|  |  |  |
| --- | --- | --- |
| The International Teleocmmunication Union - Connecting the World. | **Международный союз электросвязи****Бюро стандартизации электросвязи** |  |

 Женева, 25 сентября 2024 года

|  |  |  |
| --- | --- | --- |
| Осн.: | **Циркуляр 235 БСЭSG13/TK** | **Кому**:– Администрациям Государств – Членов Союза**Копии**:– Членам Сектора МСЭ-Т– Ассоциированным членам МСЭ-Т, участвующим в работе 13‑й Исследовательской комиссии– Академическим организациям − Членам МСЭ– Председателям и заместителям председателей исследовательских комиссий МСЭ-Т– Директору Бюро развития электросвязи– Директору Бюро радиосвязи |
| Тел.:Факс:Эл. почта: | +41 22 730 5126+41 22 730 5853tsbsg13@itu.int |

|  |  |
| --- | --- |
| **Предмет**: | **Вопросник по переходу от существующих технологий сетей подвижной связи к сетям IMT-2020 и дальнейших поколений** |

Уважаемая госпожа,
уважаемый господин,

На последнем собрании 13-й Исследовательской комиссии МСЭ-Т (Будущие сети и появляющиеся сетевые технологии) (Женева, 15−26 июля 2024 г.) было принято решение распространить вопросник на тему "Переход от существующих технологий сетей подвижной связи к сетям IMT-2020 и дальнейших поколений". Настоящий вопросник предназначен для всех членов МСЭ-Т.

13-я Исследовательская комиссия в рамках своего Вопроса 5/13 (Применение будущих сетей и инноваций в развивающихся странах) разрабатывает Добавление "Руководящие указания по переходу от существующих технологий сетей подвижной связи к сетям IMT-2020 и дальнейших поколений". Анализ результатов по полученным в ходе обследования ответам будет способствовать работе над вышеуказанным Добавлением в рамках Вопроса 5/13.

Приглашаю вас принять участие в этом обследовании и буду признателен, если вы заполните вопросник, содержащийся в **Приложении 1**, не позднее **1 января 2025 года**. Однако для большей эффективности сбора и анализа ответов предлагаем вам использовать онлайновую версию вопросника, размещенную по адресу: [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). Если возникнут трудности с использованием онлайновой формы, вы можете воспользоваться формой, представленной в Приложении 1.

Заранее благодарю вас за участие в этом обследовании. Для нас важно ваше мнение.

|  |  |
| --- | --- |
| С уважением,A black text on a white background  Description automatically generatedСэйдзо ОноэДиректор Бюростандартизации электросвязи |  |

**Приложение**: 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

**1.1 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): ………………………………………………………………………………….…………..............

**1.2 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): ……………………………………………………………………………………..…..…..............

**1.3 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)

[ ]  NSA then SA

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

**1.9 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): ………………………………………………………………………………………..……..............

# 2 Opportunities and challenges of migration to IMT-2020 networks

**2.1 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): ………………………………………………………………………………..………....................

**2.2 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): ………………………………………………….………………………………………................

**2.3 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):

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

**2.4 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): ………………………………………………………………………………..…………................

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

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

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

# 3 Requirements and Standardization needs

**3.1 What are the main requirements of migration to IMT-2020 in your country in relation to**:

1. 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:

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

**3.2 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?

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

**3.3 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): ……………………………………………………………………….……………………..............

**3.4 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?**

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

# 4 Migration strategies and process

**4.1 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): ……………………………………………………………………………………….………...........

**4.2 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):

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

**4.3 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): ………………………………………………………………………………….............
 |  |  |  |  |  |

**4.4 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): ……………………………………………………………………………………………................

# 5 General Guidance for Network Technologies Migration

**5.1 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.

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