|  |  |  |
| --- | --- | --- |
| The International Teleocmmunication Union - Connecting the World. | **International telecommunication union****Telecommunication Standardization Bureau** |  |
|  | Geneva, 25 September 2024 |
| **Ref:** | **TSB Circular 235****SG13/TK** | **To:**- Administrations of Member States of the Union;**Copy to:**- ITU-T Sector Members;- ITU-T Associates of Study Group 13;- ITU Academia;- The Chairs and Vice-Chairs of Study Groups;- The Director of the Telecommunication; Development Bureau;- The Director of the Radiocommunication Bureau. |
| **Tel:** | +41 22 730 5126 |
| **Fax:****E-mail:** | +41 22 730 5853tsbsg13@itu.int |
| **Subject:** | **Questionnaire on Migrating existing mobile network technologies to IMT-2020 and beyond** |

Dear Sir/Madam,

ITU-T Study Group 13 (*Future networks and emerging network technologies*) at its last meeting
(Geneva, 15 – 26 July 2024) agreed to disseminate the questionnaireon *Migrating existing mobile network technologies to IMT-2020 and beyond.* This questionnaire is targeted to all ITU-T membership.

Study Group 13, Question 5/13 (*Applying Future Networks and innovation in developing countries*), is developing a Supplement on *Guidance on migrating existing mobile network technologies to IMT-2020 and beyond.* The analysis of the results of the survey replies will support the Q5/13 work on the above Supplement.

I invite you to participate in this survey and would appreciate it if you would complete the questionnaire reproduced in **Annex 1** no later than **1 January 2025**. Please note, however, that for more efficient reply consolidation and analysis we kindly request that the following online version of the questionnaire be used: [https://www.research.net/r/LGTH6WV](https://eur03.safelinks.protection.outlook.com/?url=https%3A%2F%2Fwww.research.net%2Fr%2FLGTH6WV&data=05%7C02%7Ctsbsg13%40itu.int%7C5ffa8f6c7bbb48a57e9408dcc384649f%7C23e464d704e64b87913c24bd89219fd3%7C0%7C0%7C638600220591859422%7CUnknown%7CTWFpbGZsb3d8eyJWIjoiMC4wLjAwMDAiLCJQIjoiV2luMzIiLCJBTiI6Ik1haWwiLCJXVCI6Mn0%3D%7C0%7C%7C%7C&sdata=d%2BDXMJC4TuS8G3N2qcp342SLFGua5dmC4OVhM9PkiOA%3D&reserved=0). The form in Annex 1 could be used in case there are difficulties in using the online one.

I wish to thank you in advance for your participation in this survey. We value your opinion.

|  |  |
| --- | --- |
| Yours faithfully,Seizo OnoeDirector of the TelecommunicationStandardization Bureau**Annex:** 1 |  |

**ANNEX 1
Questionnaire on Migrating existing mobile network technologies to IMT-2020 and beyond**

Responder’s information

|  |  |
| --- | --- |
| Country: |  |
| Organization: |  |
| Name: |  |
| Job Title: |  |
| Address:  |  |
| Telephone: |  |
| E-Mail: |  |

**Instructions:**

Multiple choice to some questions is possible and is welcome.

1. ***Status of IMT-2020 Network deployment***
2. **What type of mobile network technologies is being used in your country?**

[ ]  GSM (a.k.a. 2G)
[ ]  IMT-2000 (a.k.a. 3G)
[ ]  IMT-Advanced (a.k.a. 4G)
[ ]  Other (Please specify): ………………………………………………………………………………….…………

1. **What is the current status of IMT-2020 (a.k.a. 5G) network deployment in your country?**

[ ]  Not yet started
[ ]  Planning and assessment phase
[ ]  Spectrum allocation phase
[ ]  Initial deployment phase (including pilot projects)
[ ]  Partial deployment phase
[ ]  Full deployment phase
[ ]  Advanced deployment (i.e.: full deployment of IMT-2020 networks + implementation of advanced features like network slicing and edge computing)
[ ]  Other (Please specify): ……………………………………………………………………………………..…..…

1. **When IMT-2020 services were commercially launched/are planned to be commercially
launched for the first time in your country** (Please provide an approximate/expected
date):

…………………………………………………………………………………………………………………………………………….

**1.4. How many telecom operators are in your country?**…………………………………………….………..…

**1.5. How many telecom operators have already commercially launched IMT-2020 services in
 your country?**

[ ]  0
[ ]  1
[ ]  2
[ ]  3
[ ]  Other (Please specify): …………………………………………………………………………………..….……

**1.6. What percentage of your country's population has currently access to IMT-2020 services?**

[ ]  0%
[ ]  Less than 10%
[ ]  10-30%
[ ]  30-50%
[ ]  More than 50%
[ ]  Do not know

 **1.7. What is the current percentage of IMT-2020 network coverage in your country
 (geographic perspective)?**

[ ]  0%
[ ]  Less than 10%
[ ]  10-30%
[ ]  30-50%
[ ]  More than 50%
[ ]  Do not know

 **1.8. What scenario was adopted/is planned to be adopted in the migration to IMT-2020
 networks in your country?**

[ ]  Leapfrog from GSM to IMT-2020

[ ]  Leapfrog from IMT-2000 to IMT-2020

[ ]  Non-Standalone (NSA)

[ ]  Standalone (SA)

[x]  NSA then SA

[ ]  Other (Please specify): ……………………………………………………………………………………..………

* 1. **What spectrum band has your country used / is your country planning to use
	for IMT-2020?**

[ ]  Low-band spectrum (below 1 GHz)

[ ]  Mid-band spectrum (1-6 GHz)

[ ]  High-band (millimeter wave) spectrum (above 24 GHz)

[ ]  Other (Please specify): ………………………………………………………………………………………..……

1. ***Opportunities and challenges of migration to IMT-2020 networks***
2. **What are the benefits of migrating to IMT-2020 networks you have experienced or
anticipate?**

[ ]  Increased network capacity and efficiency

[ ]  Enhanced Quality of Service (QoS) and Quality of Experience (QoE)

[ ]  New business opportunities

[ ]  Support for innovative applications and services

[ ]  Economic growth and job creation opportunities

[ ]  Expanded mobile broadband coverage and digital inclusion

[ ]  Support for digital transformation

[ ]  Other (Please specify): ………………………………………………………………………………..………

1. **In your opinion, which sectors have benefited/will benefit the most from IMT-2020 services in your country?**

[ ]  Healthcare

[ ]  Transportation

[ ]  Education

[ ]  Entertainment and media

[ ]  Manufacturing

[ ]  Agriculture

[ ]  Retail

[ ]  Others (please specify): ………………………………………………….………………………………………

1. **Rate the following concerns about IMT-2020 migration on a scale of 0 to 5 (0 = not
concerned, 5 = very concerned):**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
|  | **0** | **1** | **2** | **3** | **4** | **5** |
| * High infrastructure cost
 |  |  |  |  |  |  |
| * Uncertain Return on Investment (RoI)
 |  |  |  |  |  |  |
| * Deployment complexity
 |  |  |  |  |  |  |
| * Integration with existing networks
 |  |  |  |  |  |  |
| * Regulatory issues
 |  |  |  |  |  |  |
| * Lack of expertise
 |  |  |  |  |  |  |
| * Site acquisition and permitting (for new infrastructure)
 |  |  |  |  |  |  |
| * Cybersecurity risks
 |  |  |  |  |  |  |
| * Data privacy and protection concerns
 |  |  |  |  |  |  |
| * Possible relational health concerns
 |  |  |  |  |  |  |
| * Energy consumption
 |  |  |  |  |  |  |
| * Customer adoption
 |  |  |  |  |  |  |
| * Device availability and compatibility
 |  |  |  |  |  |  |
| * Others (Please specify and rate):

…………………………………………………………………………………………... |  |  |  |  |  |  |

1. **What are the main technical challenges you have faced or anticipate when migrating to IMT-2020 networks?**

[ ]  Interoperability between different vendors’ equipment and technologies
[ ]  Scalability
[ ]  QoS assurance
[ ]  Energy Efficiency
[ ]  Security and Privacy Management
[ ]  Regulatory Compliance
[ ]  NFV and SDN implementation
[ ]  Network Slicing implementation
[ ]  Edge Computing Integration
[ ]  Service Orchestration and Automation
[ ]  Other (Please specify): ………………………………………………………………………………..…………

1. **What strategies have you implemented / do you plan to implement to address the migration challenges?**

………………………………………………………………………………………………………………………………………….

………………………………………………………………………………………………………………………………………….

1. ***Requirements and Standardization needs***
2. **What are the main requirements of migration to IMT-2020 in your country in relation to:**
3. Core Network upgrade:

………………………………………………………………………………………………………………………………………….

1. Backhaul and transport network upgrade:

………………………………………………………………………………………………………………………………………….

1. Access Network upgrade:

 ………………………………………………………………………………………………………………………………………….

1. Security and privacy:

 ………………………………………………………………………………………………………………………………………….

1. Service and device Ecosystem:

………………………………………………………………………………………………………………………………………….

1. Regulatory Framework:

 ………………………………………………………………………………………………………………………………………….

1. Energy Efficiency:

 ………………………………………………………………………………………………………………………………………….

1. QoS and QoE:

 ………………………………………………………………………………………………………………………………………….

1. Other requirements:

 ………………………………………………………………………………………………………………………………………….

1. **Do you have any idea on the standardization activities of ITU-T on IMT-2020 (non-radio aspects)?**

[ ]  Yes

[ ]  No

If yes, what activities do you follow or participate in?

………………………………………………………………………………………………………………………………………….

1. **What areas of ITU-T standardization on IMT-2020 (non-radio aspects) interest you the most? rate the following areas on a scale of 0 to 5 (0 = not interested, 5 = very interested):**

[ ]  Network Function Virtualization (NFV)

[ ]  Software-Defined Networking (SDN)

[ ]  Edge Computing

[ ]  Network Slicing

[ ]  Artificial Intelligence (AI) and Machine Learning (ML)

[ ]  Security and Privacy

[ ]  QoS and QoE

[ ]  Other (please specify): ……………………………………………………………………….……………………

1. **What area(s) of standardization related to IMT-2020 (non-radio aspects) you think that ITU-T should focus on in the next study period 2025-2028?**

 ………………………………………………………………………………………………………………………………………….

1. ***Migration strategies and process***
2. **What deployment strategies of IMT-2020 networks were adopted/are planned to be adopted in your country?**

[ ]  Progressive deployment

[ ]  Greenfield deployment

[ ]  Focused use case deployment (prioritization of use-cases)

[ ]  Private Networks deployment

[ ]  Collaborative deployment

[ ]  Other (please specify): ……………………………………………………………………………………….………

1. **Which IMT-2020 use cases were launched/are planned to be launched in your country at the short, middle and long-term following the migration to IMT-2020 network?**

|  |  |  |  |
| --- | --- | --- | --- |
| **IMT-2020 use cases** | **Short-term****(within 1 year)** | **Mid-term****(1 to 3 years)** | **Long-term****(More than 3 years)** |
| * High-Speed mobile Internet Access
 |  |  |  |
| * Fixed Wireless Access (FWA)
 |  |  |  |
| * Augmented Reality (AR) and Virtual Reality (VR)
 |  |  |  |
| * Enhanced entertainment and media (including gaming)
 |  |  |  |
| * Healthcare applications and telemedicine
 |  |  |  |
| * Smart agriculture
 |  |  |  |
| * Smart transportation and autonomous vehicles
 |  |  |  |
| * Industrial automation and smart factories
 |  |  |  |
| * Public safety and emergency services
 |  |  |  |
| * Cloud Computing and Edge Computing:
 |  |  |  |
| * Environmental monitoring:
 |  |  |  |
| * Smart Grids and energy management
 |  |  |  |
| * Smart retail solutions
 |  |  |  |
| * Education and E-Learning
 |  |  |  |
| * Other (please specify) :

………………………………………….…… |  |  |  |

1. **What are the key considerations for prioritizing IMT-2020 use cases in your country? rate the following considerations on a scale of 1 to 5 (1= least important, 5 = most important):**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  | **1** | **2** | **3** | **4** | **5** |
| * Economic benefits
 |  |  |  |  |  |
| * Technological maturity
 |  |  |  |  |  |
| * Alignment with national regulatory frameworks and policies.
 |  |  |  |  |  |
| * Compliance to standards
 |  |  |  |  |  |
| * Infrastructure availability
 |  |  |  |  |  |
| * Societal needs and benefits
 |  |  |  |  |  |
| * Ease of adoption
 |  |  |  |  |  |
| * Scalability and sustainability
 |  |  |  |  |  |
| * Other (please specify and rate): …………………………………………………………………………………..
 |  |  |  |  |  |

1. **What steps should be taken to prepare for IMT-2020 migration?**

[ ]  Strategic Planning
[ ]  Securing budget and funding
[ ]  Training staff and technicians
[ ]  Network assessment
[ ]  Technology Evaluation and Selection (partnering with technology providers)
[ ]  Network architecture design
[ ]  Network Infrastructure deployment
[ ]  Testing and validation
[ ]  Marketing and promotional initiatives for IMT-2020 services
[ ]  Setting-up monitoring and governance frameworks
[ ]  Other (please specify): ……………………………………………………………………………………………

1. ***General Guidance for Network Technologies Migration***

**What general guidelines/recommendations/advice would you like to give to the following stakeholders in order to facilitate the migration from existing mobile network technologies to IMT-2020 and beyond:**

1. Regulators:

 ………………………………………………………………………………………………………………………………………….

1. Governments and Policy makers:

 ………………………………………………………………………………………………………………………………………….

1. Network Operators:

………………………………………………………………………………………………………………………………………….

1. Equipment manufacturers:

 ………………………………………………………………………………………………………………………………………….

1. Customers:

………………………………………………………………………………………………………………………………………….

1. Service developers:

………………………………………………………………………………………………………………………………………….

1. Verticals:

 ………………………………………………………………………………………………………………………………………….

1. Other guidelines/recommendations/advice:

 ………………………………………………………………………………………………………………………………………….

*Thank you for your active participation in this survey!*

If you have questions, please, contact us at tsbsg13@itu.int.

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_