

# SNS-JU TMV WG: 6G Requirements and KPIs - Towards building a consolidated view by SNS JU projects

**6G SNS**

Anastasius Gavras, Eurescom GmbH

Test, Measurement, and KPIs Validation (TMV) WG, all members

Michael Dieudonne, Keysight, TMV WG leader

Ioanna Mesogiti, OTE Hellenic Telecommunications Organisation S.A.

2025 EuCNC & 6G Summit

The 6G series workshop by Hexa-X-II

Tuesday 3 June, 2025



## The SNS JU TMV WG:

- Is one of the five SNS JU WGs.
- Focuses on promoting collaboration and building a harmonized view across SNS JU projects that have strong interest in Testing & Measurement (T&M) methodologies.
- Including KPI formalization and validation to the greatest possible extent as well as the development of test and measurement methods and procedures for this purpose.
- Aims to foster a European vision on 6G networks evaluation across their lifecycle from R&D to actual, deployed environments.

TMV WG – outcomes come from the SNS JU projects collaboration

## Sub-division of Work to Topics/ Sub-Groups

Topic/Sub-Group	Activities Status
6G KPI definition and monitoring	Active since March 2024
6G KVI estimation	Active since April 2024
Test Data reusability in SNS	Active since March 2024
Analysis of SNS Trial results	Topic to be addressed by the 6G KPIs SG at the beginning.
EMF	Postponed

### The WG & Sub-WGs:

- Meet on a regular basis to perform activities on the relevant topics.
- Collect and spread relevant information by questionnaires, meetings, workshops, etc.
- Disseminate and promote some of their key findings in the form of White Papers, on a regular basis (e.g., annually).

## Objectives of 6G KPI Definition and Monitoring Sub-WG:

- To validate and extend the 6G KPIs families, to harmonise KPIs definitions, and shape a consolidated view of the target values across SNS JU projects.
- To cross-validate findings from projects with EU & Global efforts.
- To update and extend the 6G KPI monitoring methodology (presented in the last whitepaper of the TMV WG in 5G PPP).

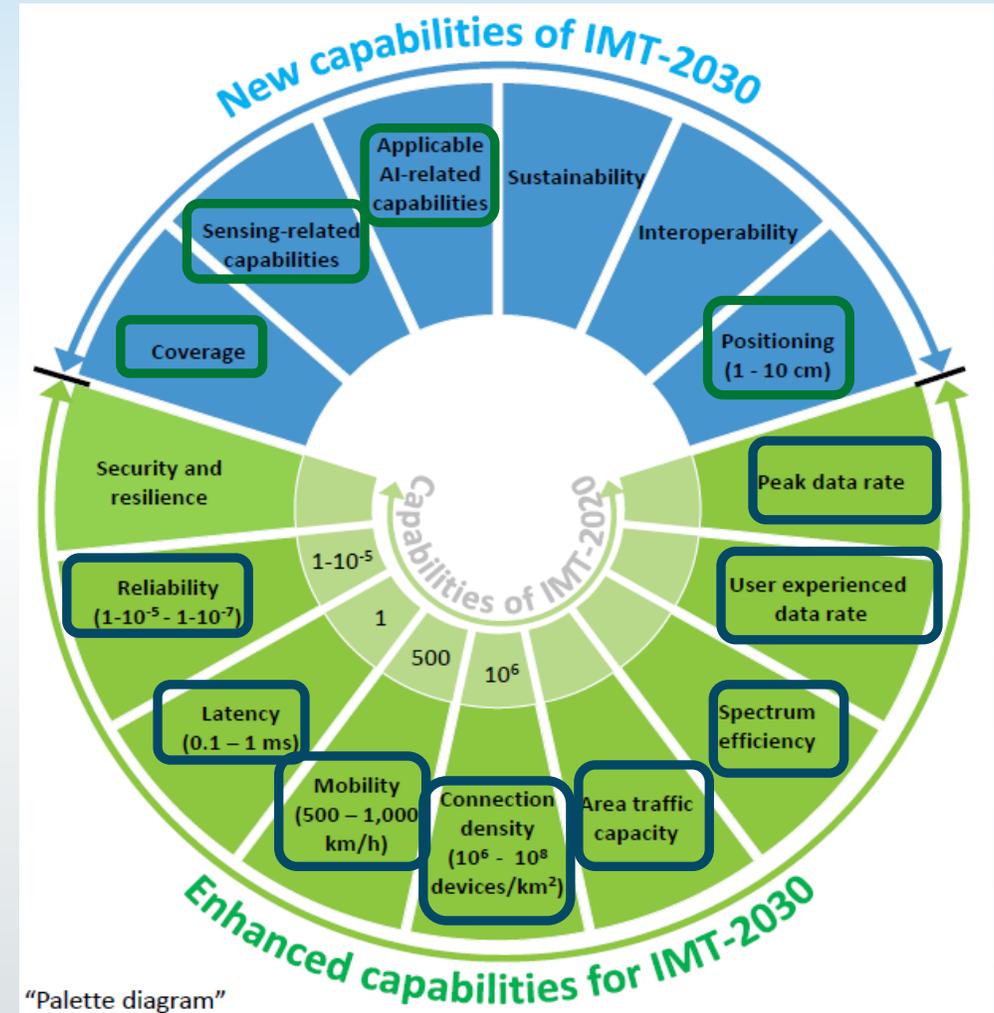
## To this end the WG:

- Leverages on definitions provided by Flagship projects and CSA i.e. Hexa-X I/II & SNS ICE.
- Attempts to engage all possible SNS JU projects in this direction.

6G KPIs – DEFINITIONS AND TARGET VALUES: a white paper from the TMV WG. (Feb. '25)  
URL: [https://smart-networks.europa.eu/wp-content/uploads/2025/03/white-paper-kpis\\_7\\_3\\_2025\\_with-disclaimer.pdf](https://smart-networks.europa.eu/wp-content/uploads/2025/03/white-paper-kpis_7_3_2025_with-disclaimer.pdf)

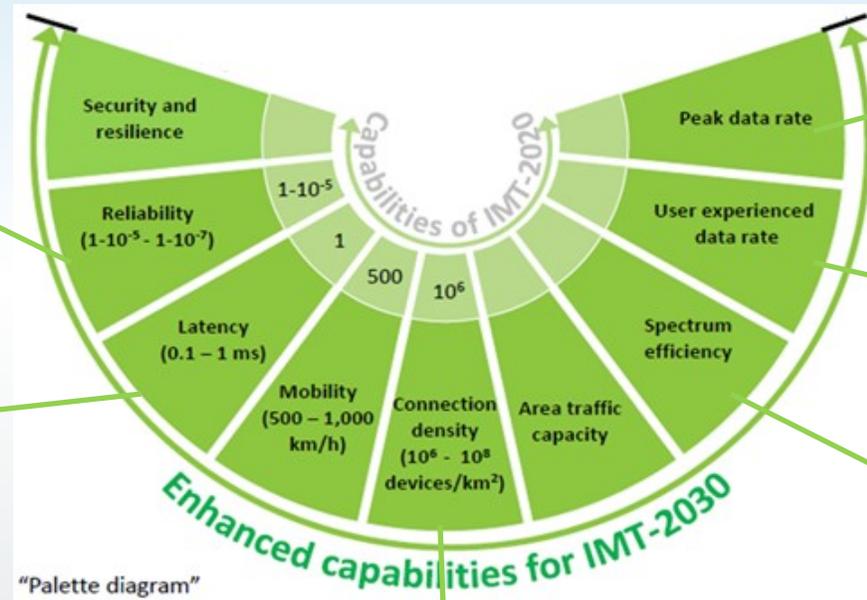
- Information on **KPIs definitions, target values, and context of reference** collected from many SNS Phase I & II projects.
- KPIs classified in Families considering the ITU-R wheel diagram.
- KPIs inherit and leverage on existing ITU-R definitions (in most cases), and Hexa-x contexts.

- Contextual definitions & new target values reported for traditional KPIs – i.e. “Enhanced Capabilities”.
- Gaps in the definitions of the “New Capabilities” (currently only defined as targets for R&I) addressed by proposing how they can be technically interpreted and evaluated.
- Additional KPIs categories addressed: EMF, Computing, others.



“Palette diagram”

- For “Enhanced Capabilities” - Contextual definitions & New Target Values reported for traditional KPIs.



Context Based: Similar targets as IMT2030 & Hexa-x I/II

Context Based: Similar targets as IMT2030 & following Hexa-x I/II (UP:0.5ms, CP: 2ms); Jitter widely addressed.

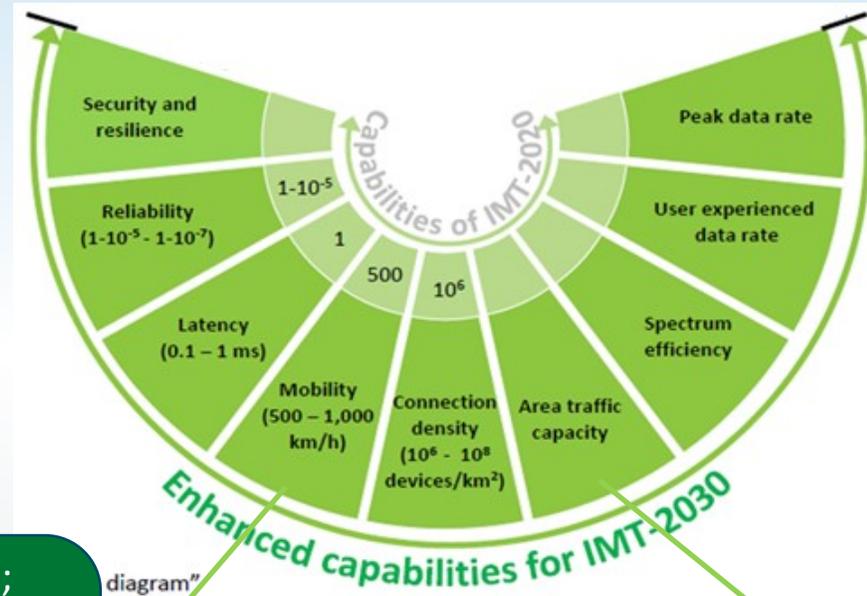
Values range a lot depending on technology characteristics

Context Based – Range between a few Mbps - hundreds of Mbps following Hexa-x I/II

Not widely addressed: 2x-5x improved comp. 5G; (i.e. 2x -5x 30b/s/Hz)

Context Based – Range between  $10^6$ - $10^7$  devices/km<sup>2</sup> . (following Hexa-x I/II)  
 Devices/m<sup>2</sup> - metric for small scale deployments.  
 Devices/km<sup>2</sup> - metric for large scale deployments.

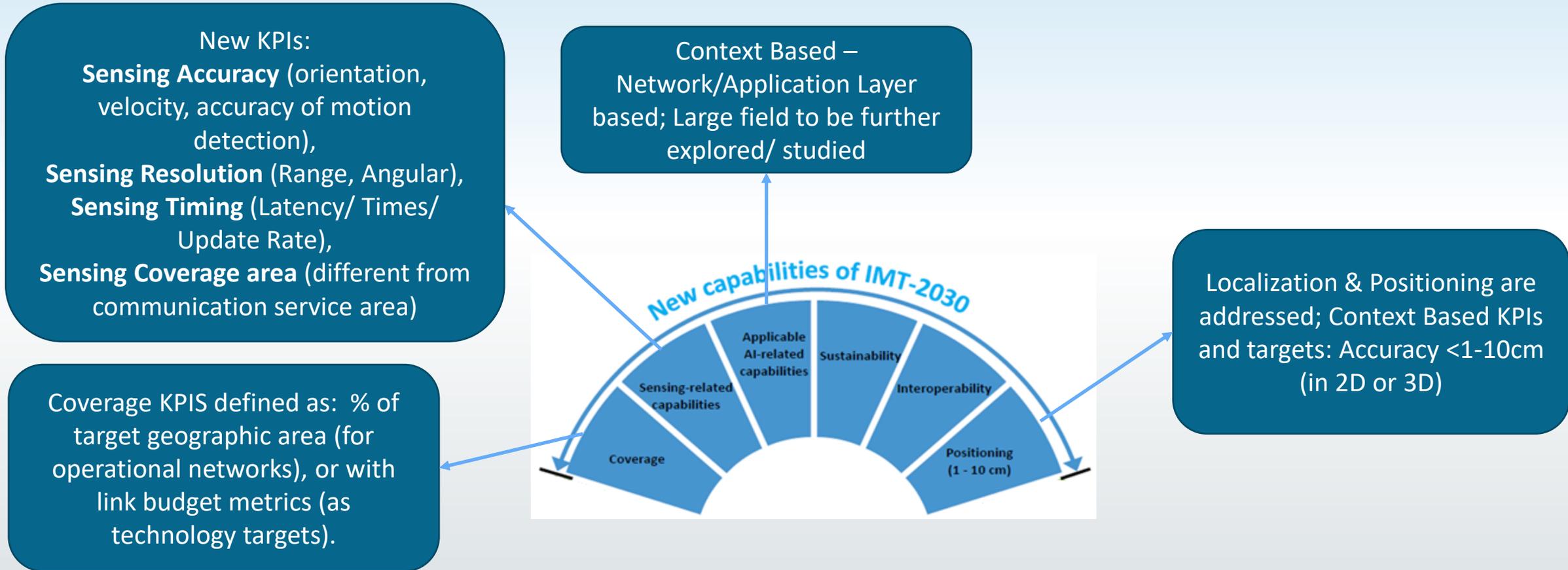
- For “Enhanced Capabilities” - Contextual definitions & New Target Values reported for traditional KPIs -



Traditional KPI: Targets 120-300Km/h;  
 New definitions & targets for covering object mobility in terms of gestures, hand movement, body movement in short distances. For DT, Cobots, holographic XR UCs etc. with values between 2-28 m/s.

Operational network specific;  
 Deployment based: from <100 Mbps/m<sup>2</sup> – 1Gbps/m<sup>2</sup>;  
 New metric ~Gbps/m<sup>3</sup> for 3-D network planning cases

- Gaps in the definitions of the “New Capabilities of IMT-2030” (currently only defined as targets for R&I) addressed by proposing how they can be technically interpreted and evaluated.



Going beyond 5G service classes, 6G UCs and services (holographic communications, DTs, multisensory XR etc.).



Demand a redefinition and expansion of traditional KPIs.

New network capabilities, such as network intelligence, energy efficiency, and sensing.



Demand definition of KPIs that are specific, measurable, relevant to these capabilities.

To evaluate UCs requiring cross-domain coordination; and to clearly capture IMT-2030 Usage Scenarios' requirements.



We need Cross-Domain metrics, evaluating KPIs that measure interactions between sensing, communication, compute layers.

To facilitate global deployment, compatibility and comparability across 6G networks.



Harmonized KPIs, metrics and testing methodologies will be needed.

- Focus on:
  - KPIs definitions for “New Capabilities”.
  - KPIs definitions for “Joint Requirements” and “Cross-domain KPIs”.
  - Consolidation of Target Values for KPIs in specific contexts (as comparable baseline for 6G networks’ evaluation).
  - Initiate work on KPIs Measurement/Validation aspects (testing environment, use case, tools etc.) with view to Phase I projects’ trial results.

To express your interest to participate in TMV WG – and KPIs Topic  
please contact:

**Michael Dieudonne (Keysight) - [michael\\_dieudonne@keysight.com](mailto:michael_dieudonne@keysight.com)**

**Ioannis Patsouras (WINGS ICT Solutions) - [ipatsouras@wings-ict-solutions.eu](mailto:ipatsouras@wings-ict-solutions.eu)**

# 6G SNS

6<sup>TH</sup> GENERATION SMART  
NETWORKS & SERVICES

## THANK YOU FOR YOUR ATTENTION



[smart-networks.europa.eu](http://smart-networks.europa.eu)

TMV WG leader: Michael Dieudonne (Keysight) - [michael\\_dieudonne@keysight.com](mailto:michael_dieudonne@keysight.com)

