movistar also eliminated international roaming charges in Mesoamerican countries (Costa Rica, El Salvador, Guatemala, Nicaragua, Panama and Mexico).

In July 2016, the Mexican regulator, IFT, informed that 87% of postpaid and almost half of all prepaid mobile service plans currently available in Mexico offer the same prices for calls, SMS or data services used in Mexico, the US or Canada. A contributing factor to the development of 'roam like at home' offers was the 2014 entry of AT&T into the Mexican mobile market.

A complete elimination of international charges between Colombia, Peru, Mexico, and Chile is being discussed within the Pacific Alliance, a Latin American trade partnership, as a way to achieve better economic integration among these countries. The four countries do not plan to regulate international roaming or to impose price caps on operators. Instead, they expect mobile operators voluntarily to decrease, and possibly to eliminate, charges for roaming traffic amongst Pacific Alliance countries.

The Mercosur has also been working towards reducing international roaming charges. Member states have transpose to national regulation the Mercosur guidelines approved in 2001[153], which aims for the elimination of roaming charges in border areas.

There are also bilateral agreements between Ecuador and Peru, and Chile and Argentina that seek to reduce or even eliminate roaming charges between neighbouring countries. The agreements are mainly aimed at avoiding inadvertent roaming in border areas, improving transparency, and exchanging information between countries. Although the main goal is to reduce roaming charges, the agreements do not include specific wholesale or retail charge reductions.

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[151] http://global-internet-map-2017.telegeography.com
[152] CAF, "Building a Digital Single Market strategy for Latin America", 2016.
[153] http://www.mercosur.int/innovaportal/v/3083/2/innova.front/resoluciones-2001

International roaming is also being discussed in Central America and the Caribbean[154].

The Caribbean Telecommunications Union (CTU) has adopted a roadmap, aiming to achieve a single ICT space for the Caribbean, including the Eastern Caribbean countries Commission (OECS) and the Eastern Caribbean Telecommunications Authority (ECTEL). The elimination or reduction of international roaming charges is part of the roadmap, whose work plan and budget were approved by the countries' heads of state in June 2017[155]. ECTEL consulted in 2017 on a draft bill and regulation, mandating price caps in the respective Caribbean countries[156].

Comtelca, the Regional Telecommunication Technical Commission assisting the regulators of six countries in Central America, has been working on a proposal to reduce roaming and sub-regional long distance rates, after the Central American Parliament (PARLACEN) expressed an interest in eliminating roaming charges in the sub-region in a 2010 Resolution[157].

Table 9 - Roaming initiatives in Central America and the Caribbean

Organisation	Proposed objectives/recommendations
Caribbean Telecommunication Union	Roam-free area to facilitate movement of labour Roaming charges scaled down to zero Application to voice and data
Comtelca	International roaming rates should not exceed 130% of the current rate applied within that country for mobile international long distance calls Gradual reduction of roaming rates over a period of 24 months

2.3. Overview of trade and e-commerce in Central and Latin America

According to Central American Economic Integration Secretariat (SIECA)[158] statistics, trade between Central American countries in 2016 represented 17.3% of all Central American imports and 31.5% of all exports. Extra-regional imports amounted to US$50.5bn, while extra-regional exports amounted to US$16.5bn.[159] This means that total exports from Central America to third countries are less than one-third of total imports.

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[154] ITU, "International Mobile Roaming Strategic Guidelines", June 2017
[155] https://caricom.org/media-center/communications/press-releases/caricom-single-ict-space-integrated-work-plan-and-budget-approved
[156] https://www.ectel.int/wp-content/uploads/2016/11/Draft_Mobile_EC_Roaming_Services_Bill_and_Roaming_Services_Regulations.pdf
[157] http://www.parlacen.int/Portals/0/Breves/1%20PAGINA%20DCA%2031052012.pdf
[158] Costa Rica, El Salvador, Guatemala, Honduras, Nicaragua and Panama are pursuing, on a gradual and voluntary basis, the creation of the Central American Economic Union and to that aim they have established the SIECA, headquartered in Guatemala.
[159] Total imports by Central American countries in 2016 amounted to approximately US$63.4bn, also including imports from Panama tax free zone. Total exports amounted to US$26.8bn http://estadisticas.sieca.int/

Figure 30 – B2B trade flows in 2016, in US$ (Cullen International based on SIECA)
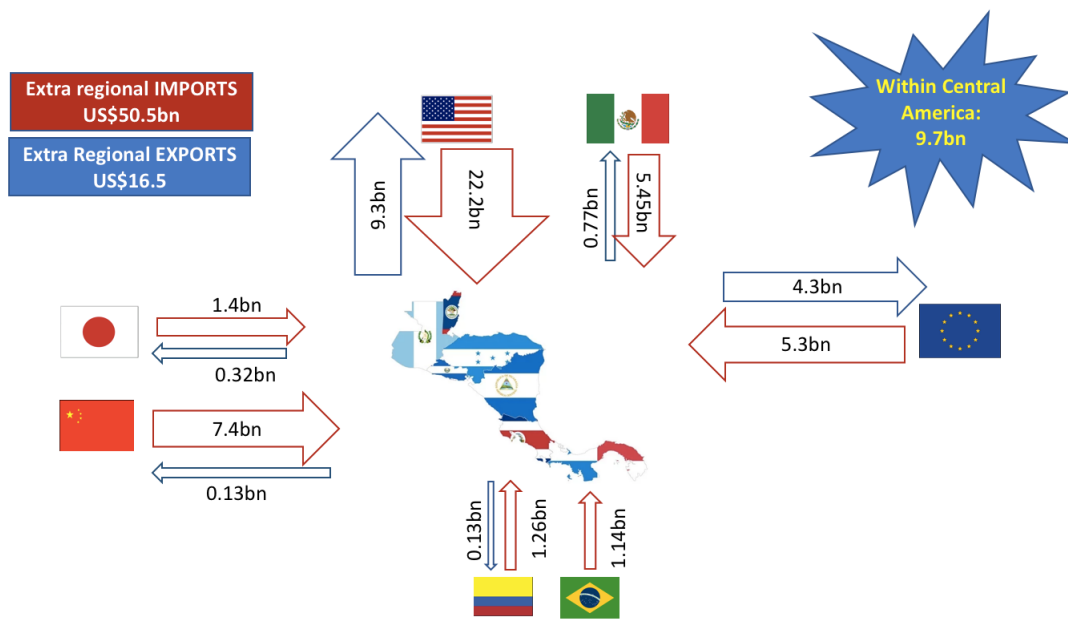
The main commercial partner of SIECA is the United States. In 2016, imports from the US by Central American countries amounted to US$22.2bn, while exports by Central American countries to the US totalled US$9.3bn.

Central America also imports significantly from China, Japan and South Korea, as well as from Mexico (second largest partner), Brazil, Colombia, Germany and Spain. Exports are mainly directed, in addition to the US or other Central American countries, to European countries.

Figure 31 - Main commercial partners of SIECA countries, million US$ in 2016 (includes intra-SIECA commerce. Cullen International based on SIECA)
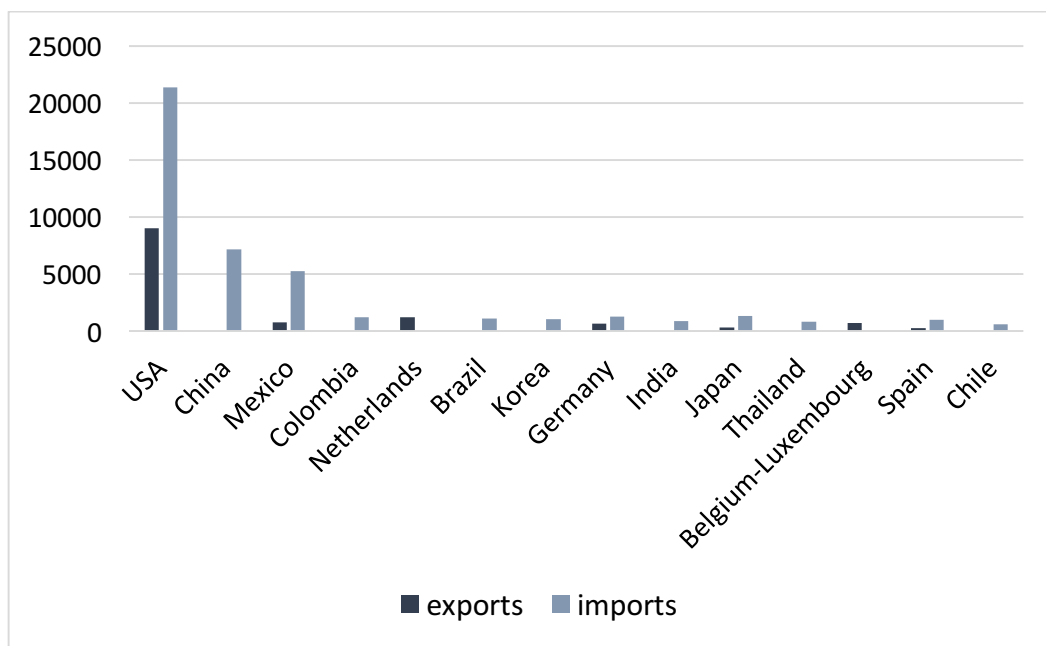
To foster B2B opportunities of small and medium enterprises (SMEs) at regional level, in 2016, SIECA launched the RCAC,[160] a regional platform supporting Central American businesses (mainly SMEs) to find commercial information, carry out market intelligence and promote themselves commercially within the region and beyond. The platform, developed with financial support from the government of Taiwan, currently has about 200 users[161].

There are no specific statistics on e-commerce in Central America. It is however generally thought that e-commerce still represents a very small portion of total retail sales but with good growth potential in Central America. The main reasons are increasing internet connectivity, economic growth and the rise of the middle classes; trends also observed for other Latin American economies. According to press reports[162], 12% of Costa Rican people use e-commerce.

According to Statista, at the end of 2016 in Latin America, there were over 120m 'e-shoppers', i.e. consumers who buy using online services. Some 27% of these were mobile shoppers[163].

The eCommerce Foundation reports that total B2C e-commerce sales for the region amounted at the end of 2015 to US$46.3bn, with a 27.5% growth from 2014[164]. Brazil is the largest Latin American e-market, with total sales amounting to US$15.9bn at the end of 2015. Mexico is the second largest e-market, with total sales of US$13.3bn, followed by Argentina and Chile, which respectively generated US$4.8bn and 2bn in online sales in the same period.

According to the 2017 Global Online Consumer Report, 55% of Latin American consumers look for product information and compare prices online[165]. Common e-purchases include consumer electronics and mobile handsets, fashion products, travel, and entertainment services. Nevertheless, on average, B2C e-commerce represents only 2% of global retail sales in Latin America. This is still a negligible amount when compared with the more mature Asia Pacific and North American e-markets.

Box 10 - e-Commerce in Costa Rica

In Costa Rica, local companies commonly have the capability to offer services via the internet in addition to the usual sales channels.

Use of consumer trading sites, such as Mercado Libre, Clasificados, Rematico.com and Locompreaqui.com, is increasing. Costa Rica's agency for the promotion of international commerce (Procomer) also signed an agreement with Alibaba, the largest e-commerce platform in the world. Under the agreement, Costa Rican producers have access to the platform at a 50% discount.

The boom in internet shopping has led leading delivery companies to open new delivery points and invest in technology in order to improve service for end-users.
One of the most recent cases is that of Box Correos, which launched a network of automated devices for internet shopping called Smart Post Cards (Apartados Postales Inteligentes or APIs in Spanish).

The Costa Rican government has also developed an e-procurement system, Mer-Link, developed with support from the Government of South Korea.

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[160] https://www.redca.sieca.int/
[161] Source: http://www.laconexionusa.com/noticias/20160504879944_lc87994404.asp
[162] As of May 2016. Source: http://www.nacion.com/economia/consumidor/Solo-consumidores-costarricenses-compra-Internet_0_1563043761.html
[163] Statista, 2017 https://www.statista.com/topics/2453/e-commerce-in-latin-america/
[164] e-Commerce Foundation.
[165] Source: Global Online Consumer Report, KPMG International, 2017.

The adoption of the Korean model was driven by the consideration that the Korean system is the largest in the world and is broadly considered as an international best practice.

Costa Rica and Korea signed an agreement, through which Korea donated the source code of its system to Costa Rica. Mer-Link had to be adapted to Costa Rica's requirements and, although still needing improvement, is largely considered as a milestone for the improvement of the country's procurement processes[166].

Costa Rica is the first Central American Country (and fourth of all Latin American countries) in UNCTAD's B2C E-commerce Index for 2016[167]. According to UNCTAD, in Costa Rica, the use of credit cards should be fostered in order to further develop e-commerce, as the share of individuals above 15 using credit cards is only 12%.

Appropriate e-commerce regulatory frameworks and secure e-payment systems help increase consumer trust in and consequently incentivise B2C e-commerce. The more homogeneous such frameworks are, the more consumers will be inclined to increase their share of cross-border purchases.

Among the many challenges faced by e-commerce merchants offering cross border sales in Latin America[168] are logistics for the delivery of products, marketing, compliance with local regulations, and above all the large number of unbanked Latin Americans[169]. Many customers lack classic payment means, like a bank account, debit cards or credit cards, so alternative methods are being put in place by merchants willing to target a neighbour market. Mobile phones are expected to become the preferred payment method in the region.[170]

The overall limited development of e-commerce in Latin America is confirmed by UNCTAD's business to consumer (B2C) e-Commerce Index[171]. The index measures the development potential of e-commerce, taking into account four indicators for each country: (i) the share of the population using the internet; (ii) the share of the over-fifteen population using credit cards as a form of payment; (iii) the presence of secure internet servers; and (iv) postal service reliability.

Uruguay and Chile are the best performing Latin American countries but are ranked only at 39th and 43th places, respectively. Mexico and Peru occupy the 63rd and 76th places, after Brazil, Costa Rica and Argentina. Four Central Latin American countries are at the bottom of the list of 137 countries ranked by UNCTAD. Nicaragua is at 114th place, preceded by Guatemala (111th), Honduras (98th) and El Salvador (96th).

According to UNCTAD, the development of B2C e-commerce is hampered in those countries by low internet penetration, and the very limited use of credit cards (often below 10% of the

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[166] https://www.mer-link.co.cr/index.jsp

[167] UNCTAD's B2C E-commerce Index is composed of four indicators: i) share of individuals using the internet, ii) share of individuals with credit cards, iii) secure internet servers per 1 million people, and iv) postal service reliability.

[168] https://www.ecommercebrasil.com.br/artigos/cross-border-no-e-commerce-rota-das-especiarias-e-alternativa-crise/

[169] https://www.digitalcommerce360.com/2017/05/18/guide-cross-border-e-commerce-latin-america/

[170] https://www.ystats.com/wp-content/uploads/2017/02/20170101_Product-Brochure-Order-Form_Global-Cross-Border-B2C-E-Commerce-2017.pdf

[171] UNCTAD B2C e-commerce index, 2016 http://unctad.org/en/PublicationsLibrary/tn_unctad_ict4d07_en.pdf

population). The limited availability of secure internet servers and unreliable postal services also represent important challenges in most Central American countries.

These findings are summarised in Figure 32, where green dots represent good ratings, while yellow and red ones represent areas needing improvement.

Figure 32 - UNCTAD's business to consumer (B2C) e-Commerce Index in Latin America (Cullen International based on UNCTAD)

Country	2016 rank	Share of individuals using internet	Share of individuals with credit card	Secure internet server per 1m people	UPU postal reliability score	Comments
Uruguay	39	🟢	🟢	🟢	🟢	Ranking improved slightly, connectivity, credit card use and UPU reliability stable.
Chile	43	🟢	🟡	🟢	🟢	Slight deterioration from previous ranking. Although percentage of individuals using credit card improved from 21% to 28%, improvement is still needed
Brazil	51	🟢	🟡	🟢	🟢	Slight deterioration from previous ranking. Percentage of individuals using credit card needs improvement.
Costa Rica	55	🟢	🔴	🟢	🟢	Slight deterioration from previous ranking. Very low percentage of individuals using credit cards (14%).
Argentina	57	🟡	🟡	🟢	🟡	Ranking fell from 48 to 57. Relatively low percentage of individuals using credit cards (27%).
Mexico	63	🟡	🔴	🟢	🟢	No changes from previous rankings. Low percentage of individuals using Internet (44%) and credit cards (18%).
Panama	68	🟢	🔴	🟢	🟢	Great improvement on ranking, from 84 to 68, but credit card use is very low (10%).
Ecuador	71	🟢	🔴	🟢	🟢	Improvement on ranking, from 76 to 71. Percentage of individuals using credit cards is very low (6%).
Colombia	72	🟢	🔴	🟢	🟡	Ranking stable, very low rate of credit card use. Share of individuals using Internet is stable.
Paraguay	74	🟢	🔴	🟡	🟢	Ranking stable, very low rate of credit card use. Needs improvement on secure internet servers.
Peru	76	🟡	🔴	🟢	🟢	Improvement on ranking from 82 to 76. There is still need to improve both credit card and internet use
Dominican Rep.	83	🔴	🔴	🟢	🟡	Great deterioration on ranking, from 57 to 83. Very low percentage of individuals using the internet and credit cards
Venezuela	94	🔴	🟡	🟡	🔴	Great deterioration on ranking, from 63 to 94. Low percentage of individuals using the internet, credit cards, unreliable postal service
El Salvador	96	🔴	🔴	🟡	🟡	Great deterioration on ranking, from 72 to 96. Low percentage of individuals using internet (30%). Very low percentage of individuals using credit cards (8%). Servers security and postal service need improvement
Honduras	98	🟡	🔴	🟡	🟡	Deterioration on ranking, from 85 to 98. Low percentage of individuals using internet (19%). Very low percentage of individuals using credit cards (6%).
Guatemala	111	🔴	🔴	🟡	🔴	Great deterioration on ranking, from 77 to 111. Low percentage of individuals using internet (23%). Very low percentage of individuals using credit cards (6%). Unreliable posal service.
Nicaragua	114	🔴	🔴	🟡	🔴	Deterioration on ranking, from 104 to 114. Low percentage of individuals using internet (18%). Very low percentage of individuals using credit cards (4%).

🔴 Areas that need strong efforts
🟡 Areas that can easily improve
🟢 Top performance

Cross border e-commerce in Latin America

According to a 2016 study by the Universal Postal Union (UPU)[172], by 2020, some 940m online shoppers are expected to spend almost US$1 trillion on cross-border e-commerce transactions. The UPU remarks that today 24% of all international trade in goods (of which, half is delivered in lower weight parcels) is related to cross-border e-commerce purchases, while the remaining 76% is domestic.

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[172] UPU, Research on Global Markets (2016)
http://www.upu.int/uploads/tx_sbdownloader/researchOnPostalMarketsTrendsAndDriversForInternationalLetterMailParcelsAndExpressMailServicesEn.pdf.pdf

North America, Europe and Asia account for the vast majority of the revenues and volumes of cross-border letters and packages (Figure 33).

North America represents 50% of the world's cross-border volume and 40% of the revenue. Nevertheless, UPU notes that Europe has a much greater level of regional, shorter distance traffic than North America.

Figure 33 – Cross-border letter and parcel deliveries (UPU)
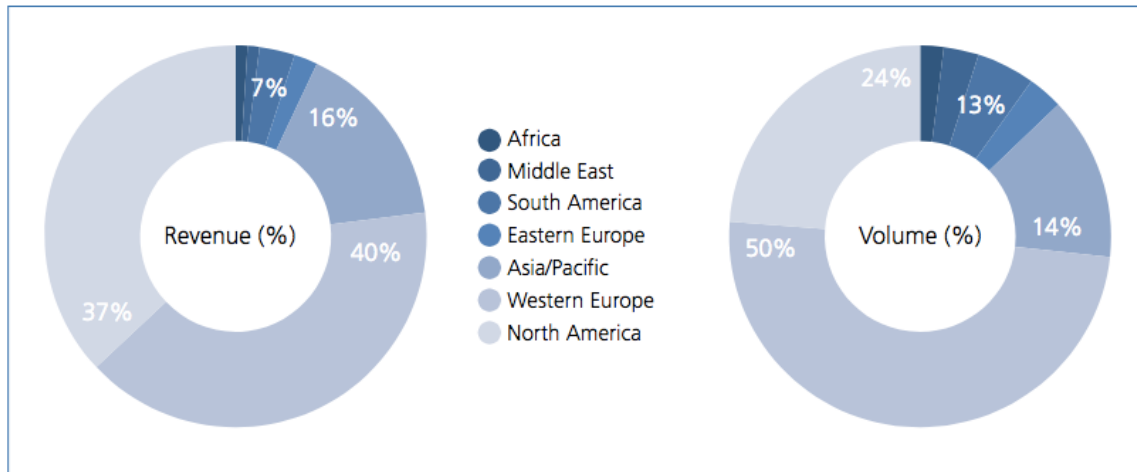
Source: Adrenale analysis based on UPU, Colography, Boeing, competitor, proprietary and other research – data

According to the UPU, many countries in Latin America, Africa and in the Arab countries have not yet taken advantage of the growth opportunities offered by cross-border e-commerce. "*Postal organizations need to further upgrade their practices, processes and systems in order to regain the market share that they have been losing in recent years and contribute to the overall market size growth. (…) It would be unfortunate if the e-commerce window of opportunity closed, leaving some postal operators behind, given that millions of MSMEs could be easily included in the international trading system and their trade and payments facilitated thanks to postal network,*"

Consumer protection and e-commerce in Central America

At regional level, the Central American Council of Consumer Protection (CONCADECO)[173] was established by SICA on May 18, 2007. Its mandate is to promote consumer protection and harmonise consumer policies in Central America. As part of SICA's General Secretariat, the Council brings together government consumer protection agencies from Costa Rica, El Salvador, Guatemala, Honduras, Nicaragua, Panama and the Dominican Republic.

The Council currently shares information about cross-border commercial activities that may affect consumer interests in four main markets: fuel, drugs, drugs fraud and food baskets[174]. It works through four technical commissions to monitor prices across the region and prepare relevant studies in these areas. CONCADECO does not carry out specific initiatives related to the online sales of goods and services and the online protection of Central American consumers.[175]

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[173] https://www.sica.int/concadeco/
[174] "Cesta básica" (distributed periodically by government/employers with basic food products). Its price is used as an economic reference / inflation indicator.
[175] According to the CONCADECO's website, the latest work programme dates from 2011

At national level, all researched Central American countries have laws, regulations or legislative initiatives to address consumer protection issues in electronic commerce. Costa Rica, Honduras and Nicaragua, as members of the CAFTA agreement[176], must comply with obligations related to the electronic supply of services and the commerce of digital products. Under CAFTA, parties are committed to *"work together to overcome obstacles encountered by small and medium enterprises in using electronic commerce"* and to *"share information and experiences on laws, regulations and programs in the sphere of electronic commerce, including those related to data privacy, consumer confidence in electronic commerce, cyber-security, electronic signatures, intellectual property rights, and electronic government."*

In **Costa Rica**, a bill concerning information society services and establishing a detailed liability regime was proposed in the Congress in 2014 and is still pending in Congress[177].

In **Honduras** and Nicaragua, federal decrees were issued in the early 2010s to update consumer laws with specific e-commerce provisions. Costa Rica also has an online system[178] managed by the Ministry of Economy, Industry and Commerce (MEIC) to receive consumer complaints through an online platform.

Nicaragua revised its consumer law in 2013, introducing a specific provision regarding the consumer's right to withdrawal, i.e. the right to return a product and be reimbursed, regardless of whether the good is defective or not. The country expressly overrules the right to withdrawal (art. 41) so that only defective goods or goods not in accordance with the purchase can be sent back to sellers. This contrasts with the legal framework adopted by most Latin American countries, where consumers enjoy a deadline (5 days in Mexico and Colombia, 7 days in Brazil, 10 days in Chile and Argentina) to withdraw from purchases made online or by phone.

Panama has not modernised its consumer law to introduce specific e-commerce related provisions. Therefore, general consumer protection provisions apply also for e-commerce. However, in 2012, a new law regulating electronic signatures ensured a more secure environment for e-commerce activities.

Electronic signatures

All monitored countries have passed laws allowing the use of electronic signatures. These establish terms and conditions for their validity, regulating their use by individuals and businesses. CAFTA-DR provisions demand that members *"share information and experiences on laws, regulations, and programs in the sphere of (…) electronic signatures."* Costa Rica, Honduras and Nicaragua have already adopted specific national regulations to

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[176] The Central America Dominican Republic Free Trade Agreement (CAFTA-DR) is a free trade agreement between the US, five Central American countries (Guatemala, El Salvador, Honduras, Costa Rica and Nicaragua), and the Dominican Republic. CAFTA removes tariffs and merchandise processing fees on trade. All tariffs on US consumer and industrial exports were removed as of 2015, while tariffs on agricultural exports will be eliminated by 2020. Everything will be duty-free by the time the agreement is fully implemented on January 1, 2025. CAFTA also improves customs administration and removes technical barriers to trade. It addresses government procurement. investment, telecommunications, electronic commerce, intellectual property rights, transparency, and labour and environmental protection. Canada is negotiating a similar agreement. https://ustr.gov/sites/default/files/uploads/agreements/cafta/asset_upload_file783_3934.pdf

[177] http://www.asamblea.go.cr/Centro_de_Informacion/Consultas_SIL/Pginas/Detalle%20Proyectos%20de%20Ley.aspx?Numero_Proyecto=19012

[178] http://meic.go.cr/consumidorenlinea/

recognise the legal value of electronic signatures. Although not a CAFTA-DR member, Panama has done the same.

CAFTA-DR dispositions are in line with those found in the Trans Pacific Partnership Agreement and include rules and procedures for the electronic authentication of correspondence, contracts and signatures as a means to ensure the trust of consumers and of businesses, and to foster e-commerce[179].

The two main trading blocs of South America, the Andean Community[180] (Bolivia, Colombia, Ecuador and Peru) and Mercosur (Argentina, Bolivia, Brazil, Paraguay, Uruguay and Venezuela), have also included provisions regarding the harmonisation of the regional framework of digital signatures as means to promote ecommerce.

Box 11 – UNCTAD-funded consumer protection capacity building in Peru

COMPAL[181] is a programme, providing capacity building and institutional strengthening on competition and consumer protection matters to 16 countries in Latin America since 2003[182].

Launched by the UN Conference on Trade and Development (UNCTAD), its ultimate goal is to increase its members' competitiveness and enhance consumers' trust in both national and regional markets. Its activities aim to provide the private sector with tools to ensure voluntary compliance and to empower global consumers.

Funded by the State Secretariat for Economic Affairs of Switzerland (SECO), the programme is in its third edition (2015-2018). The focus is on the consolidation of the acquired capacities and the deepening of regional cooperation.

COMPAL-funded activities for 2017-2018 include the assessment of results of the regional cooperation and level of harmonisation of public policies and legal frameworks of consumer protection in Compal's countries. One of the programmes implemented is the INDECOPI – COMPAL School in Peru**[183]**. Indecopi is the National Institute for the Defence of Competition and Intellectual Property of Peru.

The INDECOPI-COMPAL School offers high-level training, both theoretical and practical, to officials from competition and consumer protection agencies in COMPAL member countries. In 2015[184], the school provided training sessions (physical and distance learning) on consumer protection and e-commerce to employees of 11 national consumer agencies of Latin American and Caribbean countries. The content of the trainings was based on a comparative approach of the legal frameworks applicable to e-commerce in the region, as well as in the European Union and the United States.

The long-term objective of the training is to allow the agencies' officials to replicate the training sessions in their national agencies, with materials and know-how from the school being available to support their educational activities.

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[179] https://www.mfat.govt.nz/assets/_securedfiles/trans-pacific-partnership/text/14.-electronic-commerce-chapter.pdf

[180] Decisions 571 and 775 http://www.comunidadandina.org/

[181] Source: https://unctadcompal.org

[182] The programme initially provided technical assistance for capacity building in Bolivia, Costa Rica, El Salvador, Nicaragua, Peru and, during a second phase, Colombia. Since 2009, ten other Latin America countries joined COMPAL under a self-funded basis. The current members are: Argentina, Bolivia, Chile, Colombia, Costa Rica, Ecuador, El Salvador, Guatemala, Honduras, Mexico, Nicaragua, Panama, Paraguay, Peru, Dominican Republic and Uruguay.

[183] https://unctadcompal.org/wp-content/uploads/2017/04/Documento-Proyecto_Escuela-INDECOPI-COMPAL_versio%CC%81n-18-abril-2017.pdf

[184] https://unctadcompal.org/events/primer-programa-de-formacion-especializada-de-la-escuela-indecopi-compal-sobre-proteccion-al-consumidor-el-comercio-electronico-en-america-latina/

Privacy and data protection

In general, Central American countries have personal data protection rules. Nevertheless, these rules are not sufficiently aligned within Central America nor with other Latin American countries.

Table 10 – Privacy and data protection in selected Central American countries

Country	Legal basis	Competent agency	Fines	International data transfer regulated
Costa Rica	Law 8,968 of 2011and regulatory decrees 37,554 of 2012 and 193 of 2014	Prodhab within the Ministry of Justice and Peace.	up to US$23,000	√
Honduras	No single law	Institute of Access to Public Information	up to 50 minimum wages (US$32,000)	X
El Salvador	No single law (proposed[185])	undefined	undefined	debate ongoing
Nicaragua	Law 787/2012	Personal Data Protection Directorate	undefined	√
Panama	No single law (proposed[186])	National Authority for Transparency and Access to Information[187]	undefined	debate ongoing

Data protection frameworks are quite developed in **Costa Rica** and **Nicaragua**.

These countries have rules that are similar in a number of aspects, and also consistent with rules adopted in other Latin American countries. Personal data owners must consent to data collection, storage and processing. They can update or erase their personal data at any time. Entities processing or storing data must protect personal data using proper security measures and provide compensation for damages (e.g. in case any security vulnerabilities are exploited). Similar rules are under debate at the National Assembly[188] in Panama.

Some countries accept exemptions to general data protection rules. For example, in **Costa Rica** and **Panama** (proposed), data protection rules do not apply in case of national security issues, if personal data is anonymised, or if it is necessary to enforce criminal

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[185]https://www.agpd.es/portalwebAGPD/internacional/red_iberoamericana/encuentros/VI_Encuentro/common/fa_vi_encuentro_el_salvador.pdf

[186] http://www.antai.gob.pa/proyecto-de-ley-proteccion-de-datos-personales-version-revisada-enero-2017/

[187] http://www.antai.gob.pa/

[188] See draft data protection law, available at: http://www.antai.gob.pa/proyecto-de-ley-proteccion-de-datos-personales-version-revisada-enero-2017/

law. In Costa Rica, entities can only transfer data to third countries if the data owner has explicitly authorised it.

Honduras does not have a specific data protection framework in force or under debate. However, the E-commerce Law[189] and the Law of transparency and access to public information[190] have some rules affecting data processing and storage. For example, access to data shall only be granted by judicial ruling, or at the request of the person whose personal data are stored, or their representatives. Moreover, no person may compel another to provide personal data that may lead to discrimination or cause damage or moral or economic risks.

In **El Salvador**, a preliminary draft ''Data Protection Law'' is currently under study.

In **Costa Rica**, there is a 'right to be forgotten' ten years after the event if the personal data collected may 'affect the owner'[191].

In **Nicaragua**, according to Law 787-2012, the 'right to be forgotten' must be guaranteed to the data owner but there is no further detail on how it should be enforced. A specific data protection agency oversees the enforcement of privacy and data protection rules in all countries. Sanctions in case of non-compliance vary from warnings to fines, as well as the suspension of storage and processing activities. Fines vary according to the severity of the offence. Most countries analysed do not establish an amount for fines. In Costa Rica, for example, fines can reach up to US$23,000.

To compare with other Latin American countries, as is shown in Table 11, **Mexico** has a very consolidated personal data protection environment, with a specific privacy regulator in place since 2003.

The Federal Privacy Law of 2010 covers all topics that are relevant for the digital environment. Privacy notices must be sent and approved by the personal data owner, who can at any time access, modify or ask to cancel such data. Special measures also apply for sensitive data and financial information.

Peru also has a well developed privacy framework, and is one of the few countries in Latin America to have a framework in place that ensures the 'right to be forgotten'.

In **Chile,** the executive branch[192] has proposed a bill to grant the 'right to be forgotten' but only for data on criminal, civil and administrative convictions, which can only be stored by public entities exercising their legal powers. The same bill also proposes a 'right to portability': users can request database managers to provide a copy of their personal data in a commonly used and structured format. This is the only example of a 'right to portability' discussed amongst the countries surveyed. No specific data protection agency oversees the enforcement of privacy and data protection rules in Chile, where the creation of this agency is under debate[193]. Fines for very severe

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[189] Decree 149-2014. Available at:
http://www.tsc.gob.hn/leyes/Ley_sobre_Comercio_%20Electronico.pdf
[190] Decree 170-2006. Available at: https://www.ccit.hn/wp-content/uploads/2013/12/LEY-DE-TRANSPARENCIA-Y-ACCESO-A-LA-INFORMACION1.pdf
[191] For more information, see: Law 8,968 (Law of People's Protection Against the Personal Data Processing).
[192] See Bulletin 11144-07, available at:
https://www.camara.cl/pley/pley_detalle.aspx?prmID=11661&prmBoletin=11144-07
[193] See Bulletin 11144-07, available at:
https://www.camara.cl/pley/pley_detalle.aspx?prmID=11661&prmBoletin=11144-07

offences will reach up to US$345,000, according to the same bill which is still under debate at Congress.

Brazil has no government agency exclusively in charge of enforcing data protection rules. This responsibility is shared by Anatel, the telecommunications regulator, SENACON, the Consumer Protection Secretariat at the Ministry of Justice, and CADE, the National Competition Authority. Several bills under debate by Congress propose to amend the current data protection framework, including the creation of a national data protection authority. There is no specific regulation on the transfer of personal data to other countries, including for sensitive data.

Table 11 - Privacy and data protection in other Latin American countries

Country	Legal basis	Competent agency	Fines	International data transfer regulated
Argentina	Law 25326/2000	Directorate of Personal Data Protection (Ministry of Justice	up to US$5,789.01	√
Brazil	No single law (proposed[194])	Senacon (Ministry of Justice), Anatel and CADE	debate ongoing	debate ongoing
Chile	Law 19,628/99 and Law 20,575/2012 (reform under discussion[195])	Proposed: judicial enforcement	up to US$345,000	debate ongoing
Colombia	Data Protection Law 1581/2012 and regulatory Decree 1377/2013	SIC and SFC	up to US$0.45m	√
Mexico	Federal Privacy Law of 2010	INAI	up to US$1.44	√

Cross-border flows of personal data

As in the Asia Pacific, the situation varies considerably across Central America and Latin America.

In **Honduras,** there are no specific provisions in the current rules, while in **Costa Rica** a data user may only transfer data to third countries if the data owner has explicitly authorised it.

In **Nicaragua**, the data protection law forbids data transfer to countries that do not offer an adequate level of data protection, except in some cases: a) international judicial collaboration or between intelligence agencies; b) exchange of personal data on health issues when needed for an epidemiological investigation; or c) data transfer has been agreed within the framework of international treaties ratified by Nicaragua.

In **Panama**, a bill would allow companies to transfer confidential and sensitive personal data if they adopt data protection standards similar to the national law, or take all steps

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[194]http://www.camara.gov.br/proposicoesWeb/fichadetramitacao?idProposicao=2084378
[195]http://www.senado.cl/appsenado/index.php?mo=tramitacion&ac=getDocto&iddocto=11661&tipodoc=mensaje_mocion

needed to comply with the national law[196]. There are no particular requirements for specific kinds of personal data, e.g. financial data.

Figure 34 - Regulatory approaches in Latin America on cross-border transfers of personal data (Cullen International)

Country	No specific restrictions	Same level of protection	Data subject consent	Pending proposals
Argentina		●		
Brazil				●
Chile				●
Colombia		●		
Costa Rica			●	
Honduras	●			
Mexico			●	
Nicaragua		●		
Panama				●
Peru		●		

Diversified approaches are also observed in other Latin American countries.

Explicit data subject consent is mandated in **Mexico**. No clear rules on cross-border personal data transfers currently exist in **Chile** or **Brazil**, although proposals are pending in the respective Parliaments.

In **Colombia,** the law forbids data transfer to countries that do not offer an adequate level of data protection, under the standards defined by the Superintendence of Industry and Commerce (pending definition).

In **Argentina**, transferring personal data to countries not offering an adequate level of data protection is also forbidden by the national data protection authority (National Directorate for Personal Data Protection at the Ministry of Justice and Human Rights - DNPDP). A list of countries acknowledged as having an adequate level of data protection is published by DNPDP.

A similar approach is applied in **Peru**, where the Personal Data Protection Law of 2011 mandates similar levels of protection, setting out specific requirements for the disclosure of personal information outside the country.

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[196] According to the bill: "The storage or transfer of personal data of a confidential, sensitive or restricted nature by the company responsible for databases, or custodian thereof, shall be permitted, if the company and/or its country of residence, has protection comparable to the law; or if the transferring entity ensures that it takes all necessary steps to ensure that the data will be protected in a manner consistent with the law through applicable international contracts, conduct codes or standards".

Main initiatives on e-payments

We have seen that several Asia Pacific economies are rapidly transforming their e-payment environments, generating a positive impact on the development of B2C ecommerce.

The key enablers that make e-payments more advanced in some Asia Pacific countries include the adoption in certain countries of rules and codes of practice fostering transparent and efficient e-payments, as well as governments accepting e-payments by citizens in their use of e-government services). We have also seen that each country has been pursuing its own policies, with no regional coordination in the adoption of rules and codes of practice.

Although Latin American consumers still make widespread use of cash, electronic transactions have become more common, and several countries have started modernising the financial sector including though the adoption of new rules on e-payments and mobile payments.

While in many Asia Pacific countries e-payments are mainly seen as a way to foster e-commerce, in Latin America, e-payments (and especially mobile payments) are playing a key role for increasing financial inclusion. The increased penetration of mobile services and internet access have increased the demand for instruments and tools for electronic transaction payments. The high levels of mobile penetration contrast with the low rate of credit/debit card penetration in the region, making e-payments, and particularly m-payments, a growing means of payment for both electronic and regular transactions.

M-payments are used in Latin America for different purposes, with airtime top-up and person to person (P2P) transfers being the most important ones.

Other relevant services used were bulk disbursements and bill payments. According to a 2016 GSMA study[197], at the end of 2015, there were 23m registered m-payment accounts, of which 10.8m were active.

Regarding regulation, some countries, such as Paraguay, Peru and Colombia, have designed specific regulations for e-payments systems, even creating special financial entities that offer their services through electronic means.

In 2014, **Colombia** adopted a financial inclusion law, which regulates the use of electronic money in the country. The government of **Colombia** also identified the increase and promotion of e-payments as a priority in its National Development Plan (PND) 2015-2018[198].

In June 2016, the Central Bank of **Argentina** issued a decision to foster mobile payments. Banks must offer their clients a mobile app to make transfers between phones and receive debit card payments[199]. The government ruled that, from July 2017, electronic transactions (mobile transfers, virtual wallets and home banking) are exempt from the tax levied over bank checks and transfers[200].

In **Chile**, where e-payments have had a similar development as in the rest of the region, they are not covered by any specific regulation and are considered a complementary or

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[197] http://www.gsma.com/mobilefordevelopment/programme/mobile-money/state-of-the-industry-2015
[198] National Development Plan (PND) 2015-2018
[199] http://www.bcra.gob.ar/Pdfs/comytexord/A5982.pdf
[200] http://www.bcra.gob.ar/Pdfs/comytexord/A5982.pdf

value added service offered over licensed mobile networks. Commercial terms and conditions apply for these services in the same way as for the contractual relations between service provider and users.

Peru has created a well developed e-payment regulatory environment where licensed e-payment entities have specific obligations towards consumers and businesses, as well as obligations to guarantee transactions in a secure and private ecosystem.

As a means of increasing banking services penetration, the National Bank Association of Peru has created BIM (electronic wallet). This service is an m-payment and transaction application, backed by all the banks and e-payment entities in Peru. It allows all interested mobile phone users to have access to m-payments without owning a bank account or a credit card. Once the service is activated, end users can make payments, receive deposits, or withdraw cash from ATMs[201].

With a 'Fintech' bill currently under debate at Congress, Mexico is trying to innovate its financial sector, currently regulated under the Payment Systems Law of 2002[202].

Box 12 - Fintech bill proposed in Mexico

The Fintech bill[203] aims to update the current regulatory framework for financial services and institutions. If approved, the new law would regulate:

- the use of new technologies for the provision of financial services;

- the entry of new, innovative players in the market; and

- the use by financial institutions, under certain conditions, of 'virtual currencies' such as bitcoin.

Once approved, implementation of the law would require the adoption of secondary legislation on e-payments, consumer protection, and the use of virtual currencies.

The bill regulates 'financial technology institutions' (ITF) including "collective financial institutions and electronic payment institutions".

ITFs would be allowed to provide e-money transmission services, and other forms of e-payment services (against the receipt of legal currency). ITFs would be licensed for an undefined period.

The bill introduces specific rules to facilitate the testing of new e-payment products, services and business models in the market, inspired in other 'regulatory sandboxes' observed internationally. Thus, startups and other innovative agents can conduct live experiments in a controlled environment under a regulator's supervision, before they apply for an ITF licence.

The bill foresees a gradual implementation schedule, given the number of government entities potentially affected by the law, and its impact on existing legislation (regarding financial issues but also security, fiscal and money-laundering provisions in the criminal code).

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[201] For more information: http://mibim.pe/
[202] http://www.diputados.gob.mx/LeyesBiblio/pdf/255.pdf
[203] http://www.senado.gob.mx/sgsp/gaceta/63/3/2017-10-12-1/assets/documentos/Iniciativa_Ejecitvo_Federal.pdf

In **Costa Rica,** a bill under debate proposes "secure e-payment" as a consumer right. The country already applies general consumer protection provisions to e-payments[204].

In Costa Rica, financial entities are also responsible for providing safety conditions to online accounts access and transactions. The Central Bank has created a payment method that allows mobile money (SINPE[205]), which already works with many services in the country. The Central Bank also established rules[206] and sanctions[207] applicable to banking institutions in case of damage to consumers.

In **Panama,** banks must employ appropriate security measures, such as cryptography, specific protocols, or other controls to ensure the privacy and confidentiality of customer information.

In **Nicaragua,** the Superintendence of Banks and other Financial Institutions (SIBOI) explicitly established the following specific consumer rights for e-payments:

- truthful, clear and complete information about the terms and conditions of services;
- transparency of costs of products and services; and
- ban on imposing minimum balances of electronic money stored on mobile devices.

In **Honduras,** the government has created a specific entity to transfer funds and operate payments using mobile money (INDEL[208]).

In **Panama**, guidelines on electronic banking require specific security measures for mobile banking, including bank and customer authentication. Customers must be identified by their mobile phone numbers, automatically obtained by the bank.

Adapting copyright protection to the digital environment

Costa Rica is the only Central American country which has reformed its copyright law to adapt fully to the digital environment. The law allows rights holders to send takedown requests in relation to infringing content directly to ISPs, who have up to fifteen days to take the necessary measures.

Take down requests can be sent to any online host of illegal content, such as websites, blogs, social media and video sharing platforms providing over the top (OTT) on-demand audiovisual services.

Although protection to copyright-protected works 'in any form' can be sought in **Honduras**, **Nicaragua** and **Panama**, rights holders must still trust 'off-line' legal provisions to do so.

In these countries, no regime has been established for a specific 'notice and take down' regime, nor for the liability of intermediaries, such as internet service providers (ISPs).

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[204] See: http://www.asamblea.go.cr/sil_access/ver_texto_base.aspx?Numero_Proyecto=19012
[205] http://www.bccr.fi.cr/sistema_pagos/
[206] http://www.bccr.fi.cr/normas_sinpe/
[207] http://www.bccr.fi.cr/normas_sinpe/NormaREF.pdf
[208] As reported by the media: http://www.elheraldo.hn/pais/936203-466/uso-de-la-billetera-electrónica-será-legal-en-honduras

> ### Box 13 – ISPs' copyright liabilities in Costa Rica
>
> A 2011 decree limiting ISP's liabilities on copyright infringements in Costa Rica was an important step towards the implementation of the Free Trade Agreement signed between Costa Rica and the Dominican Republic and Central America with the US (CAFTA-DR) in 2004.
>
> Its provisions establish:
>
> - 'collaborative measures' taken by internet service providers (ISPs) to discourage the unauthorised use of copyright-protected content by users;
>
> - limitation to the liability of ISP's for third-party infringements of copyright or related rights, which are defined as infringements that are not under ISPs' control (or editorial control) and that have been initiated or take place in their operated systems or networks;
>
> - rights holders who consider that their rights have been or are being infringed on or through networks or systems controlled or operated by an ISP may send a communication to such a service provider, provided they indicate:
>
> - the rights holders of the infringed content (copyright or related rights);
>
> - an address within the national territory to receive copyright-related notices;
>
> - the URL where the infringed content is located;
>
> - enough information to allow the ISP to identify the user or the person allowing the alleged infringement; and
>
> - all statements must be made under oath under the penalties for false testimony according to national criminal laws.

Throughout the whole Latin America and the Caribbean region, **Chile** and **Costa Rica** are the only countries having implemented such regimes covering copyright-related rules in their national laws. Unsurprisingly, the two countries also rank (Chile, followed by Costa Rica and Mexico) as 'regional innovation leaders' in research by the World Intellectual Property Organisation (WIPO)[209].

Colombia, Honduras, Mexico, Nicaragua, Panama and Peru have signed free trade agreements with the **US** containing IP provisions. However, these agreements do not necessarily impose the adoption of ISP liability scheme exemptions for copyright exemptions.

Argentina, Brazil and Colombia have no specific provisions in their copyright laws to fight online piracy or to establish ISP's liabilities for copyright infringements, so the same provisions as for offline situations apply.

All members of the Central American Integration System (SICA) have recognised[210] common parameters to guide national laws establishing ISPs liabilities. Although the provisions do not refer specifically to copyright-protected content, they clearly cover the subject.

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[209] http://www.wipo.int/pressroom/en/articles/2016/article_0008.html
[210] Joint-Declaration on Freedom of Speech on the Internet (adopted on June 1st, 2011)

Innovation policies in Central and Latin America: beyond connectivity

Although the main focus of ICT policies in most Latin American countries remains on connectivity and accessibility, some countries have started introducing new topics, actions and programmes in their national agendas.

For example, in its 'Digital Agenda Panamá 4.0' agenda for 2014-2019, **Panama** envisages new projects and initiatives in the digital economy, as well as on e-government, cyber security, cloud computing and smart cities, among others. **Costa Rica** has also introduced several new ICT initiatives in its National Telecommunications Plan 2015 – 2021, which includes actions to create an enabling environment for innovation, and to build the foundations of digital cities and electronic government.

The **Dominican Republic** has launched a digital agenda for the period 2016-2020[211] which is inspired by the main goals identified by the ITU's World Summit on Information Society (WSIS) in 2015 and the e-LAC2018 strategy.

Among the main objectives, some are focused on innovation and ICT use to foster connectivity. The agenda also includes actions to promote e-government and the transition towards IPv6 in the country. **Honduras** has adopted an agenda until 2018 which has a similar scope and objectives. **Guatemala** officially launched its "Nación Digital" plan in February 2017[212]. The plan includes objectives regarding education, health and transparency. Actions will be funded from the proceeds of the 4G (AWS) spectrum auction, which is however experiencing delays.

Other Latin American countries are deepening their interest, and consequent research efforts, in topics such as the internet of things (IoT), cloud computing, cybersecurity, smart cities, and new services and applications – including **Argentina**, **Colombia**, and Brazil.

In its National Digital Strategy of 2013, **Mexico** aims for government transformation, the development of a digital economy ecosystem, quality education, universal healthcare and citizen security. Mexico has developed actions based on five key enablers (connectivity, inclusion and digital skills, interoperability, harmonised legal framework and the use of open data by government), and launched a National Cybersecurity Strategy in November 2017[213].

In **Chile** in November 2015, President Michele Bachelet launched the 'Chile Digital Agenda 2020', which addresses the future use of ICTs in government, industry and society. The agenda aims to adapt the regulatory framework to the digital environment, including on data protection, copyright and electronic commerce, and taxes, launching new public-private projects and initiatives.

In the next chapters, we will provide an overview of the current digital economy strategies and approaches implemented by selected regional and sub-regional partnerships involving Latin American countries. We will then discuss how regional and national approaches might be combined together in order to maximize the benefits of a harmonised approach towards the digital economy in Latin America.

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[211] http://www.gob.do/index.php/politicas/2014-12-16-20-55-59
[212] http://mingob.gob.gt/presentan-oficialmente-la-agenda-nacion-digital-3/
[213] https://www.gob.mx/gobmx/documentos/estrategia-nacional-de-ciberseguridad. Prior to adoption the draft strategy received recommendations from the Organisation of American States (OAS) in April 2017 http://www.oas.org/documents/spa/press/Recomendaciones-para-el-Desarrollo-de-la-Estrategia-Nacional-de-Ciberseguridad.pdf

3. Regional and Sub-regional cooperation on the Digital Economy

3.1. Introduction

There are several regional and sub-regional partnerships involving Latin American countries.

Although most of them are oriented at facilitating and increasing political and economic relations, including trade, among the participating countries, they are also committed to explore and leverage – domestically and regionally - new opportunities bound to the use of ICTs and to cross-border e-commerce (Table 12).

In this chapter we will analyse six significant partnerships involving three or more Latin American countries, selected among the many partnerships and forums of cooperation involving Latin American countries.

- The **Pacific Alliance** is integrated by four Latin American countries bordering the Pacific Ocean (Mexico, Colombia, Peru, and Chile).

- The **Asia Pacific Economic Cooperation (APEC)** is a multilateral economic forum between 21 economies bordering the Pacific Ocean[214] also integrated by three Latin American countries (Chile, Mexico and Peru).

- The **Trans-Pacific Partnership (TPP)** puts forward new principles, objectives and functioning criteria to deal with free trade and investment mechanisms. Twelve countries are signatories of the TPP Agreement, including, for Latin America, Chile, Mexico and Peru[215]. The new US administration's decision to leave the TPP, and the impossibility for other members to ratify the agreement in the absence of the United States is frustrating the future of this partnership.

- The **Central America Integration System (SICA)** currently integrates eight countries of Central America: Belize, Costa Rica, Dominican Republic, El Salvador, Guatemala, Honduras, Nicaragua, and Panama.

- The **Mesoamerica Project** includes SICA's eight countries plus Mexico and Colombia.

- The **Mercosur** integrates six South American countries (Argentina, Brazil, Uruguay, Paraguay, Bolivia and Venezuela). In August 2017 Venezuela was suspended from the Mercosur, pursuant to the Ushuaia Protocol.

As we will see in detail in the next chapters, scope, approaches, governance and organisation and levels of commitment in the digital economy vary considerably across the partnerships analysed.

Scope, approaches, governance and organisation and levels of commitment in the digital economy vary considerably across the partnerships analysed. For example, although all partnerships take decisions by consensus at the ministerial level, APEC decisions are never binding on member economies and are integrated on a voluntary basis. SICA's Economic Union of Central America is equally being implemented by countries on a voluntary and gradual approach.

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[214] Among these, Mexico, Chile, and Peru for Latin America. The other economies are: Australia, Brunei, Canada, China, Chinese Taipei, Hong Kong, Indonesia, Malaysia, New Zealand, Papua New Guinea, Russia, Singapore, South Korea, Thailand, the Philippines, Vietnam, and the United States.

[215] The TPP is a trade agreement signed in February 2016 by twelve countries: Australia, Brunei, Canada, Chile, Japan, Malaysia, Mexico, New Zealand, Peru, Singapore, the United States and Vietnam. The agreement has not come into force yet.

While the Pacific Alliance, the Mercosur and the SICA have established own dispute settlement courts, and the TPP foresees clear mechanisms on the resolution of disputes under the terms of the TPP agreement, this is not the case of APEC or of the Mesoamerica Project.

MIDP and the Pacific Alliance have specific mechanisms and procedures to fund projects, including by actively involving multilateral development banks. APEC has a considerable track record of projects and initiatives – including in the telecoms and digital economy sectors, as well as in R&D financed by APEC, individual member economies, as well as private sources. On the other hand, SICA's digital strategy relies completely on external donors' funding.

Table 12 – Relevant regional and sub-regional cooperation involving Latin American countries

✓	OAS	ECLAC	CAN	Caricom	ALADI	APEC	SICA	Mercosur	NAFTA	CAFTA-DR	Meso-America	Pacific Alliance	TPP
	(1948)	(1948)	(1969)	(1973)	(1980)	(1989)	(1991)	(1991)	(1994)	(2005)	(2008)	(2011)	(2016)
AR	✓	✓			✓			✓					
BZ	✓	✓		✓			✓				✓		
BO	✓	✓	✓		✓			✓					
BR	✓	✓			✓			✓					
CL	✓	✓			✓	✓						✓	✓
CO	✓	✓	✓		✓						✓	✓	
CR	✓	✓					✓			✓	✓		
CU	✓[216]	✓			✓								
DR	✓	✓					✓			✓	✓		
EC	✓	✓	✓		✓								
GT	✓	✓					✓			✓	✓		
HN	✓	✓					✓			✓	✓		
MX	✓	✓			✓	✓			✓		✓	✓	✓
NC	✓	✓					✓			✓	✓		
PA	✓	✓			✓		✓				✓		
PE	✓	✓	✓		✓	✓						✓	✓
PY	✓	✓						✓					
SV	✓	✓					✓				✓		
UY	✓	✓			✓			✓					
VE	✓	✓			✓			✓[217]					
CA	✓	✓				✓			✓				✓
US	✓	✓				✓			✓	✓			✓

[216] On June 3, 2009, the Ministers of Foreign Affairs of the Americas adopted resolution AG/RES. 2438 (XXXIX-O/09), that resolves that the 1962 resolution, which excluded the Government of Cuba from its participation in the inter-American system, ceases to have effect in the Organization of American States (OAS). The 2009 resolution states that the participation of the Republic of Cuba in the OAS will be the result of a process of dialogue.
[217] Suspended

3.2. Pacific Alliance

Scope and objectives

The Pacific Alliance is an initiative of regional integration formed by Chile, Colombia, Mexico and Peru.

It was officially created on April 28, 2011, and formally and legally constituted on June 6, 2012 with the signing of the Framework Agreement ("Acuerdo Marco")[218]. The Agreement has an indefinite duration.

The gross domestic product (GDP) of the country members of the Pacific Alliance brings together 39% of total GDP in Latin America and the Caribbean. The countries of the Pacific Alliance add approximately 50% of the foreign trade of Latin America. In addition, they represent 44% of the total number of flows of foreign direct investment in Latin America and the Caribbean.

The Pacific Alliance seeks to benefit its population through the free movement of goods, services, capital and people. For this reason, it has a commercial agreement that facilitates trade between the four member countries through tariff reduction, the decrease of barriers to trade, dispute resolution, the streamlining of import and export operations and the facilitation of trade in services, among others.

The main objectives of the Alliance are:

- Build, on a participatory and consensual basis, an area of deep integration to move progressively towards the free movement of goods, services, capital, people and economy.
- Promote higher growth, economic development and competitiveness of the economies of its members, with a view to achieving greater well-being, overcome socioeconomic inequality and foster social inclusion of its inhabitants.
- Become a platform of joint political, economic and commercial integration, and projection to the world, with an emphasis on the Asia Pacific region.

On February 10, 2014, member countries signed an Additional Protocol to the Framework Agreement ("Protocolo Adicional al Acuerdo Marco")[219], which aims to deepen on bilateral trade agreements between the four countries members of the Alliance. Topics include, among others:

- the establishment of a free trade area;

- rules and principles that facilitate access to the markets;

- measures resulting in the application of the national treatment principle;

- rules on cross-border trade in services;

- measures to promote investment in the countries;

- principles and rules regarding the telecoms sector and e-commerce; and

- a regime of dispute settlement.

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[218] http://www19.iadb.org/intal/intalcdi/PE/2013/11593.pdf
[219] http://www.sice.oas.org/Trade/PAC_ALL/Index_PDF_s.asp

Trade and integration are achieved by regulating the provisions relating to the tariff liberalisation, rules of origin, technical barriers to trade, sanitary and phytosanitary measures, as well as trade facilitation and customs cooperation.

So far the Pacific Alliance has eliminated 92% of trade tariffs between the four countries, and has agreed to phase out the remaining 8% in the coming years.

The Pacific Alliance seeks to generate greater opportunities for economic operators (especially SMEs, so that they can participate in an expanded market) and promote regional value chains, with a view to the four countries can project itself more competitively towards other international markets, especially in the Asia Pacific.

The Framework Agreement is open for accession by States that so request it, and currently have a free trade agreement with each of the parties. Acceptance is subject to approval by unanimity in the Council of Ministers. In that case, the framework agreement shall enter into force for the acceding State 60 days from the date of the deposit of the instrument of accession.

To date, Costa Rica and Panamá have requested accession to become country members of the Pacific Alliance[220].

Structure and functioning

The Alliance has defined instances for decision-making[221] and management of administrative and commercial matters of interest of the Member States.

The **Presidential Summits**, highest instance of the Pacific Alliance composed of the Presidents of the four member countries. The Pro Tempore Presidency is exercised by each of the Member countries, in alphabetical order, for annual periods starting in January.

The **Council of Ministers**, composed of the Ministers of Trade and Foreign Affairs of the member countries, which has the following responsibilities:

- take decisions that develop the objectives and specific actions provided for in the framework agreement, as well as in the presidential statements of the Pacific Alliance;
- ensure compliance with and proper application of its decisions taken;
- evaluate periodically the results achieved in the implementation of decisions taken;
- approve the programmes of activities of the Alliance, with dates, locations and agenda of the meetings;
- set the political guidelines of the Alliance on their relationship with third States;
- call the high-level group established in the presidential declaration of Lima; and
- establish working groups deemed appropriate for the achievement of the objectives and actions of the Alliance.

The Council of Ministers must be held with the presence of all parties once a year. It may carry out extraordinary meetings at the request of any of the parties. Decisions must be taken by consensus and may contemplate different treatments or procedures for the achievement of the objectives of the Alliance. Once taken, decisions will be an integral part of the legal system of the Pacific Alliance.

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[220] http://www.cancilleria.gov.co/international/consensus/pacific-alliance
https://fas.org/sgp/crs/row/R43748.pdf
[221] In accordance with the framework agreement, the decisions of the Council of Ministers and other agreements in the field of the Alliance must be adopted by consensus and have binding effects among member states.

The **High Level Group (GAN)** is composed of Vice Ministers of Trade and Foreign Affairs. It is responsible for overseeing the progress of the technical groups, assessing the areas in which it can advance, and preparing a proposal for the projection and external approach with other organizations or regional groups, especially in the Asia Pacific region.

The **groups and technical subgroups**, composed of government officials from the member countries, whose function is to negotiate disciplines related to the Alliance´s themes, including groups on intellectual property, commerce integration and innovation and the sub-group on the Alliance's digital agenda.

Figure 35 - Pacific Alliance structure (Cullen International)
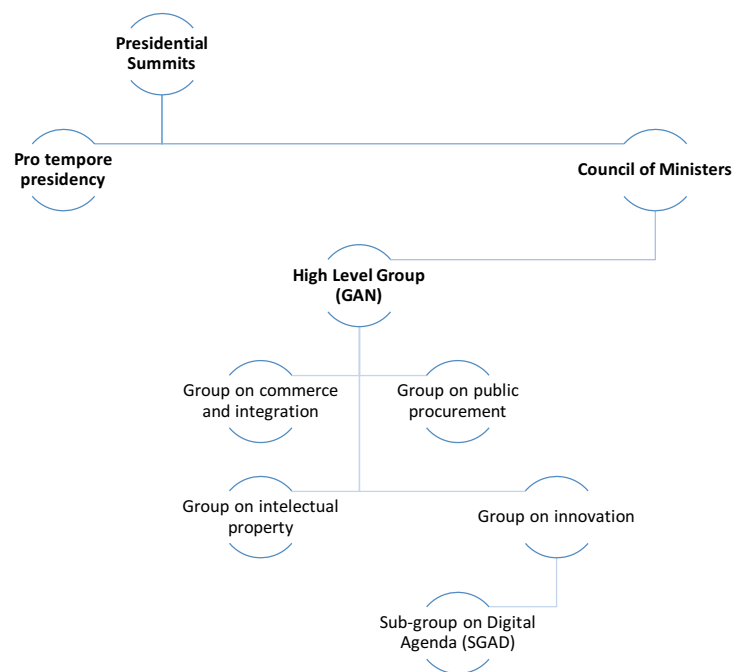
The Pacific Alliance has a **dispute settlement mechanism** that will enable the parties to solve problems arising from the application or interpretation of the regulatory provisions of the Pacific Alliance.

Funding schemes

In 2013, the four member countries of the Alliance constituted a Fund of joint cooperation for the financing of projects mainly involving micro, small and medium-sized enterprises.

In 2016, the Inter-American Development Bank - IDB – also announced the financial support to the creation of the Entrepreneurial Capital of the Alliance Fund, to facilitate the financing of and investment by small and medium-sized enterprises and foster entrepreneurship. The fund will be capitalized for the investment of the countries members, the investments multilateral fund and the private sector.[222]

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[222] http://www.iadb.org/en/news/news-releases/2015-07-03/entrepreneurship-in-pacific-alliance,11195.html

Cooperation and external relations

The Pacific Alliance was formed with the explicit purpose to establish closer relations with the Asia Pacific region.

In the years before the start of the Pacific Alliance, the four countries had already started engaging with Asian countries independently (Chile and Peru have signed agreements with China, Singapore and South Korea; Chile and Mexico have negotiated FTAs with Japan; and Colombia signed a FTA with South Korea, just to mention some of these agreements). However, the Alliance enables the member countries to formulate coherent trade policy choices as they are looking for new business opportunities with Asian markets, among others, with larger countries like China[223].

Chile, Mexico and Peru are also participating in the TPP. This is not the case of Colombia because it is not a member of the Asia Pacific Economic Cooperation (APEC). It should be noted that Colombia has been trying to become a member of APEC since 1995, and has formally expressed an interest in joining the TPP negotiations. The Pacific Alliance and its success might therefore strengthen the case for Colombia´s incorporation into the APEC group, and by extension to the TPP.

In May 2017, the Pacific Alliance and the Association of Southeast Asian Nations – ASEAN – renewed their commitment to strengthen cooperation between the two regional organisations[224].

Finally, on June 2, 2017 the Pacific Alliance countries announced the definition of the requirements and associated procedures of the implementation of the figure of associated state to the bloc[225], which will become a key element in the Pacific Alliance's expansion drive[226].

Pacific Alliance's Chapters on Telecommunications and Electronic Commerce

The Additional Protocol to the Framework Agreement includes a Chapter on Telecommunications and a Chapter on Electronic Commerce.

The main measures in the Telecommunications Chapter[227] address, amongst others:

- non-discriminatory interconnection;

- number portability;

- fair allocation and use of scarce resources;

- international roaming;

- major competitive safeguards in order to prevent dominant from engaging into anti-competitive practices, and facilitate market entry;

- effective resolution of disputes; and

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[223] http://www.ncapec.org/publications/docs/Andrew%20Tuck%20Guest%20Article.pdf

[224] Third Meeting of the Committee of Permanent Representatives to ASEAN and the Group of External Relations of the Pacific Alliance held at the ASEAN Secretariat http://asean.org/asean-pacific-alliance-to-strengthen-cooperation/

[225] "Status associated to the Pacific Alliance" means with which all the parties of the framework agreement of the Alliance concluded and put into effect a binding of high standards on economic commercial agreement, contributing to the achievement of the objectives of the framework agreement.

[226] https://alianzapacifico.net/consejo-de-ministros-de-la-alianza-del-pacifico-firman-lineamientos-de-la-figura-de-estado-asociado-2/

[227] http://www.sice.oas.org/Trade/PAC_ALL/telecomunicaciones_capII.pdf

- universal service.

The Chapter on Electronic Commerce[228] applies to electronic transactions of both goods and services, including digital products, aiming to facilitate trade conducted by electronic means. The main measures included in the Chapter address, amongst others:

- Measures to facilitate trade conducted by electronic means, avoiding unnecessary barriers;

- Customs duties;

- Advertising regulations and procedures;

- Rules on consumer protection (transparency and other consumer protection guidelines related to e-commerce);

- Personal data protection (including exchange of information between members and protection of e-commerce users' personal data);

- Authentication and digital certificates; and

- Cross-border flow of information.

Digital Agenda

The Digital Agenda sub-group of (SGAD), reporting to the Innovation group, was created as a result of the 11th Summit of the Pacific Alliance (Chile, July 2016).

The main objective of the SGAD is to implement, develop and deepen specific topics included in the telecommunications and e-commerce Chapters. The SGAD may also address some of the aspects of the regional digital agenda adopted in 2015 in Mexico City at the 5th Ministerial Declaration Conference on the information society in Latin America and the Caribbean (eLAC).

The first meeting of the Sub-group took place in December 2016 in Santiago, Chile. The main achievement of this first meeting was to develop a roadmap, structured into four pillars. Each pillar identifies objectives and actions, as described in Table 13.

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[228] http://www.sice.oas.org/Trade/PAC_ALL/comercioelectronico.pdf

Table 13 – Pacific Alliance's Digital Agenda: Pillars and Action Plan

Pillars	Objectives	Actions
Digital Economy	Implement the Regional Digital market - MDR	• Implement Regional Digital market, taking as a reference the work of eLAC • Organise a seminar on digital commerce in the Pacific Alliance • Analyse support from multilateral organisation and development banks (WEF, CAF) • Publish studies based on inputs from seminars and for a • Colombian Government shared share a study on e-commerce[229] challenges and propose action to overcome regional barriers to for e-commerce
	Development and internationalization of the IT industry and digital ventures	• Build IT internationalisation strategy - covering industries, applications and digital content • Identify the demand for services and sectors under a common methodology • Organise a workshop for the exchange of experience between the countries of the Alliance • Publish studies based on inputs from seminars and a Colombian digital economy observatory on the digitalisation of productive sectors[230] (Dec. 2017)
Digital Connectivity	IPv6 standard adoption in the public sector	• Promote regional cooperation for the efficient transition to IPv6. Coordinate with the Internet Society and LACNIC the transition to IPv6. Adoption of the standard by national and regional administrations • Provide technical assistance that allows implement a pilot scheme for IPv6 implementation • Explore measures to encourage the process of transition to IPv6 by the private sector • Organise a workshop on IPv6 implementation in Peru
	International roaming (IR) rates decrease	• Identify strategies with a view to the reduction of IR rates within the countries of the Alliance and have zero IR rates by 2020. Pacific Alliance members expect private operators to voluntary eliminate international roaming charges within the alliance, as announced[231] by Claro.
	Create infrastructure necessary for the creation of IXPs	• Strengthen telecoms infrastructure at the regional and sub-regional level through the installation of new Internet Exchange Points (IXPs) allowing ISPs to interconnect without recourse to international circuits • Individual countries to create the necessary infrastructure for the creation of IXPs in the region
	Rely on high-speed networks	• Encourage the implementation of new high-speed networks and data centres for the development of the digital economy • Encourage and consolidate foreign investment in networks and digital services • Study possible joint measures enabling the countries of the Alliance to have high-speed networks, including analysing the degree of competition, sector regulation

Pillars	Objectives	Actions
Digital Government	Implementation of the open data public policy	• Share best practices in the field of open data and reuse of data for government services • Adopt and promote the implementation of the International Open Data Charter[232], initiative already adopted by Colombia, Mexico and Chile • Encourage technical cooperation among the countries of the Alliance in this field
	Identify and share best regional practices for services to citizens	• Exchange of best practices and horizontal cooperation in areas such as: interoperability, usability, digitization, administrative simplification, reduction of gaps in digital adoption, digital IDs, digital signatures, among others • Identify and share regional good practices within a regional observatory on digital government, taking as a basis the work developed by the Electronic Governments Network of Latin America (GEALC[233])
	Encourage technical cooperation in the use of shared services	• Encourage technical cooperation in the use of shared services, including use of the cloud, Hardware Security Module (HSM), electronic signatures, among other systems • Facilitate the use of public software, using the existing AP platform
Digital Ecosystem	Net Neutrality	• Workshop, in 2017, to share experiences about the benefits bound to the adoption of network neutrality principles. • Encourage country adoption within the Pacific Alliance • Analyse initiatives in Regulatel forum
	Cybersecurity	• Increase cooperation in digital safety and promote confidence in the use of ICTs (as stated in Cali's declaration234) • Colombian government will share cybersecurity strategies and set critical infrastructure protection protocols

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[229] https://www.crcom.gov.co/es/noticia/la-crc-propone-acciones-para-impulsar-el-comercio-electr-nico-en-colombia
[230] http://www.mintic.gov.co/portal/604/w3-article-61929.html
[231] https://elcomercio.pe/economia/negocios/claro-eliminara-roaming-internacional-alianza-pacifico-147028
[232] http://opendatacharter.net/
[233] http://redgealc.asimov.cl/lineas-de-trabajo/datos-abiertos/
[234] https://alianzapacifico.net/declaracion-de-cali/

3.3. APEC

Scope and objectives

A "Multilateral Economic Forum", APEC is the only international intergovernmental grouping in the world committed to reducing barriers to trade and investment without requiring its members to enter into legally binding obligations. APEC achieves its goals by promoting dialogue and arriving at decisions on a consensus basis, giving equal weight to the views of all members.

APEC has estimated that, since its creation, in 1989, member economies' real GDP per capita has increased by 73%. This was achieved, according to APEC, by fostering open trade and investment. Average applied tariff rates decreased by more than 11% and trade has grown by US$ 17.5 trillion since 1989.

APEC has a track record of almost 30-year cooperation between 21 economies bordering the Pacific Ocean[235].

APEC recognises the role of the "internet economy" to fulfil growth and development among its members. APEC has a commitment to the overarching goal of a seamlessly and comprehensively connected and integrated Asia Pacific region by 2025. Over the years, it has witnessed increased cooperation among its members as regards the lowering of trade barriers, including for e-commerce, privacy and data protection, and the fostering of paperless trade, ICT innovation, and standardisation.

Structure and functioning

APEC operates as a cooperative, multilateral economic and trade forum. Member economies participate on the basis of open dialogue and respect for views of all participants.
The main areas of collaboration within APEC currently regard trade and capacity building.

In APEC all economies have an equal say and decision-making is reached by consensus. There are no binding commitments or treaty obligations. Commitments are undertaken on a voluntary basis. Capacity building projects help members implement APEC initiatives.

Projects may be funded by APEC, or by contributions from APEC members.

APEC's working structure includes four core committees and their respective working groups provide strategic policy recommendations to APEC Leaders and Ministers. The committees are:

- Budget and Management committee
- Economic committee
- Trade and Investment committee
- Economic and Technical Cooperation committee.

The working groups are tasked with implementing the initiatives defined in some of the committees through a variety of APEC- or individual economy-funded projects.

- The **Economic Committee** operates through only one working group, on Policy and Law.

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[235] Australia, Brunei, Canada, Chile, China, Chinese Taipei, Hong Kong, Indonesia, Malaysia, Mexico, New Zealand, Papua New Guinea, Peru, Russia, Singapore, South Korea, Thailand, the Philippines, Vietnam, and the United States of America.

- The **Trade and Investment Committee** has 10 working groups and 2 sub-groups, respectively on e-commerce and IPRs (see 1.3).

- The **Economic and Technical Cooperation Committee** is composed of 16 working groups. Among these, one is focused on telecommunications and information (TEL), and another one is focused on science, technology, and innovation.

Each WG is usually composed of a few steering groups. Leaders recently also established an Ad Hoc Steering Group on the Internet Economy (AHSGIE) to guide the discussion on Internet Economy issues, to which different WGs across the organization contribute, including the TEL and the e-commerce WGs.

Telecommunications working group (TEL)

Established in 1990, TEL WG has currently three steering groups, focused on liberalisation, development, and security.

Several TEL projects are private-public sector initiatives in collaboration with international organisations, including the International Telecommunication Union (ITU), the Organisation for Economic Cooperation and Development (OECD), the Asia Pacific Network Information Centre (APNIC), the Internet Society (ISOC) and the International Telecommunications Users Group (INTUG).

In 2015, APEC adopted an Action Plan for the telecoms sector until 2020, including actions and possible initiatives for the TEL WG to reach the objectives identified in the plan.[236]

The action plan is very broad, with most activities aimed at sharing experiences or collaborating on both telecoms and digital economy topics. There are also projects that are initiated and driven by the private sector.

Table 14 – Action Plan for the Telecoms sector until 2020

Objectives	Actions
Promote innovation and value creation in ICTs	Strengthen cooperation in the field of research
	Facilitate cooperation with stakeholders
	Promote policy and regulatory cooperation
	Promote availability and use of open data
	Share experiences and best practices on social and economic benefits from investment in and liberalisation of ICT infrastructure and services
	Promote the use of ICTs to improve living standards of citizens, including disabled people and socially vulnerable groups
Continuous improvement in connectivity, including access to broadband	Exchange experiences on approaches for improving access to broadband
	Explore how to increase ICT availability, accessibility and affordability
	Promote access to next generation broadband networks and services
Enhanced digital literacy	Identify and share best practice for better digital literacy of citizens
	Exchange policies on improving access to ICTs in schools, libraries, etc.
	Promote the use of ICTs in all stages of education and HR training
	Promote creativity among ICT users to encourage innovation
	Identify and share best practices to encourage ICT adoption

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[236]

http://www.apec.org/~/media/Files/Groups/TEL/20150331_APEC%20TEL%20Strategic%20Action%20Plan%202016-2020.pdf

Objectives	Actions
Greater adoption of ICTs within APEC economies	Explore ways to promote entrepreneurship and innovation
	Promote entrepreneurship in the internet economy
Resilience of domestic critical infrastructure	Promote understanding of the importance of domestic critical infrastructure and approaches to enhance resilience
Enhance cyber security	Support cyber security competencies
	Encourage information sharing relating on cyber security threats
Increase cyber security awareness	Engage governments, private sector, and other APEC fora
	Cyber Security Awareness Day
Intensified promotion of secure and trusted ICT use	Enhance protection of vulnerable groups
	Identify the appropriate handling of user information
	Study and share experiences on counter-measures for spam
	Promote consumer confidence in the use of ICTs
Increased collaboration among APEC economies	Share domestic developments to support capacity building
	Share counter measures to cyber threats and to protect privacy
Physical connectivity	Promote quality of ICT infrastructure
	Promote diversity in the use of ICTs
Institutional connectivity	Promote conducive regulatory environments
	Promote interoperability between APEC economies
	Promote development and use of global data standards
	Reduce mobile roaming rates between APEC economies
	Research on promoting the free flow of information
Interpersonal connectivity	Promote a common ICT Skills Recognition Framework (ICT SRF)
Enhanced online connectivity	Promote open data in APEC region
	Promote development of cross-border e-commerce
	Promote the IoT and application-to-application connectivity
	Promotion of digital content
	Greater adoption of IPv6
Enhanced ICT industry ecosystem	Promote the enhancement of ICT hardware, software and networks
	Promote the development of sustainable smart cities in APEC region
	Promote business use of new generation mobile communications
	Promote efficient use of spectrum resources
	Promote measures for ICT industry to support the Digital Economy
Accelerated evolution of traditional industries through comprehensive use of ICTs	Encourage use of ICTs to transform business in traditional industries
	Foster exchanges between communications and other industries
	Share policy experiences on ICT applications
Development of new industries	Promote the development of new industries through ICTs
	Promote the development of sustainable smart cities
Enhanced application of ICTs in services	Promote ICT-enabled commercial and social services
	Promote favourable environment for innovation in new sectors
Collaboration in APEC	Engage and collaborate with relevant APEC groups
External collaborations	Gather ICT leaders and form cross-regional collaborative partnerships
	Collaboration with ICT industry, multilateral organisations and Internet-related technical and administrative bodies

Ad Hoc Steering Group on the Internet Economy (AHSGIE)

In 2014, APEC leaders set an Ad Hoc Steering Group to guide on issues arising from the Internet Economy, formally recognizing the role of the Internet Economy in promoting innovative development and empowering economic participation.

The group includes several actions regarding infrastructure deployments and connectivity. It has been promoting several actions, including, among others, on ICT management of natural disasters and cybersecurity.

In 2017 AHSEGIE published a Roadmap, considered as a living document that will advise APEC working groups on potential areas of cooperation and an important contribution to further promote the development and growth of the Internet and Digital Economy in APEC.

Table 15 – AHSEGIE roadmap focuses on 11 areas

1	Development of digital infrastructure
2	Promotion of interoperability
3	Achievement of universal broadband access
4	Development of holistic government policy frameworks for the internet and digital economy
5	Promoting coherence and cooperation of regulatory approaches affecting the Internet and digital economy
6	Promoting innovation and adoption of enabling technologies and services
7	Enhancing trust and security in the use of ICTs
8	Facilitating the free flow of information and data for the development of the internet and digital economy, while respecting applicable domestic laws and regulations
9	Improvement of baseline internet and digital economy measurements
10	Enhancing inclusiveness of internet and digital economy
11	Facilitation of e-commerce and advancing cooperation on digital trade

APEC's Electronic Commerce Steering Group (ECSG)

Within APEC's Trade and Investment Committee the ECSG promotes the development and use of e-commerce by supporting the creation of legal, regulatory and policy environments in the APEC region that are predictable, transparent and consistent.

The ECGS has a coordinating role for APEC e-commerce activities, based on the principles set out in the 1998 APEC Blueprint for Action on Electronic Commerce[237].

Box 14 – APEC Blueprint for Action on Electronic Commerce

Developed in 1998 the Blueprint actively promotes public-private collaboration in the field of e-commerce, with a focus on (i) ensuring the development of affordable, accessible and interoperable communications and information infrastructure; and (ii) developing and implementing technologies

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[237] Blueprint for Action in electronic commerce, launched on the occasion of the Kuala Lumpur Declaration of 1998.
http://www.apec.org/Meeting-Papers/Leaders-Declarations/1998/1998_aelm/apec_blueprint_for.aspx
http://gwweb.jica.go.jp/km/FSubject1101.nsf/8f7bda8fea534ade49256b92001e9387/fe254bc9520b775949256d c80037b91e/$FILE/98_sec_selectdoc%5B1%5D.pdf

and policies which build trust and confidence in safe, secure and reliable communication, information and delivery systems, and which address issues including privacy, authentication and consumer protection.

The Blueprint includes a number of recommendations:

- Collect case studies in order to facilitate and support electronic commerce activities by small and medium enterprises (SMEs), governments, and business/public sector partnerships.

- Develop measures and indicators on the uptake, use and flows of electronic commerce.

- Identify the economic costs that inhibit increased uptake of electronic commerce, including those imposed by regulatory and market environments.

- Work on financial aspects of electronic commerce.

- Explore economic and technical cooperation to facilitate the uptake, use and maximisation of benefits of electronic commerce in APEC member economies.

- Study the range of business models for electronic authentication, including the role of possible mechanisms such as cross-certification and the use of a root certification authority, to promote inter-operability and trust and to facilitate cross-border electronic commerce.

- Cooperate with OECD in several areas, including on authentication

- Cooperate with UNCITRAL and other international fora on establishing legal foundations, where appropriate, for a seamless system of cross-border electronic commerce.

Science, Technology and Innovation (ISTWG and PPSTI)

The policy guidelines of the APEC Industrial Science and Technology Working Group (ISTWG) are set by APEC Economic Leaders, and are implemented by APEC ministers in charge of science and technology[238].

In 2012 APEC Senior Officials agreed to broaden the mandate of this working group to include innovation policy issues, turning it into the Policy Partnership on Science, Technology and Innovation (PPSTI) to enhance cooperation between the government, private sector and academia[239].

The PPSTI normally meets twice a year, unless otherwise decided by member economies, and operates based on consensus, in accordance with APEC rules and guidelines.

The PPSTI Strategic Plan 2016-2025[240] outlines the overall strategy of PPSTI in the long-term. The strategy is reviewed every 2 years, while comprehensive evaluation will be made in 2020 and 2025 respectively.

The partnership is organised in three sub-groups: building science capacity; promoting enabling environment for innovation; and enhancing regional science and technology connectivity. Each sub-group has pre-defined priorities and key performance indicators.

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[238] See PPSTI original terms of reference, available at:
http://aimp.apec.org/Documents/2012/SOM/CSOM/12_csom_021.doc
[239] Source: PPSTI original terms of reference, available at:
http://aimp.apec.org/Documents/2012/SOM/CSOM/12_csom_021.doc
[240] http://mddb.apec.org/Documents/2015/PPSTI/PPSTI2/15_ppsti2_004.pdf

The PPSTI and the Energy Working Group (EWG) have jointly been promoting[241] projects on smart cities and on smart communities[242], a field in which APEC has been active since 2009, and of high relevance also for Latin America.

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[241] Funding Criteria for All APEC-Funded Projects in 2016 available at:
http://www.apec.org/~/media/Files/Projects/Resources/2016%20Funding%20Criteria.pdf
[242] A study commissioned by the APEC Energy Working Group (EWG) published in 2015 contains many examples of smart community projects in the region. See: Asia Pacific Energy Research Centre. A Study on Smart Communities in the APEC Region. November 2015. Available at:
http://aperc.ieej.or.jp/file/2016/1/12/A_Study_on_Smart_Communities_in_the_APEC_Region.pdf

3.4. Trans-Pacific Partnership

Scope and objectives

The Trans-Pacific Partnership (TPP) is a trade agreement signed in February 2016[243] by twelve countries bordering the Pacific Ocean (Australia, Brunei, Canada, Chile, Japan, Malaysia, Mexico, New Zealand, Peru, Singapore, the United States and Vietnam).

The TPP aims to foster trade and economic relationships between the signatories' nations by reducing or eliminating tariffs and custom taxes. The agreement includes several guidelines on economic and trade policies and regulation, including on electronic commerce and trade of digital products and services.

The agreement has not come into force yet.

There are two ways for the TPP to come into force:

- all the countries ratify the agreement. In that case, the TPP comes into effect after 60 days of last member's ratification; or

- at least six original signatories ratify the agreement, with signatories representing at least 85% of the GDP of the twelve original nations (condition applicable from February 2018, if the first option did not happen).

The TPP:

- was ratified by Japan (December 2016)[244] and New Zealand (May 2017)[245]

- the ratification procedure formally started in Australia[246]; and

- in January 2017, US President Donald Trump signed a Presidential Memorandum to withdraw the US from the TPP.

In light of the US withdrawal the Agreement as it stands cannot enter into force without the US (which alone represents almost 60% of the total GDP of the TPP countries). Other TPP agreement signatories have however confirmed their intention to move forward on the TPP without the US in a so-called 'TPP-11'.

Australia, Japan and New Zealand are at the forefront of efforts to save the deal, convinced that the pact will lock-in free trade as well as boost labour rights and environmental protections.

The TPP Agreement

The TPP agreement includes 30 chapters covering trade and trade-related issues.

The TPP can coexist with other international trade agreements between the signatories, including the World Trade Organisation (WTO) Agreement, as well as bilateral and regional agreements.

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[243] Complete text of TPP Agreement: http://www.tpp.mfat.govt.nz/tpp-text.php
[244] http://www.reuters.com/article/us-japan-tpp-idUSKBN13Y0CU The combined GDP of the 12 countries in the TPP represents 36% of the World's GDP.
[245] https://www.tpp.mfat.govt.nz/
[246] http://dfat.gov.au/trade/agreements/tpp/outcomes-documents/Documents/background-papers-implementation-timeline.pdf

The TPP prohibits local content or technology localisation requirements[247]. There are other requirements to limit protectionist policies and to further promote international movement of data, capital and people. It establishes free transfer of funds related to an investment (subject to exceptions to ensure that governments retain the flexibility to manage volatile capital flows), and freedom to appoint senior management positions of any nationality.

Competition policy

Signatory nations agree to adopt or maintain national competition laws that prohibit anticompetitive business behaviour and work to apply these laws to all commercial activities in their territories.

Countries also commit to ensure that such laws are effectively implemented by authorities responsible for the enforcement of national competition framework.

'Regulatory Coherence'

The TPP includes a chapter intended to help ensure an open, fair, and predictable regulatory framework, and to facilitate regulatory consistency across countries, The implementation of these objectives should be ensured by introducing mechanisms for interagency consultation and coordination.

Dispute settlement

The TPP includes a 'Dispute Settlement' chapter, to allow TPP parties to expeditiously address disputes between them over the implementation of the TPP.

The first attempt would always be to resolve disputes through cooperation and consultation and encourage the use of alternative dispute resolution mechanisms when appropriate. When this is not possible, TPP parties aim to have these disputes resolved through impartial, unbiased panels.

The dispute settlement procedure applies horizontally with few specific exceptions, i.e. competition policy provisions.

The TPP also foresees the use of trade retaliation (e.g. suspension of benefits), if a party does not to comply with its obligations and fails to bring itself into compliance with its obligations in a reasonable period.

Digital Economy provisions

One of the points to highlight is that the TPP updates traditional approaches to issues covered by previous FTAs between signatories' countries and includes issues related to the internet and the digital economy.

The TPP includes obligations designed to promote the digital economy through a free and open internet and commerce without borders and includes specific provision for the digital environment, including security and privacy issues, distance commerce of digital goods and services and copyright trademark and patent regulation and enforcement.

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[247] The TPP contains an extensive list of prohibited performance requirements such as local content or technology localisation requirements. Interestingly, these restrictions apply to all investors and not only to nationals of the treaty parties, which implies that the TPP countries agreed to eliminate certain forms of local content policies on a multilateral basis. See: http://ecdpm.org/great-insights/shifts-trade-development/international-trade-rules-prevent-local-content-policies/

Table 16 - Key digital economy principles (Cullen international based on TPP agreement)

Axis	Description of TPP provisions
Free and open Internet	• Consumers must be able to access content and application of their choice when online. • Foster a free and open internet to allow new online service and content creation
Telecom networks regulations	• Access and interconnection commitments (interconnection, leased circuit services, co-location, access to poles, and other facilities) • Transparent and technology neutral licensing rules • Transparent, non discriminatory and efficient administration of scarce resources • Competition promotion in international mobile roaming services, including possibility for TPP members to benefits from low regulated wholesale roaming rates
Cybersecurity	• TPP to work and share information on threats • Build cybersecurity capacity to prevent cyber-attacks and malware distribution
Intellectual property	• Copyright protection for works, performances, and phonograms • Establish (or maintain) a framework of copyright safe harbours for ISPs • TPP reinforces patent protection for cutting edge innovation standards, based on the WTO's TRIPS Agreement and international best practices • Trademarks: protection of brand names and other signs • Industrial designs: TPP ensures that companies do not have to share source code, trade secret or substitute local technology of their products and services to enter a new market • Countries cannot require companies to transfer their technology, production process • Countries to establish criminal procedures and penalties for trade secret theft (including cyber theft), commercial-scale trademark counterfeiting and copyright piracy.
Technical regulations and standards	• Transparent and non-discriminatory rules for developing technical regulations and standards Cooperate to ensure that technical regulations and standards do not create unnecessary barriers to trade
Consumer protection	• TPP requires countries to adopt and maintain enforceable consumer protection rules (including privacy) to provide consumers a reliable environment for eCommerce
Competition Policy	• Ensure a framework of fair competition through rules that require TPP Parties to maintain legal regimes that prohibit anticompetitive business conduct, as well as fraudulent and deceptive commercial activities that harm consumers
Digital customs	• Prohibition on custom duties for digital goods and services • Commitments on facilitation of custom and trade procedures, including paperless trading
Cross-border investment and digital services	• Investment and cross-border service commitments, allowing providers to offer cloud computing and other technology-related services in all TPP countries • TPP Parties share an interest in accessing each other's large government procurement markets through transparent, predictable, and non-discriminatory rules
Digital products	• Digital products cannot have competitive disadvantages in any market
No localisation barriers	• No rules requiring that TPP companies build data centres to store data as a condition for operating in a TPP market • Source code of software is not required to be transferred or accessed
Technology choice and encryption	• Companies are not required to use a local technology • No obstacles to use of electronic signature and authentication methods for electronic payments
Cross-border data flows	• Specific provisions to protect free flow of data subject to reasonable safeguards, like the protection of consumers' data when exported. • Avoid discriminatory and protectionist barriers on data protection

Special provisions of the TPP regard cloud computing services.

<div style="border:1px solid; background:#cdd7ee; padding:10px;">

Box 15 - TPP on cloud computing services

Even when there are no specific projects of initiatives implemented under TPP (since it has not entered into force), it is worth mentioning the focus on cloud computing services and how the agreement foresees specific provision for these new services[248].

In its Chapter on e-Commerce, the TPP includes specific provisions on removing barriers among members on the free flow of data and data localization, that may represent an impediment for the development of cloud services and a free internet[249].

- Commitment by TPP countries not to impede companies delivering cross-border cloud computing and data storage services
- Protection of cross-border free flow of data
- Commitment not to set localisation barriers for data centres
- No customs duties on electronically transmitted content
- Recognising the importance of cyber-security
- Non-discrimination principles of digital products from partnership countries
- Commitment to access government procurement markets through transparent, predictable, and non-discriminatory rules.

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Towards the CPTPP

In November 2017, a TPP-11 agreement was reached on the core elements of the so called Comprehensive and Progressive Agreement for Trans-Pacific Partnership (CPTPP).

This 'revised TPP', strongly supported by Japan and Australia, might be signed in Chile in March 2018. To become effective, it will need to be ratified by each signatory country.

The CPTPP agreement will be the result of complex negotiations. Among the main concerns raised, some regarded IP where Canada managed to obtain the suspension of some provisions originally included in the TTP (Table 17).

According to Canada´s government, "*these suspensions serve to rebalance the IP outcome of the original TPP and reflect CPTPP parties' interests and priorities in creating a regional standard on IP for the Asia-Pacific region.*"[250]

Canada further proposed to include in the CPTPP a cultural exception which would allow the country (and possibly other members, but no consensus has been reached yet) the right to adopt or maintain any measure that affects the funding and support to its cultural industries (e.g. film, television and music).

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[248] Cloud Computing refers to a wide range of information-intensive services that can be delivered over the internet. There is no universal definition of cloud computing and it can be described as an on-demand service model for IT provision, often based on virtualization and distributed computing technologies where shared resources and information are on remote servers (in the cloud).
[249] https://ustr.gov/sites/default/files/TPP-Chapter-Summary-Electronic-Commerce.pdf
[250] http://www.international.gc.ca/trade-commerce/trade-agreements-accords-commerciaux/agr-acc/tpp-ptp/ip-pi.aspx?lang=eng

Table 17 – Suspended IP rules under the CPTPP

IP rule	Grounds of suspension
Term of protection for copyright and related rights	The term of copyright protection in Canada is the life of the author plus 50 years. This term of protection is in line with the minimum standard set by the Berne Convention and in in force in other TPP countries, such as Japan and New Zealand. The original TPP would have extended the term of protection to the life of the author plus 70 years (as foreseen in the legislation of the US, EU member states, and Latin American countries).
Technological protection measures (TPMs) and rights management information (RMI)	Canada reformed its copyright law in 2012 to include rules preventing circumvention of and protecting TPMs and RMI (often referred to as the "digital lock rules"), in line with the minimum standards set by the WIPO Internet Treaties (in force since 2002). The original TPP would have required Canada to make further changes to its current rules.
Liability of ISPs, legal remedies and safe harbours	Canada has a "notice-and-notice" approach to take down copyright infringing content (which allows striking a balance with users' rights), whereas the US managed to introduce its DMCA "notice-and-takedown" approach in the original TPP agreement.

3.5. SICA

The Central American Integration System (SICA) currently includes seven Central American countries (Belize, Costa Rica, El Salvador, Guatemala, Honduras, Nicaragua, Panama) plus the Dominican Republic.

In addition to the countries' fundamental objective to transform the area into a region of peace, liberty, democracy and development, based firmly on the respect and promotion of human rights [251], countries have also committed themselves to achieve, on a voluntary, gradual, progressive and complementary way the Economic Union of Central America[252].

Structure and functioning

SICA has a complex organisation as its functioning and goals are achieved by a number of bodies. All decisions are taken by unanimous consensus.

The **Meeting of Presidents** is the supreme decision making organ of the SICA. SICA's Presidents define Central America policy, setting guidelines for regional integration, as well as the necessary decisions to guarantee coordination, harmonisation and compliance; harmonise foreign policies of their respective countries; ensure compliance with the obligations set in SICA's agreement; and decide on the admission of new members to SICA.

The **Council of Ministers** is composed of each country's ministers in charge of each relevant area. Each council ensures the execution of decisions taken by the Meetings of Presidents. The Council can issue binding decisions as well as non-binding recommendations.

The **Executive Committee** is composed of one representative per country. It proposes sector policies in line with Meeting of President's decisions, channelled through the Council of Ministers.

The **General Secretariat**, based in El Salvador, executes or coordinates the implementation of the mandates arising from the Meetings of Presidents, the Councils of Ministers, and the Executive Committee.

In addition, the SICA incorporates:

The **Meeting of Vice Presidents,** an advisory and consultative body reporting to the Meetings of the Presidents.

Parliament (PARLACEN), which functions permanently and consists of twenty representatives of each member state, the Presidents and Vice Presidents of each of the Central American republics after the end of their term of office.

The **Central American Court of Justice** has jurisdiction, *inter alia*, to resolve: legal disputes on any issue arising between States, actions challenging the legitimacy or compliance of State law or actions with SICA agreements, disputes between government organs, and actions by individuals affected by a SICA agreement or actor[253]**.**

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[251] http://www.sica.int/consulta/documento.aspx?Idn=320&IdEnt=401&Idm=2&IdmStyle=2 The Charter of ODECA was signed in Panama on December 12, 1962
http://www.sica.int/consulta/documento.aspx?Idn=992&IdEnt=401&Idm=2&IdmStyle=2
[252] To this end they have established a technical and administrative body, the Central American Economic Integration Secretariat (SIECA), which has its headquarters in Guatemala

[253] http://portal.ccj.org.ni/ccj/normativa/

The **Consultative Committee of the SICA**, an independent and autonomous body of the civil society responsible for strengthening integration, development and democracy in the region.

The SICA also counts on a certain number of **Specialised Institutions**, that coordinate regional activities in specific areas of the economy or society[254].

Figure 36 - Main bodies within SICA (Cullen International)
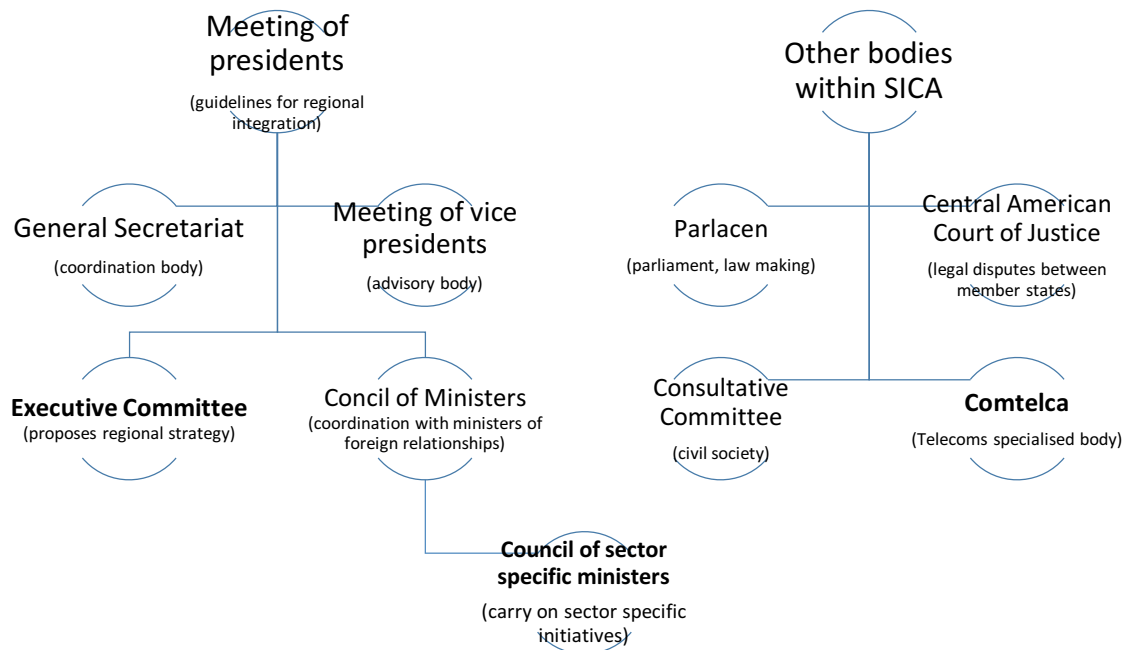
Funding

SICA's organisation and bodies are funded independently, with each organisation setting its own budget and the funding distributed among the members.

The Council of Ministers for Economic Integration is in charge of setting an autonomous financing scheme for each body and institution in the system. Since 2017 SICA has been working on a regulation revising the elaboration, presentation and approval of SICA's budget, funding the organs and institutions of the SICA and the deposit of member countries' contributions[255].

SICA also set a regional audit body in charge of auditing budget execution and report results to the General Secretariat, that then reports to the Presidents.

SICA and the digital economy

Overall, there is awareness among all Central American countries about the economic and social opportunities bound to a flourishing digital economy. However, the SICA as such has shown limited action in this field.

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[254] SICA's website currently lists 23 entities. Entities of interest for this research include: COMTELCA (Telecommunications), based in Honduras; CONCADECO (Consumer Protection), based in El Salvador; CTCAP (Science and Technology Development of Central America and Panama), and the CRIE (Regional Electric Interconnection), both based in Guatemala.
http://www.sica.int/consulta/entidades.aspx?IdEnt=418&Indv=2&IdmStyle=2&Idm=1
[255] Under Costa Rica's pro tempore presidency

In June 2014, SICA's Heads of State gave a mandate to the General Secretariat to coordinate with the maximum national and regional authorities in charge of the development of information society the preparation of a Regional Information Society Strategy.

The proposed strategy was finalised in March 2015[256]. It identifies the main goals and actions in line with the ones established within relevant international forums to which SICA member state participate, including the Electronic Government Network of Latin America and Caribbean - GEALC[257] and the strategy for Information Society and Knowledge in Latin America and Caribbean eLAC – CEPAL.[258]

The objective to have a SICA-specific strategy on information society is to ensure that the SICA member economies have "a facilitating framework enabling them to progress, in a coordinated and harmonized manner, in the implementation of public and private regional initiatives, in which dialogue and exchange of experiences promote the development of information society in the region and, as a result, this will contribute to the economic, political and social development in favour of the Central American population"[259].

The strategy outlines five general objectives to be achieved by a better use of ICTs, and five key enablers required to achieve the five main goals identified.

Table 18 - SICA Regional Information Society Strategy

Goals	Key enablers
• security • climate change • social and cultural integration • economic integration • modernization and strengthening of regional institutions	• connectivity • interoperability • legal framework • open data • digital literacy

The strategy also identifies a specific organization and an implementation roadmap. It proposes to create:

• an 'Ad Hoc Group for the Development of Information Society and Knowledge' within SICA, to which a technical and administrative secretariat would report; and

• a Technical Committee to coordinate specific work teams implementing regional projects and initiatives.

Each work team would be integrated by one representative from every SICA member state.

The draft strategy identifies as the main source of funding for initial activities the European Union's PAIRCA II Programme[260], and other donors[261] to support the projects.

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[256] http://www.sica.int/consulta/documento.aspx?idn=104748&idm=1
[257] http://www.redgealc.net/
[258] http://www.cepal.org/es/proyectos/elac2018
[259] SICA's draft Regional Information Society Strategy, 2015
[260] Programme on the support to the Central American integration (PAIRCA)
http://www.sica.int/pairca/pairca_breve2.aspx
[261] Unspecified in the strategy document

The Central American Integration Secretariat (SIECA) is the technical and administrative organ for the gradual economic integration of some of SICA's members, including Costa Rica, Guatemala, Honduras, El Salvador, Nicaragua and Panama.

The SIECA is currently working on the launch of a Digital Platform for the Centroamerican Commerce (PDCC). The platform aims to facilitate commerce within the region, by reducing trade operational costs. The development of the PDCC is being funded through a EUR 8m grant by the European Commission[262].

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[262] https://eeas.europa.eu/headquarters/headquarters-homepage/19074/ue-y-sieca-desarrollaran-plataforma-digital-de-comercio-centroamericana_en

3.6. Mesoamerica Integration and Development Project

The Mesoamerica Integration and Development Project (MIDP) involves ten Mesoamerican countries to strengthen regional integration and to promote economic and social development of the member countries. It was officially launched by Presidents and Heads of State and Government of Mexico, Guatemala, Belize, El Salvador, Honduras, Nicaragua, Costa Rica, Panama and Colombia in 2008. In 2009, the Dominican Republic was added to the project.

The MIDP is based on political dialogue and regional integration. Projects and activities aim to create more and interdependence between the member countries, specialisation, by promoting specific projects in a regional context, and appropriate funding mechanisms.

Since its creation, the MIDP has been contributing to the launch of regional projects and initiatives[263].

Structure and functioning

The Act that formally establishes the MIDP establishes the guidelines for its functioning, which are further specified in a regulation[264].

Forum of Heads of State and Government
It is the highest decision making body, in which Heads of State and Government of member states take part.

Executive Commission
Responsible for planning and coordinating all projects and actions. It is integrated by commissioners designated by each of the member states. There is a permanent presidency by Mexico, along with a pro-tempore presidency by each of the other member countries on a rotating basis.

Executive Directorate
Based in El Salvador, it supports the Executive Commission and executes its decisions. Its activities are outlined in the Regulation on the Functioning of the Mesoamerica Project.

National offices
Offices that each country may decide to establish, in a formal or functional way, to manage activities bound to the MIDP.

Commission for Funding and Promotion
Supports member states in the identification and set up of innovative funding mechanisms and resources. The Commission is composed of representatives from the Inter-American Development Bank (IADB), the Central American Bank for Economic Integration (BCIE), the CAF Development Bank of Latin America, and other financing institutions invited by the executive commission and representatives from the Ministries of Economy of the member states.

Inter-institutional Technical Group
Supports the Executive Commission in the definition of projects and actions promoted by the Mesoamerica Project. The GTI is integrated by participants from the IADB, the BCIE, the CAF, the Economic Commission for Latin America and the Caribbean (CEPAL), SICA's

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[263] Mesoamerican Project, Status Report, June 2015:
http://www.proyectomesoamerica.org/joomla/english/Mesoamerica%20Integration%20and%20Development%20Project%20ABC.PDF
[264]

http://www.proyectomesoamerica.org/joomla/images/Documentos/reglamento%20de%20funcionamiento%20del%20pm%20vf%20firmado.pdf

general secretariat, the Pan-American Health Organisation, and the UN Food and Agriculture Organisation (FAO).

Technical Commissions

Includes representatives from member states (ministries and national public institutions) for the design, proposal and execution of the regional projects and actions under the MIDP[265].

Funding

The MIDP Executive Directorate is funded by member states' contributions, external resources approved by the Executive Commission (public or private) and donations. The Commission for Funding and Promotion proposes a specific budget every year to the Executive Commission, and member states provide an annual contribution to cover the expenses foreseen, after budget approval.

There are different funding sources for projects, as there is no single or regional fund. These include national funding, the creation of special financing vehicle, credit lines guaranteed by local governments, grants, and public-private partnerships. Besides, the Commission for Funding and Promotion can help to set up other innovative funding mechanisms and resources.

Each country or national office can present new project proposals. Every project has to be approved by the Executive Commission, in accordance with a specific procedure including eligibility criteria and prioritisation[266].

Mesoamerica Project and the digital economy

The MIDP has supported several projects and initiatives, including REDCA, a major infrastructure project, as well as public policies for the integration of telecommunications services in the region.

The Mesoamerican Agenda for the Integration of Telecommunications Services (AMIST) is a programme that gathers regional and national stakeholders in the telecommunications sector seeking to strengthen public policies at regional level. The latest strategic guidelines of AMIST refer however to the period 2013-2015[267].

Regional cooperation is also promoted among telecoms regulators and ministries, within the Mesoamerican Forum of Telecommunications Authorities (FMAT). Created in 2001, to date the FMAT has not yet been officially formalised by member countries. Countries have recently agreed to reactivate negotiations in that regard. Member countries that are part of the MIDP are also involved in the policy initiatives promoted by the Economic Commission for Latin America and the Caribbean (ECLAC) in the context of the eLAC2018 mechanism, to establish a common Digital Agenda for Latin America[268].

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[265] http://www.proyectomesoamerica.org/joomla/images/Documentos/reglamento%20de%20funcionamiento%20del%20pm%20vf%20firmado.pdf

[266] Guidelines to present new projects within Mesoamerica strategy: http://www.proyectomesoamerica.org/joomla/images/Documentos/Proyectos/Lineamientos%20propuestas%20PM.pdf

[267] The 2013–2015 strategic guidelines identified 5 main pillars for the regional strategy: (i) infrastructure, content and applications development, (ii) connectivity / accessibility to bridge the digital divide, (iii) Regulatory aspects, towards better harmonization, (iv) ICTs for environmental protection, (v) Institutional strengthening. http://www.proyectomesoamerica.org/joomla/images/Documentos/Telecom/Lineamientos%20estrategicos%20AMIST.PDF

[268] http://www.cepal.org/es/proyectos/elac2018

The Mesoamerican Information Highway and REDCA

The main project in telecommunications sector is the Mesoamerican Information Highway[269]. Its main objective is to promote a Mesoamerican Information Society through connectivity, while using ICTs to increase integration and promote an inclusive economic and social development.

The Central American Network of Fibre Optics (REDCA) is an optical fibre network. Deployed along with the Regional Electric Transmission System (SIEPAC), the fibre optic network is managed by a public-private company (REDCA), founded in 2008. Currently the network has 2,520 km of fibre and is available in Honduras, Nicaragua, Costa Rica, Panama and, since 2017, also in Guatemala. The next step is to interconnect the network with Mexico and with Colombia.

REDCA has a lease agreement with the Regional Commission for Electricity Interconnection (CRIE) until 2028.REDCA offers neutral carrier of carriers' services, with regional transport capabilities. Operators may lease dark fibre, wavelength access and Ethernet access from REDCA.

Offered broadband transport speeds, depending on the type of access, range from 100 Mbps to 100 Gbps. Lease agreements may have a different duration from an occasional or below one year use up to multiple year contracts. Indefeasible rights of use (IRU) agreements have a standard 10-year duration.

REDCA has also some reserved capacity for use by governments participating in the network.

Figure 37 - REDCA network

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[269]

http://www.proyectomesoamerica.org/joomla/index.php?option=com_content&view=article&id=175&Itemid=104
http://www.proyectomesoamerica.org/joomla/images/XV%20Cumbre/03_Ficha%20Telecom_Final.pdf

Main shareholders of REDCA[270] include national electrical companies from countries covered by the network, plus Mexico and Italy, and the Colombian telecommunications carrier ISA-Internexa.

The Project was funded by regional development banks:

• CAF, Development Bank of Latin America, subscribed a loan agreement for US$14m with REDCA, to partially finance its investment plan aimed at increasing the network's transportation capacity with respect to telecommunications from Guatemala to Panama.

• Inter American Development Bank loan for US$3.6m also to support commercial and other regulatory and planning operations.

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[270] http://www.redcasiepac.com/enlaces/accionistas

3.7. Mercosur

Scope and objectives

Mercosur was launched in 1991 when Argentina, Brazil, Paraguay, and Uruguay signed the Treaty of Asunción, aiming to create a custom union and establish a Common Market of the South[271] to allow the free movement of goods, capital, services and people among its member states. In 1994, it was institutionally restructured by the Protocol of Ouro Preto[272] and became a subject of international law.

Although the bloc was initially started with an impetus of economic and commercial nature, in the last two decades regional integration was also strengthened in social and cultural areas.

Mercosur has currently six members and is open to accessions, through negotiation, by members of ALADI[273], a Latin American integration association comprising 13 Latin American countries.

Venezuela was accepted as the fifth member of Mercosur in 2006[274], but its accession was repeatedly held back until 2012 by Paraguayan Congress based on the anti-democratic behaviour of President Hugo Chavez's government. Since 2015 tensions between Venezuela and its Mercosur partners have been growing. In 2016 founding members Brazil, Argentina, Paraguay and Uruguay suspended Venezuela from the bloc after concluding that the country had not incorporated key rules on trade and human rights into national law. This decision was rejected by Mercosur's Parliament in March 2017[275] but was then reiterated in July 2017.

Bolivia was the sixth and latest country to access Treaty of Asunción. Its entry was accepted by all Member States in 2015[276] and is currently under confirmation of their national legislative houses[277]. All remaining South American States have obtained the status of Associate Members and concluded free trade agreements with Mercosur.

Structure, functioning and funding

The Treaty of Asunción foresees a basic structure for Mercosur, with the Protocol of Ouro Preto setting a detailed institutional framework.

Mercosur's present structure is explicitly inter-governmental and not supranational, as no transfer of sovereignty has taken place. In this respect, Mercosur differs fundamentally from the European Union and from the Andean Community of Nations (CAN).

Mercosur has similarities with the EU, instead, with respect to the aims of achieving free movement of citizens and workers within the area. This aspect of Mercosur is unique, and substantially differs from other partnerships which only aim for an integration of trade.

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[271] *Mercado Común del Sur* ['MERCOSUR'] in Spanish, *Mercado Comum do Sul* ['MERCOSUL']) in Portuguese. Spanish and Portuguese are the two official languages of the Treaty. http://www.mercosur.int/innovaportal/file/719/1/CMC_1991_TRATADO_ES_Asuncion.pdf

[272] http://www.mercosur.int/msweb/SM/Normas/PT/CMC_1994_OuroPreto.pdf

[273] Art. 20 Treaty of Asunción. The Latin American Integration Association (ALADI) has 13 members, including Argentina, Bolivia, Brazil, Chile, Colombia, Cuba, Ecuador, Mexico, Panama, Paraguay, Peru, Uruguay and Venezuela. http://www.aladi.org/sitioAladi/index.html

[274] Protocolo de Adhesión de la República Bolivariana de Venezuela al MERCOSUR

[275] http://www2.camara.leg.br/camaranoticias/noticias/RELACOES-EXTERIORES/527010-PARLAMENTO-DO-MERCOSUL-DECIDE-PELA-PERMANENCIA-DA-VENEZUELA-NO-BLOCO.html

[276] Protocolo de Adhesión del Estado Plurinacional de Bolivia al MERCOSUR

[277] As of April 2017

Structure

Mercosur has a complex institutional structure, with three decision making bodies and three advisory bodies.

Decision-making bodies	Advisory bodies
- Common Market Council - Common Market Group - Trade Commission	- Secretariat (Montevideo) - Parliament - Socio-Economic Forum

Common Market Council ('CMC')

As Mercosur's highest body it is entrusted with the political management of the integration process and the taking of decisions. The CMC also acts as the legal representative of Mercosur. It is made up of the Ministers of Foreign Affairs and the Ministers of Economy, or their equivalents, of the Member States. CMC takes action in the form of 'Decisions'.

High Representative of Mercosur ('ARGM')

In 2010, CMC decided[278] to designate a High Representative of Mercosur ('ARGM'), an individual with recognised political experience in integration issues and designated to act for a 3-years period outside the bloc (such as before international organisations and in non-member states forums and international meetings). In June 2017, the press reported that Mercosur members were in process of agreeing the exclusion of the position once Mr. Florisvaldo Vier (from Brazil) concluded his mandate (with no further ARGM to be indicated by the CMG).[279]

Common Market Group ('CMG')

The CMG's main task is to initiate and to carry out the decisions of the CMC. In addition, it can be empowered by the CMC to negotiate with third States and organizations. The CMG can issue 'Resolutions'. The CMG is assisted by several working subgroups and ad hoc groups.

The work of sub-groups is mainly related with the identification of topics to be harmonised and how the negotiation and implementation of common rules should be coordinated. Sub-groups have no autonomy to fund projects.

Among the topics covered by the subgroups are telecommunications, transport, environmental protection, industry, agriculture, energy, employment and social security, health, investments, services, public procurement, mining and geology and e-commerce.

Among these, the Telecommunications sub-group (SGT 1) has a mandate to support the CMG to reach a common market of telecommunications and postal services.

Trade Commission ('MTC')

It is entrusted with assisting the CMG and ensuring the application of the common trade policy instruments. It can issue both binding 'Directives' and mere 'Proposals'.

Secretariat

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[278] Decisión N° 63/10 del Consejo de Mercado Común (CMC)

[279] http://www2.camara.leg.br/atividade-legislativa/comissoes/comissoes-mistas/cpcms/clipping-mercosul/06-06-2017-entrada-de-diario/at_download/file

Based in Montevideo, Uruguay, its function is to organise the meetings of other Mercosur organs, to serve as the official archive for Mercosur documentation and to edit the Official Mercosur Bulletin, which has been existing since 1997 as the Official Mercosur law gazette. Since 2002, the Secretariat also fulfils a technical advisory function for the other organs. Its budget is financed with the contributions, in equal parts, by the Member States.

Parliament

Based in Montevideo, it has replaced the Joint Parliamentary Commission from 2007. The Mercosur Parliament brings together 139 representatives from Brazil, Argentina, Venezuela, Paraguay and Uruguay. By 2020 the delegates will be elected directly by the citizens of the Member States, in a proportion and under electoral rules yet to be established.[280]

The Parliament's principal functions lie in watching over the protection of democracy and human rights in the Member States, and in observing and stimulating the integration process. It shall be consulted by the decision-making bodies before acting, in order to facilitate the incorporation of their decisions into the legal order of the Member States.

Mercosur Parliament can also make proposals for new legislation to the CMC. Its budget is financed with the contributions, in equal parts, by the Member States.

Socio-Economic Forum

Represents the economic and social sectors of the Member States' societies. It can make recommendations to the CMG.

Decision-making process and enforcement of rules

At Mercosur, decisions are taken by consensus of all member states and are binding on its members. Member States need to incorporate the decisions into their domestic legal order, except from decisions concerning internal procedural or organizational matters of the Mercosur organs which are automatically applicable[281].

Mercosur's dispute resolution system was first regulated by the 1991 Protocol of Brasília and underwent an important reform in 2002, when the '*Protocolo de Olivos para la Solución de Controversias en el Mercosur'* created the Permanent Appeals Court of Mercosur[282].

The current system applies to (i) disputes among member states; (ii) claims by individuals, who access the system indirectly by submitting their claims before their state of usual residence or place of business; and (iii) advisory opinions, which are reasonable legal determinations of a non-binding and non-mandatory nature.

Once Mercosur laws have entered into force (in form of an integral part of the member states' domestic legal framework) they must be applied by the national courts. In practice, however, Mercosur law is not taken into consideration very often.

In order to facilitate the uniform interpretation of Mercosur law in all member states, the Protocol of Olivos introduced the possibility for national courts to ask the Permanent Appeals Court of Mercosur for advisory opinions, which are non-binding.

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[280] http://www2.camara.leg.br/camaranoticias/noticias/RELACOES-EXTERIORES/458455-PARLASUL-ADIA-ELEICOES-DIRETAS-DE-PARLAMENTARES-DO-MERCOSUL-PARA-2020.html
[281] CMC/Dec No 23/00
[282] http://www.Mercosur.int/innovaportal/file/722/1/2002_protocoloolivossolucontroversias_es.pdf

Funding of Mercosur

Mercosur's bodies are funded by contributions from all member states. In fiscal year 2015, the budget of its Secretariat received a total of US$ 3,647,999 from equal contributions by Argentina, Brazil, Paraguay, Uruguay and Venezuela[283]. The Secretariat of the Permanent Tribunal also counts with a budget made of equal contributions by member countries, a total of US$ 782,839 in 2015[284]. The budget of the High Representatives, ARGM receives unequal contributions from the members, Brazil being responsible for the largest part and Paraguay for the smallest[285].

The Structural Convergence Fund of Mercosur (FOCEM) seeks to develop regional infrastructure projects and to increase integration between Mercosur members. It is funded by member country contributions, with Brazil providing almost 70% of funding (over US$1bn in contributions since its creation in 2004)[286]. FOCEM was supposed to last until 2015, but Mercosur has decided to extend its life until 2025. The 2011 budget allocated 48% of resources to Paraguay, 32% to Uruguay, and 10% each to Argentina and Brazil[287]. In 2013, allocations were revised and Paraguay started to receive 46% of funds, Uruguay 31%, and Brazil and Argentina 11% each.

Projects and Initiatives towards a digital economy

Mercosur's "Plan for the Adoption of the Statute of Citizenship"[288], adopted in 2010 by the CMC, comprises guidelines to promote fundamental rights for citizens of Mercosur and include access to telecommunications services among the rights of Mercosur's citizens (article 3, XI). Mercosur members must adopt actions to:

- reduce the prices of and tariffs imposed on fixed and mobile communication services among Mercosur countries, including roaming;

- broaden the offer of local treatment of wireless telecommunication services in border areas, especially by use of shared networks.

Among CMG's sub-working groups is sub-group 1 ("SGT 1"), covering communication services.

SGT 1 is integrated by four committees (Postal Affairs, Broadcasting, Radio-communications and Telecommunications). Their activities aim to eliminate normative aspects that hinder the integration of this specific market and to coordinate the positions adopted by Mercosur in international forums.

Telecommunications topics under the responsibility of the SGT 1 include, among others, critical infrastructure, fraud prevention, numbering and IP interconnection, just to mention a few.

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[283]

http://gd.mercosur.int/SAM/GestDoc/pubweb.nsf/Normativa?ReadForm&lang=ESP&id=B3D8B7FEC9C48FEA83257DB60047BE01

[284]

http://gd.mercosur.int/SAM/GestDoc/pubweb.nsf/Normativa?ReadForm&lang=ESP&id=09F2098AABA0E52783257DB600504DC5

[285]

http://gd.mercosur.int/SAM/GestDoc/pubweb.nsf/Normativa?ReadForm&lang=ESP&id=E9EE1F6C27FCF86C83257DB60048951E

[286] http://www.mercosur.int/t_generic.jsp?contentid=385&site=1&channel

[287] http://www.mecon.gov.ar/peconomica/basehome/inversionpub_focem.htm

[288] http://www.cartillaciudadania.mercosur.int/uploads/DEC_064-2010_ES_Estatuto%20de%20Cidadania.pdf

In 2015 the SGT 1 proposed its work plan for the period 2016-2017, which also includes exchange of information and analysis on possible harmonisation of broadband and telecoms plans, quality of service, fraud prevention, internet of things (IoT), net neutrality and users' rights.

Although none of the current projects supported by Mercosur[289] addresses in a direct form digital economy issues, some institutional initiatives have proven to be relevant to ignite the discussions for future common strategies in the region.

Mercosur countries have made important efforts to improve the quality and relevance of their science, technology and innovation systems. In this sense, the Specialized Meeting on Science and Technology (RECyT) was established to work on harmonisation tasks in the scientific and technological fields. The group cooperates with global centres of knowledge production and regional entities. Under RECyT initiatives we can find Mercosur's Programme for Science Technology and Innovation for 2015-2019 ('PM')[290]. The programme intends to integrate national R&D systems by receiving proposals from each Mercosur member.

Included in RECyT's initiatives is the creation of 'CINECIEN', a programme started in 2005 in Argentina aiming to put science in evidence through audiovisual works and to make science and innovation more popular topics.

Box 16 – CINECIEN: a Mercosur initiative for the audiovisual sector

CINECIEN is a competitive non-commercial event aiming to stimulate the use of audiovisual productions to disseminate and promote the works of the scientific communities in the region.

It also envisages to promote the use of Portuguese and Spanish languages to promote knowledge while gathering human, technical and infrastructure resources of audiovisual producers of public universities and public audiovisual bodies in the MERCOSUR countries.

The following categories are open for submissions:

• Videos and didactic films

• Series, programs and special notes made for TV

• Short films and documentaries

• Documentary and fiction feature films

• Dissemination / dissemination of science and technology.

The jury of CINECIEN is composed of 4 members representing MERCOSUR and a president (of the host country).

The programme has also sparked the creation of national similar initiatives, such as Cinecien Argentina[291], which in 2017 covers the following categories:

• Exact and natural sciences.

• Agrarian sciences, engineering and materials.

• Biological and health sciences.

• Social sciences and humanities.

• Technology

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[289] http://www.Mercosur.int/innovaportal/v/6415/7/innova.front/proyectos
[290] http://www.recyt.mincyt.gov.ar/files/ProgramaMarco/Programa_Marco_CTI_2015-19.pdf
[291] http://www.cinecien.gob.ar/

Another initiative worth mentioning is Mercosur Digital[292], a cooperation between Mercosur and the European Union aiming to reduce technological and legal asymmetries between the two regions.

The programme focused on e-commerce, continuous training of human resources, development of micro, small and medium enterprises (SMEs) and other Information Society issues.

Under the Mercosur Digital programme (2008-2014) a Virtual School for training in eCommerce was established.

The programme aimed to:

- develop an online programme capable of providing training on issues related to the Information Society and Electronic Commerce;

- build up new skills, abilities and knowledge in the Mercosur countries to help reduce the imbalances between countries;

- collaborate on devising shared strategies in the areas of electronic commerce and internet business; and

- help encourage the development and use of infrastructure and services to support the use of eCommerce and eBusiness by relevant companies, professionals and entrepreneurs.

The activities carried by the Virtual School were open to anyone and included a media resource centre and self-diagnosis tools such as practical online courses with specialist tutors, self-training courses, workshops, seminars, forums and other activities.

The project was carried by the Latin American Institute of Electronic Commerce (ILCE)[293] as part of a consortium with Argentina, Brazil, Paraguay, Uruguay educational centres and the German International Cooperation Agency (GIZ)[294]

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[292] http://www.recyt.mincyt.gov.ar/index.php?option=com_content&view=article&id=385&Itemid=83
[293] http://www.einstituto.org/site/
[294] https://www.giz.de/de/html/index.html

4.Building a Regional Digital Strategy in Latin America

4.1. Regional and sub-regional digital agendas: where do we stand?

In this study we have provided an overview of the regional digital economy environments in the Asia Pacific and Latin American regions.

For Latin America, we have also taken into account the sub-regional dimension of Central America.

We have then analysed selected regional and sub-regional cooperation schemes involving Latin American countries, namely the Pacific Alliance, APEC, the TPP, the SICA, the MIDP and the Mercosur, which we have seen to present different characteristics.

Table 19 - Main objectives of commercial blocs in the Americas

	Economic cooperation / integration	Political cooperation / integration	Free movement of citizens and workers within the area	Details
Pacific Alliance	Yes	Yes	No but the bloc aims to facilitate tourism and business. A visa waiver programme (max. 6 months) is in place for citizens of each country	The bloc created one of the largest stock trade platforms in Latin America, the Latin American Integrated Market, MILA[295].
TPP	Yes	No	No	The agreement has not come into force yet
APEC	Yes	No	No but a business travel card system is available for people within the area	To reach free and open trade and investment within the area by 2020
Mercosur	Yes	Yes	No A residence agreement allows citizens of each country (with no criminal record) to reside and work for a period of 2 years in another state	Creation of a custom union and establishment of a Common Market of the South, to allow the free movement of goods, capital, services and people among its member states
SICA/MIDP	Yes	Yes	No	Consolidation of democracy is one of the main aims of the bloc

Diversity is everywhere

We have seen that, despite the current ICT excellence and leadership by some countries, the Asia Pacific region as a whole is even more fragmented and diverse than Latin America. The

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[295] http://www.mercadomila.com/home/

great economic and political diversity, the often divergent interests and policies and, in this context, the role of China and the US have a significant weight in making the regional landscape particularly varied.

Latin America still lacks a comprehensive and shared regional approach to the digital agenda.

At sub-regional level, in Central America or in South America, there are relevant differences among countries which are geographically close, as regards not only the digital economy but also the respective approaches to trade and economic policies. Relevant infrastructure, affordability or competition gaps are also a domestic priority, as the cases of Brazil or Mexico clearly demonstrate.

Building a regional digital strategy

ECLAC, which defines the regional digital market as the "free movement of digital services, goods, and assets related to the digital markets"[296], sets out four main objectives:

- to ease free movement on goods, service and assets;

- to promote free competition and access to services on a regional basis (including teleworking)

- to promote consumer and personal data protection independently of nationality or place of origin; and

- to promote convergent and harmonised regulation.

In its analysis, ECLAC also identifies four action areas[297] to promote the creation of a regional digital market:

- strengthen infrastructure and connectivity in the region;

- increase the offer of digital services and content;

- promote the 'internet of production'; and

- ease international commerce through digital platforms.

As we discussed in CAF 2016 study on "Building a Digital Single Market for Latin America"[298], the accomplishment of a regional digital strategy for Latin America will require not only a common understanding on the relevant gaps at regional and sub-regional level (and on the best way to bridge such gaps), but also strong, continuous political support from the parties involved on how to coordinate joint efforts. Achieving a regional digital market in Latin America implies an effort to establish integration while maintaining national sovereignty.

In terms of the main gaps to be addressed and possible priorities, we identified eight key areas where regional efforts could primarily be focused. Some of the gaps concern connectivity, while others concern access to online goods and services.

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[298] Ibidem

Table 20 – Connectivity: priority areas

Improvement areas	Key obstacles	Most affected sub-regions	Strategic objectives (to remove obstacles)	Possible actions
International roaming (IR)	Prices remain high Double taxation is still an issue in some countries	Central and South America	Analyse current impact of IR on Latin American consumers, based on current and forecast movement of people within Latin America Analyse possible options, from industry self-regulation to regulatory intervention Assess impact of regulation, where already implemented. Special attention should be given to the EU approach and the most recent developments	Collect information from regional and sub-regional partnerships, EU Commission, authorities, and consumer associations Direct involvement of industry should be foreseen to explore voluntary commitments
Spectrum harmonisation	Insufficient harmonisation. Limited cooperation on new services and applications	Smaller LAC countries	Agree on future harmonised spectrum allocation and assignments in the region, including for new services (e.g. 5G)	Joining R&D and standardisation efforts. Define roadmap towards increased spectrum harmonisation in Latin America. Support and technical assistance for smaller countries
IP connectivity and interconnection	The region lacks sufficient IXPs Imbalance of international traffic due to lower capacity for connectivity High cost of long distance interconnection	Mainly South America Assess situation in Caribbean countries	Increase connectivity and data network performance at regional level Exploit current regional networks where available (e.g. REDCA) Speed up REDCA deployments to Colombia and Mexico Foster the development and making available of IXPs across the region	Monitor and report on the development of IXPs in Latin America Analyse business models, actors and regulatory frameworks in place. Exchange information on good practices developed in individual countries. Analyse and discuss at regional level possible regulatory strategies for IP interconnection
Regulatory frameworks	The national regulatory frameworks are often outdated. Lack of harmonised, strategic vision at regional level	Latin American countries	An overall harmonisation effort is required to define best practices and reduce regulatory risk perception, especially from foreign investors Adapt national frameworks in a coordinated and consistent way Ensure frameworks are effectively implemented	Carry out an objective, independent analysis on regulatory frameworks and the functioning of NRAs across Latin America Identify common key performance indicators and toolkits for impact assessment and systematic regulatory reviews Establish technical assistance mechanisms.

Our analysis of the status of the digital economy in Latin America shows that there are a number of obstacles still hampering Latin American citizens and businesses from fully enjoying the opportunities offered by a flourishing online environment. These obstacles concern, for example, the protection of copyright, the fight against online piracy, the protection of citizens' privacy and security, and often under-developed regulatory environments for e-payments.

Regulatory debates on the impact of emerging technologies and applications, such as cloud computing or M2M, if they have started at all, are still at an early stage. In Table 21 we discuss how this scenario might be improved.

Table 21 - Better access to online goods and services: priority areas

Improvement areas	Key obstacles	Most affected sub-regions	Strategic objectives	Possible actions
Copyright and online piracy	Lack of common guidelines on copyright and fighting piracy Insufficient efforts on promotion of Latin American audiovisual content	Most Latin American countries	Ensure adequate copyright protection and fighting of online piracy Foster development and circulation of Latin American audiovisual content	Guidelines and best practices on legislative, regulatory or industry measures to address current and future challenges Funding mechanisms for the promotion and distribution of content Technical assistance for smaller countries, especially in Central America and Caribbean
e-Contracts, digital signatures, e-Payments	Lack of common guidelines and tools to increase trust and protection	Progress is needed in several countries	Increase trust among consumers and businesses in buying / selling online	Model guidelines on how to build trust and consumer protection at regional level Harmonise existing rules Launch pilot projects Study logistics aspects, including parcel delivery and paperless customs Further analyse taxation for cross border e-commerce
Privacy and data protection	Insufficiently harmonised framework, including on cross border data flows	All Latin America	Harmonise legal frameworks on privacy and data security at regional level, to increase certainty Define clear liabilities for all the actors involved	Comprehensive and detailed assessment for all Latin American countries Define possible harmonisation measures at regional level

Improvement areas	Key obstacles	Most affected sub-regions	Strategic objectives	Possible actions
Cybersecurity	Limited coordination	Most Latin American countries	Define Cybersecurity Action Plan for Latin America	Define levels of protection acceptable and desirable at regional level. Work on protection standards and procedures, regional cooperation for network resiliency and security Technical assistance to countries with more limited resources

Regional and sub-regional partnerships

All regional and sub-regional alliances analysed in this report have been dealing with relevant aspects of the digital economy, although with different levels of commitment and in accordance with the decision making and funding approaches defined in each.

The Pacific Alliance has adopted a Roadmap, while the TPP, despite having no agenda, has a very clear approach towards many aspects of the digital economy in the TPP Agreement.

APEC has been implementing initiatives and projects in different WGs, including as regards telecoms, e-commerce, and ICT innovation, but has neither a comprehensive digital economy strategy or a plan, nor the capacity to impose binding decisions on its members.

A very broad strategy has been proposed within SICA, while the Mercosur has a Plan for the Adoption of the Statute of Citizenship, which includes provisions on international roaming along the borders of the six countries. Nevertheless, implementation in both cases seems to be proceeding at a very slow pace. Within Mercosur, the agenda of the SGT 1 WG is a work plan rather than a strategy.

Table 22 - Regional agendas within the partnerships analysed

	Regional Agenda
APEC	Action Plan Telecoms 2016-2020 Strategic Plan on R&D adopted by the PPSTI (2016-2025)
SICA	Proposed Digital Strategy (2015)
Mesoamerica	A Mesoamerican Agenda for the Integration of Telecommunications Services was discussed in 2013, but was never implemented
Pacific Alliance	Roadmap (2016)
MERCOSUR	Plan for the Adoption of the Statute of Citizenship (CMC-64/10) SGT 1 Agenda (2016-2017)
TPP	None - however, Digital Economy approach and commitments in the TPP Agreement (2015)

Most partnerships analysed have been combining efforts, although usually with different levels of commitment, intensity and approaches, to improve connectivity. Some have been more active in promoting policy dialogues, others have launched pilot initiatives or even invested in regional deployments, as demonstrated by the REDCA initiative.

Table 23 – Regional and sub-regional partnerships on improving connectivity

	International roaming	Spectrum harmonisation	Connectivity/ IP interconnection	Regulatory frameworks
Pacific Alliance	√ Dialogue to promote transparency and competition in the market, identify strategies, international cooperation	√ Promote fair allocation and use of scarce resources	√ Create infrastructure necessary for the creation of IXPs Encourage investment, PPPs Evaluate joint actions enabling high-speed network investment (competition, sector regulation, obstacles)	√ Encourage adoption of net neutrality

	International roaming	Spectrum harmonisation	Connectivity/ IP interconnection	Regulatory frameworks
TPP	√ Reduce IR rates between members, promote competition in the market, including possibility for TPP members to benefit from low regulated wholesale roaming rates	√ Commitment to procedures for the allocation and use of spectrum, in an objective, timely, transparent and non-discriminatory manner		√ Members to implement pro-investment, robust regulatory environments Encourage adoption of net neutrality
APEC	√ Explore principles and possible measures	√ Promote efficient use of spectrum resources	√ Pilots and exchange of information on NGN	√ Analyse/exchange information on policies and competition
Mercosur	√ Reduce IR rates between members No roaming charges in border areas, by use of shared networks	√ Legislation and exchange of information on the use and administration of spectrum		√ Study and exchange information on tariffs, prices and taxes on telecoms services, reference cost models (regulatory accounting), interconnection. Analysis on possible harmonisation on QoS, BB plans, net neutrality, user rights
SICA/MIDP	√ IR initiative within Comtelca		√ REDCA Project, including creation of IXPs Promote universal access to broadband	

Some of the partnerships have committed to creating better access to online goods and services. APEC and the TPP are active in all areas identified, from e-commerce to privacy, and from intellectual property to cybersecurity.

While the Pacific Alliance's Roadmap has activities related to e-commerce, the SICA and the MIDP do not seem to be particularly engaged in the areas identified in Table **24**.

Table 24 – Regional and sub-regional partnerships on access to online goods and services

	e-commerce contracts, digital signatures, e-payments	Privacy and data protection	IP, Copyright and online piracy	Cybersecurity
Pacific Alliance	√ Information and cooperation on digital IDs, digital signatures			
TPP	√ Countries to adopt and maintain enforceable consumer protection rules No technology barriers: technology choice and encryption solutions (including digital signature and electronic payments solutions).	√ Countries to adopt and maintain enforceable consumer protection rules (including privacy) No data localization barriers Source code of software not required to be transferred or accessed	√ Copyright, patents, trademarks, Industrial designs, rules prohibiting countries to require companies to transfer their technology, production process. Enforcement systems/establish criminal procedures and penalties	√ Help building cybersecurity capacity to prevent cyber-attacks and malware distribution
APEC	√ Remove barriers to trade Statistical evaluations Paperless trading, use of digital customs forms Platforms, support to MSMEs, projects on e-payments, external collaborations	√ APEC Privacy Framework, Cross-Border Privacy Enforcement Arrangement, Cross Border Privacy Rules System, APEC-EU Working Committee	√ Several projects and initiatives on IP protection. Joint efforts in R&D	√ Cybersecurity framework Several projects
Mercosur	✓ Mercosur Digital, fostering e-commerce	✓ Reunion of authorities on information privacy and security (RAPRISIT) created in 2014. However, no specific agenda yet		✓ RAPRISIT, but no specific agenda yet

	e-commerce contracts, digital signatures, e-payments	Privacy and data protection	IP, Copyright and online piracy	Cybersecurity
SICA/MIDP	✓ Platforms offered by SIECA[299] on facilitation of trade (customs information and declarations, Centro American commerce network).			

It should be noted that, although the Pacific Alliance, the TPP and APEC identify objectives and actions in most of the areas of the digital economy analysed, only the Pacific Alliance currently has the decision making capacity- in terms of aggregation, structure, and governance – for a swift implementation of coordinated and fully consistent regional strategies.

An enlargement of the Pacific Alliance to include other equally advanced Latin American countries, or selected Asia Pacific countries would be in line with its founding spirit, and might further strengthen its commitment in the field of e-commerce, as well as in innovative areas of the digital economy.

The uncertainties around the future of the TPP and the ongoing renegotiation of the NAFTA might provide possible incentives for Latin American countries to explore and strategically reconsider their positioning and presence in regional and sub-regional alliances.

4.2. A possible way forward

A single strategy built around the eight areas listed above, identifying common objectives, joint actions and a precise roadmap, might represent a significant step towards the creation of a regional digital market.

Considering the lack of a binding regional framework in Latin America, implementation will have to be voluntary. A more proactive role for sub-regional partnerships might at the same time facilitate aggregation, activating replicable models on a regional scale.

In addition to the partnerships analysed, several actions and approaches to the digital economy are implemented by other regional and sub-regional cooperation schemes involving Latin American countries. These include ECLAC, OAS, CITEL, CAN, ITU, NAFTA and CAFTA-DR, just to mention a few.

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[299] SIECA is integrated by six Central American countries (Costa Rica, El Salvador, Guatemala, Honduras, Nicaragua and Panama) which are pursuing, on a gradual and voluntary basis, the creation of the Central American Economic Union.

An improved coordination of all these regional and sub-regional efforts could help create a consistent and single regional strategy, optimise efforts and resources, and ultimately reduce duplication.

In terms of methodology, we identified five key 'enablers' for the adoption and implementation of a regional digital strategy. These enablers are our final recommendations to all actors involved on how to move forward:

- **Endorsement** – All actors involved should ensure that national governments provide adequate support to the regional digital market strategy. The need for a single regional digital strategy should be clearly recognised and endorsed at the highest level possible.

- **Modularity and flexibility** The strategy should be inclusive and future-proof. Therefore, its implementation roadmap should be sufficiently flexible in order to adapt to the needs of the less developed countries.

- **Regional coordination** – Governments should foster inter- and intra-regional dialogue to evaluate efforts already undertaken, to build consensus and organise activities around a single regional roadmap. A possible coordinating role might be played by a credible, inclusive and independent regional entity, such as ECLAC, or by a specific programme within a multilateral financial institution. Once selected, the coordinating body should be given appropriate endorsement and independent organisational capabilities and funding to carry out the regional coordination task.

- **Leadership in taskforces and WGs** – After agreeing on a roadmap, including its organisation and task forces for implementation, governments should ensure that leadership in the working groups is based on objectively technical and meritocratic criteria, and should not be based on political considerations.

- **Funding mechanisms and cooperation** - While ensuring appropriate support by participating governments, establish technical assistance and cooperation programmes with public and private participation. Consider the use of financing schemes supported by multilateral development banks. Ensure robust governance and funding mechanisms, while avoiding any possible conflicts of interest.