

Virtual 10-11 May 2021 - 17:00 to 20:00 (CEST)

Economic policies and methods of
determining the costs of services related
to national
telecommunication/ICT networks
including NGN

Question 4/1 framework

Study period 2014-2017

Study period 2014-2017 Question 4/1 focused on various topics such as new charging methods for services provided over NGN networks, infrastructure-sharing models, consumer price evolution and impact on ICT service usage, methods of determining the cost of licences for the operation of networks and/or the provision of telecommunication services and regulatory accounting in an NGN environment

Study period 2018-2021 (Topics)

1. New charging methods (or models, if applicable) for services provided over NGN networks, including 1.1) Methods for determining the costs of wholesale services.
2. Different models for infrastructure sharing, including through commercially negotiated terms, including 2.1) For what type of infrastructure (or facilities) the provider party is free to negotiate reasonable commercial terms and conditions with a requesting party; 2.2) The impact of infrastructure sharing on investment cost, local loop unbundling, provision of telecommunication/ICT services, competition and prices to consumers: case studies with quantitative analysis.
3. Consumer price evolution and impact on ICT service usage, innovation, investment and operator revenues, including 3.1) New and innovative business models for services deployed in an NGN environment, including methods encouraging the adoption and use of ICT services; 3.2) Trends in prices of telecommunication/ICT services, including international mobile roaming.
4. Trends in the development of virtual mobile operators and their regulatory framework.

Question 4/1 Report

Question 4/1 Final Report Structure

- [Chapter 1](#) New charging methods (or models, if applicable) for services provided over NGN networks
- [Chapter 2](#) Different models for infrastructure sharing, including through commercially negotiated terms
- [Chapter 3](#) Consumer price evolution and impact on ICT service usage, innovation, investment and operator revenues
- [Chapter 4](#) Trends in the development of mobile virtual network operators (MVNO) and their regulatory framework
- [Chapter 5](#) Best practices guidelines
- [Annexes](#)

Question 4/1 Final Report Chapter 1

Chapter 1 New charging methods (or models, if applicable) for services provided over NGN networks

- Methods for determining the costs of wholesale/advanced services
- Significant Market Power (SMP) – national aspects
- Different models for planning NGN networks
- Country experience and case studies (Spain, Turkey, Burkina Faso, Gambia, Paraguay, Brazil)

Question 4/1 Final Report Chapter 2

Chapter 2 Different models for infrastructure sharing, including through commercially negotiated terms

- Different types/models for infrastructure sharing (passive, active)
- Regulatory frameworks for infrastructure sharing
- Commercial terms and conditions for infrastructure sharing
- Infrastructure sharing consideration related to transition for 5G
- Spectrum sharing framework within infrastructure sharing
- The impact of infrastructure sharing
- Country experience and case studies (Turkey, Brazil, Egypt)

Question 4/1 Final Report Chapter 3

Chapter 3 Consumer price evolution and impact on ICT service usage, innovation, investment and operator revenues

- The impact of infrastructure and spectrum sharing on prices to consumers
- Impact of bundled telecommunication/ICT services on Average Revenue Per User (ARPU) (“Zero rating”)
- ICT price baskets
- New business models for provisioning of accessible and affordable ICT services to achieve Sustainable Development Goals (SDGs) and WSIS Action Lines (WSIS-AL)
- Methods to encourage adoption and use of advanced ICT services
- Trends in prices of telecommunication/ICT services
- Country experience and case studies (Turkey, Russian Federation)

Question 4/1 Final Report Chapter 4

Chapter 4 Trends in the development of mobile virtual network operators (MVNO) and their regulatory framework

- Models of Mobile Virtual Network Operators
- Regulatory framework in the field of MVNO
- Commercial agreements in the field MVNO
- Impacts of MVNO on market competition
- Country experience and case studies (Senegal)

Question 4/1 Final Report Chapters 5 and 6

Chapter 5 Best practices guidelines

- Promoting appropriate infrastructure sharing
- Determine appropriate wholesale charges

Chapter 6 Conclusions

ITU-D Study period 2018-2021 expressed the continuous importance of economic aspects consideration in the national telecommunications/ICT. The appearance of new types of telecommunication businesses like MVNO and convergence of traditional ones led to necessity for regulators and operators to adopt their policies and strategies to this new digital reality.

Finding the suitable cost and governance models and using the relevant regulatory tools like infrastructure sharing should be the main goals of NRAs to help their national markets thrive, as shown in contributions received from both NRAs and operators and considered by Q 4/1 Rapporteur group for this study period.

However, at the same time, further global forces pushing towards increased digitalization, national economic and global emergencies, like COVID-19 pandemic, leave many new issues that require additional study and investigation for the next ITU-D study period.



Question 4/1 Final Report Annexes

- [Annex 1](#) Regulation of interconnection charges in Paraguay
- [Annex 2](#) Infrastructure Cost Sharing at Internet Exchange Points (IXPs)
- [Annex 3](#) Detailed statistics about methods used by NRAs for determining the cost of wholesale services
- [Annex 4](#) Social tariffs design in Russian Federation
- [Annex 5](#) Relevant definitions for the ICT price baskets
- [Annex 6](#) Examples of use of IXPs to fulfil WSIS Action Lines
- [Annex 7](#) ITU-D Study group events on the COVID-19 Pandemic related to Question 4/1
- [Annex 8](#) Abbreviations and Acronyms

Review on received case studies (1/3)

- Case study of Spain/Telefónica de España on the wholesale offer related to the modern broadband networks (Chapter 1)
- Case study of Turkey/Türk Telekom on the methodology and criterion of SMP determination (Chapter 1)
- European experience on the use of different cost models (Chapter 1, Annex 3)
- Case study of Gambia on the determination of the wholesale tariff (Chapter 1)
- Case study of Paraguay on regulation of interconnection charges (Chapter 1, Annex 1)

Review on received case studies (2/3)

- Case study of Brazil on the determine costs for products in relevant wholesale markets (Chapter 1, Annex 3)
- Case study of Turkey/Türk Telekom on the infrastructure sharing agreement (Chapter 2)
- Case study of Brazil on infrastructure sharing initiatives (Chapter 2)
- Case study of Egypt on infrastructure sharing regulation (Chapter 2)
- Case study of Russia on tariff design (Chapter 3, Annex 4)

Review on received case studies (3/3)

- European experience on the Price baskets methodology (Chapter 3)
- European experience on the international roaming regulation (Chapter 3)
- Case study of Senegal on MVNO regulation (Chapter 4)

Other valuable information from the Report

- **Cost modelling.** Brief description of common approaches and elements of cost modelling (Chapter 1, more details in the [Q 4/1 Guidelines on cost modelling](#))
- **Infrastructure sharing.** Description of different types of infrastructure sharing, including spectrum sharing, IXP and LLU regulation ([Chapter 2](#))
- **Tariff design.** Description of different types of bundled tariffs on telecommunication services ([Chapter 3](#))
- **ICT Price baskets.** Determination and statistics on ICT Price baskets ([Chapter 3](#))
- **MVNO.** Description of different types of virtual mobile operators and principles of regulation ([Chapter 4](#))
- **ITU Tariff Policies Surveys 2019-2020.** Statistics on economic of national telecommunications/ICT markets ([Chapter 2](#), [Chapter 3](#), [Annex 3](#))

Question 4/1 Evolution

Current principles

- Question 4/1 produces Report each study period on the topics set by WTDC
- Question 4/1 repeats some materials each study period if the topics are persisted through different study periods
- Question 4/1 meets strict page limits which forced to send some valuable material for Annexes which are not translated for six official languages of ITU, including Spanish

Proposed principles

- Question 4/1 will review and update of the 2018-2021 Question 4/1 Report on the common topics persisting through mandates of Question 4/1 set at WTDC-14, -17 and -21
- Question 4/1 can include new contributions on the common topics in the revised 2018-2021 Question 4/1 Report
- Question 4/1 will draft the new 2021-2024 Report and other deliverables that will include only new topics approved by the WTDC-21
- Question 4/1 will focus on all the economic aspects of national telecommunications/ICT markets from the point of view of all stakeholders (countries, regulators, existing operators, new entrants, consumers)

New topics for 2021-2025 (1/3)

- Economic impact of new converging ICTs on all stakeholders forming the ICT networked Value Chain (e.g. telecom operators, over-the-top, digital service providers, etc.)
- Ways to how new types and modes of investment in telecommunications/ICT, e.g. impact, blended investment and crowd-funding can help achieving SDGs
- The design of new tariffs for convergent networks/services (e.g.: bundling)
- Economic aspects/implications of digital transformation (IoT, AI, Machine Learning, 5G and beyond, etc.)

New topics for 2021-2025 (2/3)

- Estimation of the value of digital technologies in other sectors of the economy (education, agriculture, health, etc.)
- Taxation approaches in emerging national telecommunications/ICT markets
- New business models: e.g. real economic value of usage of personal data
- Measuring the economics of bridging the digital divide to ensure availability, accessibility and affordability of telecommunications/ICT services for everyone and everywhere
- Measuring the economics of bridging existing gaps to enable the digitalisation of the economy in all the sectors

New topics for 2021-2025 (3/3)

- Economic incentives and mechanisms for bridging the digital divide
- National economic aspects of Digital financial inclusion
- Economic impact of the COVID-19 pandemic on the Telecommunications/ICT markets
- Economic impact of the Telecommunications/ICT services on the economic recovery from the COVID-19 pandemic
- New economic aspects affected by national telecommunication/ICT market environment

Thank you

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