Workshop on Standards-driven Research @NCC 2024

Hot Topics for Standards

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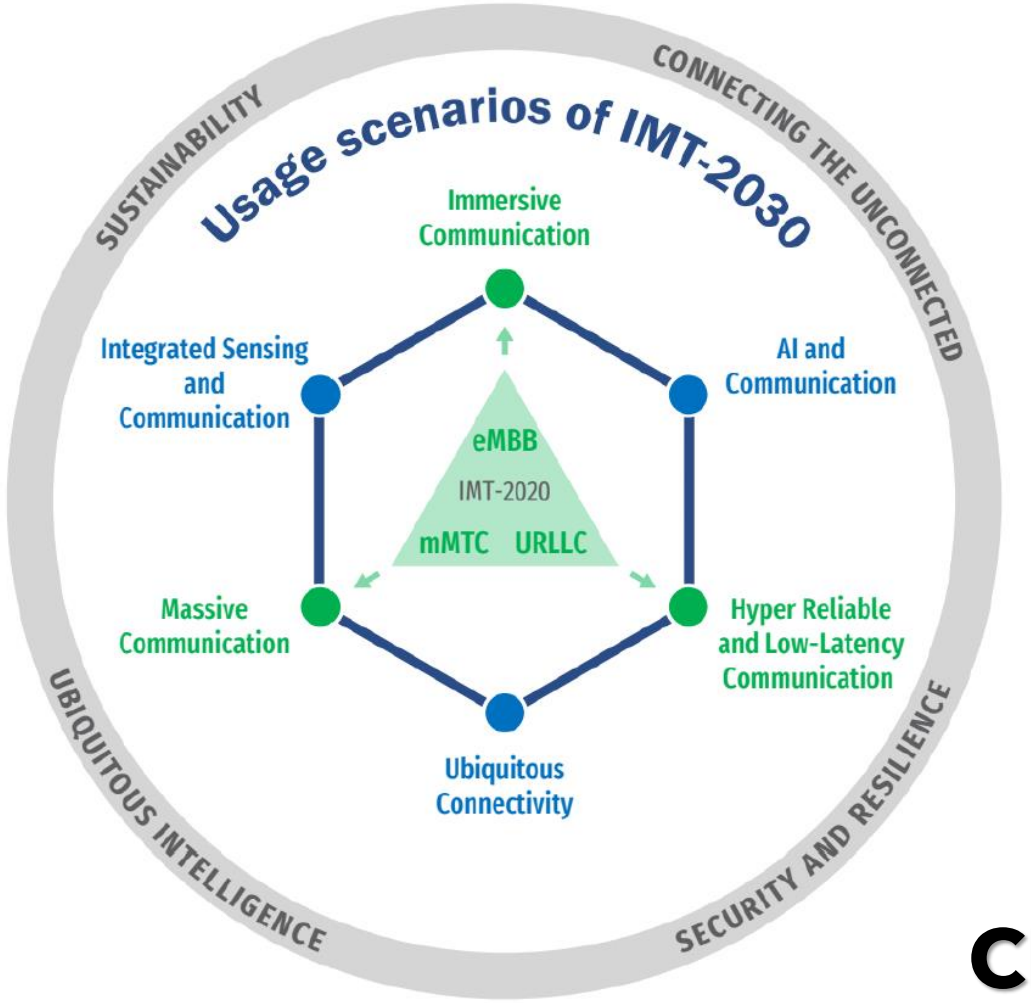
Acknowledgement:
This work draws upon the last 5 years of work done in collaboration with ITU AI4Good, TSDSI as well as National Working Group of TEC, India.

Hot Topic 1

Usage scenarios and overarching aspects of IMT-2030



Characteristic-1: New usage scenarios.

Recommendation ITU-R M.2160-0 (11/2023)
M Series: Mobile, radiodetermination, amateur and related satellite services
Framework and overall objectives of the future development of IMT for 2030 and beyond

Precise location service

Hot Topic 2

- **A person in distress or emergency situation** (e.g. accidents and need help)

- **To locate such humans** indoor (multi-storey buildings) or in case of disasters.

- This use case is **useful to emergency service personnel** (e.g. firefighters, rescue workers)

- **High-Precision Localization:** synthesizing data from a multitude of sources such as GPS, sensor networks, IoT devices, and user inputs in real-time.
- **Dynamic Data Analysis:** analyzing dynamic, real-time data. In emergency situations, environments and scenarios can change rapidly.
- **Predictive Capabilities:** predict the movement of individuals or the evolution of a situation by analyzing patterns and trends.

Characteristic-2: Assumptions have changed

Efficiency of network operations

Hot Topic 3

- **Optimized decision making:** collection and analysis of vast amounts of network data, providing insights that can be used for further optimization and decision-making.
- **Cost Efficiency:** By optimizing the use of existing hardware and software resources, can help in reducing operational costs.
- **Scalability for Future Expansion:** that the network remains robust and efficient even as the number of connected devices and data volumes increases.

Characteristic-3: there are many ways to solve the same problem

Example

Hot Topic 3

- We consider measurements for **8 days** from **>1000 RRU/AAUs**, comprising **12 different products**
- The following datasets are available:
  - **Base Station basic information**
    - configuration parameters and hardware attributes.
  - **Cell-level data**
    - hour-level counters, including service compliance counters (e.g., load and energy-saving methods counters (e.g., duration of energy saving mode activation)

Source: Huawei

  - **Energy consumption data**
    - hour-level energy consumption specifications (e.g., total energy consumption of the base stations)

https://challenge.aiforgood.itu.int

https://www.youtube.com/watch?v=zSetefnu3y8

The value of Sharing

Hot Topic 4

- **Risk Mitigation in Network Changes:** Sharing of knowledge for risk mitigation in network changes.
- **Enhanced Data Privacy and Security:** data sharing is compliant with privacy regulations and standards.
- **Generating Data:** Generative AI

Characteristic-4: there are tradeoffs in sharing

Example

Hot Topic 4

Datasets: vishnuramov/**ITU-T-Build-a-thon** like 0

Dataset card | Files | Community | Settings

Dataset Preview Size: 15.9 kB | API | Go to dataset viewer

text (string)	inputs (dict)	prediction (null)	prediction_agent (null)	annotation (null)
"Debido a que las suscripciones móviles…	{ "text": "Debido a que las suscripciones…	null	null	null
"standortübergreifende Impact und Root Cause…	{ "text": "standortübergreifend…	null	null	null
"從4/5G綜合網管收集實時數據，然後根據數據監控網元，…	{ "text": "從4/5G綜合網管收集實時數據，然後根據數…	null	null	null

Foundational models

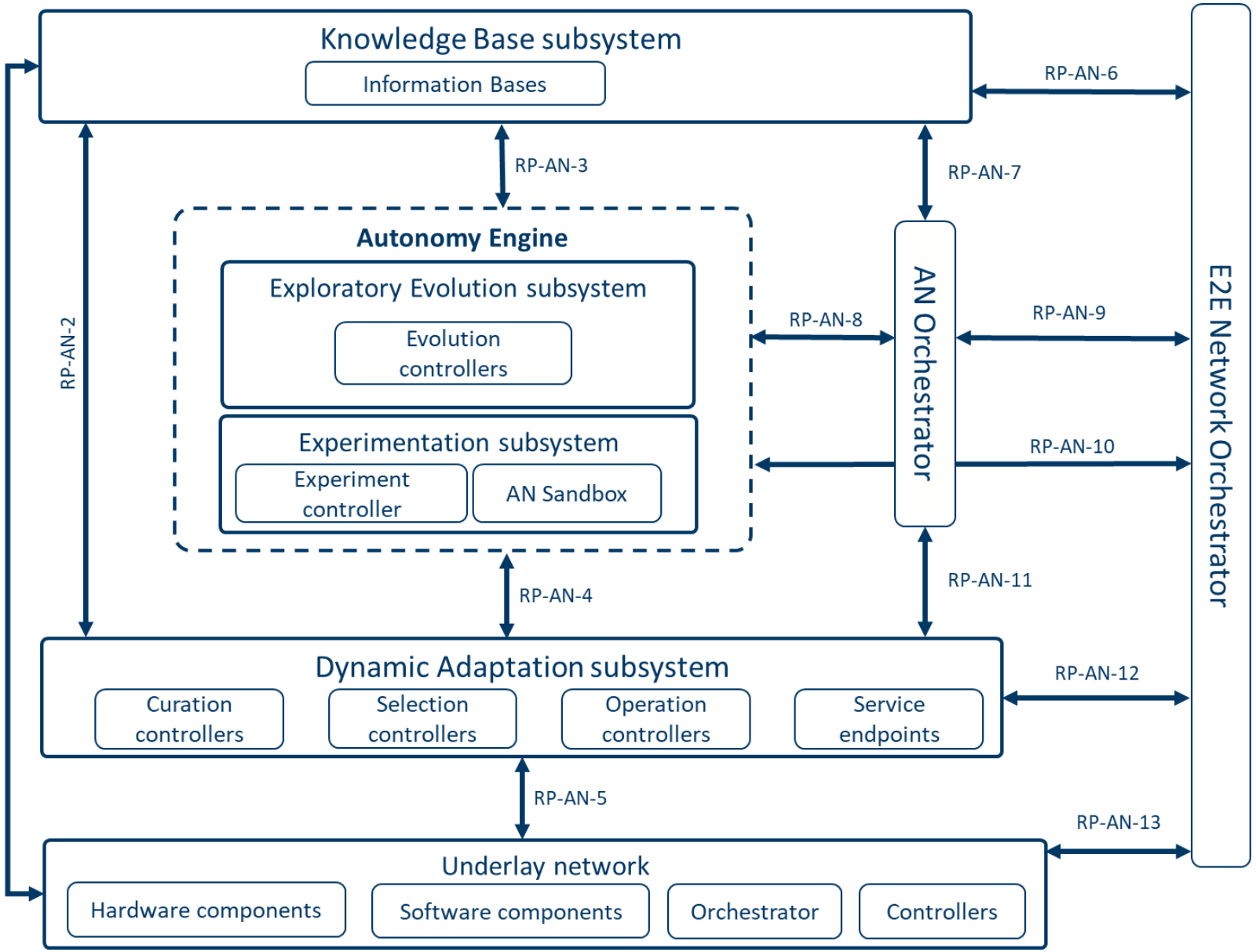
Hot Topic 5

- Create regional, domain finetuned models.
- Build and extend the knowledge base solution and the AN Intent based solution from ITU-T Y.3061.
- Apply transfer learning, fine-tuning and Distributed training and inference

Characteristic-5: Build the foundation and extend

Example

Hot Topic 5



Thank You

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