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| A black and white logo  Description automatically generated with low confidence | INTERNATIONAL TELECOMMUNICATION UNION  **TELECOMMUNICATION STANDARDIZATION SECTOR**  STUDY PERIOD 2022-2024 | | | TSAG-TD035 |
| TSAG |
| Original: English |
| **Question(s):** | | | N/A | Geneva, 12-16 December 2022 |
| **TD** | | | | |
| **Source:** | | | Chairman, ITU-T SG13 | |
| **Title:** | | | ITU-T SG13 Lead Study Group Report | |
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| **Abstract:** | This document contains the summary status and progress report on lead SG activities of ITU-T SG13 in this study period. It complements the information already delivered to the TSAG meeting via liaison statements (TDs 72, 80, 81, 82, 91, 95, 125, 126, 127, 128, 129/TSAG). |

**Action**: Review, note, take actions requested by LSs in TSAG-TDs 125, 126, 127.

1. **Meetings and Events**

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| **Meeting/Event** | **No. of** | **Dates** | **Place** |
| SG13 | 1 | 4 – 15 July 2022 | Geneva, Switzerland |
| 1 | 14 November 2022 | Geneva, Switzerland |
| WPs | 3 | 25 November 2022 | Geneva, Switzerland |
| Co-located Rapporteur Groups | 1 | 14 – 25 November 2022 | Geneva, Switzerland |
| SG13 Regional Group for Africa  (SG13RG-AFR) | 1 | 20 October 2022 | Virtual |
| 2 | 12 July and 17 November 2022 | Preparatory e-meetings |
| JCA-IMT2020 and Beyond | 3 | 7 July, 20 September,  21 November 2022 | Geneva, Switzerland |
| JCA-ML | N/A | *Initiated in July 2022. Awaiting TSAG’s endorsement to start operating.* |  |
| FG-AN | 3 | 30 March – 1 April, 1 – 3 June and 31 August - 1 September 2022 | Virtual |
| Workshop on Autonomous Networks (by FG-AN) | 1 | 15 November 2022 | Geneva, Switzerland |

Above table doesn’t include the stand-alone interim rapporteur groups meetings as well as the permanent ad-hocs and correspondence group meetings.

1. **Outputs**
   1. WP1 (5 Questions for IMT-2020 and beyond and machine learning) Outputs: 22 Recommendations

* Y.3117: Quality of service assurance-related requirements and framework for **smart education** supported by IMT-2020 and beyond
* Y.3118: Requirements and framework for **jitter guarantee** in large scale networks including IMT-2020 and beyond
* Y.3811: Quantum key distribution networks - Functional architecture for quality of service assurance
* Y.3812: Quantum key distribution networks - Requirements for machine learning based quality of service assurance
* Y.3119: Future networks including IMT-2020: capability classification framework for dedicated networks (under AAP approval process)
* Y.3120: Functional Architecture for **latency guarantee** in large scale networks including IMT-2020 and beyond (under AAP approval process)
* Y.3121: QoS requirements and framework for supporting **deterministic communication services** in local area network for IMT-2020 (under AAP approval process)
* Y.3181: Architectural framework for **Machine Learning Sandbox** in future networks including IMT-2020
* Y.3182: Machine learning based end-to-end multi-domain network slice management and orchestration
* Y.3158: Local shunting for multi-access edge computing in IMT-2020 networks
* Y.3159: Framework for classifying network slice level in future networks including IMT-2020 (under AAP approval process)
* Y.3079: Information-Centric Networking in networks beyond IMT-2020: Framework of locally enhanced name mapping and resolution
* Y.3080: Information-Centric Networking in networks beyond IMT-2020: Requirements and Mechanisms of Transport Layer
* Y.3081: Self-Controlled Identity based on Blockchain: Requirements and Framework
* Y.3082 (determined): **Mobile network sharing** based on distributed ledger technology for networks beyond IMT-2020: Requirements and framework (under TAP approval process)
* Y.3183: Framework for network slicing management assisted by machine learning leveraging QoE feedback from verticals (under AAP approval process)
* Y.3137: Technical requirements for supporting application addressing in edge computing for future networks including IMT-2020
* Y.3138: **Unified multi-access** edge computing for supporting fixed mobile convergence in IMT-2020 networks
* Y.3139: Fixed mobile convergence enhancements to support IMT-2020 based software-defined wide area networking service
* Y.3140: Service brokering network framework for Trusted Reality (under AAP approval process)
* Y.3201: Fixed, mobile and satellite convergence – Framework for IMT-2020 networks and beyond (under AAP approval process)
* Y.3325: Framework for high-level AI-based management communicating with external management systems (under AAP approval process)
  1. WP2 (4 Questions for Cloud Computing and Data Handling) Outputs: 6 Recommendations
* Y.3537: Cloud computing – Functional requirements of cloud service partner for   
  **multi-cloud**
* Y.3538: Cloud computing - Global management framework of **distributed cloud**
* Y.3539: Cloud computing - Framework of risk management (under AAP approval process)
* Y.3602: Big data - Functional requirements for **data provenance**
* Y.3607: Big data – Functional architecture for data provenance (under AAP approval process)
* Y.3655: Big data driven networking - management and control mechanisms
  1. WP3 (4 Questions for quantum enhanced networking, trust and innovative service scenarios) Outputs: 6 Recommendations
* Y.2247: Framework and Requirements of Network-oriented Data Integrity Verification Service based on Blockchain in Future Network (under AAP approval process)
* Y.2248: Service model for Entry-level Smart Farm (under AAP approval process)
* Y.2344: Scenarios and requirements of **Intent-Based Network** for network evolution (under AAP approval process)
* Y.3810: Quantum key distribution network **interworking** - framework
* Y.3813: Quantum key distribution networks interworking – functional requirements (under AAP approval process)
* Y.3814: Quantum key distribution networks - functional requirements and architecture for machine learning enablement (under AAP approval process)
  1. Supplements
* 3 Supplements
* Sup. 71 (Y.3000-series): Use cases for Autonomous Networks
* Sup. 72 (Y.3000-series): Artificial Intelligence Standardization Roadmap
* Sup. 59 (Y.3100 series): IMT-2020 standardization roadmap

1. **Future Meeting Plans**

* Geneva, 13 – 24 March 2023, SG13
* Geneva, 26 July 2023, WP1/13, WP2/13, WP3/13
* Geneva, 24 and 25 July 2023 Workshop (Next IMT systems towards 2030 and beyond, web 3.0, quantum communications for networks, deterministic networks)
* Geneva, 23 October - 3 November 2023, SG13

1. **Implementation of the WTSA-20 Action Plan**

In response to the WTSA-20 Resolution 92 (Enhancing the standardization activities in the ITU Telecommunication Standardization Sector related to non-radio aspects of international mobile telecommunications) SG13

* Maintained and continued the operation of *the JCA-IMT2020 and Beyond* until the end of the study period.
* Through the JCA-IMT2020 regularly updates and maintains the online roadmap with IMT-2020 and Beyond standardization efforts taken place around the world.
* Published the Supplement 59 to Y.3100-series of Recommendations “IMT-2020 standardization roadmap” (a snapshot as of November 2022 of the online roadmap mentioned above).

In response to the WTSA-20 Resolution 94 (Standardization work in the ITU Telecommunication Standardization Sector for cloud-based event data technology) contributions are invited on the cloud-based event data technology aspects.

In line with instructions found in WTSA-20 Resolution 99 (Consideration of organizational reform of the ITU Telecommunication Standardization Sector study groups) SG13 established in November 2022 the ad-hoc on next study period preparations. It had a first meeting in November 2022.

1. **Coordination between SGs**

Continuous coordination is going on with SG2 on managerial aspects, SG5 on energy saving aspects of networks, SG12 on QoS and QoS assurance topics and with SG17 on security aspects. In addition, SG13 provided its opinion to the SG16 about the metaverse topic study.

1. **Report of lead SG activities**

**WTSA-20 assigned to the SG13 the following lead Study Group roles:**

* 1. **Lead study group on future networks such as IMT-2020 networks and beyond (non-radio related parts)**

To this end, SG13 approved/consented/determined 15 new Recommendations listed above, has 60 work items in progress, approved the continuation of the JCA-IMT2020 with revised Terms of Reference until 2024.

Supplement 59 to Y.3100-series (11/2022) is the snapshot of the online database with collection of the IMT-2020 and Beyond related Recommendations, Supplements, technical specifications of other SDOs and various technical reports.

Next IMT systems towards 2030 and beyond will be one of the topics of the workshop of July 2023 in Geneva.

* 1. SG13 has a **leading role in** **fixed-mobile convergence.**

This study topic and its extension for the fixed, mobile and satellite convergence is well progressing in SG13 with 2 Recommendations approved, one consented as listed above. Work programme counts 23 work items on FMC/FMSC in progress.

* 1. SG13 was entrusted a **leading SG role in** **cloud computing**.

On the above technical topic, 3 Recommendations were developed (2 approved, one consented). 21 work items are under study. Furthermore, in July 2022 SG13 set up an ad-hoc “Future ICT Evolution for emerging Web Era”**.** Web 3.0 will be one of the focuses of the workshop on 24 – 25 July 2023 in Geneva.

* 1. SG13 has a **lead study group responsibility for** **machine learning**.

From this perspective, SG13 approved 3 Recommendations and consented 2 on machine learning.

In July 2022 SG13 initiated the new JCA on ML. As part of its mandate this group will periodically review the roadmap(s) in its area of expertise.

Supplement 71 (to Y.3000-series) “Use cases for Autonomous Networks” was approved for publication on 15 July 2022.

Supplement 72 (to Y.3000-series) “Artificial Intelligence Standardization Roadmap” was agreed for publication on 25 November 2022.

There are 13 ongoing work items related to the machine learning and artificial intelligence at the SG13 work programme.

The correspondence group *for datasets applicable for AI/ML in networks,* set up in July 2022, has started its work. This group anticipated the participation from external to ITU experts. Expectations are for the group to elaborate the technical insights and recommendations for a standardization approach for datasets applicable for AI/ML in networks.

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