International Mobile
ROAMING STRATEGIC
GUIDELINES

Telecommunication Development Sector

ITU

International mobile roaming strategic guidelines

2017

Acknowledgements

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1   Introduction

The ITU international mobile roaming (IMR) strategic guidelines are part of the *ITU Let's Roam the World* initiative launched in 2015 by Mr Brahima Sanou, Director of the International Telecommunication Union Development Bureau (ITU-D)[1], and have been drafted in collaboration with regional regulatory and other relevant associations.

The issue of high international mobile roaming (IMR) service prices at the national, regional and international level is increasingly important, with national regulatory authorities (NRAs) and policy makers looking for appropriate regulatory and policy solutions. Discussions are not only focusing on just voice or data roaming, or on international trade-related principles (e.g. Most Favored Nation (MFN) principles under the General Agreement on Trade in Services (GATS) Agreement), but also addressing changes in revenue streams, usage and traffic, new business models as well as new opportunities and innovative measures on roaming for the Internet-of-things (IoT) and machine-to-machine (M2M) communications. The issue is still evolving and policy makers and regulators will continue to seek solutions.

Although demand for IMR services and actual usage are increasing, this does not always translate into higher roaming revenues for mobile network operators (MNOs). There is a need to balance business innovation, on one hand, and revenues, on the other, while at the same time also seeking lower roaming tariffs for consumers. Business models and revenue streams are changing and technology brings new solutions for consumers. This presents challenges to policy makers and regulators.

The treatment of possible roaming alternatives such as over the top (OTT) services (e.g. Skype, WhatsApp, Line, etc.) presents a particular challenge to policy makers and regulators given that a balance must be sought between creating an enabling environment for more affordable means of communication for consumers, on the one hand, and where quality of service (QoS), consistency of costumer experience (known as quality of experience (QoE)), and network performance, etc. are enhanced.

Internet-of-things and machine-to-machine roaming differs from traditional consumer voice and data roaming services and are raising further regulatory questions and consumer protection concerns.

Given the international nature of roaming, stakeholders should work together at the regional and international level or through bilateral/multilateral country agreements to address structural measures in the IMR market, regulatory price measures, as well as to ensure transparency, and to permit NRAs to monitor price development in the IMR markets, including sharing of information.

From an international perspective, information and knowledge exchange for ITU members around the world is also key to building capacity and creating the necessary enabling environment for this challenging issue. To this end, ITU has developed the ITU International Mobile Roaming (IMR) Resources Portal, to gather and share information on ITU activities and initiatives as well as those of telecommunication/ICT regulatory associations (RAs), regional and international organizations, private sector and other stakeholders[2].

Considering that changing roaming business models and regulatory innovations will bring direct benefits to consumers as well as business, internationally harmonized principles and guidelines can help foster innovative roaming solutions at the global, regional and national levels.

The aim of this report is to build the foundation for harmonized guidelines around the world to improve the delivery of IMR services for the benefit of consumers, to reduce what are generally

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[1]   The ITU Global Dialogue on International Mobile Roaming, initiated in Geneva in September 2015, gathered a diverse selection of stakeholders to review recent developments in the area of international mobile roaming, exchange best practices and – together- define strategic guidelines on international mobile roaming (www.itu.int/en/ITU-D/Regulatory -Market/Pages/Events2015/Roaming/Dialogue.aspx). Following a first workshop in September 2015, Regional regulatory and other associations provided their input and insights, which have been integrated into the present document.

[2]   www.itu.int/en/ITU-D/Regulatory-Market/Pages/Roaming_info.aspx

perceived as high mobile roaming retail prices, and to enhance efficiency and transparency of retail roaming prices and services. By addressing future issues such as IoT and M2M, a basis for discussion on future challenges has also been proposed.

2   Methodology

The main objective of the *Let's Roam the World* initiative is to provide a neutral platform to exchange experiences and best practices among ITU membership (see full list of stakeholders in Annex 3 and Figure 1), and to encourage constructive discussion on existing as well as future regulatory issues on international mobile roaming (see Figure 2).

Recognizing the importance of collaboration among all stakeholders involved in IMR, the BDT Director convened a first workshop for all stakeholders on 18 September 2015.

Figure 1: IMR stakeholder building blocks
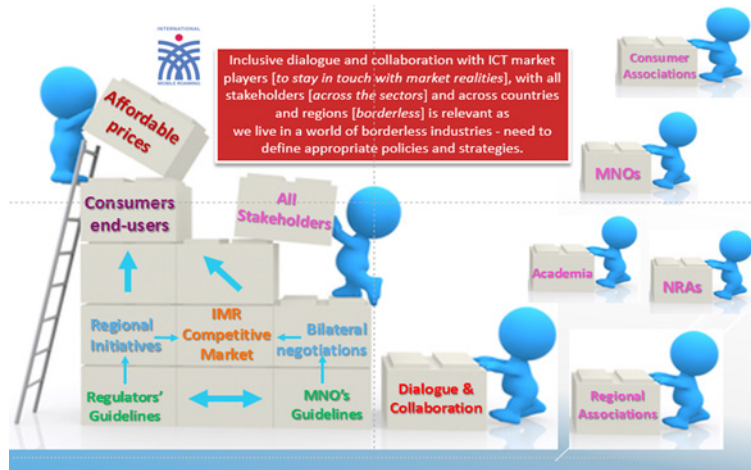
Source: ITU

Bearing in mind that different regional regulatory associations and international associations as well as private sector associations had already developed regional guidelines, an IMR Consultation Meeting was held in Geneva from 15 to 16 September 2016, including all these organizations. The objective of this consultation was to facilitate collaboration with this group of stakeholders to gather information from their respective regions and draft building blocks. The main output of this document is a consolidated set of IMR strategic guidelines addressed to regulators and private sector stakeholders.

Figure 2: *Let's Roam the World* strategy

Source: ITU

Following guidance given by stakeholders during the Consultation Meeting, the BDT secretariat consolidated inputs from regional associations (RAs), international organizations, consumer associations and private sector associations to develop the IMR strategic guidelines. Various other resources were also leveraged in the process, including available guidelines from different RAs as well as other tools, recommendations, materials and research previously developed by ITU. The report and guidelines take into account IMR regional initiatives, identifying common denominators.

In addition, an extensive consultation process was carried out in order to build the basis for consensus. The first draft of IMR Strategic Guidelines was shared electronically with stakeholders for a first round of comments in December 2016. Comments from several associations were received and integrated into this document. A second round of comments was sought in March 2017 and inputs received were further integrated to improve the proposed guidelines.

The following section of this report, together with the overview in annex 2, presents key regulatory issues to be considered and summarizes existing regional and international IMR initiatives.

3 Building blocks for international mobile roaming strategic guidelines

Recognizing the importance of collaboration among stakeholders in IMR, ITU has drafted these IMR strategic guidelines in consultation and collaboration with regional regulatory associations, international associations as well as private sector associations and consumer associations. The aim of these guidelines is to create a common understanding of the complexities of the issues and to foster solutions at national, regional, and international level.

The guidelines have been structured in terms of what is most relevant for national regulatory authorities (NRAs), on the one hand, and for mobile network operators (MNOs) and service providers, on the other, with special focus on consumer protection, as described in Figure 3.

Figure 3: Building blocks for IMR strategic guidelines

Source: ITU

3.1 Guidelines for national regulatory authorities

3.1.1 Bilateral, multilateral and regional initiatives

General principles:

- Roaming regulation at the regional level should aim to maximize social benefits and harmonize national policies without unduly jeopardizing MNO revenues, while accommodating essential national requirements and differences[3].

- Bilateral, multilateral and regional initiatives will provide for third party membership on condition that participating countries are legally able to ensure full compliance with all the requirements of the framework.

- Bilateral, multilateral, and regional initiatives will encourage co-operation with other regions or sub-regions through treaties and agreements.

- To ensure that mobile roaming expands the real economy, and in instances where the IMR regulations being studied is between neighbouring countries, regions should take into account:

    - policy initiatives, travelling levels,

    - bilateral traders,

    - geographic issues and cost of travel when defining a roaming area in bilateral, multilateral and regional initiatives.

    - the GATS principle of the most favoured nation (MFN).

Legal mandate:

- Bilateral, multilateral and regional initiatives will clearly define the responsibility of NRAs, including the methodologies to be followed and the data requirements for monitoring developments in

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[3]   See One Network Area (ONA) roaming initiative: https://www.itu.int/dms_pub/itu-d/opb/pref/D-PREF-EF.ONA-2016-PDF -E.pdf .

IMR markets and ensure that developments in the market, in particular price changes, are monitored on a regular basis.

- Bilateral, multilateral and regional initiatives, in defining roaming regulation, should ensure that it will be sustainable, and provide for regular monitoring and evaluation and revision, as appropriate.

- Bilateral, multilateral and regional initiatives will provide NRAs with the mandate and legal authority at regional level to:

  – obtain/collect data, such as those on retail and wholesale costs and prices, for IMR services;

  – enforce measures to monitor development in the IMR markets retail and wholesale prices; and

  – enter into agreements, including the sharing of information, with counterparts in other countries or at the regional level. Such information could be made anonymous where possible (at global levels) to avoid breach of any commercial issues between the operators.

Taxation:

- In the regional context, work in coordination with ministries of finance to promote the dropping of surcharges on international incoming calls and other revenue raising taxes by countries, at least on calls originating within the countries integrating the bilateral or regional initiative. It is necessary to evolve towards schemes that allow the reduction of any high tax burden on roaming services and to avoid double taxation.

Pricing regulation:

- Bilateral, multilateral and regional initiatives will ensure that prices for all roaming services are not less than underlying actual costs.

- Bilateral, multilateral and regional initiatives may consider structural measures in addition to any price regulation, such as, unbundling IMR services from domestic services and allowing market entry to foreign mobile virtual network operator (MVNOs) to interconnect with local MNOs.

- Bilateral, multilateral and regional initiatives will consider follow-up in terms of structural measures that would allow for the development of IMR services as separate unbundled services.

- Bilateral, multilateral and regional initiatives will distinguish between measures applicable to either wholesale price regulation or to both wholesale and retail prices and the time frame for price reductions. It is strongly recommended that price regulation be applied at both retail and wholesale levels in order to avoid any abuse of power by MNOs when setting price caps on retail prices.

3.1.2   National markets

General principles:

- NRAs should apply and promote the application of the International Telecommunication Regulations (ITRs), ITU Recommendations, and regional association recommendations of their jurisdiction.

- NRAs should promote/participate in bilateral and multilateral, as well as in regional initiatives/agreements.

- If IMR regulation is applied, NRAs are encouraged to provide credible evidence that roaming regulations will lead to more economic and social integration or greater use of the service[4].

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4   SAMENA Telecommunications Council at the ITU IMR Consultation Meeting: www.itu.int/en/ITU-D/Regulatory-Market/Pages/Events2016/IMR_Consultation/home.aspx

- NRAs are encouraged to take steps to remove any unjustifiable obstacles that may limit the availability of substitutes to IMR for voice, messaging and data services and the ability of these services to compete in traditional mobile roaming markets.

- NRAs are encouraged to apply ITU Recommendation ITU-T D-98[5] (Charging in international mobile roaming service) and Recommendation ITU-T D.97[6] (Methodological principles for determining international mobile roaming rates) and use the ITU International Mobile Roaming (IMR) Cost Analysis Tool[7] to set and benchmark wholesale and retail prices.

- NRAs will increase the technical and human capacity of the staff dealing with IMR tariff and regulation issues.

- NRAs are encouraged to investigate solutions regarding Internet-of-things (IoT) and machine-to-machine (M2M) services in order to promote measures to apply permanent roaming services, and the application of specific prices and conditions for IoT/M2M traffic.

Competition principles:

- NRAs are encouraged to improve competition in the IMR market in particular by facilitating market entry of MVNOs and by ensuring that they can interconnect on reasonable terms with MNOs for the purpose of offering roaming services on fair, affordable and reasonable conditions; prices for roaming services must be transparent, fair and non–discriminatory.

- NRAs and policy makers, taking into account specific national or regional conditions, should encourage harmonization of IMR policies and regulations and may introduce regulatory interventions on IMR service tariffs for the benefit of consumers by encouraging competition. Possible interventions may include a range of regulatory measures such as: to enhance mobile consumer awareness, alerts, bill caps, tariff caps and pre-selection[8].

- NRAs are encouraged to liberalize international gateways, where appropriate.

- NRAs can play an important role in improving IMR competition by ensuring that MNOs maintain the principle of network neutrality and discourage blocking the use of VoIP and other messaging applications on smartphones.

Pricing principles and regulation:

- NRAs will promote fair and transparent pricing of IMR services and ensure that consumers are paying for only the services used (e.g. wholesale and retail IMR services per second or Kb for data).

- NRAs will promote that prices for IMR services should be cost-based and not be too excessive in comparison with prices charged for the same services at national level.

- NRAs will consider that roaming regulation not to lead to MNOs incurring losses on the provision of roaming services, recognizing different cost basis for roaming services[9].

- NRAs will collect wholesale and retail cost and price data in order to benchmark progress in reducing prices. NRAs need to have the authority to collect information on wholesale IMR rates charged by their national operators to foreign operators, including inter-operator tariffs.

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[5]   www.itu.int/rec/T-REC-D.98-201209-I/en
[6]   www.itu.int/rec/T-REC-D.97-201610-I
[7]   This ITU tool has been designed to forecast the cost of international mobile roaming compared to domestic mobile. It was developed in the framework of ITU-T Study Group 3. This tool is based on the 2015 ITU-T Guide for NRAs on IMR cost analysis: www.itu.int/net4/roamingtool/.
[8]   ITU, Telecommunication Standardization Bureau, Recommendation ITU-T D.98, Charging in International Mobile Roaming Service, www.itu.int/rec/T-REC-D.98-201209-I and ITU-T D.97, Methodological principles for determining international mobile roaming rates, www.itu.int/rec/T-REC-D.97/en
[9]   See footnote 4.

- NRAs should encourage discussions with the private sector about the transparency of IOTs to inform future or current regulatory proceedings in relation to these services.

- If NRAs determine that market dynamics are insufficient to produce reasonably competitive wholesale prices, they are encouraged to regulate wholesale roaming prices, including by reaching bilateral or multilateral agreements, as appropriate, and/or through the introduction of price caps based on commonly established principles. As a last resort, implement retail price regulation to protect customers from paying excessive prices for using roaming services[10].

Consumer protection:

- NRAs are encouraged to promote transparency of information provided to customers by international roaming providers regarding tariffs and use of roaming services[11].

- NRAs should promote the use of information accessible to customers with special needs.

- NRAs are encouraged to require MNOs to provide data roaming customers with information on the risk of automatic and uncontrolled data roaming connections and downloads; including, where available and required, specific solutions for cross border roaming and explanations about how to switch off these connections[12].

- NRAs are encouraged to require MNOs to provide customers living near borders with specific solutions to avoid cross border roaming.

- NRAs are encouraged to define measures that all customers are entitled to receive a free personalized automatic message providing basic roaming information and prices when the customer enters the visited country.

- NRAs are encouraged to advise customers about IMR in general or have a webpage on their websites, if possible, dedicated for provision of IMR-related information and advices to consumers,[13] including where available, hyperlinks to the web pages of individual operators dedicated for IMR-related information.

- NRAs should encourage international roaming providers to provide customers with special plans in order to agree financial limits, beyond which voice and data roaming transmission would be stopped, unless the customer follows an indicated procedure and personalized notifications when data roaming services have reached a certain proportion of an agreed financial limit.

- NRAs should require MNOs to provide customers with information on emergency services for visited country.

- NRAs should have clear process/procedures to resolve disputes between MNOs and customers.

3.2 Guidelines for mobile network operators and service providers

General principles:

- MNOs should ensure the application of the International Telecommunication Regulations (ITRs), the ITU Recommendations and the regional association recommendations of their jurisdiction.

- MNOs should maintain the quality of service (QoS) parameters and standards for roaming services at least equivalent to those prescribed by their NRA and provided at the national level.

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[10] Based from OECD, 16 February 2012, Recommendation of the Council on International Mobile Roaming Services, Paris 2012.
[11] See ITU-T Recommendations D.98 and D.97 (www.itu.int/rec/T-REC-D/en).
[12] Idem.
[13] Asia Pacific Telecommunity International Mobile Roaming Working Group report, 15 May 2012: www.apt.int/sites/default/files/2012/05/APT_IMR_Working_Group_Report_Final.pdf

- MNOs are encouraged to improve the current information exchange systems to allow shorten the timing for exchange of information between operators to avoid fraud[14].

- Subject to national legislations and regulations, MNOs are encouraged to follow network neutrality principles by not blocking the use of VoIP and other messaging applications on smartphones.

Pricing:

- MNOs are encouraged to use an IMR price structures do not affect consumers by paying for services which are not rendered/used, such as retail IMR services per second (or Kbit) for data.

- MNOs should share wholesale and retail data with the NRA in order to demonstrate progress in price reduction and allow the NRA to assess the national market.

- MNOs should maintain, as possible, transparency vis-a-vis NRAs of inter-operator tariffs and commercial agreements.

- MNOs are encouraged to implement solutions for the provision of Internet-of-things (IoT) services, including specific wholesale roaming charges and conditions.

- MNOs are recommended to develop packages integrating competitive national and IMR rates for voice and data services.

Consumer protection:

- Any roaming network connection should be established with consumer consent.

- MNOs are recommended to provide clear, accurate and easy to understand information on IMR services to customers, including by informing subscribers of different charging structures for IMR tariffs compared to national services.

- Before their departure, consumers should be encouraged to obtain detailed information of IMR charges applicable to their visited countries.

- Customers should be reminded that they may manually select the designated network under the "manual" mode of the network selection when travelling in the visited country, as well as on how to deactivate all or some IMR services.

- Unless they have opted not to receive such information, all customers are entitled to receive an automatic message providing basic roaming information including the roaming charges applied in the currency of the home bill when the customer enters the visited country.

- Customers should be informed by SMS whether there would be any difference in charges in the currency of the home bill for voice and data services among different mobile networks in the visited country.

- MNOs should provide a free phone number from which customers can obtain more detailed personalized information on voice calls, SMS, or data roaming services (including MMS) and prices.

- Where a customer contacts their home operator requesting further detailed information, the operator should ensure that the information on the prices of roaming voice calls, SMS and data services for that customer is immediately available in the currency of the home bill, regardless of the time of day. If using automated machines to comply with this, the home operator should ensure that the customer can access the required personalized information speedily and easily.[15]

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[14]   From ASIET presentation at the International Mobile Roaming Consultation Meeting, Geneva 2016: www.itu.int/en/ITU
       -D/Regulatory-Market/Pages/Events2016/IMR_Consultation/home.aspx
[15]   Adapted from BEREC Guidelines.

- In the visited country, customers must have the possibility of accessing the emergency services by dialling a free-of-charge number. This information should be provided by the local operator when the customer connects to the network.

- To avoid cross boarder or inadvertent roaming, MNO should inform customers by SMS free-of-charge that they are roaming and the prices for voice and data services. MNOs are encouraged to work to minimize the negative effects produced by cross-border or inadvertent roaming, and to create special plans of prices for the customers living in these areas. In all cases, mobile operators should inform their customers about any measures put in place to prevent inadvertent roaming (e.g. the manual selection of the operator when using the device near the border).

- MNOs should facilitate a timely and easy to use settlement of consumer complaints free of charge. NRAs could have access to this data.

Annex 1: Key IMR regulatory issues

A1.1   Looking to the future: Internet-of-things (IoT) and machine-to-machine (M2M): A challenge to IMR or an opportunity for all?

The Internet-of-things (IoT)[16] and machine-to-machine (M2M) is changing the quality of life for users and offering real opportunities for business worldwide. Billions of new mobile devices are being connected in multiple countries and regions and the costs for connectivity is becoming even more critical for the success of IoT/M2M, considering that these devices need to be connected any time and everywhere.

IoT has the potential to enhance affordable communications and is influencing the provision and use of ICTs across the sectors, including health, transport, agriculture, security, education, as well as at industry level with the latter especially impacting logistics, invoicing, sales, manufacturing, production process, etc. The delivery of IoT/M2M services has created new demands and technical requirements for ICT service provision as well as new business and charging models.

It is expected that all these things and devices will always be connected and will need access to telecommunication networks regardless of location and, of course, without excessive IMR fees when this happens in other countries and regions. The issue is, however, that not all telecommunication operators are able to support IoT/M2M worldwide programmes with predictable roaming costs. IMR service prices at national, regional and international level therefor will continue to be an important issue, not only for people travelling around the world but also for all these billons of mobile things and devices that may need permanent connectivity, wherever they are and whatever border they cross.

At present, no specific regulations or measures exist with regards to IoT/M2M and IMR. A 2016 BEREC Report[17] provides that the issue of whether and, if so, to what extent the existing rules which were primarily interpreted for voice telephony can be applied to IoT and M2M communications or not should be addressed. Within the context of the Digital Single Market (DSM) initiative, BEREC considers that special treatment of IoT/M2M is necessary for the following areas:

• roaming;

• switching;

• number portability.

For BEREC, the key issues regarding the regulatory situation of IoT services when based on mobile connectivity involving international roaming are in particular:

– whether these types of services are under the scope of the roaming regulation and, furthermore;

– whether the roaming regulation applies when the connectivity is provided based on permanent roaming.

According to BEREC, despite the fact that the above-mentioned report does not explicitly refer to IoT/M2M services, it is clear that connectivity is always essential for the provision of IoT/M2M services. When that connectivity service consists of public mobile connectivity for a roaming device, this service should fall within the scope of the roaming regulatory framework, regardless of the parties affected by the connectivity contractual obligations. Therefore the main regulatory and commercial measures regarding international roaming are generally considered applicable to the mobile connectivity service

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[16]   The IoT has been defined in ITU Recommendation ITU-T Y.2060 (06/2012) as a global infrastructure for the information society, enabling advanced services by interconnecting (physical and virtual) things based on existing and evolving interoperable information and communication technologies".

[17]   BEREC Reports on OTT services and the Internet-of-things, as well as guidance on the new international roaming rules - February 2016 (http://berec.europa.eu/eng/document_register/subject_matter/berec/press_releases/5759-berec -publishes-reports-on-ott-services-and-the-internet-of-things-as-well-as-guidance-on-the-new-international-roaming -rules).

underlying IoT services, implying that any IoT service provider/mobile network operator benefits from the roaming access right as well as from the price caps. MNOs, on the other hand, benefit from the right to refuse access requests on the basis of objective criteria. In addition, another important issue BEREC addresses is, whether there is "permanent" or "periodic" roaming. According to BEREC, in the case of permanent roaming, the connected device is sold outside the country of production but uses a SIM card (subscriber identity module) with an International Mobile Subscriber Identity (IMSI) of the country of production (e.g. cars, e-readers, wearable devices). It is noted that the IMR provisions do not differentiate between person-to-person communications and M2M communications and do not foresee any special treatment for IoT communications.

The fast developing nature and diversity of solutions of IoT/M2M services/business models as well as the different permanent roaming scenarios which exist illustrate the need to continue analysing necessary measures relating to international mobile roaming (IMR). Although a case-by-case evaluation and legal interpretation could address specific (technical) details and parameters of the respective IoT service in light of the purpose of existing IMR regulations, such an approach brings legal uncertainty. Therefore, further clarification with regard to permanent roaming in the IoT/M2M context might be helpful[18].

That becomes even clearer when looking at the impact of the ICT ecosystem on the economy. In Europe, for example, the value of the EU data economy was more than 285 billion Euro in 2015, representing over 1.94 per cent of the EU GDP. Following the Public Consultation by the European Commission (EC) in January 2017 on *Building the European Data Economy*, the EC proposed a draft regulation of the EU free flow of non-personal data on 13 September 2017, considering that research showed that if favourable policy and legislative conditions are put in place in time and investments in ICT are encouraged, the value of the European data economy may increase to 739 billion Euro by 2020, representing 4 per cent of the overall EU GDP[19].

To this end, and considering the increasing importance of IoT, a new Resolution on "*Facilitating the Internet of Things (IoT) and smart cities and communities for global development*", was presented and approved by ITU membership during the World Telecommunication Development Conference (WTDC-17) held in Buenos Aires in October 2017. It gives the mandate to ITU-D and its Study Groups "*to support Member States, in particular the developing countries, in adopting IoT through capacity building and research which aims to facilitate the development of enabling environments and infrastructure and fostering digital innovation ecosystems, as well as to facilitate the deployment and adoption of IoT and smart cities and communities especially in developing countries through projects under the United Nations development systems and in accordance to Article 21/118 of the ITU Constitution*"[20].

The ITU Telecommunication Standardization Sector (ITU-T) is also working on this issue, especially in the framework of Study Group 20 *on IoT and its applications including smart cities and communities (SC&C)* that is working on the development of frameworks and roadmaps for the harmonized and coordinated development of IoT, including M2M communications, ubiquitous sensor networks and smart sustainable cities and communities. This work includes the development of frameworks and requirements for infrastructure and services, as well as guidelines, methodologies and best practices related to standards to help cities (including rural areas and villages) deliver services using the IoT[21].

IoT/M2M could also be considered as an opportunity for service providers and network operators in the provision of roaming services. Since roaming is an established market with established business relationships and underpinning technologies already in place, tapping into these revenues could be an evolution of current business models and practices.

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[18]   Idem.
[19]   https://ec.europa.eu/digital-single-market/en/policies/building-european-data-economy
[20]   WTDC 2017: www.itu.int/en/ITU-D/Conferences/WTDC/WTDC17/Pages/default.aspx
[21]   For information on ITU-T Study Group 20 mandate and role see: www.itu.int/en/ITU-T/studygroups/2013-2016/20/Pages/mandate.aspx

So far, it can be said that although work has already been done on the development of technical specifications and interoperability of IoT/M2M technologies, the regulatory and economic implications in the IMR context are still in an early stage and require further consideration.

Issues such as competition, pricing, privacy and cybersecurity will continue to be addressed for the benefit of users, with the realization that innovation continues to be important in order to facilitate IoT/M2M deployment and adoption, especially in developing countries.

A1.2   Price regulation

Price regulation of IMR at national level is not very effective if carried out unilaterally by one country since the only regulated prices concern national operator retail margins imposed on wholesale roaming charges for national clients when roaming internationally, on the one hand, or on wholesale charges imposed by national operators on foreign operators entering into roaming agreements on the other. Bilateral and regional agreements are more effective in lowering IMR prices especially when there is agreement by two or more Member States and where NRAs have the legal authority and empowerment to implement such measures.

In addition, there are several transnational challenges that characterize international roaming, such as different policies and regulation in countries in the same region. According to the experiences from EU regulation an essential premise for lower retail roaming prices is a mutual/common wholesale price regulation covering more than one country.

Figure A1.1, based on the ITU Tariff Policies Survey, shows the number of countries that are applying IMR regulation in the different regions targeting retail prices[22].

Figure A1.1: Number of countries that regulate IMR prices by region

Number of countries that regulate IMR prices by region, 2017
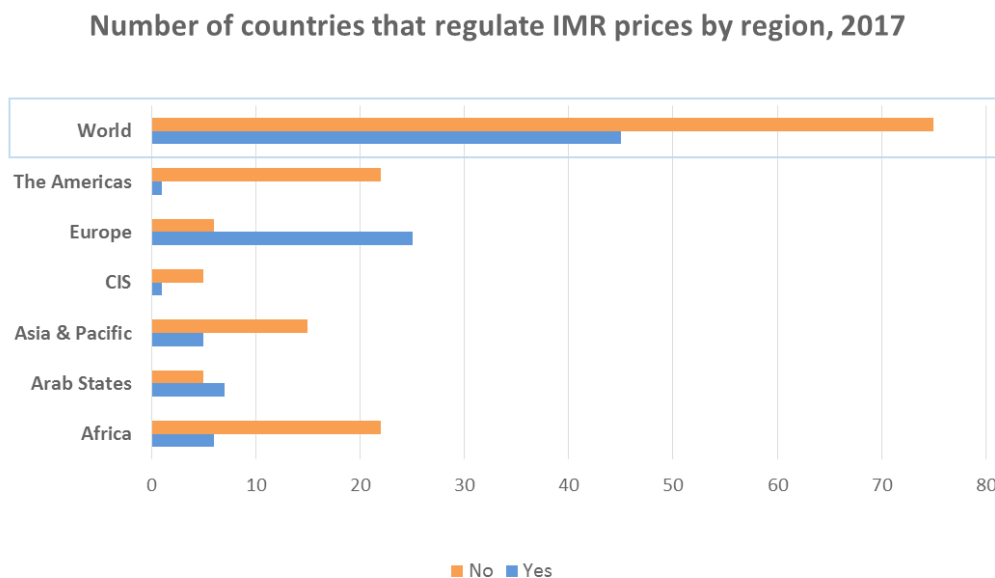
Source: ITU Tariff Policies database 2016, ICTEye (www.itu.int/net4/itu-d/icteye/)

Note: number of responses received by region in 2016: Africa 22; Arab States 9; Asia and Pacific 13; CIS 6; Europe 35; Americas 22.

Although prices may decrease temporarily, price regulation should only be an interim measure. In the long term, sustainable competition in the IMR market is required if prices are to achieve efficient

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[22]   ITU ICTEye- www.itu.int/net4/itu-d/icteye/CountryProfile.aspx

levels. Without the development of effective competition in the IMR market there is a risk that there will be a continued, long-term need for price regulation, and this is not a desirable outcome[23]. NRAs should have access to information on existing IMR retail and wholesale prices as well as relating to desired prices. Unfortunately, no database exists with this type of information and most commercial agreements between operators concerning inter-operator tariffs are considered by them as confidential.

Figure A1.2 illustrates how price cap is a more common regulatory approach in Europe, whereas some countries in Africa, Arab States and the Asia Pacific regions are combining such regulatory measures with the benchmarking of tariffs. At present, more and more "transparency measures" are also being applied in all regions, such as making IMR prices publicly available to customers, and detailing pricing information in customer billing.

Figure A1.2: Regulatory practice by number of countries in each region for IMR retail prices
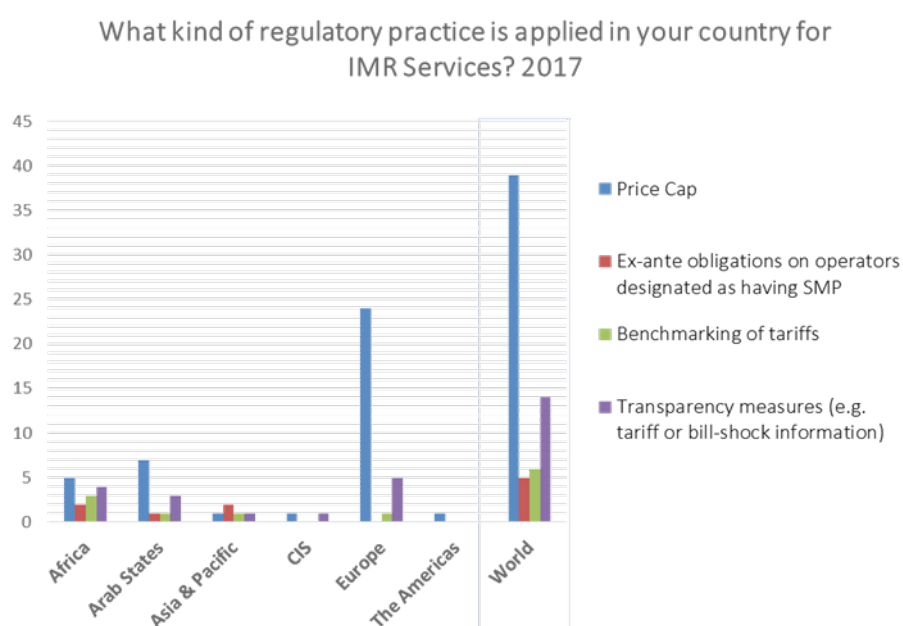
Source: ITU Tariff Policies database 2017, ICTEye (www.itu.int/icteye/)
Note: This graphic is based on the responses received from NRAs to the ITU Tariff Policies Survey.

A1.3   Taxation

The issue of taxation is becoming more and more relevant with respect to IMR. Taxation, and especially double taxation, generally inflates consumer prices. This situation not only affects consumers with higher prices, but also operators and government revenues.

During the 2016 ITU IMR Consultation Meeting, regional regulatory associations as well as operators associations highlighted the need for action to address the issue of taxation issues and define solutions to avoid double taxation. The price of international roaming services in Latin American countries, for example, is between approximately 35 per cent and 60 per cent more expensive than a price without taxes[24] due to double taxation between VAT and other sectorial taxes.

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[23]   ITU Paper. International mobile roaming services: Facilitating competition and protecting users, edition 2013: www.itu.int/pub/D-PREF-EF/en
[24]   From ASIET presentation at the IMR Consultation Meeting, Geneva, September 2016: www.itu.int/en/ITU-D/Regulatory-Market/Pages/Events2016/IMR_Consultation/home.aspx, (Latin America IIRSA Project).

The issue is that the problem continues and substantially increases the price of roaming services, especially considering the different range of taxes across countries. In addition, many countries charge other local or specific taxes, such as state taxes, sector specific taxes, environmental taxes which further increase final prices.

The EU has adopted a directive which provides that from 1 January 2015, value-added tax on telecommunication services provided by a supplier located in EU will be charged in the jurisdiction where the customer belongs[25]. In addition, Paragraph 8.3 of the International Telecommunication Regulations (ITRs) states:

"*8.3.1 Where, in accordance with the national law of a country, a fiscal tax is levied on collection charges for international telecommunication services, this tax shall normally be collected only in respect of international services billed to customers in that country, unless other arrangements are made to meet special circumstances*"[26].

Government and operators, at national level, together with regional regulatory associations should address the issue in their respective countries/regions and work on the creation of mechanisms or structural measures to limit the effects of double taxation on IMR services and introduce uniform roaming service pricing with uniform taxing rules. Furthermore, in setting any relevant price caps, whether on retail or wholesale levels, appropriate and related taxes should be taken into consideration by the NRAs when setting such caps.

A1.4   IMR market competition

The current structure of the IMR market does encourage long-term competition. For customers, it is often difficult to compare mobile roaming prices when they enter into a contract with a national mobile operator when their prime concern is generally the relative cost of the domestic package, and mobile roaming services are part of the bundle offered by the mobile operator. When arriving in a visited country, customers do not always have the choice to select the less expensive IMR operator, as they are not necessarily informed about the prices they are being charged until they are connected and receive a message informing them of the level of charges[27]. At present it is often impossible for consumers to compare roaming prices when leaving their home country and arriving in a visited country.

Changes in the market have helped in lowering prices, for example, the expansion of MNOs with wide cross-border footprints has brought some improvements in certain regions, but such expansions are not global. A recent example is in Central America, where MNOs decided by themselves to provide domestic rates in all countries where they have a footprint, for voice and data services (see section 4.2 Regional and Multi-Countries Initiatives). Other measures that have helped to reduce prices is traffic routing. This has allowed MNOs to negotiate better wholesale IOT agreements.

Recognizing that excessive regulation in this market is not recommended, there are a number of structural solutions that could improve IMR market competition, including[28]:

− To allow market entry in national markets to MVNOs or resellers, including MVNOs that may limit their service provision to the provision of IMR services whether these services are targeted at nationals of that country, visitors to that country or both.

− To allow the liberalization of international gateways to facilitate the transmission and reception of international calls, if not already liberalized.

[25] Council Directive 2008/8/EC of 12 February 2008 amending Directive 2006/112/EC (place of supply of services) http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2008:044:0011:0022:EN:PDF
[26] www.itu.int/en/wcit-12/Pages/itrs.aspx
[27] ITU Study on International Mobile Roaming Services: Facilitating competition and protecting users, 2013: www.itu.int/en/ITU-D/Regulatory-Market/Pages/Roaming_info.aspx
[28] Idem.

These structural solutions may require some kind of price regulation and close monitoring of market developments by NRAs in order to decide when it would be appropriate to reduce or remove any regulatory obligations. Market players should be treated in a transparent, non-discriminatory and proportional way with no undue burdens imposed on them. Of course, the implementation of any type of solution or procedure would need close collaboration between all stakeholders through national, bilateral, multilateral and regional initiatives at the global level.

It is also important to take into consideration the GATS principle of the most favoured nation (MFN). MFN means treating trading partners equally on the principle of non-discrimination. Under GATS, if a country allows foreign competition in a sector, equal opportunities in that sector should be given to service providers from all other WTO members[29]. In the framework of bilateral/multilateral country agreements, to consider structural measures in the IMR market could be a delicate issue, if the countries not participating in the agreement are subject to different conditions. In this sense, roaming agreements can be part of a substantial sectoral coverage trade agreement (Article V of GATS)[30].

A1.5   Consumer protection

Government policy and regulation in the telecommunication/ICT sector has been focused mainly on service provision, market competition and other aspects such as universal access, interconnection, licensing, price regulation, etc. In order to provide consumers with access and services in an efficient and affordable manner. However, the participation of consumers is becoming more and more active, not only because they "use" the services, but also because they can also have an active involvement. As "informed consumers" they could exert their ability to choose between service providers, and this is very important to encourage operators to innovate, improve quality and compete.

The main objective of the international mobile roaming strategic guidelines in this report is to empower consumers and allow them to gain access to the necessary information, via transparency of prices and greater awareness, which allows them to become "informed consumers". This would enable customers to better manage their consumption of roaming services, take the necessary measures to avoid inadvertent charges, and choose the best offer when roaming internationally. In addition, all stakeholders should work together to improve transparency of prices, to provide consumers with more awareness about the prices that they may face when travelling outside their home country.

It is also very important to facilitate a timely and user friendly consumer complaint process. NRAs could make use of the complaint system information as an indicator showing the IMR market evolution and performance of service providers.

As a reference, in 2012 ITU approved Recommendation ITU-T D.98, which was also further enhanced in 2016 with Recommendation ITU-T D.97[31]. Section 4 of Recommendation ITU-T D.98 contains principles for lowering IMR rates including empowering consumers.

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[29]   https://www.wto.org/english/thewto_e/whatis_e/tif_e/agrm6_e.htm. (This applies even if the country has made no specific commitment to provide foreign companies access to its markets under the WTO.)

[30]   See also article by Michael H. Ryan "The Application of the GATS to Bilateral Arrangements for the Reduction of International Mobile Roaming Charges": http://files.arnoldporter.com/application%20of%20the%20gats%20to%20bilateral%20arrangements%20for%20the%20reduction%20of%20international%20mobile%20roaming%20charges_(europe_12573280_1).pdf.

[31]   ITU Recommendation ITU-T D.98 on Charging in International Mobile Roaming Service, and ITU-T D.97 on Methodological principles for determining international mobile roaming rates: www.itu.int/ITU-T/recommendations/index_sg.aspx?sg=3

ITU Recommendation D.98: Charging in international mobile roaming service

Recommendation ITU-T D.98 proposes measures to empower consumers to benefit from efficient competition and regulation so that they have the information and transparency to take appropriate actions; to identify measures for improving the way the market works; and proposals for regulatory actions, which may include measures to lower rates.

Empowering consumers:

1. Transparent information on IMR retail rates and structure before users roam internationally;

2. Usage alerts when users start to roam;

3. Warning alert when a certain cost has incurred;

4. Roaming cost caps;

5. Special user protection measures for inadvertent roaming in border regions;

6. User choice of visiting network.

Source: For more information see ITU Recommendation ITU-T D.98

Annex 2: Overview of existing regional and international association IMR initiatives

IMR tariffs remain high, with the cost structure of roaming services being seen as a primary driver of roaming tariffs. Changing market structures with for example the entrance of mobile virtual network operator (MVNOs), the introduction of price packages or offers has led to more competition and decreasing prices over time.

The roaming market and any regulation thereof is very complex with multiple impacts and implications and requires a thorough understanding of retail and wholesale cost structures, network elements, cost components involved and international commercial agreements between operators related to inter-operator tariffs. For operators in particular, data collection requires a deep understanding of different underlying (billing) systems as well as cost components and structures involved, complex relationships, dynamics and commercial sensitivity of the information, alongside the need for regulators to have the right legal powers to obtain information.

A particular challenge many NRAs face is one of collecting data across countries to enable them to analyze wholesale markets in those countries. However, according to the ITU Tariff Policies Survey, NRAs are becoming more and more active in collecting information on retail and wholesale prices for the different roaming services offered by operators. Figure A2.1 illustrates how voice, SMS and Data services are monitored for both retail and wholesale, with almost one-third of NRAs world-wide collecting such information.

Figure A2.1: Data collection by NRAs on retail and wholesale roaming rates by region, 2017
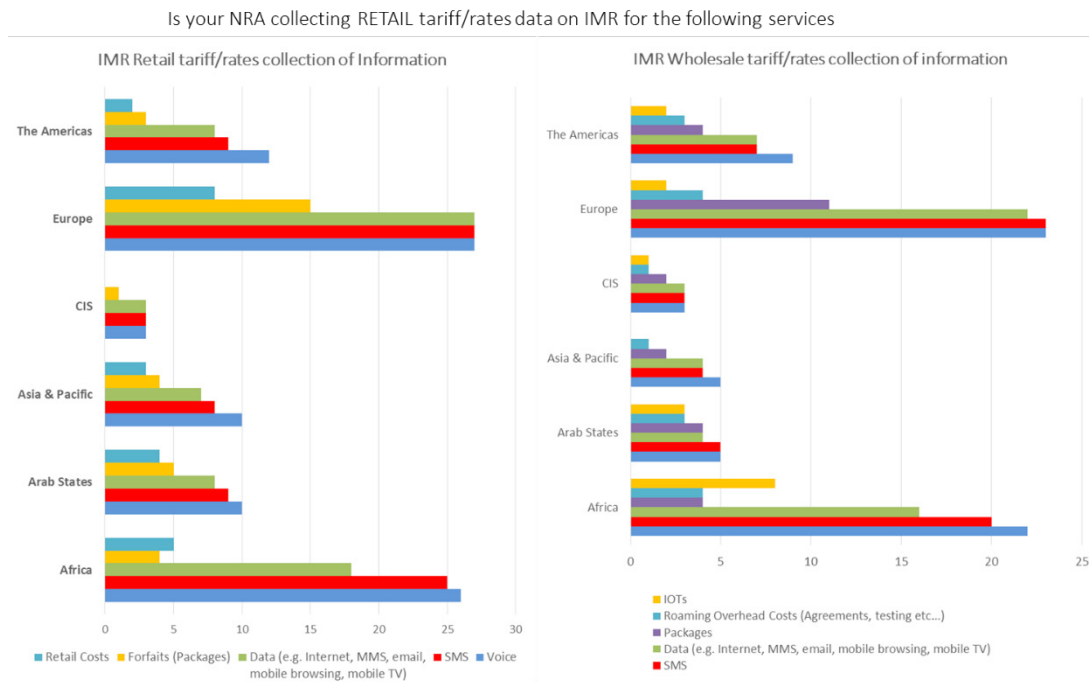
Source: ITU ICTEye: www.itu.int/net4/itu-d/icteye/FocusAreas.aspx?paramWorkArea=TARIFFPOLICIES

Note: these graphics are based on responses received from NRAs to the ITU Tariff Policies Survey.

Given that the evolution of roaming rates is a complex process and may involve multiple jurisdictions there is no "one-size-fits-all" or "off-the-shelf" solution. One regulatory initiative in a specific country could significantly affect national operators of this country in the commercial relations with operators of other countries. Many NRAs, regional regulatory associations and international organizations have either taken regulatory actions or made recommendations on how to increase transparency

for consumers when they are roaming internationally and to assist them limiting charges incurred. Many MNOs have also reacted to the increased consumer concern with regard to high IMR prices by improving the information available on their websites, trying to be more transparent. Many activities and initiatives are being done around the world to try to find a solution on IMR high prices, most of these are available at the ITU IMR Resources Portal.

This annex presents an overview of tools that regional regulatory associations have adopted as well ITU Recommendations[32].

A2.1   ITU activities on roaming

The revised International Telecommunication Regulations (ITRs)[33] provide that "*Member States shall foster measures to ensure that authorized operating agencies provide free-of-charge, transparent, up-to-date and accurate information to end users on international telecommunication services, including international roaming prices and the associated relevant conditions, in a timely manner*"[34].

Within this context, ITU has defined a number of tools, including:

• ITU has developed a series of studies and tools containing best practices and guidelines to support regulators in their strategy to reduce the prices of roaming and enabling competition in this market, which are available on the ITU international mobile roaming resources portal[35].

• ITU has developed the ITU National Regulatory Authority (NRA) Technical Guide and the ITU Online Cost Analysis Tool[36] developed in the framework of the ITU-T Study Group 3 activities on economic and policy issues.

• ITU-T approved in September 2012 Recommendation ITU-T D.98 on "Charging in International Mobile Roaming Service"[37]. This recommendation contains principles for lowering IMR rates including empowering consumers, market-based solutions and regulatory intervention. In October 2016, ITU-T approved recommendation ITU-T D.97[38] on "*Methodological principles for determining international mobile roaming rates*" that proposes a possible approach to the reduction of excessive roaming rates, highlights the need to encourage competition in the roaming market, educate consumers and consider appropriate regulatory actions such as the introduction of caps on roaming rates.

• ITU organized the Consultation Meeting on International Mobile Roaming in Geneva (September 2016), as part of the *Let's Roam the World* initiative, launched in 2015 by Mr Brahima Sanou, BDT Director. The objective of this Consultation was to bring together regulatory associations, regional and international organizations, consumer associations and private sector associations to discuss and collaborate on defining the building blocks for the International mobile roaming (IMR) strategic guidelines.

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[32]   www.itu.int/en/ITU-D/Regulatory-Market/Pages/Roaming_info.aspx

[33]   www.itu.int/en/wcit-12/Pages/overview.aspx The ITRs that were reviewed during the 2012 World Conference on International Telecommunications (WCIT), serve as the binding global treaty designed to facilitate international interconnection and interoperability of information and communication services, as well as ensuring their efficiency and widespread public usefulness and availability.

[34]   Article 4, 4.4 International Telecommunication Regulations, www.itu.int/en/wcit-12/Pages/itrs.aspx

[35]   www.itu.int/en/ITU-D/Regulatory-Market/Pages/Roaming_info.aspx This is a one-stop portal platform for stakeholders to access publications and information on activities undertaken by ITU, other regional and international organizations and roaming initiatives at national, bilateral, and regional level;

[36]   www.itu.int/net4/roamingtool/

[37]   www.itu.int/en/ITU-T/studygroups/com03/Pages/results.aspx

[38]   www.itu.int/ITU-T/workprog/wp_item.aspx?isn=10399

A2.2   Regional and multi-country initiatives

European Union (EU)

Box 1: EU roaming charges[1]

Roaming charges ended on 15 June 2017. Users of European telecommunication services travelling within the EU countries can 'roam-like-at-home' (also referred to as RLAH) and pay domestic prices for roaming calls, SMS and data irrespective of where they are travelling.

Phone calls, SMS and going online with their mobile device from another EU country will be covered in the national bundle. The minutes of calls, SMS and megabytes of data that a person consumes abroad (within the EU) will be charged the same as at home. People will not have bill shocks anymore.

If a person has unlimited calls and SMS, they will get unlimited calls and SMS when roaming in the EU. However if a person has unlimited mobile data or very cheap mobile data at home, his operator may apply a safeguard (fair use) limit on data use while roaming. If so, the operator will have to inform the customer in advance about such a limit and alert them when they reach this limit. The EU rules ensure that such a roaming data limit should cover the normal usage patterns of most travellers. If a person reaches the limit, they can continue to use data roaming for a very small fee: up to 7.7 Euro/GB + VAT, which is 6.5 times less than before 15 June 2017, and 25 times less than before that date.

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[1]   https://ec.europa.eu/digital-single-market/en/policies/roaming

Background

Following the adoption of the 2015 Regulation, the European Commission (EC) in November 2015 launched a public consultation on roaming[39] to gather input for the wholesale roaming review, and looking for views on the fair use policy and on sustainability of roaming. The consultation aimed to gather input for the wholesale roaming review and the preparation of implementing acts that set out detailed rules on fair use policy and on the methodology for assessing the sustainability for individual operators of abolishing retail roaming surcharges. The overall objective laid down by the EU legislators in Regulation 2015/2120 (the "Telecoms Single Market" TSM Regulation) is to enable the sustainable abolition of retail roaming charges (roam-like-at-home or RLAH) by 15 June 2017.

Several initiatives pre-dated this consultation:

- The European Commission first ruled to address overcharging in roaming prices in 2007, with the *Eurotariffs*[40] applying to all consumers, unless they opt for special packages offered by operators. The Eurotariffs capped maximum prices for phone calls made and received while abroad. These rules have since been periodically reviewed and reformed, with further reductions in price caps and automatic protections against data roaming bill shocks.

- On 11 September 2013, the European Commission adopted a legislative package[41] for a 'Connected Continent: Building a Telecoms Single Market' aimed at building a connected, competitive continent and enabling sustainable digital jobs and industries.

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[39]   https://ec.europa.eu/digital-single-market/en/news/summary-report-public-consultation-review-national-wholesale-roaming-markets-fair-use-policy
[40]   The EU regulation in 2007 set limits on international roaming rates, these limits were referred to as Eurotariffs, and were gradually reduced following entry into force. See: http://europa.eu/rapid/press-release_MEMO-07-251_en.htm?locale=en
[41]   http://ec.europa.eu/digital-single-market/en/node/67489/#roaming

- In October 2015, the European Parliament voted in favour of ending roaming charges by June 2017. The decision provided that consumers will pay the same price for calls, texts and mobile data wherever they are travelling in the EU. As a result, from April 2016, operators will only be able to charge a small additional amount to domestic prices up to Euro 0.05 per minute of call made, Euro 0.02 per SMS sent, and Euro 0.05 per MB of data (excl. VAT).

The Commission services published a revised draft of the rules needed to avoid abuses of the end of roaming charges in time for June 2017. This follows on from discussions in the College of Commissioners held on 21 September 2016 during which Commissioners endorsed a new approach to the fair use principle and agreed that there should be no limits in terms of timing or volume imposed on consumers when using their mobile devices abroad in the EU. At the same time, the new approach provides a solid safeguard mechanism for operators against potential abuses[42].

Considering these EU roaming rules, the cost of making and receiving calls abroad within the EU was at that time substantially cheaper that in 2007, when the EU first started to tackle excessive roaming charges. The propose price caps for June 2017 are presented in Figure A2.2.

Figure A2.2: The EU maximum tariffs (excluding VAT) for calls, texts and downloading data

Service	1 July 2014	30 April 2016**	15 June 2017***
Outgoing voice calls (per minute)	€0.19	domestic price + up to €0.05	no extra roaming fee, same as domestic price
Incoming voice calls (per minute)	€0.05	€0.0114	no extra roaming fee, same as domestic price
Outgoing texts (per SMS message)	€0.06	domestic price + up to €0.02	no extra roaming fee, same as domestic price
Online (data download, per MB*)	€0.20	domestic price + up to €0.05	no extra roaming fee, same as domestic price

*The tariff is per Megabyte to download data or browse the Internet whilst travelling abroad (charged per Kilobyte used).

**From 30 April 2016 onwards, the roaming fee equal to domestic price + Euro 0.05 may not exceed Euro 0.19 for voice and Euro 0.20 for data. The roaming fee equal to domestic price + Euro 0.02 may not exceed Euro 0.06 for SMS.

***When travelling in the EU.

Source: EC Digital Single Market, Roaming Tariffs (https://ec.europa.eu/digital-single-market/en/roaming-tariffs#Article)

These price caps are the maximum permissible prices. Operators and service provider are free to offer cheaper rates, so be on the lookout for better deals. EU member state national telecommunication regulators must ensure that mobile phone operators comply with the new rules on data roaming and the lower prices of voice calls. Consumers can contact the national regulator in the member state where their mobile operator is based if they have any problems or questions about the new limits.

Next steps

The European Commission formally adopted a roaming fair use policy on the 15 December 2016. This draft regulation proposal is in relation with the implementing regulation laying down detailed rules on the application of fair use policy and on the methodology for assessing the sustainability of the

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[42]   https://ec.europa.eu/digital-single-market/en/news/roaming-fair-use-rules-commission-services-submit-draft

abolition of retail roaming surcharges and on the application to be submitted by a roaming provider for the purposes of that assessment. BEREC is currently updating the general guidelines taking into account this new part of the Regulation[43].

As described in Box 1, roaming charges ended on 15 June 2017 in the EU Countries. Users of European telecommunication services travelling within the EU countries can 'roam-like-at-home' and pay domestic prices for roaming calls, SMS and data. A very small number of operators in the EU have been allowed by the national telecoms regulator to continue applying a small roaming surcharge after 15 June 2017, in order to avoid negative effects on very low domestic prices. Such surcharges will be significantly lower than the ones applied before 15 June 2017.

Body of European Regulators for Electronic Communications (BEREC)[44]

Box 2: Intention of the BEREC Guidelines

BEREC guidelines related to wholesale issues include an explanation on how to calculate the average wholesale charges for voice, SMS and data roaming which are subject to the maximum wholesale charges set out in the EU Regulation. This clarifies uncertainties that may arise for calculating the maximum charging intervals with regard to retail voice and data as well as wholesale voice, SMS and data roaming services[1].

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[1]   http://berec.europa.eu/eng/document_register/subject_matter/berec/regulatory_best_practices/guidelines/5750-berec-guidelines-on-regulation-eu-no-5312012-as-amended-by-regulation-eu-no-21202015-excluding-articles-34-and-5-on-wholesale-access-and-seperate-sale-of-services

Price regulation has resulted in a decrease in roaming prices of about 80 to 90 per cent between 2007 and 2015. However, non-regulated alternative roaming packages remain above the EU regulated price cap.

BEREC has revised and presented an update of the BEREC Guidelines on the Third Roaming Regulation, following the adoption of the Telecom Single Market (TSM) Regulation[45], which included amendments to the Roaming Regulation 531/2012. It is important to note that BEREC does not issue legal provisions, this is the responsibility of the EU Commission. BEREC advises the European Commission and gives guidance to stakeholders about how to apply the legal provisions, therefore contributing to a harmonized implementation of the regulation in the European Economic Area (EEA). These BEREC guidelines also help NRAs when monitoring the application of the legal provisions and in their procedures. It should be noted that the BEREC guidelines are not legally binding but NRAs have to take utmost account of it.

This revision is considered necessary as the Third Roaming Regulation, as amended by the TSM Regulation, incorporates substantial changes to the existing provisions and leads to significant changes to the current roaming regime. The changes in this update of the BEREC Guidelines relate to the implementation of the transitional regime, where operators from 30 April 2016 until 14 June 2017 are only allowed to charge the domestic price plus a surcharge that will not exceed the maximum wholesale charges for roaming services.

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[43]   http://ec.europa.eu/newsroom/dae/document.cfm?doc_id=40823
[44]   BEREC assists the European Commission and the national regulatory authorities (NRAs) in implementing the EU regulatory framework for electronic communications.
[45]   EU Regulation 2120/2015, adopted by the European Parliament on 27 October 2015 and published in the Official Journal of 26 November 2015

Figure A2.3: Provisions and deadlines of the new roaming regulation

31 Dec 2015	• Implementing act on weighted average of maximum mobile termination rates
30 April 2016	• Transitional period enters into force
15 June 2016	• EC Report and appropriate legislative proposal on wholesale market review
15 Dec 2016	• Implementing acts on the application of the fair use policy and the methodology for assessing the sustainability of the abolition of retail roaming surcharges
15 June 2017	• RLAH with fair use and sustainability clause (provided that legislative act is applicable)

Source: BEREC

In the transitional period from 30 April 2016 to 14 June 2017, the roaming providers applied a surcharge in addition to the domestic retail price for the provision of regulated retail roaming services. Any surcharge applied could not exceed the maximum current wholesale charges for the provision of the service. In the case of received calls, it could not exceed the weighted average of maximum mobile termination rates (MTR) across the EU as indicated in the implementing regulation.

The EC carried out a wholesale market review in June 2016, it confirmed that the RLAH rules will be applicable from 15 June 2017 if by that date, the legislative act is adopted and applicable. The study provided a new wholesale caps proposal as follows:

• Voice: Euro 0.04 (-20%)

• SMS: Euro 0.01 (-50%)

• Data: Euro 0.85 (-83%)

Figure A2.4: Results from the wholesale market review
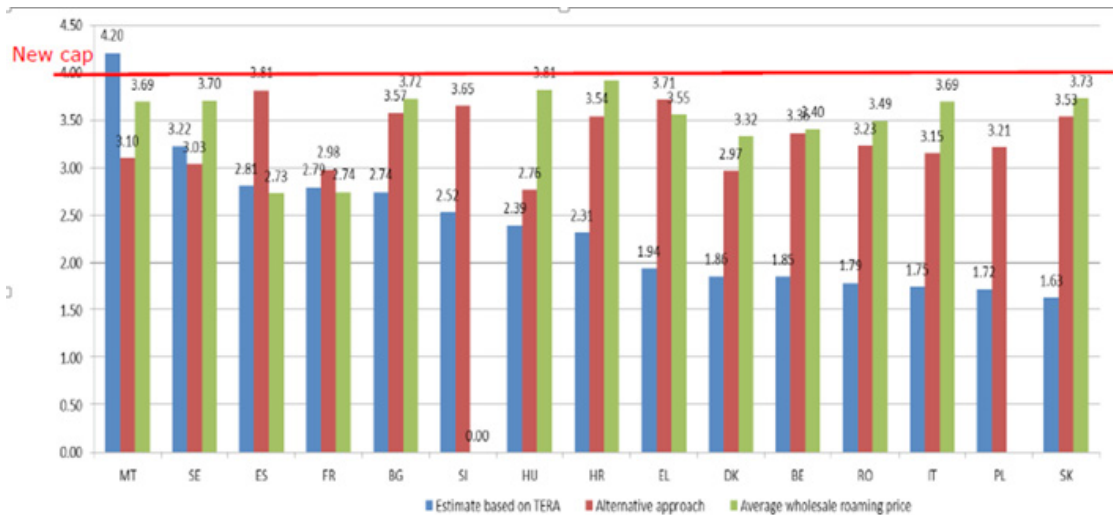
Source: Commission services, based on TERA Consultants and BEREC, 2015

Significant structural differences exist in all the EU member states, such as different MTRs and imbalanced roaming traffic. This could affect in the introduction of RLAH on a sustainable basis, as well as the potential impact of RLAH on operator revenues, and the ability to recover costs[46].

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[46] BEREC presentation at the IMR Consultation Meeting, Geneva, September 2016: www.itu.int/en/ITU-D/Regulatory -Market/Pages/Events2016/IMR_Consultation/home.aspx

In October 2016, BEREC also published the "*BEREC input to the European Commission Implementing Act on fair use policy and sustainability of the abolition of retail roaming surcharges*"[47]. This paper presents an overall assessment of the impacts of RLAH, a summary of the main elements of the proposals of the EC for the Fair Use Policy (FUP) and the sustainability mechanism shared with BEREC, as well as the BEREC assessment of the EC proposals, including:

— Risks related to wholesale charges – in relation with the risks arising from too low wholesale cap and too high wholesale charges.

— The application of the Fair Use Policy (FUP).

— Sustainability Mechanisms- to recover by operators the overall actual and projected costs from the overall actual and projected revenues from the provision of regulated retail roaming services.

In June 2017, BEREC issued guidelines on Regulation (EU) No 531/2012, as amended by Regulation (EU) 2015/2120 and by Regulation (EU) 2017/920 (Wholesale Roaming Guidelines):

"These Wholesale Roaming Guidelines replace the BEREC Guidelines of 2012 (BoR (12) 107) which concern the wholesale roaming access obligations for MNOs and the rights for access seekers on the application of Article 3 of Regulation (EU) No 531/2012 (hereafter "Roaming Regulation"). The revision of the BEREC Guidelines of 2012 was necessary to include the changes to the Roaming Regulation as set out in Regulation (EU) 2017/920 of the European Parliament and of the Council of 17 May 2017 amending Regulation (EU) No 531/2012 as regards rules for wholesale roaming markets."[48].

Associação de Reguladores de Comunicações e Telecomunicações da Comunidade dos Países de Língua Portuguesa (ARCTEL-CPLP)

Box 3: ARCTEL plan of action

ARCTEL has developed a plan of action calling for the involvement of operators, on a voluntary basis, as well as national regulatory authorities. Member states issued a statement endorsed by the Comunidade dos Países de Língua Portuguesa (CPLP) supporting this plan of action.

The ARCTEL Working Group on Roaming is:

— monitoring intra-CPLP member state roaming fees (retail and wholesale);

— monitoring user complaints;

— assessing international laws, including under the WTO framework.

ARCTEL-CPLP is an association of regulators in Portuguese speaking countries that facilitates and enhances the sharing and exchange of information and knowledge among the various national regulatory authorities with the aim of contributing to the development of their communications markets and the sector as a whole. According to the ARCTEL-CPLP memorandum of understanding, it seeks to:

— Promote the exchange of information between members on regulation of communications markets and the sector.

— Promote the adoption of best practices and harmonization of regulation in the communications sector.

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[47] http://berec.europa.eu/eng/document_register/subject_matter/berec/opinions/6527-berec-input-to-the-european-commission-implementing-act-on-fair-use-policy-and-sustainability-of-the-abolition-of-retail-roaming-surcharges

[48] http://berec.europa.eu/eng/document_register/subject_matter/berec/regulatory_best_practices/guidelines/7116-berec-guidelines-on-regulation-eu-no-5312012-as-amended-by-regulation-eu-20152120-and-by-regulation-eu-2017920-wholesale-roaming-guidelines

–   Develop studies and adopt positions on issues of common interest.

–   Analyse, coordinate and defend the interests of the national regulatory authorities of the Portuguese language, create and defend common positions in international forums, within the framework of their respective competences.

–   Promote the exchange of employees and technicians of the different national regulatory authorities, as well as the institutional visits among its members.

–   Analyse the issues relevant to the development and universalization of communications services.

–   Promote contacts and cooperation with other organizations.

Today, there are approximately 300 million telecommunication/ICT consumers within the ARCTEL countries as well as a high level of movement of people in terms of travel and immigration between these countries, with some Portuguese speaking countries having more people living abroad than in their country of origin. International mobile roaming between these countries is essential for consumers and an opportunity for business.

ARCTEL is working on the implementation of an action plan on international mobile roaming (see Box 3: ARCTEL plan of action), taking into consideration the following elements:

–   geographical distance between ARCTEL member states;

–   different market power of operators in the various countries;

–   different purchasing power of consumers in the various countries;

–   differences in the international traffic flows between countries and operators; and

–   differences in regulatory approaches and level of national political support.

The 2016 ARCTEL Ministerial Meeting recognized the need to promote the concept of "Comunidade dos Países de Língua Portuguesa CPLP Market" as a distinctive brand for Portuguese speaking countries, and adopted a Digital Agenda for the Community of Portuguese-Speaking Countries, which includes international mobile roaming as a key issue.

Southern African Development Community (SADC)

Box 4: SADC home and away roaming: Wholesale and retail roaming regulation

The tariff data for mobile voice, messaging and mobile data services for roaming services in the SADC region show that roaming prices are significantly higher than domestic national mobile service tariffs. One SADC MNO has voice revenue per minute for domestic calls at 1.0 cost units compared to roaming at 2.79 while SMS revenue per message if taken at a domestic rate of 1.0 implies a roaming rate 2.56, so the roaming markup for voice is 179 per cent, and for SMS is 156 per cent. Another MNO has roaming voice revenues which are seven times the incurred roaming costs, and SMS roaming revenues which are 52 times the incurred cost. High markups are also evident when comparing IOTs with preferred partners, compared to the IOTs with non-preferred partners, which can differ by a factor of 30. Clearly, given such high margins between national prices and roaming prices, any lowering of roaming prices will provide important welfare benefits to residential and business subscribers in the SADC region.

The report recommends a RLAH framework, which over time would be replaced by a regulatory framework based on analysing the actual cost base of mobile roaming charges. Also, the report also puts forward an appropriate glide-path which can be used to set reductions in both retail roaming prices and wholesale roaming charges and which allows for immediate price reductions followed by step by step reductions in wholesale and retail prices as these are adjusted toward cost. Such a glide path provides MNOs ample adjustment time while providing subscribers with immediate benefits.

Intervention by regulators to counter overcharging for IMR using this combined approach necessitates an understanding by NRAs of the real MNO cost-basis for roaming – both wholesale and retail. In practice a simple form of forensic accounting is needed to analyse the IMR process cost structure and its concomitant activities at an international level. To affect both the national MNO costs and those within the international wholesale IOTs also requires international regulatory co-operation – most probably among a regional group of NRAs – firstly across the SADC –then perhaps further overseas, involving trading partners.

The proposed guidelines presented need to be adopted by all CRASA members across the SADC region in order to establish an effective regional framework which can reduce mobile roaming prices. This is because any counter-measures, by their international nature, must be multi-country across all of the Region. Hence appropriate regulation may be necessary in all SADC countries, in order to put in place a series of incremental price caps- just as the EU has followed in its series of limits on roaming tariffs, implemented in progressive fashion since 2007 for voice, data and SMS.

> **Box 4: SADC home and away roaming: Wholesale and retail roaming regulation (cont.)**
>
> Implementing such a 'glide path' towards zero additional roaming charges demands that a realistic estimate is found for the target increment of the additional cost of roaming above the domestic tariff. This might be considered as a maximum limit – which is the modus operandi of the mechanism used by the EU - with progressively reducing caps on roaming charges, approaching the cost of roaming added to the domestic retail tariff, with competition operating on tariffs beneath the maximum limit.
>
> However, to introduce a common roaming market in the SADC region, through price caps, a transition phase may be useful. The RLAH concept, with domestic retail level pricing used for retail roaming prices, is proposed. RLAH provides a more consumer friendly framework which is simpler to regulate and to implement. This would be an interim introductory phase, before applying full cost-based price caps on maximum roaming prices are introduced.
>
>
>
> Source: Southern African Development Community (SADC)
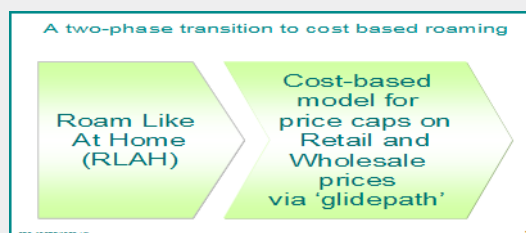
Background and context

The main aim of the Southern African Development Community (SADC) roaming project is to provide an enabling environment for provision of affordable and competitive mobile roaming service in the region. The project emanated from the concerns raised by the SADC ministers responsible for telecommunications, postal services, and ICTs in July 2007, in regards to non-affordable roaming services in the region. SADC established the Regional Alliance Task Team (RATT) on SADC Home and Away Roaming in 2008. RATT then comprised of representatives of the SADC Secretariat, CRASA, GSM Africa, Southern Africa Telecommunication Association (SATA) and SADC Parliamentary Forum as an observer. The RATT assisted SADC in project implementation until 21 November 2014 when ICT Ministers dissolved the team. In March 2015, the Communications Regulators' Association of Southern Africa (CRASA) Roaming Task Team (CRTT) was established to assist CRASA implement the ministerial directives.

Several studies have been carried out to understand the SADC roaming market as well as to provide the region with best practices that would allow for co-regulation of the roaming services in the Region.

Understanding roaming in the region

In 2009, RATT instituted a study to gain more detailed understanding of among others:

a)   the roaming tariffs (both wholesale and retail) in the SADC region and the effects of international roaming charges on regional and national termination rates and end consumer charges;

b)   possible market and regulatory factors influencing international roaming wholesale and retail charges; and

c)   factors that influence service delivery and performance of the market, specifically addressing pricing, network infrastructure and architecture, and quality of service.

The report was delivered in Angola in May 2010 to the ministers responsible for telecommunications, postal services, and ICTs. The ministers adopted a policy statement whose key objectives were:

a) to increase transparency and market liberalization;

b) introduce cost-based pricing for roaming services;

c) introduce effective competition in the roaming;

d) improve regulatory certainty and predictability, and

e) promote Regional integration and infrastructure development.

Wholesale and retail roaming regulation

In 2013, with assistance from ITU, the RATT initiated a regulatory impact assessment study on SADC home and away roaming regulation and developed guidelines for roaming services in the region. The recommendations of the study are shown in Box 4.

In response to the 2014 SADC Roaming Report, the region agreed to implement the roaming initiative in three phases:

• Phase I: Liberalization, Transparency, Information and Data Collection; SADC developed the SADC Transparency Guidelines. The SADC ICT ministers approved the guidelines in 2013. The guidelines became effective on 1 June 2013.

• Phase II: Wholesale and Retail (*roam-like-at-home*) Glide Paths (see Figure A2.5 Table A and B).

• Phase III: Cost–based Roaming Price Regulation[49].

Figure A2.5: Wholesale and Retail Roaming Tariff reduction – Glide Path

Table A: Retail Voice, Data and SMS Roaming Tariff Reduction Glide Path

2014	ROAM (Existing Roaming prices)
1 January 2015	RLAH + (ROAM – RLAH) * 67%
1 January 2016	RLAH + (ROAM – RLAH) * 33%
1 January 2017	RLAH + 5%
1 January 2018	COST + (RLAH – COST) * 67%
1 January 2019	COST + (RLAH – COST) * 33%
1 January 2020	COST + 5%

Table B: Wholesale Voice, Data and SMS Roaming Tariff Reduction Glide Path

21 October 2014	Existing IOT prices
1 January 2015	WTA + (IOT-WTA)* 67% +5%
1 January 2016	WTA + (IOT-WTA) * 33% + 5%
1 January 2017	WTA + 5%

* Weighted tariff average (WTA)

Source: SADC

Roam-like-at-home concept

The RLAH concept entails the following:

i) adopt progressive glide paths in setting of price caps for both the retail and wholesale prices on international roaming and this is being encouraged to be adopted simultaneously by all SADC members;

ii) address the wholesale rates for each MNO through establishment of price ceilings on the three key routes with the highest inter-operator tariffs;

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49 Roaming Task Team (CRTT) www.crasa.org/crasa-content/id/74/crasa-roaming-task-team/

iii)   consider removal of additional taxes on ICT services and establish policy frameworks for regional roaming for SADC member states;

iv)   use NRAs to put roaming regulations and monitoring procedures in place; and

v)   publish the retail roaming prices on CRASA and MNO websites.

In order to provide guidelines on implementation of the glide paths, the region adopted the SADC roaming policy and regulations[50].

SADC roaming policy guidelines

The CRTT developed the SADC roaming policy guidelines, which were endorsed by the SADC ministers on 26 June 2015 in Walvis Bay, Namibia. The SADC roaming policy recommends the following guiding principles for roaming within the region:

a)   prices for roaming services must be transparent, fair and non–discriminatory;

b)   consumers must be provided with adequate information with regards to the provision of roaming services in relation to retail prices and billing cycles;

c)   prices for all roaming services should not be less than underlying costs;

d)   prices for regional roaming services should be cost based and not be too excessive in comparison with prices charged for the same services at national level;

e)   prices charged and other obligations imposed on operators should not distort the competitive conditions between mobile operators within the region;

f)   any roaming network connection should be established with consumer consent; and

g)   the quality of service parameters for roaming services should at least be equivalent to those prescribed by the NRA of each member state[51].

SADC model roaming regulations

The CRTT also developed the SADC model roaming regulations, which were endorsed by the SADC ministers on 26 June 2015 in Walvis Bay, Namibia, recommends:

a)   coordinated regional response to the formulation of roaming regulations;

b)   development of regionally acceptable standards on roaming charges;

c)   establishment of direct routes to connect and roam with operators in other members states

d)   adoption of fair usage policy to avoid instances of network abuse through permanent roaming by roaming customers.

The Draft SADC model roaming regulations provides for the following:

a)   transparency and safeguarding of consumers and how to provide high quality of service to roaming consumers;

b)   costing for roaming and how to set ceilings for both wholesale and retail charges in the region; and

c)   monitoring and reinforcement of the SADC roaming glide paths[52].

[50]   Idem.
[51]   SADC Roaming Policy, 26 June 2015, Namibia: www.crasa.org/common_up/crasa-setup/23-07-2015_SADC%20ROAMING%20POLICY%20.pdf
[52]   Idem.

Implementation of the glide paths

By mid-2016, seven countries out of 15 SADC member states were implementing the roaming glide paths on reciprocal basis. Recognizing that the glide paths were an interim methodology to regulating roaming pricing, SADC is in the process of developing a generic roaming cost model that would assist regulators to determine the cost-based price ceilings for operators to apply to both their wholesale and retail charges. The region is also pursuing an array of actions to reduce regulatory barriers to affordable roaming rates through market liberalization, encouraging investor-friendly taxation policies and averting the wholesale market barriers through the 'three route principle'. In addition, SADC is pursuing increased transparency to roaming tariff; increase of the roaming footprints, especially in prepaid roaming services; promotion of multilateral cost-reduction measures; and establishment of roaming hubs in the region.

East African Community 'One Network Area' (ONA-EAC)[53]

Box 5: Lessons to be learned from the ONA experience

There are lessons to be learned from this efficiently organized yet thorough process. Most importantly, to maximize the mobile roaming contribution to regional social integration and economic development, a regional framework for roaming regulation needs to be established, along with competent and accountable entities to implement the framework. East Africa demonstrates that a workable set of policies can be formulated in a matter of months by a committee composed of the heads of national regulatory authorities supported by the respective Head of State. The regulator role was to gather and analyse market information to make proposals and recommendations to the Meeting of Ministers, taking into account input from the MNOs. The Meeting of Ministers then advised the Heads of State on what policy directives would be appropriate. This arrangement was sufficient to start the process. But for regional roaming regulation to be sustainable, persistent oversight and periodic course corrections are required. For that, more permanent processes are needed.

In East Africa, the Northern Corridor Heads of State catalysed and directed the ONA initiative. In other regions, a similar group of national leaders could guide the process. Alternatively, since changes in ICT development policies and telecom laws may be necessary, and tax revenues affected, an executive council of communications and finance ministers from the participating countries would strengthen links between national and regional policy making.

High wholesale prices for IMR can only be curbed by a transnational authority because international roaming is — and will always be — a cross-border transaction. In May 2014 a Heads of State Summit for Northern Corridor Integration Projects concluded that the high cost of in-region roaming was detrimental to the East African Community (EAC) integration agenda. They agreed to fast-track the implementation of a One Network Area in East Africa by 31 December 2014. The original concept was for roamers to pay only the local domestic tariffs of the visited network. Eliminating all charges and surcharges for calls received while roaming was another part of the concept. Kenya, Rwanda, and Uganda were the first to commit to ONA; South Sudan joined in January 2015; Burundi and Tanzania expressed interest in joining, too.

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[53]   Extracted from the ITU Case Study of One Network Area (ONA) – East Africa ONA Roaming Initiative. www.itu.int/dms _pub/itu-d/opb/pref/D-PREF-EF.ONA-2016-PDF-E.pdf

Legal jurisdiction

Heads of State Summits in East Africa can set policy directions that reshape national laws and regulations because of Article 8 of the Treaty for the Establishment of the East African Community. Paragraph 4 of Article 8 states: "Community organs, institutions and laws shall take precedence over similar national ones on matters pertaining to the implementation of this Treaty." (The definition of "Community organs" includes Heads of State Summits.) In addition, Article 16 of the Treaty makes the regulations, directives, decisions and recommendations of the Council of Ministers binding on the Partner States. Regional cooperation in the telecom sector is mandated by Article 99, which notes in sub-paragraph (c) that the "Partner States shall… agree on preferential tariff treatment applicable within the Community…"

Implementing ONA in EAC Partner States

The Northern Corridor Heads of State Summit tasked the EAC Sectoral Council on Transport, Communications and Meteorology (TCM) with responsibility for transforming the basic ONA decision into specific proposals for implementation. In June 2014, the Council directed the EAC Secretariat to convene a meeting of the Committee of the Heads of Communications Regulatory Authorities to develop a work plan and guidelines for establishing ONA[54].

Principles for determining roaming charges

Based on their analysis of the operator tariffs, these principles were proposed for determining harmonized EAC roaming charges:

- Roaming charges should be 'cost-oriented'- that is, reflective of real costs but not mechanically derived from them.

- The harmonized EAC roaming framework only applies to traffic originating and terminating within EAC Partner Countries.

- Traffic originating and terminating within the EAC should be exempt from international traffic surcharges.

- Mobile telecommunication taxes (excise, VAT, etc.) should be regionally harmonized.

- Partner states should establish systems to prevent traffic re-filing, tariff fraud and illegal call termination.

Recommendations adopted by the EAC multi-sectoral coordination committee for the implementation of ONA

- Wholesale (inter-operator) tariffs should be capped at 7 USD cents/minute for traffic originating and terminating within EAC.

- The retail tariff cap should be 10 USD cents/minute, including taxes, for traffic originating and terminating within EAC.

- There should be no charge for receiving calls while roaming within the EAC.

- Existing inter-operator agreements should be amended by 31 January 2015.

- Systems should be established to prevent traffic re-filing, fraud and illegal termination of traffic;

- Partner states should harmonize taxes on telecommunication traffic and remove international surcharges for traffic originating and terminating within the EAC.

- The Committee of Heads of Communications Regulatory Authorities should meet every three months to review the ONA framework implementation.

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[54]   Note that ONA developed as a Northern Corridor Integration Project. It will become an EAC project if and when the other EAC members join it.

- The Committee of Heads of Communications Regulatory Authorities should "consider in detail" inclusion of a "fair use" policy in the ONA framework.

Impact of ONA

Although it is still preliminary to assess the full benefits of ONA, some notable achievements can be noted including:

- **Lower tariffs on individual roamers is significant** – Cross border voice traffic has grown rapidly since ONA implementation – tripling in both Kenya and Uganda, with a nearly five-fold increase in Rwanda and a thirty-fold increase in South Sudan. More analysis is required to assess if the growth is due to roaming and previously stifled demand or if there indeed other factors attributed to this.

- **A *wholesale* price cap of 7 USD cents/minute without surcharges lets all MNOs in the EAC offer roaming services profitably,** according to data collected by the EAC Sectoral Council before introducing ONA**.** Similarly the Council found that the regional average minimum retail price for roaming voice calls made in visited countries was 8.7 USD cents/minute. The Council analysis also found that the regional average for the lowest freely negotiated wholesale price for roaming was 7.63 USD cents/minute including surcharges. So a retail price cap of 10 USD cents/minute left room for further voluntary price reductions due to competition.

Figure A2.6: Voice calls made and received by Kenyans roaming in ONA states and ONA citizens roaming in Kenya
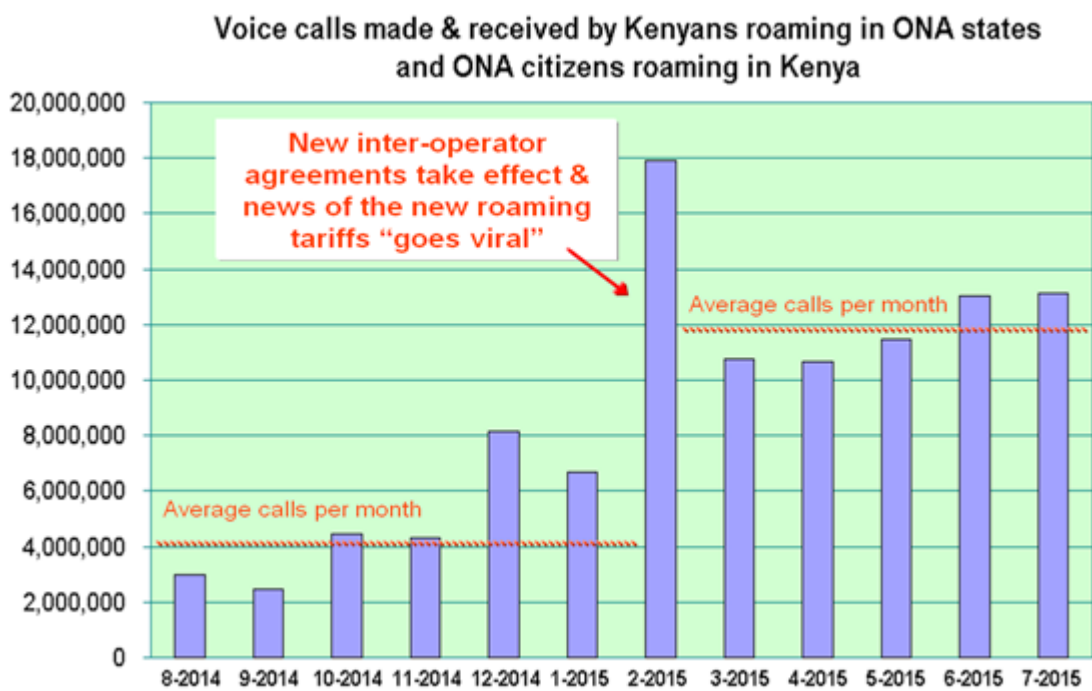
Source: ONA

The Economic Community of West African States (ECOWAS)[55]

> ### Box 6: Intention of ECOWAS
>
> The main intention of ECOWAS in ICT is the establishment of a single ICT Market in West Africa. Three conditions for high-quality roaming at affordable prices have been identified by the Technical Group on Roaming (ETGR):
>
> - harmonized Community regulation;
>
> - total cross-border connectivity between all the ECOWAS countries;
>
> - a preferential community tariff to encourage and boost the use of roaming.

The core objective of ECOWAS in ICT is the establishment of a single ICT Market in West Africa. In order to achieve that, ECOWAS works with two main pillars:

- the harmonization of ICT policies, and

- the development of broadband infrastructure.

The ECOWAS Authority of Heads of State and Government (HOSG) appealed to mobile operators to sign roaming agreements in order to facilitate communication in the region and set up the ECOWAS Technical Group on Roaming (ETGR) in 2005.

ETGR noted that roaming should not only be seen as a business opportunity for mobile operators, but also must be considered as a social issue and a factor of exchange and regional integration and recommended:

- promote liberalization of international gateways and direct connectivity between Mobile operators of neighbouring states in order to reduce the costs of roaming traffic;

- reduction and/or suppression of taxes included in the setting of roaming tariffs in the ECOWAS region;

- ECOWAS to fix a ceiling for retail prices for the benefit of the consumers;

- undertake a detailed study on the roaming pricing including the possibility of integrated roaming for the region.

Ongoing activities on roaming

The main objective is to reduce the cost of roaming and potentially termination rates.

The engagement is split into two main activities:

1. Study on harmonization of cross-border communications costs supported by World Bank.

2. Elaboration and adoption of a regulation on roaming in the ECOWAS space, in collaboration with the West Africa Telecommunications Regulators Assembly (WATRA).

The aim of this engagement are to:

- harmonize the costing and pricing of roaming services within the ECOWAS region;

- address the high cost of roaming services within the ECOWAS region in order to reduce/eliminate roaming charges;

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[55] Based on ECOWAS presentation at the IMR Consultation Meeting, Geneva, September 2016: www.itu.int/en/ITU-D/Regulatory-Market/Pages/Events2016/IMR_Consultation/home.aspx.

- provide the minimum safeguards for consumers of roaming services to empower them to make informed decisions.

Reducing/eliminating roaming charges will facilitate regional m-services and will improve regional traffic and business opportunities for network operators.

The Arab Regulators Network (AREGNET)[56]

Box 7: Arab Regulators Network IMR challenges

The Arab Regulators Network has determined the following challenges on IMR:

- different level of competition and different regulatory frameworks;
- costing structures and bargaining power;
- transparency and commercially sensitive information;
- low ARPU operators challenging any initiatives to lowering roaming prices;
- some practices like steering and home data register (HDR) blocking;
- existence of loyalty fees (revenue sharing) from telecom sector;
- practicing market power on roaming and set high wholesale and retail prices.

Roaming remains a main concern for all Arab States region countries. It was noted that roaming rates are priced on the destination rather than cost-based, so that operators are generating a lot of profits, especially for data roaming. Efforts made through the Arab League and Gulf Cooperation Council (GCC) are encouraging lower roaming and international prices. These efforts are positive but benefits are limited for other countries outside the region. AREGNET was tasked to coordinate efforts to alleviate the excessive roaming prices for the best interest of subscribers roaming across the Arab States region. An important issue in the region is the number of countries and the differing market characteristics in each, one example is taxation, there are high differences among countries (e.g. in Qatar the taxation of telecom services is 0 per cent and in Jordan 43.8 per cent). This is also the case in regards to income per capita and average revenue per user (ARPU).

Internationally coordinated regulation is viewed as the appropriate way forward for the region. It is best to act multilaterally:

- coordination to set affordable prices by intervening at wholesale and retail level;
- widening the multi-lateral agreements (e.g. Jordan-GCC);
- coordination to prohibit steering and HDR blocking;
- the possibility to adopt more interventionist tool like decoupling.

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[56] Based on AREGNET presentation at the IMR Consultation Meeting, Geneva, September 2016: www.itu.int/en/ITU-D/Regulatory-Market/Pages/Events2016/IMR_Consultation/home.aspx.

The Gulf Cooperation Council (GCC) International Roaming Regulatory Initiative[57]

> #### Box 8: GCC International Roaming Regulatory Initiative
>
> The Gulf Cooperation Council initiative recommendations include:
>
> − to reduce the current level of price caps on outgoing calls and to introduce new price caps on incoming calls, SMS sent and data usage while roaming;
>
> − to reduce the price caps gradually to reach the desired price caps in 2018 for outgoing calls, received calls and SMS sent, and in 2020 for data;
>
> − to set the price control glide paths in such a way as to ensure that MNO international mobile roaming revenues remain in excess of the 2015 levels.

Following the consultation of September 2014, the Gulf Cooperation Council (GCC) Roaming Working Group (RWG) finalized its report on roaming regulation across GCC countries, and the GCC Ministerial Committee for Post, Telecommunications and Information Technology approved the recommended regulations in its 24th meeting of June 9, 2015 held in Doha, Qatar that changed the underlying cost estimates of different roaming services, in particular changing the proposed price caps. Like other regional initiatives, these proposals are a response to a mandate from the GCC telecommunication ministers committee to address the issue of high prices for IMR in order to achieve regional integration and social cohesion, and to protect consumers in the GCC.

The RWG considered different options:

• taking no action;

• encouraging MNOs to lower retail prices;

• implementing price controls; and

• taking steps to increase competition.

Although GCC member states have yet to adopt the necessary regulatory instruments that would oblige MNOs to implement the price controls and other regulatory measures, the Communications Regulatory Authority (CRA) Qatar and the Telecommunications Regulatory Authority (TRA) Oman have announced the new retail price caps that would apply starting from April 2016.

In particular, changes were made to:

• reflect the wide variation of taxes among GCC countries; and

• to take account of the fact that international gateways in Kuwait are still not liberalized, as a result of which MNOs incur additional costs (paid to the Kuwaiti Ministry of Communications) in order to terminate voice calls to MNOs in other GCC countries[58].

In 2015 CRA in tandem with its counterparts in other members of the Gulf Cooperation Council (GCC) published the final report of consultation to assess the effectiveness of the existing regulations and a review of IMR services. The final document also assesses the rationale for regulatory intervention at GCC level, and the approved new price caps for roaming charges. The reductions of roaming charges on both inter-operator wholesale level and customer retail level will take place gradually, over a three years period, for voice calls and SMS services, and over a five years period for mobile data services.

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[57]   See: www.wto.org/english/tratop_e/serv_e/sym_march12_e/presentation_%20maitha_jaffar.pdf
[58]   www.cullen-international.com/asset/?location=/content/assets/regulatory-intelligence/regulatory-news/cullen-international-mena-telecoms-report-september2015-rrteen20150001.pdf/cullen-international-mena-telecoms-report-september2015-rrteen20150001.pdf

Caribbean Telecommunication Union (CTU)[59]

> ### Box 9: The Caribbean Telecommunication Union
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> Key tenets of CTU roaming policy include:
>
> − roam free area to facilitate movement of labour;
>
> − reduced charges as predictable cost of doing business;
>
> − roaming charges scaled down to zero;
>
> − application to voice and data;
>
> − area codes and geographical borders should not increase costs.

CTU was established in 1989 to coordinate/harmonize telecommunication policy development and ICTs. The main objective is the implementation of road map for single ICT space for the Caribbean, including the Eastern Caribbean Countries Commission (OECS) and Eastern Caribbean Telecommunications Authority (ECTEL). Their mandate is oriented to the establishment of common frameworks for governments, ICT service providers and consumers, in the areas of quality of service (QoS) standards, roaming, top level domain name management; local content; open data, licensing and authorizations.

Research and advocacy on roaming forms an integral part of the mandate of the Caribbean ICT Collaboration Committee (CICC)). This a regional grouping of private sector, public sector, civil society and regulatory agencies of the wider Caribbean and coordinated by the CTU Secretariat[60]. The CICC will promote discussions on roaming in all jurisdictions in the Caribbean.

Recognizing that citizen benefits from advances in telecommunication technology and liberalization, and that the Caribbean trails other integrated areas (e.g. EU), main challenges in respect to IMR are defined as being:

• the absence of political integration/arrangements (EU, GCC, SADC);

• roaming cannot be controlled by single state (or single provider);

• negotiating an appropriate institutional framework;

• current ICT policy fragmentation;

• the paucity of political will;

• prioritizing roaming as an ICT policy matter;

• perception of loss of tax revenue from a zero rate regime;

• uncoordinated responses/approaches to service providers.

In addition, the Caribbean Community (CARICOM) Heads of Government requested the CTU to prepare a Roadmap for the development of a CARICOM Single ICT Space. An important action in the roadmap is the elimination or significant reduction in roaming charges in the twenty member states countries of CARICOM. This is justified since these countries are served by two dominant operators: Cable and Wireless and DIGICEL. From country to country roaming is on their own network. Accordingly, CTU has established a collaborative working group to examine this matter and make recommendations. These deliberations are in progress.

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[59] Based on CTU presentation at the IMR Consultation Meeting, Geneva, September 2016: www.itu.int/en/ITU-D/Regulatory -Market/Pages/Events2016/IMR_Consultation/home.aspx.
[60] www.ctu.int/events/2nd-caribbean-ict-collaboration-forum-2/

Eastern Caribbean Telecommunications Authority (ECTEL)[61]

Box 10: Eastern Caribbean Telecommunications Authority

ECTEL recommendations include:

−   A cost analysis should be conducted following the ITU Guide for NRAs on IMR cost analysis.

−   Regulations may be made pursuant to the Telecommunications Act to regulate the roaming rates. However, since roaming is a technical and substantial area of the telecommunication industry indeed the best approach is to draft a Roaming Bill. It should be noted that ECTEL will recommend a new Electronic Communications Bill to the member states in early 2017. This Bill will replace the current Telecommunications Act. ECTEL will ensure that the Roaming Bill and new Electronic Communications Bill are not in conflict.

−   The retail or provider to consumer business needs to be regulated. Consumers will see a direct effect through rates from their provider. This is especially so for providers who operate in all ECTEL member states. However, consumers may access services for other providers when roaming and so the provider-to-provider business should also be regulated, this is known as wholesaling. Wholesale rates are the rates that a provider charges another provider for handling mobile services of one customer on another provider network. This will affect roamers travelling into the ECTEL member states[1].

−   The proposed Bill shall be accompanied by regulations. The proposed rates or caps on the roaming rates as ECTEL decides shall be prescribed in the regulations. The prescription in the regulations will provide for easier or frequent amendments.

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[1]   ECTEL Member States: Dominica, Grenada, St Kitts and Nevis, Saint Lucia and St Vincent and the Grenadines.

Pursuant to a decision of the Council of Ministers of the Eastern Caribbean Telecommunications Authority (ECTEL), the Regulatory Authority was mandated to develop the appropriate legislation to effect a reduction in roaming rates in its member states. The first component of the process which involved the review of the legislation and pricing options has been completed. The Council accepted the report and recommendations and agreed to proceed with the development of the appropriate legal and regulatory instruments.

The specific objective of this project to be done during 2016 is to prepare a model Roaming Bill for enactment and appropriate supporting Regulations to be made in Saint Lucia and their subsequent adoption in the other Eastern Caribbean Telecommunications Authority (ECTEL) member states, as and when required. The Roaming Bill ECTEL states will be the most effective way to deal with the concern of costly roaming rates and strengthen the currently weak state of legislation in ECTEL member states in regards to mobile telecommunication roaming. As such the Bill will seek to regulate roaming rates for voice, short messaging service (SMS) text and data services.

Expected results

It is expected that following a comprehensive review of the existing relevant legislation locally, regionally and internationally, the report and recommendations on pricing options and of the ITU Guide for NRAs on IMR cost analysis 2015[62], Saint Lucia and other ECTEL member states would have for enactment a draft model Roaming Bill and the accompanying regulations. The legislation would

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[61]   Based on ECTEL presentation at the IMR Consultation Meeting, Geneva, September 2016: www.itu.int/en/ITU-D/Regulatory-Market/Pages/Events2016/IMR_Consultation/home.aspx.

[62]   www.itu.int/dms_pub/itu-t/opb/tut/T-TUT-ROAMING-2015-03-PDF-E.pdf

seek to place restrictions on the capacity of providers to charge for roaming within ECTEL member states and achieve the overall policy objectives of reducing prices, protecting consumers from unfair and unreasonable roaming policies, promoting sub-regional competitiveness and enabling the ECTEL member states to move closer to a harmonized telecommunication space. In addition, a cost analysis should be conducted using the ITU online cost analysis tool as a guide. ECTEL developed a draft Roaming Bill and regulations for regulating roaming in the member states in collaboration with ITU. This draft Roaming Bill was submitted to public consultation from November 2016 to January 2017. The Bill is currently being finalized to be submitted to the member states.

The major provisions of the draft Roaming Bill for ECTEL states are:

- wholesale rates to be regulated via price cap;

- retail rates to be regulated using roam-like-at-home option;

- customers to be made aware of inadvertent roaming on networks of providers outside the ECTEL member states;

- home country provider to notify customer of emergency numbers in visitor country.

It is still under consideration to treat within the draft Roaming Bill issues of permanent roaming and fair use policy, the use of national roaming in emergencies and for new entrants, number portability and finally roaming and the Internet-of-things (IoTs).

Comisión Técnica Regional de Telecomunicaciones (COMTELCA)[63]

Box 11: Comisión Técnica Regional de Telecomunicaciones

COMTELCA Standardization Committee recommendations include:

- the rate per minute, including taxes, of roaming services should not exceed 130 % of the current rate of the mobile international long distance call (from origin country to visited country);

- gradual reduction of roaming rates over a period of 24 months;

- establish a geographical strip of 5 km on both sides of the border line in the countries of the region in which roaming service fee will not be charged, and apply local rates for mobile service;

- create a procedure to allow operators that do not have infrastructure in all countries, to provide roaming service with non-discriminatory rates[1].

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[1]   Idem.

Background

COMTELCA is a regional telecommunication technical commission that unites, disseminates and assists the telecommunication regulatory authorities in six countries in Central America (Costa Rica, El Salvador, Guatemala, Honduras, Nicaragua, and Panama). In 2012 the Board of COMTELCA instructed the Standardization Committee to develop a proposal to reduce roaming and regional long distance rates, taking into account that the Central American Parliament (PARLACEN) has expressed interest in eliminating roaming charges.

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[63]   Based on COMTELCA presentation at the IMR Consultation Meeting, Geneva, September 2016: www.itu.int/en/ITU-D/Regulatory-Market/Pages/Events2016/IMR_Consultation/home.aspx.

In 2013, under a COMTELCA-BID Project (Inter-American Development Bank), the first regional workshop on long distance and roaming issues was held with the aim of promoting the rate reduction of these services. A channel of dialogue between operators and regulators was opened and an opportunity for all stakeholders to continue working together, with the challenge of agreeing the rate reduction, was generated. In 2016, the members of the Pacific Alliance (Chile, Colombia, Mexico, and Peru) decided to work together to eliminate roaming rates in the countries of the pact, trying to reach agreement with operators.

Current situation

Traditionally, roaming traffic in the region was related to business activities. However, this trend has changed. The World Tourism Organization figures indicate that 52 per cent of worldwide travels are made for leisure, recreation and holidays; 27 per cent for health, religion and other matters and only 14 per cent for business and professional reasons. Latin America attracted 16 per cent of international travel in 2015, equivalent to 192 million people, an increase of 5 per cent compared to 2014.

Operators have invested in mobile platforms and have already deployed infrastructure in several countries. The presence and competition of operators is regional and they also face the challenge of mobile virtual network operators (MVNO) and over the top enterprises (OTT). To respond to these challenges, operators in Central America are offering packages that include calls, messages and data for consumers who travel to other countries at local rates.

The average price per minute of voice in Latin America has fallen from 11 USD cents in the fourth quarter of 2008 to 6 USD cents in the same period of 2013[64].

In Latin America, the first offers of roaming elimination were focused on consumers traveling to the United States of America or Canada. However, in Central America, the increasing intra-regional travel, for business and tourism, in recent years has encouraged mobile operators to reduce and/or eliminate the roaming charges.

The response from operators in Central America

Box 12: Concrete outcomes of the Central America *Without Border* initiative

Seven main operators across Central America introduced roaming tariffs in 2015, with 'without border' plans, whereby consumers use their phone in the region and pay the domestic rates set in their home country. These plans could include data and voice services. This is an ongoing trend as operators increasingly work towards serving the needs of roaming consumers, which can be particularly seen in specialized tariffs for heavy commercial and tourism traffic in Central America. This will also help to eliminate inadvertent roaming in narrow border zones.

These roaming plans could include data and voice services. Some examples of these private initiates are:

Movistar (Telefonica)

Movistar started its "*Sin fronteras*" (without borders) option for regional roaming in Central America in 2015. Without further activation, customers can use data, voice and texts on the Movistar networks of Costa Rica, El Salvador, Guatemala, Mexico, , and Panama for the equivalent of a domestic tariff. Additionally, for a USD 5 surcharge per day, customers can also use data at domestic tariff in the Argentina, Brazil, Canada, Chile, Colombia, Ecuador, Peru, United States, Uruguay, and Venezuela.

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[64]   GSMA data.

This is available for prepaid and postpaid plans. Data consumption exceeding the contracted plan also will be charged at local rate, regardless of the country where it is consumed.

Claro Central America

From April 2015 Claro eliminated roaming charges in Central America "*Talk and browse throughout Central America with your same local rate*". Postpaid customers that contract the unlimited calling plan at no cost, can also use it to communicate in other countries in the region on Claro network, with an additional charge (USD 3 monthly) consumers could also add United States and Canada. The customer is saving about 40 per cent per minute. Countries included in the Claro network are Mexico, Guatemala, El Salvador, Honduras, Nicaragua, Costa Rica and Panama.

Telcel

Telcel following their competitors eliminated the Mexico-United States border and allow mobile consumers to call from Mexico to the United States and vice versa for just a minor charge. At present, this is available only for postpaid services. Telcel mobile customers can call and text (SMS) to the United States without paying long distance charges, and when they travel to United States they will be able to use their minutes, messages and data just as they use it in Mexico, with no roaming charges.

Telcel charges a monthly service fee of 50 Mexico pesos (around USD 3) for the "*Telcel Sin Frontera*" plan which subscribers can activate in Mexico or United States.

AT&T

AT&T introduced the "*AT&T Mexico Roaming Bonus*" plan that customers can add for free. Customers who do so will receive unlimited texting (SMS) to anywhere in the world and unlimited voice calling within Mexico and from Mexico to the United States. Additionally, customers will get 1 GB of data to use in Mexico for free (with overage charges of USD 20 per GB).

Sprint

Sprint Open WorldSM add-on offers customers free calls and texts to Canada and Mexico with calls starting at USD 5 cent to Latin America, the Dominican Republic and more than 180 other countries when added to a domestic service plan. For those who like to travel, it boasts free unlimited calls and texts when traveling in Canada, Mexico and more than a dozen Latin America countries without the annoyance of roaming tariffs.

Sprint Open World includes 1GB of free data while traveling in these *Sprint Open World* countries: Argentina, Brazil, Canada, Chile, Colombia, Costa Rica, Dominican Republic, El Salvador, Guatemala, Honduras, Mexico, Nicaragua, Panama, and Paraguay. The countries coming soon to Sprint Open World are Bolivia, Ecuador, Peru, Uruguay, and Venezuela. Sprint customers needing more than 1GB of data pay just USD 30 per GB, based on actual usage.

T-mobile

T-Mobile introduced **"***Mobile without Borders***"**, an expansion of *Simple Choice* that lets customers use their phone in Canada and Mexico just like you would in the United States. That means that calling and texting to, from, and between Canada, Mexico and the United States won't cost extra, regardless of whether a mobile or landline phone is involved. And when they are in Canada or Mexico, they can use their mobile data plan just like they would in the United States.

Verizon

Verizon Wireless also updated its international roaming options as follows: for USSD 5 per month its customers can now call Mexico and Canada for no additional per-minute fees, with calling minutes deducted from their current plans, this is also available to its prepaid customers.

Verizon customers traveling to Canada and Mexico can now receive 500 calling minutes, 500 sent text messages and unlimited received text messages, and 1 GB of data for USD 25 per line, and customers can purchase additional data for USD 20 per 1 GB.

Future challenges

The main challenge in the region is to create an "America Free of Roaming", by developing new mobile platforms that take advantage of free communication services across the continent. Operators and services providers must adapt their current mobile offers to include roaming services for both pre-paid and post-paid, enhance existing services, and create new solutions and offers. These solutions should also consider to allow operators that do not have infrastructure in other countries to provide roaming services with non-discriminatory rates.

A2.3   Operator and service provider initiatives

GSMA[65]

The GSMA (Global System for Mobile Communications Association) mission is to provide consumers with clear and transparent pricing for mobile services when they travel internationally, along with the predictability and choice that mobile consumers expect. The mobile market continues to grow, and consumers increasingly use their mobile devices while travelling.

Mobile operators around the world are committed to offering competitive, optimized roaming offers that provide valuable services to their travelling customers — while ensuring prices for roaming services are clear.

Roaming alliances in different regions and increasing competition from mobile and other providers continue to deliver price reductions — up to 90 per cent in some cases — improving customer value and resulting in higher customer use of roaming services. New roaming bundles and standard tariffs are giving customers more choice, with daily, weekly, monthly or service-specific offers.

Region-wide low roaming rates

Mobile operators that have a large regional presence increasingly offer low region-wide roaming rates similar to domestic tariff levels. In the Europe, Arab, and Africa regions, for instance, mobile operators are encouraging their customers to roam rather than acquire local SIMs when they go abroad. Sub-regional and bilateral packages, as well as regional offers for tourists through reduced rates and monthly, weekly or daily roaming bundles, are also facilitating cross-border travel and trade.

Calling using a local SIM

Local SIMs have always been an important substitute for roaming services, particularly among regular visitors and migrant workers. Some Arab States region operators are building on the concept of a local SIM by offering a temporary local phone number that works in parallel with a consumer's home number, without the need for an additional SIM.

Consumers in Asia Pacific region are also making use of roaming substitutes. They have adopted SIM-based alternatives to international roaming across multiple regions. Call-by-call substitutes to roaming for corporate and business consumers are already having a significant impact on the roaming market in the Asia Pacific region. As the use of substitutes continues to rise, roaming prices will be reduced further.

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[65]   Extracted from GSMA website (www.gsma.com/publicpolicy/regulatory-environment/roaming).

Transparency

In June 2012, the GSMA launched the Mobile Data Roaming Transparency Scheme, a voluntary commitment by mobile operators to give consumers greater visibility of roaming charges and usage of mobile data services when abroad. Operators continue to improve transparency to ensure consumers receive better value from their roaming services. Easy access to personalized tariff and usage information allows consumers to quickly understand the range of options available in the market. Operators use several methods to ensure consumers are aware of the latest rates and offers, such as consumer-friendly websites and SMS messages welcoming roaming customers when they enter a country.

Within the EU, Gulf and other regions, comprehensive notification systems and informative websites have been developed to ensure consumers understand their usage. Data roaming services in these regions are managed according to regulation, competition and customer preferences, for example when a data usage limit is reached.

Removal of structural barriers and price regulation

From the GSMA point of view, governments and regulators should eliminate structural barriers that increase costs and cause price differences between countries. These include double taxation, international gateway monopolies and fraud, all of which should be removed before any form of IMR price regulation is considered.

Price regulation should be considered as a last resort, after transparency measures and innovative IMR pricing have failed to address consumer complaints, and after structural barriers have been removed. The costs and benefits of regulation must be carefully assessed, taking into account unique economic factors such as national variances in income, GDP, inflation, exchange rates, mobile penetration rates and the percentage of the population that travels internationally, as well as incidence of international travel to neighbouring countries, all of which have an impact on IMR prices.

SAMENA Telecommunications Council

SAMENA Telecommunications Council is a trade association that represents telecommunication operators and service providers in south Asia, the Arab States region, and north Africa. The Council was founded in 2006 and its operational office is based in Dubai, United Arab Emirates.

Background

International mobile roaming is a service that enables a mobile subscriber to automatically and seamlessly make/send/access and receive voice calls, SMS/MMS and the Internet/data when travelling abroad without losing the connection. IMR has been a topic of intense discussion and concern with regulators and policy makers for many years now, mainly in relation to the level of IMR retail prices charged to consumers, the lack of pricing and usage transparency and resulting bill shock, and the level of wholesale payments made between mobile operators.

The reasons for high IMR prices are of a structural nature and relate to market mechanics and some behavioural aspects on the part of the consumer. These are:

- a quasi-oligopolistic market structure;
- cross-border nature of the IMR service;
- insufficient attention on the part of the consumer;
- low demand elasticity for IMR voice services.

It is argued that in the absence of regulatory intervention, these characteristics prevent the emergence of competition and enable prices to remain high.

In terms of market effects, operators have been confronted with suppressed demand with customers switching off the roaming function on their phones to avoid bill shock. This has resulted in the emergence of a number of imperfect substitutes such as individuals having multiple SIM numbers across the different countries they frequently visit, call back options, the use of a local numbers offered to visited country roamers, or the use of Wi-Fi together with the use of OTT services such as Skype, WhatsApp and Viber (where such services are not blocked).

With the roll-out of 4G networks and LTE roaming coupled with available OTT applications and services, demand for mobile data while roaming is likely to continue to increase significantly. This in turn will also drive competitive roaming offers. Given that the price elasticity of demand is much higher for data roaming in comparison to voice roaming, lowering prices sufficiently may have a significant volume effect, which can increase operator revenues going forward. Operators consequently have responded with competitive roaming packages that include inclusive calls, SMS and data volumes that can be purchased separately and which are valid for a set number of days.

SAMENA Telecommunications Council position

International mobile roaming is a competitive service that provides significant value-add to customers. It is technically and administratively complex, incurs costs and entails a number of different interrelated and non-transparent components that need to be well understood. These include legal/commercial aspects (roaming agreements/negotiation between MNOs), procedural aspects (what happens in terms of sequential process when a subscriber switches on his mobile device in a visited country and places or receives a call, sends an SMS or MMS, or accesses data), technical aspects (how do the home and visited networks "talk" to each other), and, lastly, what type of costs are incurred during the roaming process. Further complexities are added with rapidly changing technologies, services and applications and the advent of cross-border M2M communication and the IoT, all impacting the procedural and competitive roaming landscape.

Regulators and policy makers need to be mindful of these complexities when considering regulatory intervention. Any proposed regulatory intervention will need to be assessed as to its impact and potentially adverse or distorting effect (including the costs of implementation), which should be minimized.

While the SAMENA Telecommunications Council agrees that price regulation in the form of price caps is an efficient means to achieve consumer benefit in the form of lower prices, the introduction of price regulation should be an intervention of "last resort". Moreover, price regulation should only be introduced following a rigorous analysis and only after other measures such as transparency obligations and the removal of structural barriers, including double taxation or international gateway monopolies and associated charges have been implemented. To avoid abrupt "shocks" and needless disruption to MNO revenues and profits, and to ensure continued investment and enable a smooth transition, any introduction of price caps should be accompanied by a multi-year glide path. Regulators should also consider introducing wholesale caps only, to ensure that there is sufficient pricing flexibility at the retail level, given the more competitive landscape at the retail level.

In the specific case of the GCC, given the high variability in underlying costs across the GCC (including termination, taxes, international gateway fees), price caps must be set sufficiently high to ensure that all operators affected can cover their costs and that sufficient pricing flexibility is given to offer alternative, commercially viable packages.

Asociación Interamericana de Empresas de Telecomunicaciones (ASIET)[66]

> **Box 13: ASIET presentation at the IMR Consultation Meeting, Geneva 2016**
>
> ASIET proposals included:
>
> – moving forward under schemes of self-regulation for the establishment of common quality standards among all operators involved in the provision of roaming services;
>
> – working to minimize the negative effects produced by cross border roaming. To study the creation of mechanisms that warn these consumers when its device changes of operator involuntarily or study the possibility to create special offers for these customers;
>
> – improving current information systems to allow to shorter the time for exchange of information between operators related to the roaming agreements to avoid fraud;
>
> – evolving towards schemes that allow to reduce the high tax burden on roaming services.

ASIET is an association of telecommunication companies in Latin America, with more than 30 years dedicated to advancing public policies that promote the sector development and the information society as a whole.

Although the traffic in roaming in the Latin American region was related to business activities in the past, according to the World Tourism Organization this dependence is changing, given that at present globally 52 per cent of trips are made by leisure, recreation and holidays; 27 per cent for health, religion and other matters and only 14 per cent for business and professional purposes. In the region mobile roamers will spend from 21.7 million in 2013 to 32.5 million in 2018.

Roaming is affected by a number of external and internal factors that make it difficult to improve the service, such as:

– The double taxation of VAT and other sectorial taxes applied in most of the countries of the region the price of the international roaming service is approximately between 35 per cent and 60 per cent more expensive than a price without taxes[67].

– Many actors are involved at the end-to-end service. The mobile operator has no control of the entire chain, since they are involved among others, the long-distance operators.

– The cases of fraud are between 3 per cent and 5 per cent of operator income.

– The higher risk of fraud is due to the delay in the exchange of information between operators.

– Complex schemes of rates, by type of call, by country and by operator discourages use.

– The different technologies initially deployed by mobile operators in the region as well as the different attribution of frequency bands, delayed the development of the service and conditioned the use of more expensive terminals.

In Latin America some operator companies are reacting to face these challenges and respond to the needs of customers. Several operator companies with footprints in several countries started to introduce packages and offers to remove roaming charges (see COMTELCA).

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[66] Based from ASIET presentation at the IMR Consultation Meeting, Geneva, September 2016: www.itu.int/en/ITU-D/Regulatory-Market/Pages/Events2016/IMR_Consultation/home.aspx.

[67] IIRSA project

Annex 3: List of regional regulatory associations, international organizations, consumer associations and private sector associations - participating at the *Let's Roam the World* initiative

Assemblée des Régulateurs des Télécommunications de l'Afrique Centrale (ARTAC)

Comité de Régulation des Télécommunications de l'UEMOA (CRTEL)

West Africa Telecommunications Regulators Assembly (WATRA)

Economic Community for West African States (ECOWAS)

Association of Regulators for Information and Communication Services of Eastern and Southern Africa (ARICEA)

East African Communications Organization (EACO)

African Telecommunications Union (ATU)

Communications Regulators' Association of Southern Africa (CRASA)

Association of Communications and Telecommunications Regulators of the Community of Portuguese Speaking Countries (ARCTEL-CPLP)

Independent Regulators Group (IRG)

Body of European Regulators for Electronic Communications (BEREC)

European Commission (EC)

European Conference of Postal and Telecommunications Administrations (CEPT)

European Telecommunications Standards Institute (ETSI)

Euro-Mediterranean Telecom Regulators (EMERG)

Arab Regulators Network of telecommunications and information technologies (AREGNET)

Gulf Cooperation Council (GCC)

League of Arab States (LAS)

Inter-American Telecommunication Commission (CITEL)

Caribbean Telecommunications Union (CTU)

Organization of Caribbean Utility Regulators (OOCUR)

Eastern Caribbean Telecommunications Authority (ECTEL)

Telecommunications Regional Technical Commission (COMTELCA)

Latin American Forum of Telecom Regulators (REGULATEL)

South Asian Telecommunication Regulators' Council (SATRC) and

Asia-Pacific Telecommunity (APT)

Pacific Island Telecommunication Association (PITA)

Regional Commonwealth in the Field of Communications (RCC)

Réseau Francophone de la Régulation des Télécommunications (FRATEL)

Réseau des Consommateurs Africains des TIC (RECATIC)

International Telecommunications Users Group (INTUG)

Association for Progressive Communications (APC)

Caribbean Association of National Telecommunications Organizations (CANTO)

European Telecommunications Network Operators' Association (ETNO)

Global System for Mobile Communications Association (GSMA)

Asociación Interamericana de Empresas de Telecomunicaciones (ASIET)

SAMENA Telecommunications Council

Commonwealth Telecommunications Organization (CTO)

SMART AFRICA

International Organisation of la francophonie (OIF)

European Consumers' Organization (BUEC)

Annex 4: Glossary of terms

APEC	Asia-Pacific Cooperation Telecommunications and Information Working Group
APT	Asia Pacific Telecommunity
AREGNET	Arab Regulators Network of telecommunications and information technologies
ARPU	Average revenue per user
ASIET	Asociación Interamericana de Empresas de Telecomunicaciones
BEREC	Body of European Regulators for Electronic Communications
CARICOM	Caribbean Community
CITEL	Inter-American Telecommunications Commission
COCOM	Communications Committee (EU)
COMTELCA	Comisión Técnica Regional de Telecomunicaciones de América Central
CRA	Communications Regulatory Authority Qatar
CRASA	Communications Regulatory Association of Southern Africa
CRTT	CRASA Roaming Task Team
CTU	Caribbean Telecommunication Union
DSM	Digital Single Market
EAC	East African Community
EBITDA	Earnings before interest, tax, depreciation and amortization
EC	European Commission
ECOWAS	Economic Community for the West African States
EEA	European Economic Area
ECTEL	Eastern Caribbean Telecommunications Authority
EC	European Commission
ETGR	ECOWAS Technical Group on Roaming
EU	European Union
FUP	Fair Use Policy (EC)
GATS	General Agreement on Trade in Services
GB	Gigabyte
GCC	Gulf Cooperation Council
GDP	Gross domestic product
GSMA	GSM Association

GSR	Global Symposium of Regulators
HDR	Home data register
ICT	Information communication technologies
IDB	Inter-American Development Bank
IMR	International mobile roaming
IMSI	International mobile subscriber identity
IOT	Inter-operator tariff
IoT	Internet-of-things
ITRs	International Telecommunication Regulations
ITU	International Telecommunication Union
MB	Megabyte
M2M	Machine-2-machine
MFN	Most favoured nation (GATS principle)
MNO	Mobile network operator
MTR	Mobile termination rates
MVNO	Mobile virtual network operator
NRA	National regulatory authority
OECD	Organization for Economic Co-operation and Development
OECS	Eastern Caribbean Countries Commission
ONA	One Network Area
OTT	Over-the-top
QoS	Quality of service
QoE	Quality of experience
PARLACEN	Central American Parliament
PPDU	Project Preparation and Development Unit (ECOWAS)
RA	Regulatory associations
RATT	Regional Alliance Task Team (SADC)
REGULATEL	Latin American Forum of Telecom Regulators
RLAH	Roam-like-at-home
RWG	Roaming working group (GCC)
SATA	Southern Africa Telecommunication Association

SADC	Southern African Development Community
SIM	Subscriber identity module
SMS	Short message service
TSM	Telecom Single Market
TRA	Telecommunications Regulatory Authority Oman
US	United States
VAT	Value-added tax
VoIP	Voice over Internet Protocol
WATRA	West Africa Telecommunications Regulators Assembly
WCIT	World Conference on International Telecommunications
Wi-Fi	Wireless fidelity (IEEE 802.11 standard)
WTA	Weighted tariff average
WTDC	World Telecommunication Development Conference
WTO	World Trade Organization
WTO	World Tourism Organization
WTSA	World Telecommunication Standardization Assembly

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