Report of the subgroup on 5G indicators

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ITU

1. Background

2. Replies to the Questionnaire

3. The subgroup discussion and proposal to EGTI

1. Background

- during the 2019-2020 period the sugroup dedicated to 5G indicators was created and proposed one new indicator: **Percentage of the population covered by a 5G mobile network**, which was approved in Sept. 2020 EGTI meeting. A definition, scope and other methodological issues was provided

- during EGTI- 2020 it was decided to continue work of 5G subgroup during 2020-21 given the relevance of the deployments taking place all over the world

- active participation in the subgroup by 19 economies as well as international organizations as OECD, GSMA and Axion

2. Replies to the Questionnaire

- 44 economies replied to the state of 5G networks Questionnaire (4 in Middle East, 24 in Europe; 5 in America; 3 in Africa; 8 in Asia)

- most commercial offers with 5G provide mobile broadband connectivity with higher speeds and voice and messaging in a bundle

- in 8 economies commercial offers supplied as well Fixed Wireless Access (fixed broadband) to final users, e.g., broadband connectivity to a fixed location using the 5G networks

Figure: 5G network coverage in a subset of economies around the world

- in the big majority of economies 5G networks and commercial services was already a reality; only 4 economies showed limited deployment- only for trials

Spectrum bands being used for 5G

- A majority of economies have assigned already capacity in the 3,4- 3,6 GHz band and many as well in the 3,6- 3,8 GHz band

- a majority of economies apply the “technological neutrality” principle, by which any band previously assigned may be refarmed for 5G uses

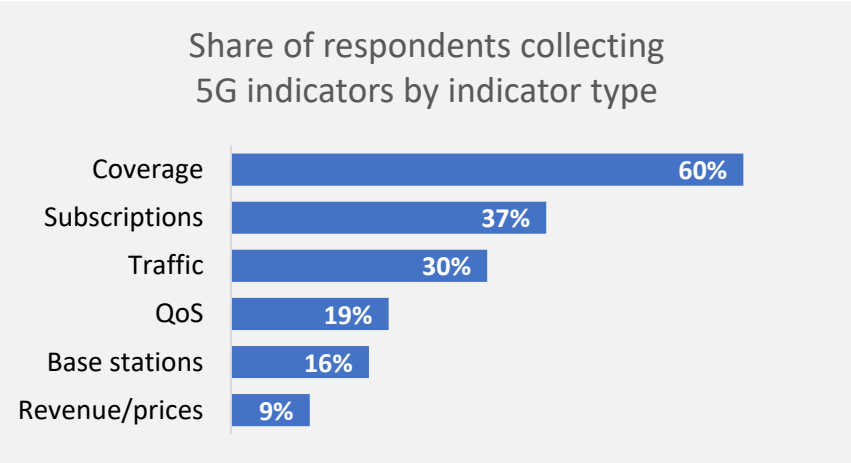
- low bands (< 1 Ghz) and especially mid- bands (1- 6 GHz) are intensely being used for 5G, especially: 700 MHz, 800 MHz, 1,5 – 1,6 GHz, 1,8 GHz, 2,1 GHz, 3,4- 3,6 GHz and 3,6- 3,8 GHz

- in a high numer of economies still pending the assignment of relevant low bands (and more so in the mmWave bands, > 26 GHz)

Indicators being collected for 5G (or planning to be)

- there is interest by Ministries or National Regulatory Authorities (NRAs) to collect indicators on 5G. The main indicators being collected (or planned to be) are:

  - Coverage (over population)
  - Subscriptions to 5G
  - QoS parameters (speed, latency, throughput)
  - Number of 5G Base stations, antennae
  - Traffic through 5G networks



- one problem encountered by many economies was the lack of clear and homogeneous definitions when requiring operators to provide data on the 5G activity

- the mixed use by a final user of 4G/LTE and 5G/ IMT-2020 bands implies difficulties

3. The subgroup discussion and proposal to EGTI

3.1. Subscriptions to mobile broadband- add mobile broadband with 5G/ IMT-2020?

3.2. Subscriptions to mobile cellular- add mobile subscriptions with 5G/ IMT-2020?

3.3. Subscriptions to fixed broadband- add Fixed Wireless Access to broadband with 5G/ IMT-2020?

3.4. Spectrum assigned for 5G purposes?

3.5. Any other indicator being affected by the emergence of 5G/ IMT-2020?

3.1. Subscriptions to fixed broadband

Classification of broadband subscriptions

Fixed broadband

(1) xDSL
(2) Cable modem
(3) FTTH/FTTB
(4) Other fixed wired

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(5) Satellite broadband
(6) Fixed wireless broadband

Fixed wired + Fixed wireless

Proposed refinement:

(6) Fixed wireless broadband

clarify scope: fwa should include 5G fwa

Including 5G Fixed Wireless Access broadband

New (sub-sub-) indicator

Active mobile broadband

(1) Data and voice
(2) Data only

New indicator:

Mobile broadband subscriptions provided over 5G (as a separate category)

New indicator

3.2. Subscriptions to mobile cellular

clarify scope

Indicator 2.2: Mobile-cellular telephone subscriptions, by technology (i271)

Definition:

- ……..

- the number of mobile-cellular subscriptions can be broken down by the technology or standard used:
  - 2.2a. Subscriptions with access to 2G
  - 2.2b. Subscriptions with access to 3G/UMTS
  - 2.2c. Subscriptions with access to 4G/LTE
  - **2.2d. Subscriptions with access to 5G/ IMT- 2020**

New (sub-) indicator

- **it excludes subscriptions via data cards or USB modems, data-only subscriptions, M2M,** private trunked mobile radio, telepoint, radio paging and telemetry services.

3.3. Subscriptions to mobile broadband- add with 5G

clarify scope

Indicator 2.3: Active mobile-broadband subscriptions

Definition:

it refers to the sum of active handset-based and computer-based (USB/dongles) mobile-broadband subscriptions that allow access to the Internet

…….

Clarifications and scope:

…….

- all subscriptions using any technology allowing mobile broadband connections regardless of device used should be included. Hence, standards as 3G/UMTS, 4G/LTE **or 5G/ IMT-2020 are included**

clarify scope: 4G only

Indicator 2.4: **Active subscriptions to LTE/WiMAX mobile broadband**

Definition:

- It refers to subscriptions that have generated Internet traffic in the last 90 days in LTE/mobile WiMAX and *other advanced mobile-broadband networks*, such as LTE-Advanced and Wireless MAN

……

- **it includes any subscription based on USB/ modem/ dongles or computer based that uses the data connection**

New indicator for 5G subscriptions to mobile broadband

New indicator

Indicator new!!: Active mobile broadband subscriptions to 5G/ IMT-2020

Definition:

- it refers to subscriptions that have generated Internet traffic in the last 90 days in 5G / IMT- 2020 mobile-broadband networks **be it voice, messages or data (broadband) traffic**

- it excludes subscriptions having generated Internet traffic only in LTE/4G, HSPA, UMTS, EV-DO and previous 3G networks, and also excludes fixed WiMAX subscriptions.

- it includes both postpaid and prepaid subscriptions, and as well both residential and business subscriptions

- it includes data only, USB/dongle subscriptions active subscriptions

difference with sub- indicator 2.2d

- Note that this indicator aims at collecting all individual subscriptions to mobile broadband with 5G/ IMT-2020, hence, it excludes any other possible use of 5G/ IMT-2020 networks as IoT or massive M2M services.

Note the difference between two indicators proposed:

(a) **sub- indicator 2.2d: "Mobile cellular subscriptions with access to 5G/ IMT-2020"**

→ it covers cellular, e.g. telephony subscriptions (possibly with data subscriptions bundled)- **but excludes any data- only subscription**

(b) **new indicator: "Mobile broadband to 5G networks"**

→ it includes voice as well as data and data- only subscriptions with access to 5G/ IMT-2020 networks (e.g. includes USB/ dongle subscriptions)

3.4. Spectrum assigned for 5G purposes

Proposal: to flag the spectrum assigned to 5G when reporting
"total spectrum assigned for each of the three main blocks"

(1) Block < 1 GHz;
(2) Block 1 GHz- 6 GHz
(3) Block > 6 GHz

} **existing indicator already**

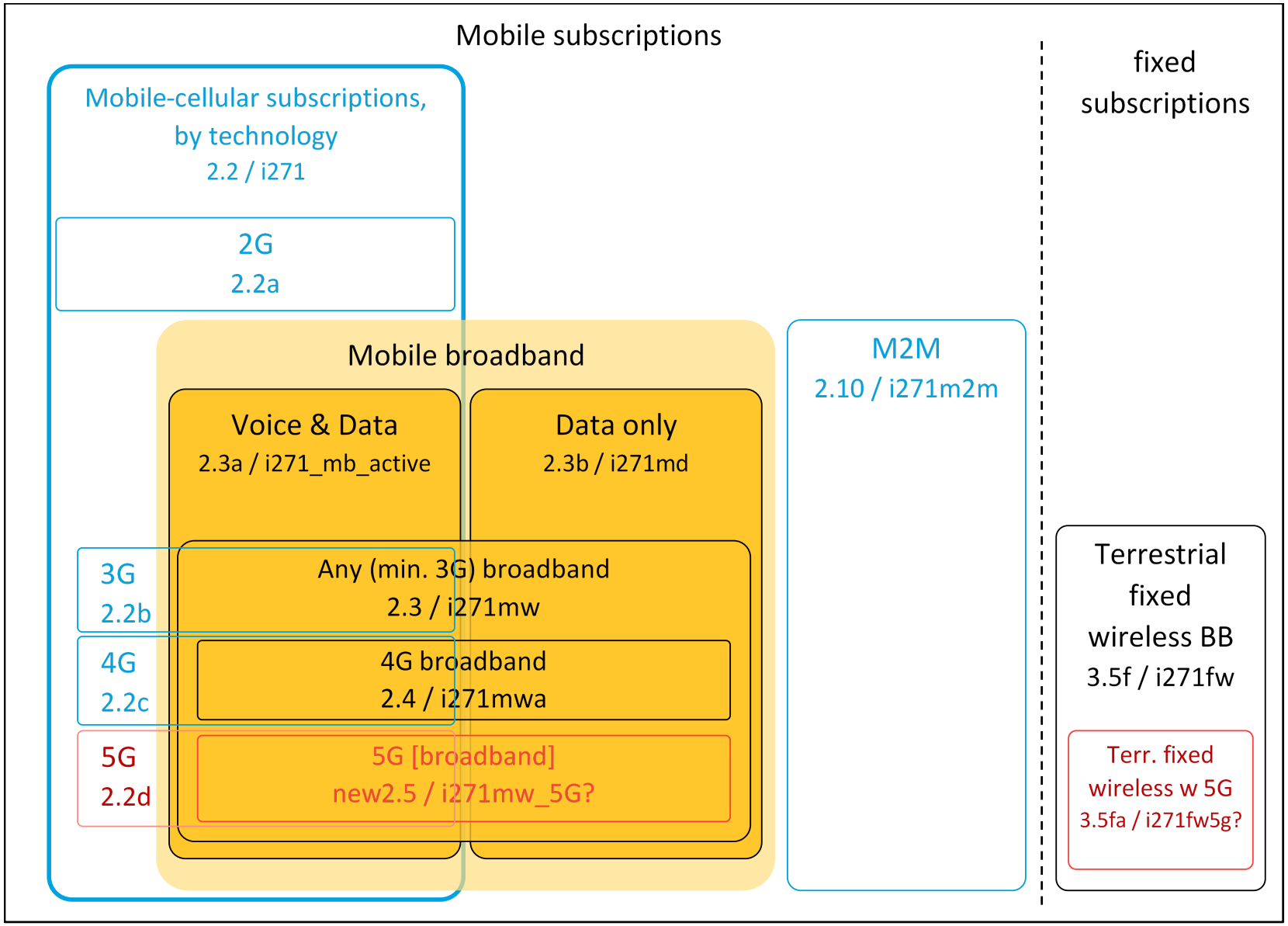
Specifying for each block the relevant **5G spectrum bands** and capacity assigned, as

1. **What specific band has been assigned for 5G** (i.e., 700 MHz, 1800 MHz, 2,1 GHz, 3,4 GHz, 3,8 GHz, 26 GHz…)

2. **How much total capacity has been assigned for 5G** (total of MHz)

} **New!!**

Relationship among all the mobile and fixed subscription indicators



The subgroup proposal to EGTI on 5G indicators in a nutshell

as new indicators:

a) Active mobile broadband subscriptions **to 5G /IMT-2020**
b) Mobile cellular subscriptions with access **to 5G/ IMT-2020 (2.2d)**, as a new sub-indicator of **Mobile active cellular subscriptions** (2.2)

as refinements in the scope of existing indicators:

c) **Active mobile subscriptions with 4G/ LTE** or any more advanced standard, i.e., including 5G/ IMT-2020
d) **Active mobile broadband subscriptions**, including now as well any subscription to broadband with 5G/ IMT-2020
e) **Active fixed broadband subscriptions,** including now 5G/ IMT-2020 supported subscriptions to fixed wireless broadband (FWA): as well a separate sub- indicator?

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} **New!!**

3.5. Further possible avenues for EGTI work

Any other indicator being affected by the emergence of 5G/ IMT-2020?

(a) Subscriptions to M2M: any enlargement, new uses, clarifications?

a special thanks to all the participants at the 5G subgroup