



IAFI¹

**PROPOSAL FOR FURTHER UPDATES TO THE WORKING DOCUMENT TOWARDS
A DRAFT NEW APT REPORT ON IMT-2030/6G POTENTIAL USE CASES AND
APPLICATIONS**

1. Introduction

During AWG-34, Two input contributions (INP-36 and INP-51) proposed a new study item on IMT-2030/6G use cases and applications. Based on these contributions, the meeting developed the workplan and the initial working document. It was agreed to set up this new work item and APT members were encouraged to input further contributions towards this work item. .

2. Proposal

IAFI though this contribution proposes some further updates to the working document of this new proposed APT Report. In particular, some text has been provided for sections 2.1, 2.4 and 2.6. Our proposed changes are highlighted in turquoise.

Attachment: As above

¹ [IAFI](#) (ITU-APT Foundation of India) is an Affiliate Member of APT

**WORKING DOCUMENT TOWARDS A DRAFT NEW APT REPORT ON IMT-2030/6G
POTENTIAL USE CASES AND APPLICATIONS**

[Editor's note: Structure and context should be further considered to avoid duplication to ITU-R study.]

1. Introduction

With the evolution of information and communications technologies, IMT-2030 is poised to revolutionize the digital landscape by supporting enriched and immersive experiences, enhanced ubiquitous coverage, and new forms of collaboration. Building on the foundation of IMT-2020, IMT-2030 aims to expand and introduce new usage scenarios while providing enhanced capabilities. The primary objective of Recommendation ITU-R M.2160^[1] is to outline the framework and overall objectives for the future development of IMT-2030. With the understanding on the usage scenarios of IMT-2030^[1], this document is organized to provide a comprehensive understanding of the potential IMT-2030 use-cases, considerations for ongoing development, and the societal motivations driving this initiative.

IMT-2030 is expected to play a crucial role in helping to achieve the United Nations Sustainable Development Goals (SDGs) by promoting inclusivity, ubiquitous connectivity, sustainability, innovation, enhanced security, and resilience. Additionally, IMT-2030 systems are designed to ensure standardization, interoperability, and seamless interworking with existing and future network implementations. By integrating advanced technologies such as AI, sensing, IMT-2030 aims to create a digital world that not only replicates but also enhances the physical world, offering immersive experiences and intelligent interactions for both humans and machines. The motivation for the development of IMT-2030 is to continue to build an inclusive information society, based on global and regional harmonization, towards contributing to support the United Nations Sustainable Development Goals (SDGs). To this end, IMT-2030 is expected to be an important enabler for achieving the following goals, among others:

- **Inclusivity:** Contributing towards further bridging of digital divides and reducing the usage gap, to the maximum extent feasible, by ensuring affordable access to meaningful connectivity to everyone.
- **Ubiquitous connectivity:** Towards connecting unconnected and reducing the coverage gap, IMT-2030 is expected to include affordable connectivity and, at minimum, basic broadband services with extended coverage, including sparsely populated areas.

- **Sustainability:** Sustainability refers to the principle of ensuring that today's actions do not limit the range of economic, social and environmental options to future generations. IMT-2030 is envisaged to be built on energy efficiency, low power consumption technologies, reducing greenhouse gas emissions and appropriate use of resources under the applicable model of circular economy, in order to address climate change and contribute towards the achievement of current and future sustainable development goals.
- **Innovation:** Fostering innovation with technologies that facilitate connectivity, increased productivity and the efficient management of resources. These technological advances will improve user experience with a view to positively transform economies and lives everywhere.
- **Enhanced security and resilience:** IMT-2030 system is expected to be secure by design. It is expected to have the ability to continue operating during and quickly recover from a disruptive event, whether natural or man-made. Making security and resilience as the key considerations in the design, deployment and operation of IMT-2030 systems is fundamental to achieving broader societal and economic goals.
- **Standardization and interoperability:** IMT-2030 systems are expected to be designed from the start to use transparently and member-inclusively standardized and interoperable interfaces, ensuring that different parts of the network, whether from the same or different vendors, work together as a fully functional and interoperable system.
- **Interworking:** IMT-2030 is expected to support service continuity and provide flexibility to users via close interworking with non-terrestrial network implementations, existing IMT systems and other non-IMT access systems. IMT-2030 is also expected to support smooth migration from existing IMT systems, wherein support of connectivity to IMT-2020 and potentially IMT-Advanced devices will be advantageous for inclusivity.

2. IMT-2030 Usage Scenarios and associated Use-cases

IMT-2030 is set to transform the digital landscape by offering enriched experiences, enhanced coverage, and new collaboration forms. It builds on IMT-2020, introducing new usage scenarios and capabilities. The initiative aims to help achieve the United Nations Sustainable Development Goals by promoting inclusivity, connectivity, sustainability, innovation, security, and resilience. IMT-2030 systems ensure standardization, interoperability, and seamless interworking with existing networks. By integrating AI, sensing, IMT-2030 creates a digital world that enhances the physical world, providing immersive experiences and intelligent interactions for humans and machines. The following sub sessions, categorized by the usage scenarios of IMT-2030 describes associated use cases.

2.1 Immersive Communication

[Editor's note : This section is to cover elements related to :

- Extended enhanced Mobile Broadband (eMBB) of IMT-2020.

- Use cases: immersive XR, remote multi-sensory telepresence, holographic communications.
- Requirements of high reliability, low latency, and large system capacity.]

2.2 **Hyper Reliable and Low-Latency Communication**

[Editor's note : This section is to cover elements related to :

- Extended Ultra-Reliable and Low-Latency Communication (URLLC) of IMT-2020.
- Use cases: industrial automation, emergency services, tele-medicine.
- Requirements of enhanced reliability, low latency, and precise positioning.]

2.3 **Massive Communication:**

[Editor's note : This section is to cover elements related to :

- Extended massive Machine Type Communication (mMTC) of IMT-2020.
- Use cases: smart cities, transportation, logistics, health, energy, environmental monitoring.
- Requirements of high connection density, low power consumption, and extended coverage.]

2.4 **Ubiquitous Connectivity**

[Editor's note : This section is to cover elements related to :

- Enhanced connectivity to bridge the digital divide.
- Focused on rural, remote, and sparsely populated areas.
- Use cases: IoT and mobile broadband communication.]

2.5 **Artificial Intelligence and Communication**

[Editor's note : This section is to cover elements related to :

- Distributed computing and AI applications.
- Use cases: automated driving, medical assistance, digital twins.
- Requirements of high area traffic capacity, low latency, and high reliability.]

2.6 **Integrated Sensing and Communication**

[Editor's note : This section is to cover elements related to :

- Facilitating applications requiring sensing capabilities.
- Use cases: navigation, activity detection, environmental monitoring.
- Requirements of high-precision positioning and sensing-related capabilities.]

3. **3GPP study on 6G use cases and service requirements**

At the 3GPP Stage 1 Workshop on IMT-2030 Use Cases in May 2024, a number of organisations, among them operators, verticals, regional research alliances and ITU-R, shared their 6G-related views and activities. In addition to new 6G applications, other considerations are needed, e.g. CAPEX/OPEX reduction, improvement of overall 3GPP system performance, and migration from and interworking with 5G aspects.

Therefore, 3GPP study aims to identify new 6G applications and enhance existing applications that are essential for the next generation global mobile markets and relevant market segments. It will develop use cases and desired service level requirements to build system capabilities above and beyond 5G systems^[2].

4. Case studies in APT countries on R&D experiences and trial plans

5. (Editor's note) Placeholder for other regional / global organisations to propose to submit information on use cases, traffic forecasts etc.

6. Summary

IMT-2030 is set to transform the digital landscape by offering enriched experiences, enhanced coverage, and new collaboration forms. It builds on IMT-2020, introducing new usage scenarios and capabilities. Based on global and regional harmonisation this initiative aims to help achieve the United Nations Sustainable Development Goals by promoting inclusivity, connectivity, sustainability, innovation, security, and resilience. IMT-2030 systems ensure standardization, interoperability, and seamless interworking with existing networks.

7. Reference(s)

[1]. [Recommendation ITU-R M.2160-0](#) (2023/11)

[2]. 3GPP S1-242545, "New Study on 6G Use Cases and Service Requirements", August 2024