ITU Policy and Economic Colloquium for the Americas (IPEC 2022)

Digital Regulation training course for the Americas Region (22 to 24 August)

and

The Regional Economic Dialogue (RED-AMS) (22 to 24 August 2022)

Mexico City, 22 to 26 August 2022 - 16:00 to 00:00 (CEST)

Acknowledgment

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Finally, ITU would like to express their gratitude to all the members of the Organizing Commission of the Federal Telecommunications Institute of Mexico (IFT) who made this event possible, Mr Víctor Martínez; Ms Jimena Sierra; Ms Diana Gómez; Ms Mariana Alday; Ms Lorena Esparza and Ms Leticia Martínez. Likewise to ITU organizational team, Mr Bruno Ramos, Regional Director for the Americas; Ms Sofie Maddens, Head of the Regulatory and Market Environment (RME) Division; Ms Carmen Prado-Wagner, Senior Officer RME; Mr Rodrigo Robles, ITU Regional Program Office for the Americas; Ms Caroline Brandao, ITU Regional Office Administrative Assistant for the Americas; Ms Ana Varela, ITU Tegucigalpa Zone Office; Ms Tamaiti Conde, RME Administrative Assistant; Mr Gustavo Caldeira, Intern ITU Regional Office and Ms Alina Ghergut, Online Moderator.

INTRODUCTION

The ITU Policy and Economic Colloquium (IPEC-22) was held virtually and physically in Mexico City, Mexico, from 22 to 26 August 2022. The event was organized by the Telecommunication Development Bureau (BDT) of the International Telecommunication Union (ITU) in partnership with the Federal Institute of Telecommunications – IFT, Mexican National Regulatory Authority. The Colloquium included the Digital Regulation Training Course for the Americas Region (22 to 24 August 2022) and the Regional Economic Dialogue (RED-AMS) (25 to 26 August 2022).

This regional event was jointly organized by the ITU Regional Office for the Americas and Regulatory and Market Environment (RME) Division of the ITU Telecommunication Development Bureau within the framework of the World Summit on the Information Society, as well as the Regional Initiative 4 for the Americas on "Accessibility and affordability for an inclusive and sustainable Region of the Americas" adopted by the World Telecommunication Development Conference of 2017 (WTDC-17) and ITU-D Question 4/1 on Economic Aspects of national telecommunications/ICTs.

The IPEC offered a unique opportunity for all participants to actively share knowledge and experience on economic and regulatory issues in order to foster effective partnerships to promote connectivity and to

achieve the United Nations Sustainable Development Goals (SDGs), and to create an enabling environment for achieving a meaningful and inclusive connectivity.

Among the key issues addressed by IPEC-22 include:

- Regulatory and economic challenges to achieve digital transformation;
- Economic incentives to encourage affordable access;
- Investment financing for the actual deployment of digital infrastructure;
- Innovative policies and regulations for future emerging technologies.

Participation and documentation

The IPEC-22 was attended by more than 300 delegates from 16 Member States (Bahamas, Costa Rica, Dominican Republic, El Salvador, Guatemala, Haiti, Honduras, Mexico, Nicaragua, Panama, Paraguay, Peru, Suriname, Trinidad and Tobago, USA, Uruguay), including representatives of Administrations from ICT and National Regulatory Authorities (NRAs), the ICT Ministries, the private sector, industry, regulatory associations and academic institutions. The event was also broadcast live on the event's website, as well as on the institutional page of IFT Mexico.

The event counted with English captioning, English/Spanish interpretation and sign language. All the material discussed during the different sessions, just as the video recordings of the training and the subtitling of the Regional Economic Dialogue are available in electronic format on the event website.

Digital Regulation Training Course for the Americas Region (22 to 24 August 2022)

The first day, the introductory session of the training was held, given by the **Mrs Nancy Sundberg, Sofie Maddens and Carmen Prado-Wagner, BDT/ITU Market and Regulatory Environment Division**. This presentation provide an overview of the ITU/World Bank Digital Regulation handbook and platform, followed by the explanation about the collaborative regulation G5 benchmark for digital transformation, as well as a description of the country case studies performed in the region.

Mr David Rogerson, ITU Expert, presented on the Competition and Economics module. This session examined how the new digital environment is affecting the structure of communication services markets, undermining established patterns of competition and creating new market dynamics that require substantially different forms of economic regulation. The session also addressed the transition from traditional forms of telecommunications regulation to the new digital environment to understand what aspects of the legacy framework need to be retained and what needs to be modified or replaced to be effective and relevant in the digital economy. The objective of the session is to provide good understanding of traditional telecommunications regulation and explain why and how it is having to adapt to meet the challenges of the digital economy.

The second day, **Ms Sofie Maddens, Head of the Regulatory and Market Environment Division BDT/ITU**, described the consumer protection regulatory guidelines and their importance, as well as the main outcomes of the ITU-D Question 6/1 on Consumer information, protection and rights: laws, regulation, economic bases, consumer networks.

Ms Nyurka Rodriguez, **ITU Consultant** presented the session on Consumer protection and empowerment which examined the importance of consumer protection and consumer empowerment in a digital environment, the roles of regulators and international bodies in the consumer support framework and

highlight specific consumer issues, such as traditional issues of quality of service, contracts, billing, and complaints, as well as emerging issues linked to digital products and services, including nuisance calls (spam).

The third day, **Mr Joaquin Restrepo, Capacity Building Coordinator BR/ITU,** described the importance of international spectrum harmonization for the deployment of emerging wireless broadband technologies (5G (IMT2020), broadband Satellites, Stratospheric Platform Systems (SPS), etc.)

Ms Miriam Stankovich, Emerging Technologies ITU Expert, presented how the technological innovation has transformed everyday life and disrupted established industries. Artificial intelligence (AI), big data, blockchain, machine learning, Industry 4.0, and the Internet of Things (IoT) are not just buzzwords. These technologies are already present in agriculture, communications, energy, healthcare, infrastructure, social welfare, and transportation. While emerging technologies may contribute to positive social change, they can also pose risks and dangers if left unchecked. This session examined the implications of emerging technologies (e.g., AI, big data, IoT, blockchain, etc.) on regulation and policy, the role of regulators, and the impact of emerging technologies on business, access, and use. The session analyzed the critical skills necessary for assessing emerging technologies' strengths, weaknesses, opportunities, and threats and introduce frameworks for developing regulatory responses tailored to contexts.

ITU Regional Economic Dialogue (RED), from 25 to 26 August 2022

Opening meeting

Ms Carmen Prado Wagner, Senior Officer in the Regulatory and Market Environment Division, ITU/BDT

At the RED opening ceremony, Ms Carmen Prado Wagner, representing Doreen Bogdan Martin, Director of the Telecommunications Development Bureau (BDT) and Bruno Ramos, Director of the ITU Regional Office for the Americas, thanked Mr Javier Juárez, President of the IFT and his team, as well as the Commissioners Messrs. Arturo Robles Rovalo, Sóstenes Díaz and Ramiro Camacho, for supporting the ITU. It was mentioned that the IFT has promoted a collaborative and effective regulation to advance accordingly with the United Nations Sustainable Development Goals (SDGs).

The ITU representative highlighted the important role that regulators play in the evolution of new technologies and in the formulation of digital policies. This role is to anticipate the debate on necessary economic regulatory issues necessary to promote a favorable environment for investment, ensuring an affordable connectivity based on best practices related to new technologies, and at the same time protect users.

However, Ms Prado Wagner emphasized that the digital gap continues to be a challenge for the Americas and other regions. Despite the fact the Internet added 800 million users and 63 per cent of the population has Internet access, there are still approximately 2.9 billion people offline, concentrated mainly in developing countries and in rural and remote areas.

Mr Arturo Robles Rovalo, Commissioner at the Federal Institute of Telecommunications (IFT)

Mr Robles Rovalo noted that the IFT has worked hard in order to be a cooperative and inclusive regulator with strong international ties. According to some studies, the massive digitization of all processes could have harmful effects, such as increased energy consumption, so the main objectives must be reviewed. He explained that digitization and the irruption of new technologies will produce various effects, such as the densification base stations, infrastructure sharing, increased investment in digital infrastructure and the development of digital skills.

According to the commissioner *"The main difficulty for our region continues being how to connect people who still lack connection?"*. In this respect, it is necessary to direct efforts to increase access to broadband and thus, to move towards the universalization of services, as well as developing regulations to create competitive markets, promote infrastructure sharing to reduce costs and achieve adequate sufficient and affordable spectrum supply.

Finally, he said it is also necessary to guarantee the cybersecurity and the implementation of new generations of new services, reason why the IFT analyzes the 6 GHz band in order to explore new markets. He explained the main challenges of digital transformation are privacy, security, digital confidence and the main ways to combat them are literacy. Mr Robles concluded that it is necessary to plan in a coherent and predictable way the creation of new regulatory approaches, business models, sharing in a collaborative ecosystem in which developers, users, civil society organizations and international organizations such as ITU coexist.

Session 1:*Regulatory and economic challenges to achieve digital transformation*

Moderator: Ms Carmen Prado-Wagner, ITU/BDT

Main presentation on the **Regulatory Strategy in Mexico agenda 2021-2025** Mr Sóstenes Díaz, Commissioner of the IFT Mexico, presented in detail the institutional strategy and vision of the IFT with a planning horizon of five (2021-2025), which is based on five pillars and strategic areas: 1) Promote investment in new generation networks for appropriate development of the digital ecosystem; 2) Reduce the digital gap, considering the union of efforts with other institutions, define coverage obligations in spectrum concessions and promote digital literacy; 3) Create a Collaborative Regulation approach, which integrates multi-sector collaboration to improve the benefits offered by ICT services; 4) Promote economic competition and free competition as much in traditional sectors as in the digital economy; 5) Take an active role in cybersecurity issues, developing appropriate technical provisions and in collaboration with the entities involved in the theme.

Public Policies, Regulation and digital transformation in Colombia

Mr Sergio Martínez, Commissioner, Communications Commission of Colombia (CRC) explained about the regulatory policy cycle in general based on the regulatory improvement approach that is constituted by 8 important phases (see image), as well as the importance of the Regulator's role in digital transformation and new technologies, which consists of in the use of regulation as a tool to accelerate the digital transformation and the exploitation of data in order to perform evidence-based analysis, and taking all this into consideration the digital transformation of the regulator and the importance of innovation. The implementation of measures that promote investment and facilitate healthy competition for the modernization of the telecommunications business is very important, the regulation of Colombia considers these factors, which generates greater sectoral value. Mr Martinez said the Public Innovation Capacities Index (ICP) has been created in Colombia at the level of all the government sectors. According to the general results of this measurement, the CRC is one of the 3 entities with the highest ICIP score, together with the Ministry of Education and the Financial Superintendency, among the 719 entities measured with a score of 97 per-cent. In conclusion, it was emphasized the importance of: 1) the deployment of connectivity without restrictions and with wide coverage to have telepresence services in cities; 2) the empowerment of the citizen as part of the digital ecosystem; 3) the implementation of flexible and innovative regulations to accelerate connectivity in the regions; 4) the relevance of the data and its security to recognize the evolution of the sector. Finally, he indicated that the regulatory harmonization at national and local levels is essential to facilitate the promotion and deployment of infrastructure.

Towards the digital transformation in Mexico

Ms Lorely Ochoa Moncisvais, General Director of Telecommunications and Broadcasting Development at IFT Mexico, explained the regulatory and economic challenges to achieve digital transformation. Transformation is not synonymous with change. Change can be small adaptations in which people work on every day. Transformation is something much more comprehensive. It is the sum of changes that are deeply rooted in what is going to be changed. The most important external economic factors are general costs, user prices, cost of capital and investment in digital transformation. All of this is influenced by the allocation and cost of spectrum, national coverage, networks and technologies deployed, as well as its regulation. When it comes to processes, it is not about going from an analog and physical aspect to a digital one. It is necessary to define what works, what doesn't, what can be left behind and what can be adapted. From an economic perspective, there are three key variables that affect digital transformation not only locally, but also globally. In the case of Mexico, the first is the national price index which tends to increase. However, the IPcom index is declining and this is a significant result related to the telecommunications reform in Mexico. In terms of the challenges beyond the economy that it faces in the telecommunications sector, they are 1) the radio spectrum in which its management is very important; 2) in the coverage, there are areas that do not have coverage or perhaps do not have the

necessary coverage to be digitized. The use of the Internet is important because if we see the differences between the rural and urban population, there is a very large gap. Therefore, it is important that the population migrate their activities not only in terms of social networks but to productive activities that contribute to GDP including online financial services that have been immersed with digital information. And finally, 3) the confidence of companies and users in the use of digital services. In this respect, it is necessary that regulators, policy-makers, the industry work together and having a rule of law that provides an certainty and confidence environment. Since digital transformation is itself a challenge, under the current adverse economic conditions, it becomes a bigger challenge. It is necessary to consider not only the telecommunication sector, but all sectors of the economy in order to mitigate the adverse effects of the global economic situation, and for that, strong national constitutions are needed that provide certainty to all sectors of the economy. If we don't do our homework, we risk widening digital gaps between and within the countries.

Regulatory challenges to digital transformation: a Trinidad and Tobago perspective

Dr. Dickson C.T. Osuala (PhD), ASQ-CMQ-OE, Manager Economics, Telecommunications Authority of Trinidad and Tobago (TATT), explained the definition of digital transformation, according to the International Telecommunication Union (ITU 2019), as a "continuous process of multimodal adoption of digital technologies that fundamentally change the way in which government services are conceived, planned, designed, implemented and operated from the private sector in ways that are personalized without paper, cash, presence, friction and consent-based" (that is, from a digital services perspective). Digital transformation in Trinidad and Tobago is being driven primarily by the Ministry of Digital Transformation (MDT) in active collaboration with the stakeholders, such as MDT's collaboration with the Inter-American Development Bank (IDB) that led the development of the Digital Transformation Strategy in IDB Group country (2021-2025) for Trinidad and Tobago which focuses on promoting digitalization to support economic transformation. The Government of Trinidad and Tobago has also implemented various incentives in the digital sector, such as a 50 per cent tax exemption for companies on the first USD 100,000 of taxable income in the first year of operation and USD 200,000 in the second year. Another example is the allocation of capital for research and development (R&D) of up to 40 per cent of the expenses incurred by companies in R&D.

Regulation toward digital transformation in Latin America

Sr. Héctor Lizárraga, Telecommunications specialist at the Regional Telecommunications Technical Commission (COMTELCA), presented the path of Latin America towards digital transformation, despite the fact that there has been much progress in connectivity issues, the countries of the region still face many digital gaps, which presents great opportunities for development and especially for the creation and advancement of digital activities and innovation. Mr Lizárraga emphasized that the pending tasks in the region are the digital gap and competitiveness and, if possible, the way in which things have been done at the level of ICT regulation should be rectified. Among the critical aspects of the legal and regulatory frameworks to promote digital transformation in the region are: 1) the digital security (cybersecurity); 2) data protection; 3) public procurement regulations; 4) the legal definition of telework and teleworker, rules and conditions of employment; 5) the adaptation of labor laws to the new realities of labor contracting; 6) a regulatory environment and the regulatory reforms necessary to promote electronic commerce that allow experimentation, transparency and flexibility; and finally, 7) promotion of competition through promotion policies to encourage active competition, solid regulatory frameworks and investment support, especially in rural and remote areas.

Ms Sissi de la Peña, Manager of Digital Commerce and International Organizations of the Latin American Internet Association, ALAI, indicated that ALAI is an international non-profit civil association that seeks to think and develop the Internet in Latin America and the Caribbean. ALAI has the participation of active digital platforms in the region (eg: Meta, Google, Amazon, TikTok, AirBnb, Zoom, etc.). Ms de la Peña explained that Internet regulation at the international level, can be classified into three large sections or layers of sectoral regimes, 1) heavy regulation in which there is a system imposing costs that are usually high, such as television and radio transmission; 2) light regulation, in which companies can compete freely at low cost; and then 3) the lack of a specific regulation in which civil and criminal law are used to regulate the Internet. There is currently a consensus that the regime has been prevailing and regulating the Internet is the lack of specific regulation, not because policy-makers have not been interested in doing so, but also for the cost of change and the speed of implementation. In this respect, it is important to define the way the regulatory framework should take as well as the importance of considering freedom of expression, human rights and censorship on the Internet, and the approach of a collaborative action looking at the future of the Internet. In terms of co-regulation and where we should go, this is something that has been part of a debate, a very complex issue. We agree this regulation should take place in a coordinated manner with all the institutions involved from the telecommunications framework, freedom of expression organizations, and economic institutions. "*We must consider the significant elements, such as solid institutions must provide legal security to users and companies providing digital services, and in the face of this challenge, for a long time the only existing regulation on the Internet was self-regulation, that is, the regulation issued by the own digital service providers and their users through codes of conduct as well as the terms of services, which means the government should not be the only agent to regulate behavior on the Internet. A tripartite regulation between all the actors it is necessary*."

Mr José Felipe Otero Muñoz, Vice President for Latin America and the Caribbean, 5G Americas, explained that 5G Americas is present in the entire digital ecosystem including all relevant companies and its role is mostly educational. Mr Otero indicated the digital transformation does not only impact large companies but also individual citizens and users and therefore consumers must be part of the discussion. It is really necessary to burst the bubble that has been created between ourselves to start communicating with other bodies and government agencies because the big problem today in terms of digitization is the lack of communication. Regarding the role of government entities and regulatory authorities, it is important to note when talking about digital transformation, we talk about digital policies, modern and flexible next-generation policies, but currently there are still obsolete regulatory frameworks that do not apply to new technologies, as well as different mobile networks have different generations coexisting. Another aspect is that the analogue system is still used for rural and remote areas. To improve the situation, it is necessary to take into account those communities and locations are so far from everyone and that do not even have coverage, but obviously this involves the cost of a device and a monthly charge.

Another important aspect is the government agencies are creating digital platforms to provide services to the population. However, due to the lack of communication with it, users do not know about the existence of these tools, as well as increasing the digital gap mainly to the population that does not have digital access. On the other hand, the statistical data is more and more important, Mexico can be considered as a good anomaly, since it has all kinds of statistics from the IFT to non-governmental organizations (NGOs), statistical institutes and independent users, as well as Mexican digital centers with more than 800 metrics. When leaving Mexico, in different countries of the region, certain data

does not exist and when it exists, there are lack of trends or historical data. If it does not have national and regional statistics, how can it create expectations, define priorities and enable budgets to address and correct these situations?

It must be remembered that when talking about digital transformation, we are talking about how to reach that level of evolution, and this is a matter of equity, inclusion and equality as positive externalities of all this phenomenon, and to make this happen, resources are needed, some tangible and others not, such as the radio spectrum. There is a great asymmetry in terms of its management. There are obvious cases such as Panama and Mexico where the same authorities have expressed that the costs have been very high. However, in the Caribbean, different States are working in order to standardize or homogenize a regulatory framework which allows access to a joint plan to accelerate the arrival of these technologies, including spectrum management. Another example is the Organization for Economic Co-operation and Development (OECD), which is also working with ICT regulators on the standardization of spectrum allocation. Regarding the allocation, it should be considered that cleaning frequency is not an easy cheap and fast task, but it will facilitate the connection of remote areas. This could be one of the most economical ways to implement better connectivity.

Session 2: *Session 2: Economic incentives to foster affordable access*

Moderator: Ms. Rebeca Escobar Briones, Head of the IFT Study Center, Mexico

Main presentation on the **assessment of ICT infrastructure and the financing mechanisms in the Americas**. Ms Carolina Limbatto, ITU Expert, presented on the situation in the region regarding the development of the Internet of Things (IoT), highlighting the lessons learned and best practices. In general, Ms Limbatto explained that there is a discrepancy in the supply of services because there are many areas where there is still no coverage or there is no appropriate technology for the provision of quality services. On the other hand, there is the digital gap where potential users do not have access due to the price of services, lack of connectivity in rural and remote areas, and also the lack of the necessary digital skills.

Especially in the Americas region, there are many programs that seek to fill these connectivity gaps through public financing. Both are in supply and demand. In addition, there are two large public policies that seek to close this connectivity gap. The first is through national broadband plans and the second one is through on educating the population to create the necessary digital skills in a productive manner.

Several examples were explained in different countries, within the framework of the implementation of universal service programs that are target in rural populations in remote areas. It is also important to take into account that it is not only providing connectivity but also directing the different programs depending on the size of the different localities, likewise, the importance of providing access and equipment to schools especially giving priority to the sustainability of this type of project. In Argentina, in particular, loans to schools are quite high. The interest rate was high, so now there is a special program so that cooperatives and small and medium-sized companies can obtain this infrastructure to develop the connectivity that will benefit them. Another important point to highlight when talking about schools is the appropriation of technology in which older people should also be included. In Argentina there is also a program to deliver tablets to older adults and teachers so that they stay connected and connect to all government services and do it digitally and do not have many of the problems they had during the pandemic. Ms Limbatto concluded with the question, how to eliminate the connectivity gap? What should be done is to analyze the ecosystem as a whole. There is no a single

solution for all, the important thing is to use all the networks deployed and look for innovative ideas to use the technology so that there is not a single model for financing connectivity. Explore types of public and private association trying to promote the development of new technologies, in a sustainable manner and using agile and effective regulatory frameworks.

Ms Alexa Díaz Hernández, General Director of Economic Consultation, IFT Mexico, explained that there is a particular relevance in the markets of the telecommunications sectors with respect to the provision of affordable digital services. These are complex markets with significant barriers and economies of scale that tend to have elements such as natural monopolies. When these companies have to compete for users and customers in general, lower prices, affordable services and greater innovation are obtained. Economists have modeled these incentives based on what is expected of these innovative new products that could differentiate from the rest of the population. But what if there is not enough competition? The dominant company has a larger market participation and can change/adapt prices, block competitors and foster innovation. The pandemic has exposed the risks of this type of economy when we depend on a few companies to provide essential services there can be problems in terms of the supply chain and affect or have an impact on the entire economy or population in general. Addressing the issue of incentives from the perspective of economic competition in sectors such as telecommunications is a necessary element and one should not lose sight of the fact that in order to promote access and affordable telecommunications services it is important to control competition.

Since the telecommunications reform in the Mexican markets, there have been substantial changes in terms of the quality and variety of services. Since then, new actors including mobile operators, have entered the market, changing its structure. An important component, so that the new operators could enter was the imposition of an asymmetric regulation. Asymmetric regulation has been shown to have a direct impact on regulated tariffs. Asymmetric regulation had an immediate effect on the behavior of competition and allowed operators to reduce their prices, which in turn stimulated innovation in terms of increasing their product portfolio. All this led to a greater penetration of telecommunications services. By December 2021, 86 out of every 100 people in Mexico had mobile Internet services. This means an increase of 100 per cent compared to 2014 that only 43 out of every 100 had this service. A similar behavior could be observed in terms of fixed Internet services. According to the national survey on the availability and use of information technologies in homes for December 2021, 61.3 per cent of homes in Mexico had fixed Internet and in 2014 this only reached 42 per cent.

Of course, competition on its own would not be enough to foster innovation or improve prices. In this way, various measures can be implemented to promote access to telecommunications. Measures related to supply, for example, access to telecommunications can be promoted not only by reducing the prices of services or connectivity, but also by seeking to reduce the prices of auxiliary services and infrastructure sharing. Infrastructure sharing is necessary in terms of access to telecommunication services and plays an important role in network deployment investment, especially in those markets that are less developed where access may be limited and can improve the affordability of services. In this way, all OECD countries promote infrastructure sharing as long as it does not go against competition. Now, why is it necessary to control that these measures do not go against competition? Because it should always observe and analyze the possible impacts that a proposed policy or regulation has on competition. It is not just about issuing regulations. Any public intervention must limit the risk to the privated investments and, at a minimum, must avoid distorting competition.

Regulatory challenges and access to public telecommunications services

Mr Rubén Guardamino , OSIPTEL, Peru, presented on the regulatory challenges in Peru explaining that the institutional framework is led by OSIPTEL, the Ministry of Telecommunications (MTC) and PRONATEL. In the termsof the regulatory strategies implemented, the initial orientation is focused on prices, in the retail market establishing price caps for fixed voice services and in the wholesale market establishing maximum charges for essential facilities such as call termination, switched transport. Mr Guardamino explained that the measures implemented to promote greater access are the design of regulatory flexibility rules (reduction of the regulatory burden to encourage deployment in areas of difficult access, priority to the expansion of access and assurance of quality of service), facilitate access (use of the facility OIMR project in rural areas), implementation of joint projects between (OSIPTEL/MTC/Pronatel) such as the implementation of the National FO Dorsal Network (RDNFO), as well as working on a regulatory simplification plan and ex post reviews that allow greater regulatory efficiency and effectiveness, reduction of the administrative burden.

Mr Guardamino concluded by explaining that based on Peru's experience on regulatory challenges and access it is important that:

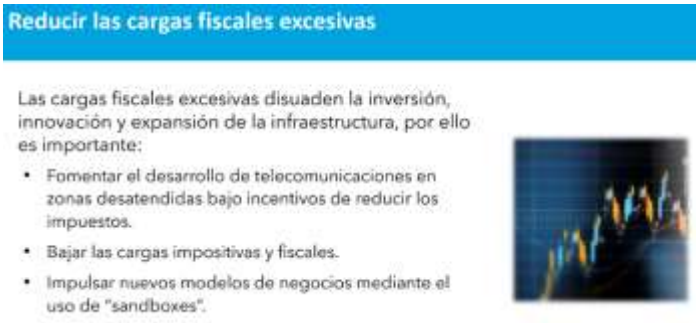
1- regulatory strategies are oriented towards promoting greater access to public telecommunications/ICT services;
2- the design of new regulatory flexibility rules consider the provision of incentives to operators to promote investment in the deployment of infrastructure;
3- the access facilities mechanisms, such as the OIMR, allow the development of business models prioritizing rural areas;
4- regulatory simplification and ex post review activities focus, as far as possible, on reducing the administrative burden for operators in order to redirect resources towards better access and market performance.

Meaningful affordable access in rural and remote areas

Sr. Eric Huerta, Rhizomatic, Networks for Diversity, Equity and Sustainability A. C., Mexico, presented on economic incentives to promote affordable access especially in rural and remote areas. The main agents in rural areas are: WISP, (subsidized) companies, social companies, satellite companies, and communities. It is very important to establish the necessary stimuli to make access to affordable services. For this purpose two important stimuli must be promoted, the first is the elimination of barriers, such as the right of way and access to ways, backhaul and to the spectrum. This elimination of barriers could, for example, imply the reduction of right-of-way costs, the promotion of open access networks, and access to educational fiber networks. The second stimulus, support for infrastructure expansion, implies access to credit, status or situation as an anchor client, and promotion of technical capabilities for expansion. For this purpose, tax incentives such as tax exemptions on equipment imports could be an example. All this to promote connectivity in rural and remote areas, always considering the sustainability aspect of the projects implemented.

Necessary steps to promote access to telecommunications infrastructure for all

Ms Nyurka Rodríguez, CASETEL, Venezuela, explained the importance of having stable and effective regulatory frameworks. Besides, in order to promote long-term investment in infrastructure, it is necessary to define clear and general rules for all market actors involved in the value chain, and take into account the principles of competition and guarantee the coherence and effectiveness of the regulatory policies. She also emphasized the importance of promoting collaborative models by rethinking the relationship between different actors MrJorge Roques, Indotel, the Dominican Republic referred to the life cycle of the projects in Indotel: to raise information, systematize, analyze, finance, plan and execute projects., based on investment, attracting partners from other sectors such as energy, transport, economy and finance, who can financially contribute to expanding access, promoting inclusive dialogue and harmonized approach between sectors with flexible regulatory frameworks, and finally encourage the exchange of knowledge, experiences and resources, exploration of synergies and the development of ways of collaborative approaches to policies and regulations. Finally, Ms. Rodriguez explained the importance of rethinking the operation of universal access and service funds to foster the use of innovative business models and alternative technologies such as satellite, unmanned aircraft, balloons and Wi-Fi networks, etc. In addition, to develop government initiatives and regulatory incentives for the deployment of affordable broadband in insufficiently areas and as fas as possible to reduce excessive tax burdens.



Preparation of a techno-economic framework for the definition of the optimal universalization strategy

Ms Jorge Martínez, Axon Consulting, presented on the strategy to be implemented for the universalization of services and how it should focus on ensuring that people can physically and economically access digital services, and that they see a true utility in these services. Mr Martinez presented the case of Costa Rica, which is complex to identify the specific needs of each of the areas of the country to provide services, especially the definition of indicators to prioritize the measures to be implemented and the determination of the regions to which priority should be given. In order to facilitate decision-making at the techno-economic level to prioritize universalization, an evaluation framework called: "4xA - Adoption = Literacy X Affordability X Accessibility" was developed for FONATEL. This framework is based on the results of a techno-economic model that calculates the cost of closing the different gaps in the

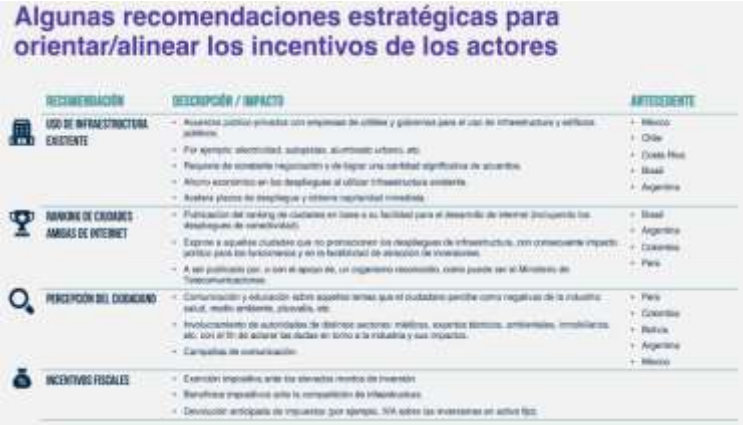
Costa Rican market, considering the gaps and costs by geotype/region and type of service, cost of universal service by technology, the different options for defining subsidies at the socioeconomic stratum level to assess affordability, and the specific geographic sphere to be able to define the development strategy of public policies. The evaluation of the results through the "4xA" Framework made it possible to identify and prioritize the areas of action in each area of the country, always ensuring specific policies for each target group. Additionally, the "4xA" Framework could be used to assess the economic reasonableness of new universal service (SU) obligations. For example, FONATEL used it to evaluate the possible speed increase of the universal broadband service.

On the other hand, Mr Martínez, as representative of the ITU-D Question 4/1 Rapporteur group, explained that for the new period the economic aspects of national telecommunications/ICTs and the importance of the country participation will be analyzed and their regulators to contribute to the work on this issue. An analysis of the topics to be covered for the study period from 2022 to 2025 is presented in the attached image.

New dynamics of telecommunications infrastructure management in Latin America

Mr Sebastián Cabello, CEO, SMC+ Consulting, explained that to date the lack of digital infrastructure in Latin America is more evident specifically at the rural level. In 2020, 260 million people or 40 per cent of the population of Latin America and the Caribbean (LAC) lived within the range of a mobile broadband network but did not have access to mobile Internet services. This highlights the growing importance of addressing the usage gap versus the coverage gap. The main causes for the usage gap are related to affordability, lack of skill development, and lack of content. The leap from 4G to 5G brings a very important change in the network densification model to guarantee virtualization and the need to process services at the edge that will be key to developing the new use cases that come with 5G. In this way, the infrastructure value chain is opened to provide distributed cloud and low latency services, as well as the reconfiguration of ICT assets with a growing role for towers. About more than a decade ago, the operators controlled all the passive and active elements of telecommunications infrastructure. Nowadays, almost 50 per cent of the infrastructure belongs to tower companies. In this way, infrastructure shared will be critical to reduce costs and to enable 5G deployments. The role of infrastructure companies starts to be essential for development. According to estimates of the IFC (2021), markets with a significant penetration of the business model of passive infrastructure companies are more robust and advanced. It is estimated that by 2030 there will be a deployment of more than 550

thousand sites throughout Latin America, which represents 4 times more the number of current sites in the region resulting in a total investment of USD 17 billion and an impact of the 0.4 per cent of the GDP of a year. However, several barriers persist to infrastructure deployment, as shown in the attached figure. Finally, Mr. Cabello presented some public policy recommendations to give predictability in the management of procedures and investments, such as capital-municipal coordination, implementation of a single window, administrative silence, sharing of active and passive infrastructure, neutral facilities of the operator (neutral carrier), and expedited process for smaller infrastructure deployment. For this purpose, strategic recommendations were presented to guide/align the incentives of the different actors in the sector (see image). The greatest challenge is to coordinate the fragmentation of digital public policy to align policies and incentives to promote investment in infrastructure development nationwide.



Session 3: Financing the investment for effective digital infrastructure deployment

Moderator: Mr Ramiro Camacho Castillo, Commisioner, IFT México

Main online presentation on Financing investment for the effective deployment of the digital infrastructure, Mr. Lucas Gallito, GSMA identified the main challenges for financing investment in digital infrastructure based on three pillars: 1) Sustainability of networks; 2) rethink the regulations for the digital era; 3) Policies seeking expansion for the entire value chain.

In addition, he highlighted within the Virtuous Circle, that a chain is as strong as its weakest link and the ecosystem needs the continuity of solid investments in networks to achieve all the technological potential that future innovations of the Internet can provide, so it will be need enabling policies for an intensive investment environment. For this purpose it is important:

- To simplify for infrastructure deployment
- To flexible in order to promote innovation
- To available harmonized spectrum and adequate charges
- To efficient faster and more effective deployment of networks

Financing of public policies for infrastructure deployment

Mrs Carla Victoria Valverde Barahona, Economic Analysis and Telecommunications Markets Manager, MICITT, Costa Rica, indicated that the first thing we must take into account is that public policy must work together with public financing and private financing. It is not allow to work in silos. If any part of this engine breaks down, the set is also broken. So, public policy in the wider context seeks to achieve a certain national vision and that is why it needs public agents, private agents and public/private associations. In addition, certain sources of financing that are available must be considered.

In terms of public policy approaches in the telecommunications sector, both sides of the equation must be taken into account, both supply and demand. This supply and demand must be encouraged both by public and private agents or entities. Public policies in their relationship with the markets have two key aspects, which are to let the market reach until it can and then let the State reach until it should, so public policy should avoid state interference, thus allowing the market of telecommunications works without interference. What does this mean? This implies, on the one hand, that any policy that is issued should not generate interference in the market but instead try to eliminate, as far as possible, the entry barriers.

Telecommunications investment in Mexico

Mrs Gabriela Gutiérrez Salas, General Deputy Director of Statistics and Indicators Analysis , IFT mentioned that infrastructure is a fundamental element, but not sufficient to achieve population connectivity in rural and remote areas and its inclusion in digital transformation. The current panorama shows that it is necessary to think about infrastructure investment jointly with investment in effective access (affordability, productive activities) in order to have an impact on these population groups. It is known that there are regulatory, administrative, economic, fiscal elements, among others, that hinder or promote infrastructure investment, thus, it is necessary to group them and generate landed and innovative solutions as incentives for those involved. In addition, it is not only about generating new infrastructure, but also making the most of the existing one through sharing. The pandemic accelerated the improvement in services, but also planted new challenges in public policy and regulation, so it is necessary to generate dialogue and synergies between different levels of government, sectors and actors to generate efficient solutions in short and medium term.

New project implementation model in INDOTEL

Mr. Jorge Roques, Indotel, Dominican Republic referred to the Life Cycle of the projects in INDOTEL such as to gather information, systematize, analyze, finance, plan and execute projects. He mentioned some of the data analysis gathered by INDOTEL. Schools of more than 500 students with FTTH coverage, communities with average poverty levels below 2 with electricity and without 4G, communities with more than 10.000 inhabitants with low levels of competition (HHI) on the Internet and communities with schools and without mobile or fixed Internet coverage. Within the sources of financing he identified the Universal Service Fund (USF), government budget, loans and obligations to do.

Financing alternatives for investment projects in infrastructure and telecommunications services

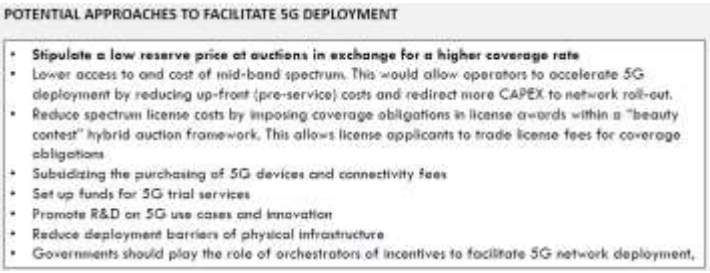
Mr Marcial Hernández Quintana, Head of the Evaluation, Execution and Economic Studies Unit, **PROMTEL**mentioned as part of the strategies to encourage the implementation of development and investment projects for the deployment of telecommunications infrastructure in rural and semi-urban areas. He indicated as one of the priority actions to provide guidance and accompaniment to telecommunications infrastructure developers and telecommunications service providers to obtain financing. He highlighted that PROMTEL promotion actions are aligned and seek to facilitate the development of infrastructure projects, with social emphasis, in order to boost effective access to telecommunications services and broadband Internet.

Regulatory aspects for the promotion of investment and deployment of digital infrastructure

Mr Luis Mauricio Torres Alcocer, ASIET, indicated that digital transformation is a catalyst for economic and social well-being; developing digital infrastructure is a key to economic and social sectors that need greater coverage and quality; the Digital Ecosystem has a very important role in the economy and productivity of Latin America; the sector has a considerable impact on the increase in productivity and economic development and an increase in the 1% digitalization index results in an increase of 0.32% in the Gross Domestic Product (GDP).

Besides, he indicated that the improvement of the quality of life increases the well-being of people, facilitates the interaction and communication between people, allows access to better opportunities in terms of education, health, work, access to information and entertainment, the closure of Digital gaps are public and private sector co-responsibility, and public policies must favor investments in digital infrastructure, especially in rural and remote areas, to reach the remote or hard-to-reach areas, innovation, collaboration and use is key of multiple technological solutions, such as wireless and satellite mobiles.

Economic and fiscal incentives to accelerate digital transformation


POTENTIAL APPROACHES TO FACILITATE 5G DEPLOYMENT

- **Stipulate a low reserve price at auctions in exchange for a higher coverage rate**
- Lower access to and cost of mid-band spectrum. This would allow operators to accelerate 5G deployment by reducing up-front (pre-service) costs and redirect more CAPEX to network roll-out.
- Reduce spectrum license costs by imposing coverage obligations in license awards within a "beauty contest" hybrid auction framework. This allows license applicants to trade license fees for coverage obligations
- Subsidizing the purchasing of 5G devices and connectivity fees
- Set up funds for 5G trial services
- Promote R&D on 5G use cases and innovation
- Reduce deployment barriers of physical infrastructure
- Governments should play the role of orchestrators of incentives to facilitate 5G network deployment,

Dr Raul Katz, from Columbia University, USA during his presentation, emphasized that the key goal of public policy should be to define a conducive environment to accelerate the deployment of digital infrastructure in rural areas. Dr. Katz considers that this public policy must include sharing infrastructure to reduce the load of CAPEX and OPEX; It would be important to reduce taxes to increase capital available, but providing incentives for the deployment of networks in rural areas; In addition, to exploring new commercial opportunities, to increase income through the promotion of new services, such as rural financial services, electronic commerce and digital platforms.

He also indicated that it is important to change the commercial model of the supply, for which he suggests exploring alternative approaches, which could be based on different operational models with less service economy (for example, community networks, microtelcos, providers of wireless internet services based in Wi-Fi) that are more appropriate to address the demand of rural areas.

Business Planning for infrastructure development, focusing on 5G technologies

Mr Tiago Sousa Prado, ITU Expert, presented the ICT Infrastructure Business Planning Toolkit, for which he indicated that business planning should be seen as a public policy tool and this Toolkit allows estimating the economic value of an infrastructure project, project evaluation (economic viability), determination of the level of government subsidies to promote privated investment. Within the types of projects that can used it we have mobile (4g and 5g) and fixed (FTTH) broadband and transport network (fiber).

Additionally, he presented the school connectivity project in Brazil, whose objective is to evaluate the level of incentives necessary to support fiber optic deployment and the provision of fixed broadband service for 10 years in 468 schools in the northern region of Brazil. The methodology used is to use the ICT Business Planning Toolkit (ICT BP Toolkit) to develop a business plan for:

- CAPEX and OPEX, Income and Net Present Value (NPV) estimation (Economic Attractive)
- Determining the average subsidy per school based on CAPEX or NPV

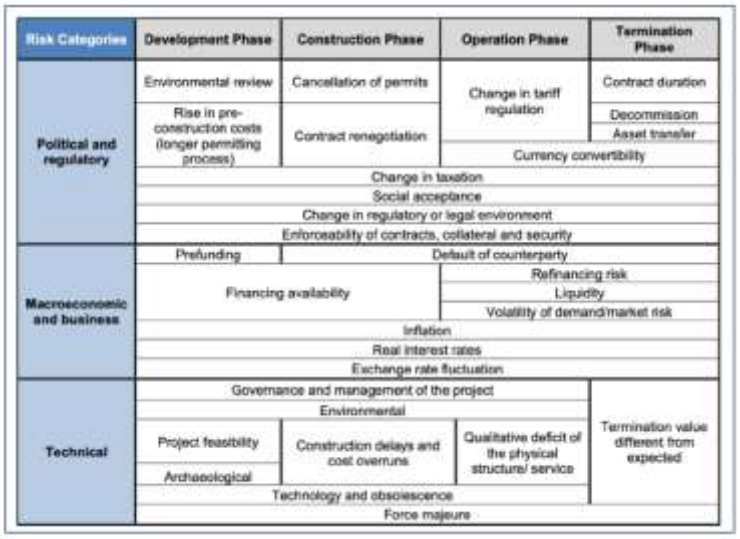
by calculating

- Kilometers of fiber by school
- Active and passive network dimensioning based on traffic growth

- The estimation of operations and maintenance (O&M) costs based on the number of network equipment

Finally, he indicated that the ICT BP Toolkit tool kit published by the UIT brings a useful methodology to calculate the amount of incentives and investments to close the connectivity gaps, which there are 23 specific examples of its use in the context of 4G, 5G And FTTH projects. With the BP toolkit, we can help LATAM countries to calculate the amount of financing they need to launch connectivity projects.

Financing universal access to digital technologies and services
Ms Mandla Msimang, ITU Expert, South Africa,



discussed the Regulatory Sand Box issue, which is a safe space for innovation or a "try and learn" environment that allows both start-ups and established companies to develop new concepts and products in a controlled environment.
The regulatory requirements in a Sand Box are relaxed to facilitate innovation with significantly reduced regulatory risk.

Additionally, she explained the following financing mechanisms

- Financial products: mobilizing and raising funds from the capital markets
    - Banks: bonds, promissory notes, loans
    - Microfinance and financing of small and medium-sized enterprises (SMEs)
    - Impact investment funds
    - Venture capital funds
    - Private equity funds
- Risk mitigation mechanisms: reduce the level of perceived risk
    - Grants
    - Guarantees
    - Insurance
- Technology-enabled financial solutions
    - Crowdfunding
    - Blockchain
    - Digital technology
- Results-based financing: payments linked to predetermined results are fulfilled
    - Social Impact Bonds
    - Results-based funding
    - Advance Market Commitments

Likewise, Ms Msimang presented the main connectivity, network and access incentives, which are part of the effective regulatory frameworks of the next generation, such as a) exemptions from taxes, fees,

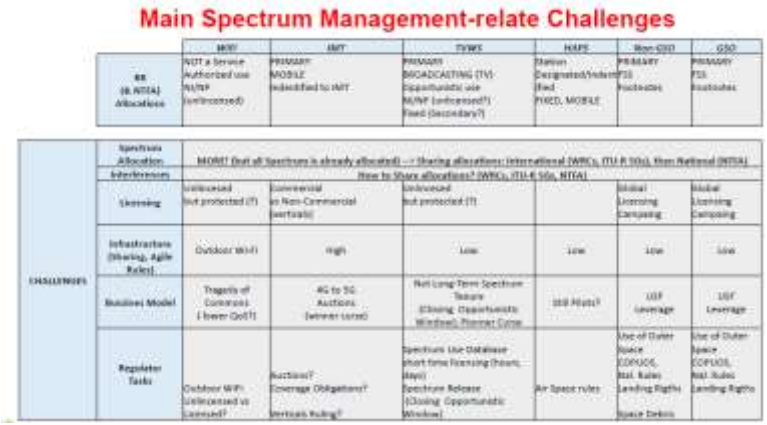
costs and other payments; b) Rationalization of processes, procedures and approval processes; c) Promotion of open access and infrastructure sharing; d) Rights-of-way, "dig-once" and "dig-smart" policies, and open trench notification processes; e) Assignment of radio spectrum for the next generation networks under favorable conditions to investment; f) Consumer education and information campaigns; g) Introduction of industrial policies and regulatory measures; h) Mapping of infrastructures and improvement of access to information; i) improving cross-sector collaboration and collaboration between regulators; j) Aggregation of the demand to guarantee traffic to the operators.

These incentives are dedicated to regulatory measures that can attract investment and improve the profitability of digital infrastructure finance providers, helping to reduce or mitigate some political or regulatory risks. More information on this is available in the ITU Publication on Financing universal access to digital technologies and services.

Session 4: Innovative policy and regulation for future emerging technlogies

Moderator: Ms Esthela Elizabeth Mendoza Guerra, General Director, Mexico, IFT,

Main presentation on Spectrum management challenges for emerging technologies, Mr Joaquin Restrepo, ITU/BR



The ITU representative gave a presentation on the state of different broadband applications and cutting edge wireless technologies (in other words, any telecommunication that uses radio waves), in particular:

- Mobile broadband: 3G 4G, 5G and beyond (IMT Families: IMT-2000, IMT-Advanced, IMT-2020 and early studies for IMT-2030)
- WiFi authorized use of some bands: (ISM applications), and application of Fixed/Mobile services
- Big Leos: part of FFS services (regardless of orbit altitude)
- Earth Stations in Motion: Challenges to integrate them into FSS
- Unlicensed Devices: Difference with Secondary Service Assignments
- TVWS: Opportunistic use Framework
- HAPS: Base Stations in the Stratosphere

Additionally, he addressed the issue of how to implement broadband networks based on these applications/technologies in full compliance with international regulations known as the Radio Regulations (RR) and national, to guarantee coexistence without harmful interference between them. the contrast between the capabilities of the technologies and their regulatory compliance was highlighted. In summary, it was recalled that both the RR and the National Frequency Tables assign frequency bands to services and not to specific applications (principle of technological neutrality), while

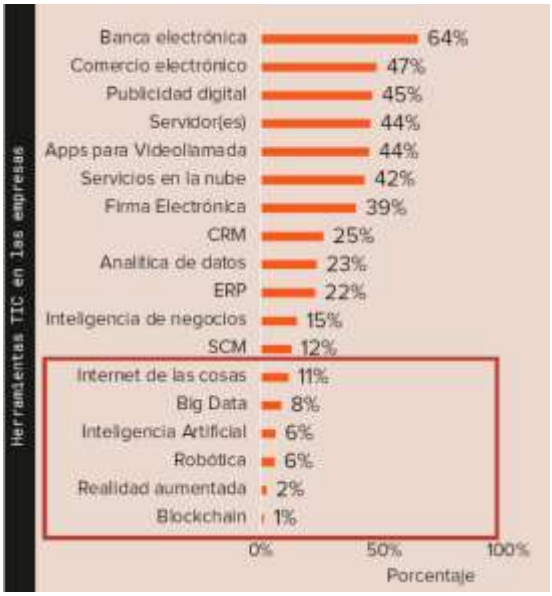
said technologies can be adapted to offer various radiocommunication services, but they must comply with the relevant regulation.

Panelists:

Spectrum Secondary Market: New Perspectives for Efficient Spectrum Use

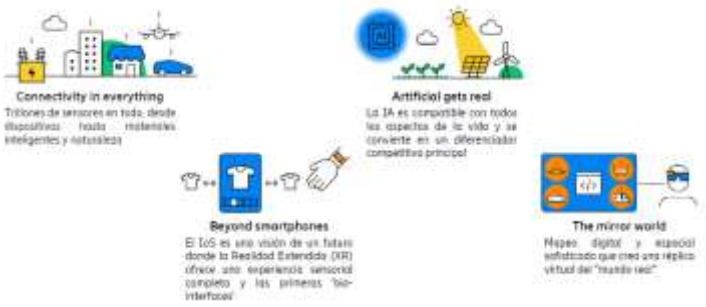
Mr Fabio Casotti, Head, Wholesale Relations Division, Competition Superintendence, Anatel, Brazil, indicated that in Brazil the right to use the radio spectrum is granted through auctions, which are carried out in order of request, with a period of 20/10 years (extendable), considering that they can be assigned with a Primary Character (protection to interference) or Secondary Character (non-critical applications), including coverage commitments. It was also mentioned that the model currently used in the Brazilian secondary market is the Free Negotiation, for which low intervention and freedom of negotiation were identified as advantages; however, the disadvantages are information asymmetry (Opportunity costs – seller x willingness to pay – buyer), adverse selection (Data and hidden intentions dictate the behavior of agents) and finally low consumer surplus.

Ms Salma Jalife, President, Digital Mexico Center Regulatory Vision of the Future



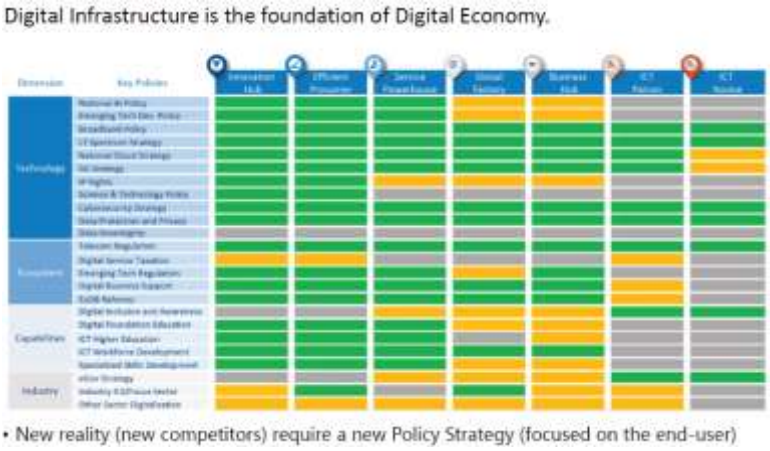
referred to the fact that new technologies have brought optimization of processes in the productive sector, improved communications through live interactive projections, new entertainment options, better access to advanced health services through remote monitoring of patients, improvement of images and greater precision in diagnoses, improvements in education through the use of virtual reality and augmented reality and smart cities. She also stressed that we must find the appropriate balance between promoting innovation and regulating to protect citizens and their fundamental rights, so it is necessary to find ways to protect consumers, without inhibiting innovation so that everyone can take full advantage of the benefits of the technologies of the future.

Innovative policies and regulations for future emerging technologies,



Ms Elizabeth Peña Jauregui, Head, Government & Industry Relations for LATAM North and Caribbean, Ericsson, indicated that policy makers should focus mainly on promoting technological neutrality, that technology cannot do everything alone, it must be backed with resilient and adequate policies. It is important to note that without adequate public policies, ICT results can have a negative effect. Public policies determine the size, distribution and sustainability of benefits for the population and technological benefits are not automatic.

Digital infrastructure, the foundation of the digital economy



Mr César Funes, Vice President of Institutional Relations for Latin America and the Caribbean, Huawei, identified the three essential elements for implementing a better digital vision 1) Comprehensive high-level planning (some countries often have high-level design and planning initiatives in their national strategies); 2) Clear implementation path (some countries propose detailed plans and commit to the expected objectives, the projects to be implemented and the agencies that will implement them); and 3) clear approach (dozens of initiatives proposed by many countries, carrying out a digital work approach).
Additionally, he identified that digital promotes the achievement of the Sustainable Development Goals (SDGs), as follows:

- SDG 3 -> Digital tools help to perform people-oriented health care and improve the level of health of the population
- SDG 4 -> Digital tools help to obtain easy and equitable resources and provide fair and quality education.
- SDG 7-> Digital tools help create a flexible and smart electricity system based on clean energy
- SDG 8 -> Between 2016 and 2020, digitization created up to 6.5 million jobs for key industries.
- SDG 9 -> Digitization enables innovation in other industrial sectors
- SDG 10 -> Digitization benefits everyone and promotes inclusion
- SDG 11-> Promote the development of smart cities, and create an inclusive, safe and durable space
- SDG 13 -> In 2016~2020, the total net CO_2 emission reduction was around 29 billion tons thanks to digitalization

Actions to take into account to promote 5G in Latin America

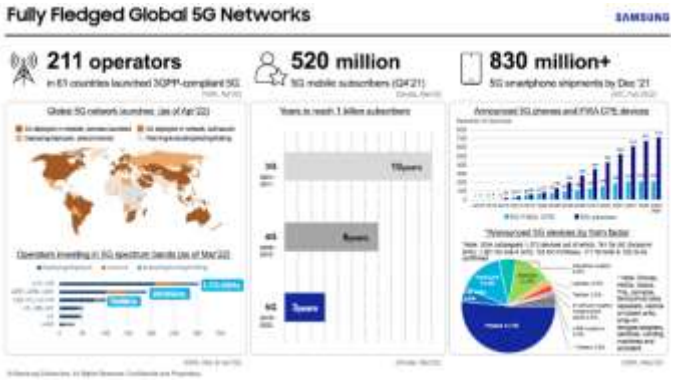
Mr Celedonio Von Wuthenau, Head of Government Affairrs, Latin America, Nokia, indicated that policy makers should take action in five different areas. The first on spectrum policy, regarding the preparation of a clear spectrum roadmap with a good mix of low, medium and high bands; release it at the correct rate; in an accessible way; and that it is clean. The second on the secondary market, sharing, infrastructure policy: simplify and facilitate the deployment of infrastructure; enable infrastructure sharing. The third on competition: convergence; regulation "*ex-post*" in support of new services, applications and actors; network slicing and network neutrality. The fourth on consumer protection means the expansion of broadband, closing

the digital gap, reducing the tax burden on devices, digital education, etc. And finally, collaborate with sector regulators and update the regulation: ICT regulators are the ones who understand the sector and can help government and politics to support the development of the 5G digital ecosystem.

Innovative policy and regulation for future emerging technologies

Mr Héctor Marin, Senior Director, Policy and Regulatory Affairs, Qualcomm, started by mentioning that mobile technology is the most widely used platform in the human history. In addition, he indicated that 5G NR technology is a unified air interface and more capable than the previous ones and allows: Diverse Services (Mission Critical Services; Enhanced Mobile Broadband; Massive Internet of Things), Diverse Spectrum (High Bands (above 24 GHz); Mid Bands 1 GHz to 6 GHz; Low Bands (below 1 GHz) -> Licensed/Shared/Unlicensed) and various Deployments. Which represents: 10x decrease in end-to-end latency; Performance experienced 10 times higher; 3x spectrum efficiency; 100x traffic capacity; 100x network efficiency; and 10x Connection Density.

Industry trends



Mr Javier Lizárraga, VP of Networks, Samsung (LatinAmerica) mentioned Vision and 6G services for the next hyperconnected experience, highlighting the following:

- truly immersive extended reality (XR)
  - Sufficient wireless capacity to ensure a higher data rate to perform Virtual Reality, Augmented Reality, Mixed Reality, etc.
- High fidelity mobile hologram
  - Next-generation media technology presenting gestures and facial expressions through holographic display
- Digital replica
  - Replicate physical entities and interact with them in a virtual world without temporal or spatial restrictions

He also highlighted the benefits of private networks, which are:

- Security and Privacy
  - Data protection from various attacks.
  - Strong encryption and authentication
- Wide coverage
  - Higher power
  - Less number of sites
- Better presentation
  - Quality of Service (QoS) guaranteed at low latency and with high reliability
  - High capacity for multi-user and multimedia data
- Mobility
  - Full connectivity for devices in vehicles

- High speed handover capability (~500 km/h)

Closing

The Regional Economic Dialogue (RED) ended with closing words by Mr Rodrigo Robles from the ITU Regional Office for the Americas and Ms Jimena Sierra from the IFT, thanking all the experts and delegates for their presence.