



India (Republic of)

**PROPOSED NEW RESOLUTION ON
ENABLING OPEN AND SHARED RESOURCES FOR EQUITABLE ACCESS TO
AI/ML VIA NETWORKS**

1. Abstract

A draft new Resolution has been proposed on “Enabling open and shared resources for equitable access to AI/ML via networks” in WTSA-20. This proposed draft new Resolution focuses on access to AI/ML technologies via networks and its applications/use cases. It is proposed through this Resolution that ITU should effectively cooperate with other Standards Development Organizations (SDO) and empower industry experts and other stakeholders in this field to develop equitable AI/ML mechanisms by enabling open, shared resources which can be utilized as a gold-standard for AI/ML in networks and thereby contribute to SDGs.

2. Introduction

In the 2nd Meeting of the APT Preparatory Group for WTSA-20 (APT WTSA20-2) held on 13-15 May 2020, a candidate PACP was proposed on a new resolution for strengthening ITU-T standardisation using AI technologies including machine and deep learning (APT WTSA20-2/INP-24). The said proposal has only introduced the topic for the new resolution. However, it appears that the topic focuses on strengthening use of AI technologies including machine and deep learning for strengthening ITU-T standardisation processes.

This proposed draft new Resolution focuses on access to AI/ML technologies via networks and its applications/use cases.

The role of connectivity in transformation of communities and achieving sustainable development goals (SDG) is well understood. Future networks including IMT-2020 are going to push this envelope even further by playing the dual role of consuming intelligent services, integrating them for the benefit of the end-customers (e.g. self optimizing functions) in addition to providing connectivity between many intelligent nodes (e.g. connectivity for smart cities).

ITU has done pioneering work (examples: ITU-T Y.3172, ITU-T Y.3173, ITU-T Y.3174) in the area of integrating AI/ML in future networks including IMT-2020. However, there are many problems still to be addressed to enable open, shared resources for creating AI/ML models which are consumed and connected in the future networks including IMT-2020. AI/ML models which are trained and developed only with silos of private data, using closed,

Contact:	Abhay Shanker Verma (TEC, DOT) V K Roy (TEC, DOT) Dr. Preeti Banzal (TEC, DOT) Ranjana Sivaram (TEC, DOT) Vishnu Ram OV (TSDSI) Prof. Dinkar Sitaram(PES University) India	Email: as.verma@gov.in dirm1.tec@gov.in dirm1.tec@gov.in adetm.tec@gov.in vishnu@tsdsi.in dinkar.sitaram@gmail.com
-----------------	----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------	-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------

proprietary tools, will lead to unexplainable, opaque, biased models and techniques, which work well for certain parts of the world's population while leaving behind others who are disempowered by this advanced technology.

To stress this point, we define the term "AI-divide" as the lack of access to and awareness about intelligent networks and services for certain parts of the world's population. While some parts of the world's population progresses towards digital revolution in a virtual infrastructure, connected by future networks, powered by AI/ML, AI-divide grows with another part of the population disempowered by and sometimes unaware of this technology which appears more and more "opaque" to them. This alienation of people across the AI-divide must be prevented using proactive mechanisms proposed here.

3. Proposal:

Building on top of ITU-T's work on integration of AI/ML in networks (e.g. in SG13 and Focus Group on Machine Learning for Future Networks including 5G), it is critical for ITU to effectively cooperate with other Standards Development Organizations (SDO) and empower industry experts and other stakeholders in this field to develop equitable AI/ML mechanisms by enabling open, shared resources which can be utilized as a gold-standard for AI/ML in networks and thereby contribute to SDGs.

Republic of India proposes a draft new Resolution on "Enabling open and shared resources for equitable access to AI/ML via networks", which is annexed.

The attached draft new Resolution is provided for consideration by APT members.

Draft new RESOLUTION

**Enabling open and shared resources for equitable access to AI/ML
via networks**

The World Telecommunication Standardization Assembly (Hyderabad, 2020),

recalling

- a)* Resolution 139 (Rev. Dubai, 2018) of the Plenipotentiary Conference resolves that implementation of Resolution 37 (Rev. Buenos Aires, 2017) of the World Telecommunication Development Conference (WTDC), on the use of telecommunications/information and communication technologies (ICT) to bridge the digital divide and build an inclusive information society, should continue;
- b)* Resolution 195 (Busan, 2014) of the Plenipotentiary Conference resolves to instruct the Director of the Telecommunication Development Bureau (BDT), in coordination with the Directors of the other Bureaux, to provide technical expertise to carry out feasibility studies, project management and support for the implementation of the Smart Africa Manifesto;
- c)* Resolution 197 (Rev. Dubai, 2018) of the Plenipotentiary Conference instructs the Secretary-General, in consultation and collaboration with the Directors of the three Bureaux, to facilitate the exchange of experiences and information with all relevant organizations and entities involved in the Internet of things (IoT) and IoT services, with the aim of creating opportunities for cooperative efforts to support the deployment of IoT;
- d)* Resolution 58 (Rev. Buenos Aires, 2017) of World Telecommunication Development Conference, resolves to invite Member States to promote and undertake research and development of ICT-accessible equipment, services and software, with emphasis on free and open-source software and affordable equipment and services;
- e)* Resolution 90 (Hammamet, 2016) of the World Telecommunication Standardization Assembly, resolves that the Telecommunication Standardization Advisory Group (TSAG) continue to work on the benefits and disadvantages of the implementation of open-source projects in relation with the work of the ITU Telecommunication Standardization Sector (ITU-T), as appropriate;
- f)* the objectives of the ITU Telecommunication Standardization Sector (ITU-T) in Resolution 71 (Rev. Dubai, 2018) of the Plenipotentiary Conference, and in particular Objective T.5, which mandates ITU-T to extend and facilitate cooperation with international, regional and national standardization bodies,

considering

- a)* that TSB Circular 237, invites ITU-T membership to participate in the ITU Artificial Intelligence/Machine Learning in 5G Challenge, a competition which enables participants to solve real world problems, based on standardized technologies developed for AI/ML in future networks including IMT-2020 networks;

b) that Recommendation ITU-T Y.3172, on architectural framework for machine learning in future networks including IMT-2020 describes the components and architectural framework, the integration of such components into future networks including IMT-2020 and guidelines for applying this architectural framework in a variety of technology-specific underlying networks;

c) that Recommendation ITU-T Y.3172 defines ML Sandbox as an environment in which machine learning models can be trained, tested and their effects on the network evaluated,

recognizing

a) that along with standards, open source and internet connectivity, artificial intelligence and machine learning (AI/ML) are emerging as an empowering technologies, which impact every aspect of sustainable development goals which inter-alia include health care, education, transportation, public utilities, energy, industry and smart cities infrastructure and access to such advanced technology is important for emancipation of all classes of society;

b) that development of fair and inclusive artificial intelligence techniques require representative data and resources from all parts of the world and the future networks play a dual role of:

- connecting the AI/ML resources: networks may provide connectivity to, such data and resources for AI/ML on one hand, and intelligent services enabled by AI/ML on the other hand; and
- integrating the AI/ML services into networks: networks may themselves integrate and consume intelligent services enabled by AI/ML to provide better connectivity;

c) that there is a need to reduce the cost, effort and skill-barrier involved in developing AI/ML techniques taking into account the needs and requirements of developing countries;

d) that AI/ML models which are trained and developed only with silos of private data, using closed, proprietary tools, will lead to unexplainable, opaque, biased models and techniques, which work well for certain parts of the world's population while leaving behind others who are disempowered by this advanced technology;

e) that while some parts of the world's population progresses towards digital revolution in a virtual infrastructure, connected by future networks, powered by AI/ML, the divide grows with another part of the population disempowered by and sometimes unaware of this technology which appears more and more "opaque" to them. Thus, the lack of access to and awareness about intelligent networks and services for certain parts of the world's population is defined as "AI-divide";

f) that ITU has an important role in addressing the AI-divide by:

- enabling open and shared access to AI/ML based resources and services over networks;
- enabling the expansion and usage of integration of AI/ML in future networks including IMT-2020 to provide better and more intelligent services; and
- creating interoperable AI frameworks to ensure ethical and unbiased, equitable deployment of AI/ML in future networks including IMT-2020;

g) that existing initiatives (examples: AI Commons, WHO Health Emergency Dashboard WHO (COVID-19) Homepage) in different parts of the world for sharing information, knowledge, tool sets and statistical and AI models across multiple domains, e.g. healthcare, transport, utilities, is important to improve the quality of life for citizens. However, these have to be complemented by a global network of collaboration, enabled by ITU, to enable access and contribution by common people from different strata;

h) that constant update, vigilance, audit and oversight by a network of domain experts may increase the quality of the shared resources, validity and relevance of information, security and privacy considerations, along with performance of AI models with respect to addressing the AI-divide;

i) that future networks including IMT-2020 should leverage AI/ML to not only connect people but also to enable sharing best practices and local sensitivities in the application of AI to regions and communities across the world;

j) that a balance between nurturing creativity associated with AI/ML network applications and adoption of standardised AI/ML in networks is to be maintained,

resolves

that ITU-T, in collaboration with the other Sectors, especially the ITU Telecommunication Development Sector (ITU-D), as appropriate, shall develop a programme to:

- derive inclusive use cases from all parts of the global population for studying the impact of AI/ML based services over future networks including IMT-2020;
- study the management and application of AI/ML in future networks including IMT-2020 to make it more humane, fair, transparent, explainable, ethical, equitable and sustainable;
- enable the interoperability of AI/ML in future networks including IMT-2020 to facilitate interworking between different types of platforms, connectivity, and networks;
- use future networks including IMT-2020 to enable access to, and connect people to, open, transparent resources for enabling wider access to development of AI/ML technologies, including harmonised open data and other types of shared innovations, with specific focus on localization and preferences;
- generate best practices and guidelines for data and AI/ML model sharing over networks, across various stakeholders in different domains, especially for achieving SDGs; and
- initiate or support programs for capacity development of AI/ML skill sets, including those applicable to future networks including IMT-2020, in countries where such skill sets are relatively deficient,

instructs ITU-T Study Group 13 of the ITU Telecommunication Standardization Sector

1 to expedite the development of ITU-T Recommendations aimed at integrating AI/ML in future networks including IMT-2020, including, but not limited to, on issues related to emerging technologies and vertical industries;

2 to expedite, within its mandate, to work on international telecommunication standards for the development of AI/ML in networks, taking into account the needs of each region and fostering a competitive environment;

3 to collaborate with standards organizations and other stakeholders such as industry forums and associations, academia, consortia and SDOs, as well as other relevant ITU-T study groups/ focus groups, and to take into account relevant use cases for integration of AI/ML in networks;

4 to collate, evaluate, assess and share AI/ML use cases in future networks including IMT-2020 from the interoperability and standardization standpoints for data and information exchange;

5 to follow the best practices and guidelines for data and model sharing over networks, to collate contributions of AI/ML models, corresponding tool sets and implementations from other standards organizations and other stakeholders, and to specify a reference instance of ITU AI/ML Sandbox for future networks including IMT-2020,

instructs all study groups of the ITU Telecommunication Standardization Sector

1 to study the impact of AI/ML in their existing and future ITU-T Recommendations, as applicable, especially on:

- connecting the AI/ML resources: enabling sharing of data and resources across domains over the future networks including IMT-2020; and
- integrating the AI/ML services into networks: enabling better and wider access to intelligent services;

2 to enable development of reference, open implementations of ITU-T Recommendations, with specific focus on developing use cases, collecting data and reference models for application of AI/ML, as appropriate;

3 to support the use of open-source in developing and implementing AI/ML models for ITU-T Recommendations, as appropriate;

4 to continue engaging with open-source projects and initiatives which share data, code, models, algorithms, functional libraries and techniques for AI/ML and study their applicability in networks;

5 to follow the best practices and guidelines for data and model sharing over networks, to contribute specifications of AI/ML models, corresponding tool sets and implementations to the reference instance of ITU AI/ML Sandbox for future networks,

instructs the Director of the Telecommunication Standardization Bureau

1 to create awareness about intelligent services and AI/ML in future networks including IMT-2020, which benefit humans and enable SDGs, which are possible to access over future networks including IMT-2020;

2 to organise AI/ML related training with the help of member states (e.g. tutorials, seminars, workshops), on its application to future networks including IMT-2020 to ITU-T participants, in collaboration with other SDOs, open-source communities and the Telecommunication Development Bureau, taking into account the ITU-T objective to bridge the standardization gap and digital gender gap;

3 to enable the maintenance of a reference instance of ITU-T AI/ML Sandbox for future networks including IMT-2020;

4 to enable the shared use of ITU-T AI/ML Sandbox for future networks including IMT-2020 for providing a reference platform for ITU members for:

- connecting the AI/ML resources; and
- integrating and studying the impact of AI/ML services in networks,

invites the ITU membership

1 to develop master plans and create repository of use cases and best practices in order to promote the use of AI/ML in networks to promote socio-economic development and growth;

2 to support and organize forums, seminars, workshops and AI/ML challenges in order to promote innovation, development and growth in AI/ML technologies and solutions in future networks including IMT-2020;

3 to contribute the AI/ML models in future networks including IMT-2020, corresponding tool sets and implementations to the reference instance of ITU-T AI/ML Sandbox for future networks including IMT-2020.