



Telecommunication Development Bureau (BDT)

Report of the Regional Economic and Financial Forum of Telecommunications/ICTs for Latin America and the Caribbean San José, Costa Rica, 11-12 March 2014

I Introduction

The Regional Economic and Financial Forum of Telecommunications/ICTs for Latin America and the Caribbean, organized by the ITU Telecommunication Development Bureau (BDT) and the *Superintendencia de Telecomunicaciones* (SUTEL) of Costa Rica, took place on 11 and 12 March 2014. It was coordinated with the Regional Meeting of the Study Group 3 Regional Group for Latin America and the Caribbean (SG3RG-LAC), organized by the ITU Telecommunication Standardization Bureau (TSB), which was held just after the Forum, on 13 and 14 March 2014.

The Forum was attended by 73 delegates from 15 countries, including representatives of ministries, regulatory bodies, operators, industry and regional associations, and invited experts. The list of all participants, the presentations and additional information are available at: www.itu.int/en/ITU-D/Regulatory-Market/Pages/Events2014/CostaRica/home.aspx.

II Opening ceremony

The opening ceremony was attended by Mr Tito López, Chairman of SG3RG-LAC; Ms Carmen Prado-Wagner, representing ITU; Ms Maryleana Méndez, Chairman of the Board, SUTEL, Costa Rica; and Mr Alejandro Cruz, Minister for Science, Technology and Telecommunications of Costa Rica.

Tito López, Chairman of SG3RG-LAC, stressed the importance of ensuring that the telecommunication market functioned properly. On the subject of freedom in the sector, he said that national legislation should give consumers the right to select the operator of their choice and to change operators without difficulty. In addition, democratic institutions should work to hone the concept of freedom, in particular with regard to freedom of choice and the freedom to change. Freedom of enterprise also had to be protected, and investment promoted to facilitate the expansion of services for the benefit of consumers. During the Forum, the participants would learn about the exhibitors' experiences, which would be very useful for all.

Carmen Prado-Wagner, of ITU, pointed to the global growth in fixed broadband, with the Americas ranking second only to Europe worldwide, and to the way in which fixed broadband prices had fallen around the world, while remaining higher in the developing than in the developed countries. The mobile broadband sector, for its part, had grown by 40 per cent and was the most dynamic ICT market in the world, with the Americas again ranking second only to Europe globally. Regulators had a key role to play in promoting investment and protecting users. Prices had a major impact on the development, spread and use of ICTs. She thanked the Government of the Republic of Costa Rica for hosting such important ITU events.

Maryleana Méndez, Chairman of the Board, SUTEL, Costa Rica, said that such events enabled people to receive information and discuss broadband and economic topics *inter alia*.

Universalization required major investments, relevant content and accessible equipment, if it was to have a positive impact on the greatest number of people. For investments to be sustainable over time, all parties had to participate, each performing its functions efficiently and thereby maximizing the benefit of ICTs for society.

Alejandro Cruz, Minister for Science, Technology and Telecommunications of Costa Rica, presented the current institutional framework in Costa Rica and its objectives, which were to bolster innovation in the manufacturing sector, have a single public policy entity in the digital field and, very importantly, draw up sector legislation, together with SUTEL, for the consolidation of the public and private markets. It was important to put broadband within everyone's reach, overcoming the obstacles and pushing the boundaries of progress. The national telecommunication development plan and the national broadband strategy played a vital role in Costa Rica, as consumers now had a broader range of services, moving the country towards new technologies, such as 4G. As a result, the economy had received a sizeable boost, and the services concerned now accounted for a greater percentage of gross domestic product. Serious challenges did, however, remain to be overcome, such as bringing broadband to every corner of the country; there was still a long way to go, and much to be done at the national level. He extended a cordial welcome to San José to all the delegates and officially opened the Forum.

III Summary of the deliberations

Ms Maryleana Méndez, Chairman of the Board, SUTEL, Costa Rica, was appointed Chairman of the Forum.

Session 1: Market analysis and regulatory accounting in a broadband environment

Omar De León opened the session with a presentation covering aspects of the session topic such as the specificities of broadband markets and convergence, relevant markets, identification of dominant operators for each market, types of accounting separation for regulatory control, and the conditions for implementing functional/operational and structural separations. He also presented the relationship between infrastructure sharing and regulatory accounting. Broadband markets were more complex than traditional markets owing to convergence and the appearance of new services that were not always regulated. In order to identify the dominant operators, it was also important to take account of multi-purpose networks and the various service packages the operators provided, making market analyses more complicated but also more accurate. Among the obligations to generate regulatory accounting it was important for account separation to be less intrusive where matters of pricing and competition were concerned. Accounting separation and voluntary infrastructure sharing were factors in the analysis of the measures or remedies to be adopted by regulators. Owing to the convergence of services, accounting separation should take into consideration other markets (for example, involving non-telecommunication services) and more services within each market (for example, packages, special offers, etc.). Lastly, a balance had to be struck and dynamic competition promoted in the application of solutions to issues of competition in dominant markets, while stimulating investment.

Statements by the panellists

Pablo Bello, Secretary-General of the Hispano-American Association of Telecommunications Research Centers and Enterprises (AHCET), said that investment was crucial to closing the digital

divide, and that Latin America had a historic opportunity to substantially narrow the divide in the coming years. For that to be possible, there had to be a regulatory framework and a favourable market allowing both public and private stakeholders to cooperate and have a long-term vision. To that end, it was important for policymakers to understand the operational dynamics of companies in order to stimulate investment and competition. Consideration had, moreover, to be given to both the macro and sectoral factors for stimulating long-term investment.

Rafael José Olmedo González, from the *Comisión Nacional de Telecomunicaciones* (CONATEL), Paraguay, presented the project to introduce regulations for regulatory accounting in the Paraguayan telecommunication market, with the main objectives being to: instil confidence and show that the market was open, avoid discrimination, provide support for other activities in the sector, prevent cross-subsidies and promote transparency. The cost system to be proposed would be multi-standard in nature, meaning that the service costs for each accounting period would be obtained using the following standards: fully distributed historical costs, fully distributed current costs and long-run incremental costs.

Session 2: Maximizing the potential of universal service funds through successful administration and management

Janet Hernández, President of TMG, United States, started the session with a presentation on the universal service funds and the results of the [Universal service funds and digital inclusion for all study](#) carried out by ITU/BDT in September 2013. She presented the main challenges facing the universal service funds and the key factors in their administration and management. The latter included essential factors for implementation such as: a properly articulated policy, a well-defined legal and regulatory framework administered, if possible, by an independent body, the delimitation of responsibilities within that body's functions, and the definition of tangible and measurable objectives. Other important elements to consider when managing universal service funds were innovation and the incorporation of incentives, transparency and accountability, long-term sustainability, the response capacity of digital inclusion, consultation with all interested parties and working with other sources of funding.

Statements by the panellists

Maryleana Méndez Jiménez, Chairman of the Board, SUTEL, Costa Rica, referred to Costa Rica's National Telecommunication Fund (FONATEL), which aimed to promote timely and efficient access to high-quality telecommunication services, at affordable and competitive prices, for the inhabitants of parts of the country in which the investment cost of installing and maintaining infrastructure was such that the provision of such services was financially unprofitable; and to promote timely and efficient access to high-quality telecommunication services, at affordable and competitive prices, for inhabitants of the country who did not have sufficient resources to obtain such access and for persons and entities with special social needs, such as shelters for minors, senior citizens, persons with disabilities, indigenous peoples, public primary and secondary schools, and public health centres. It was important for Costa Rica to use the Fund to help narrow the digital divide and ensure greater equality of opportunity and enjoyment of the benefits of the information and knowledge society by fostering connectivity, infrastructure development and the availability of access equipment and broadband services. The funds were obtained from spectrum auctions and from operator contributions.

Eduardo Chomali, AHCET, in his presentation on the session topic, said that competition and infrastructure investment by operators led to the biggest advances towards closing the digital divide. The regulatory framework should therefore provide incentives for investment and network

and service competition. State investment should supplement, not replace, private sector investment, it being paramount to add value to the connectivity offer (content/apps). Public-private partnerships were the best means of narrowing the digital divide.

Greivin Hernández González, *Instituto Costarricense de Electricidad (ICE)*, Costa Rica, presented ICE's experience with the universal service fund, touching on subjects such as universal access in all markets and geographic areas, fixed telephony, public telephony, the ICE-Ministry of Education agreement (Internet connection in educational centres nationwide), the ICE-Ministry of Science, Technology and Telecommunications agreement (installation of intelligent community centres), and the installation of satellite equipment (VSAT) to provide communication and data services in rural, indigenous and remote communities. Short-term challenges for the financial viability of the ICE universal access programme included tariff rebalancing, recognition of the access deficit and maintaining consumer preferences.

Session 3: Social impact of broadband and development of digital agendas in the region

The session started with a presentation by **Raul Katz**, Columbia University, United States, who considered the session topic chiefly from the point of view of broadband and digitization, and their political, economic and social aspects. He presented the experiences of countries such as Brazil, the United States, Switzerland, Germany, the United Kingdom, Australia, South Africa, Panama, Ecuador, Colombia and Senegal, among others. His conclusion was that digitization contributed to economic growth and to social well-being, having a positive effect on social inclusion and contributing in various ways to the national political system. An important objective for Latin America and the Caribbean should therefore be to step up digitization, in order to ensure that it had the greatest possible economic, political and social impact.

Statements by the panellists

Walther Herrera Cantillo, Acting Director of Markets, SUTEL, Costa Rica, discussed the development of broadband, starting with regional broadband programmes, broadband in Costa Rica, broadband pricing in Latin America and countries of the Organisation for Economic Co-operation and Development (OECD), and trends in the global broadband market. The fact that more and more users had smartphones had pushed up demand for better levels of broadband, which required greater investment and network infrastructure development. In Latin America, mobile broadband subscriptions totalled less than a third, and fixed broadband subscriptions less than 50 per cent, of those in OECD countries. Mobile broadband represented an opportunity to expand Internet access in the region, where one of the biggest challenges was to reduce prices.

Session 4: Costing methodologies and tariff policies in the region

The session began with a presentation by **Daniel Wada**, **Advisia**, on the methodology for cost and tariff modelling and its implementation with regard to Brazil's experience, in the framework of the technical cooperation project between ITU and Anatel. Within that project, top-down and bottom-up models were being constructed for fixed and mobile operators; those models had differing characteristics and presented advantages and disadvantages which complemented one another when calculating the final tariffs. After giving an example of the calculation of termination rates using both types of modelling, he noted that among the challenges to be overcome in such projects were the management of different workforces, asymmetry in the information provided by operators, and communication with all players within the telecommunication sector (the regulator, operators, service providers, other government agencies, and academic and research institutions), as well as with society. It was important to have a multidisciplinary workforce to

manage pricing and to invest in its training to ensure the suitability and continuity of cost modelling in the future.

Statements by the panellists

Lucio Mario Rendon, *Instituto Federal de Telecomunicaciones* (IFT), Mexico, began by looking at the various facets of the Constitutional Amendment on Telecommunications, which had entered into force in 2013, including access to information and communication technologies, access to public broadcasting and telecommunication services, telecommunication users, audiences, response, and the establishment of IFT as an autonomous agency. The main objectives of the amendment were the efficient development of telecommunications and broadcasting, competition, quality, plurality, universal coverage, interconnection, convergence, continuity, unrestricted access without any arbitrary interference, and economic competitiveness. Regarding the economic aspects of the telecommunication sector, IFT had, during the first quarter of 2014, begun a process of reviewing regulatory policy on interconnection tariffs, with a particular focus on assessing whether it was appropriate to adopt, effective 1 January 2015, a methodology based on pure incremental costs, or a system of compensatory agreements – the former in order to avoid cross-subsidies and remove unnecessary barriers to competition; the latter in connection with asymmetry between mobile operators.

The discussions focused on the public consultation processes conducted by Brazil and Mexico, as well as on the asymmetry in the information provided by operators for the purpose of completing the models. The factors used to identify the providers with significant market power (SMP) were also discussed.

Session 5: Internet connectivity: the challenge between profitability and development of connectivity to ensure broadband access in the region

Oscar Messano, from LACNIC, highlighted some of the barriers facing Internet service providers (ISPs) (Tier 3), such as the high cost of national and international interconnection, limited availability of broadband, poor level and quality of service for the end user and the difficulties for market growth. Those barriers were attributable to a lack of investment in the upgrade and expansion of basic fibre-optic telecommunication infrastructure, the fundamental component of modern interconnection; concentration of the market among a handful of companies, resulting in a low level of competition in the various market segments, coupled with a financial and economic situation causing serious problems at the global level, particularly for companies in that sector; the almost exponential growth in broadband use throughout the world and the pressure that put on traditional operators and large companies, which had difficulty keeping up with such a growth rate. The session concluded with a discussion on the lack of government and operator awareness of the benefits of IXPs. It is important to disseminate information on implementing IXPs and on their advantages in terms of price and quality of service for the end user.

Carmen Prado-Wagner, representing ITU, then gave a presentation on the IXP-related activities being carried out in the countries of the Americas region, noting that the ITU Regional Office for the Americas had been working on a project to analyse the situation of those countries and obtain a clear overview of the costs of Internet access, with a view to generating appropriate recommendations for technical solutions aimed at reducing those costs. In addition, there were plans to hold a regional meeting, in cooperation with CITELE, for the purpose of presenting a proposal for a regional IXP solution and discussing guidelines for the implementation of regional IXPs, taking into account the legal and regulatory framework of each country. That meeting would be taking place in Paraguay in August of the current year. She concluded by presenting the website

of the ITU Regional Office for the Americas, at www.itu.int/en/ITU-D/Regional-Presence/Americas/Pages/default.aspx, where all events planned for the Americas region were posted.

The session ended with an interesting discussion on the need to regulate IXPs, price reduction and security considerations. Reference was also made to the importance of taking action, as ITU was doing through the regional meeting, since sufficient information had now been gathered on the regional situation from the various studies conducted.

Session 6: The Content Delivery Network (CDN) – overview and impact in the content distribution value chain

In his presentation on the session topic, **Omar De León** referred to the technical and economic aspects of the transport of content, the advantages of CDNs and the initial business models and their various stages of development, how CDN operators function and the existence of the CDN Federation. He also explained the convergence of CDN and cloud computing, network neutrality and the organization of bilateral markets, concluding that the previously straightforward situation with unilateral markets disseminating simple, mainly static, content had evolved into complex systems in bilateral markets, including the dissemination of highly dynamic, high-quality content that was subject to copyright controls. That ecosystem now included equipment providers, transparent caching providers, traditional CDNs, operator CDNs, OVPN (optical virtual private network) platforms, DRM (digital rights management) providers, OTT (over-the-top), and others. Furthermore, the main focus of those ecosystems was cost reduction, with CDNs currently the main protagonists, although they were now being supported or replaced by various other players that had emerged. However, there were still two basic modes of payment, similar to those relating to cloud computing, and the prices remained much higher for Latin America. Unicast was inevitably evolving towards multicast, due principally to live streaming, and in that way operators were evolving towards their own CDNs. Federations had now emerged, with significant pilots submitting their interconnection protocols to the Internet Engineering Task Force (IETF), and with their proponents claiming advantages for that business model, since CDNs appeared to be converging with cloud computing, network neutrality, and the separation of CDNs from ISPs. The presentation led to a positive exchange of views on the regulation of CDNs and their market participation.

Session 7: The Brazilian National Wholesale Trading System (SNOA): a virtual trading exchange system for telecom assets

Abraao Balbino e Silva, ANATEL Brazil, began his presentation by giving a general overview of the competition framework in Brazil, before addressing the national wholesale trading system market. The National Wholesale Trading System (SNOA) is a virtual trading platform for telecommunication assets, created by ANATEL. This platform contains information on: towers, switching centres, areas served by switching centres, IXPs and interconnection points. It also makes all reference service offers available and enables the regulatory authority to track all transactions from the initial request until the order is delivered through the provision of services. Operators take part in this system but ANATEL also plays an important role, given that it can itself be used for infrastructure sharing and service management. All operators with significant market power (SMP) are obliged to provide this information, but considering how useful the platform is, many operators that do not have significant power are actively and willingly participating in it.

Session 8: Infrastructure Sharing

Daniel Leza, Vice-President for Legal and Regulatory, TMG, United States, gave a presentation on the various scenarios for infrastructure sharing in mobile networks, trends in infrastructure sharing, and the experience of certain countries in the region, such as Chile, Brazil and Colombia. He concluded by pointing out that mobile infrastructure sharing could provide significant benefits to mobile telephony consumers and operators alike, but that the potential competitive concerns needed to be reviewed on a case-by-case basis. In Latin America, mobile infrastructure sharing had mostly taken the form of passive site and tower sharing, with independent tower companies playing a key role in many countries owing to the rapid growth in mobile broadband traffic, which in turn increased the pressure to upgrade/deploy new technologies, with the result that mobile network operators around the world and in the Latin America region were seeking deeper sharing arrangements.

Statements by the panellists

Nicolas Silva, *Comisión de Regulación de Comunicaciones*, Colombia, presented Colombia's experience in ICT infrastructure sharing, referring to, among other things, the converged framework, the network system, ICT infrastructure, electrical infrastructure, national roaming, telecommunication networks and regulatory advances. Part of what Colombia was seeking was an access and usage regime covering all networks to foster convergence, promote migration to NGN and strengthen competition and service offers, taking the following principles, among others, into account: non-discriminatory treatment with equal access and equal charging, cost-effective remuneration, separation of costs based on network elements, advertising and transparency, good faith, efficiency, technological neutrality and non-restriction of services, content and/or applications.

Finally, a number of specific questions were asked about the progress made in implementing the new regulations in Colombia. Also, the BDT representative provided information on the [ITU Interactive Terrestrial Transmission Maps](#) developed by ITU/BDT, which presented information on terrestrial telecommunication network deployments worldwide and could be used for reference by national regulatory authorities to determine the terrestrial network situation in their countries.

Session 9: Monitoring the implementation of Broadband plans

Raul Katz, Columbia University, United States, gave a presentation on issues relating to the session topic, considering the definition of broadband plan objectives to be fundamental both for their implementation and for the monitoring thereof. He also explained ex-ante impact analysis and results monitoring. To successfully monitor implementation, it was important to take the following steps: 1) assess the cost-benefit of a successful broadband plan; 2) analyse scenarios of expected outcomes; 3) be capable of providing a quantitative assessment of the policy impact (jobs created? improvement in social indicators?); 4) examine not only the direct effects but also the indirect ones (for example, considering the "law of unintended consequences"); 5) identify those factors that can influence policy outcomes, over which the government does not have adequate control; and 6) have the capability to support the analysis of an independent entity (for validation and replication purposes). Finally, it was not necessary to develop extremely complex plans with unrealistic targets, but rather to analyse realistic and functional implementation models of benefit to the population as a whole.

Session 10: Trends and challenges for mass mobile broadband in the region – Towards a networked society

Facundo Fernández Begni, Government & Industry Relations Director, Ericsson Latin America, gave a presentation on the session topic, pointing out that in the networked society, people, knowledge, devices and information were networked for the growth of society, life and business. In a networked society, connectivity needed to be seen in its rightful dimension as a facilitator of development and social growth. Making small changes to the ways we communicated and used the Internet would have a huge impact on society as a whole. The key factors for the success of mobile broadband were quality of service, interoperability, availability, harmonization, network deployment, economies of scale, devices and commercial offerings.

Session 11: Costing methodologies for determining the prices of international roaming Services

Simon Forge, SCF Associates Ltd, United Kingdom, gave a presentation focusing on the development of an ITU cost model for international mobile roaming for regulators. His presentation covered the global roaming issue today and the European experience. He spoke of development of a cost model as being the basis of roaming costs in the mobile network operator, of cases in which roaming was used, and of gathering the information for the cost model by surveying mobile operators. To develop the model, the following steps needed to be taken: 1) analyse the current international roaming situation; 2) analyse the cost base in mobile operators, with analysis of retail and wholesale pricing; 3) examine models of empirical costs for roaming; 4) assess requirements for the model across voice, data and SMS, for all mobile operator types and technologies; 5) formulate the first principles of a cost model; 6) develop a cost model that is mobile-operator neutral; 7) for data gathering by mobile network operators, develop a method to enable the collection and analysis of the operator's cost structure as well as retail and wholesale pricing data for roaming; and 8) provide regulators with guidelines on implementing the model using a survey of mobile network operators. He concluded by highlighting some of the essential questions that regulators needed to ask in order to determine the extent to which they were in a position to gather and share the relevant information on roaming costs with a view to implementing the cost model, as well as the extent to which they were able to participate in applying regulations on international roaming.

IV Concluding remarks and closing of the Forum

The Chairman of the Forum, **Maryleana Méndez**, thanked the BDT staff for having organized such an important event, which had afforded an opportunity to hear excellent expert presentations and share experiences and knowledge from different countries, all of which had provided food for thought that would enable regulators to look towards the actions to be taken in a rapidly changing market, in line with technological advances and developments in consumer habits and user preferences.

The Chairman's concluding remarks can be found at: http://www.itu.int/en/ITU-D/Regulatory-Market/Pages/Events2014/CostaRica/Agenda_LAC.aspx

The delegates thanked SUTEL for having hosted the Forum and for its excellent hospitality throughout, and congratulated all concerned on the highly interesting content of the deliberations. To conclude, **Rodrigo Robles**, from the ITU Regional Office, made a closing statement, highlighting the work carried out over the two days of the Forum and the outstanding quality of the presentations. He reminded delegates of the forthcoming ITU events, such as the World Telecommunication Development Conference (WTDC-14) to be held in Dubai from

30 March to 10 April 2014, and of the events scheduled to take place in the Americas region, recommending that they pay regular visits to the region's web page for all the corresponding updates.

During the meeting of SG3RG-LAC, it was requested that BDT continue to organize the Forum on an annual basis, since the participants found it to be a highly valuable occasion for addressing current issues of great significance to the region and the work of the regional group. It was also requested that BDT continue to collaborate in the group's work. The Administration of Trinidad and Tobago had graciously agreed to host the next Regional Economic and Financial Forum of Telecommunications/ICTs for Latin America and the Caribbean, in conjunction with the meeting of SG3RG-LAC to be held in April 2015, and ANATEL Brazil had offered to host the two events in 2016.
