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|  | INTERNATIONAL TELECOMMUNICATION UNION**TELECOMMUNICATION STANDARDIZATION SECTOR**STUDY PERIOD 2017-2020 | TSAG-TD871 |
| **TSAG** |
| **Original: English** |
| **Question(s):** | N/A | Geneva, 21-25 September 2020 |
| **TD(Ref.:** [SG9-LS109](http://handle.itu.int/11.1002/ls/sp16-sg9-oLS-00109.docx)) |
| **Source:** | ITU-T Study Group 9 |
| **Title:** | LS/r on hot topics (TSAG-LS32) [from ITU-T SG9] |
| **Purpose:** | Information |
| **LIAISON STATEMENT** |
| **For action to:** | - |
| **For comment to:** | - |
| **For information to:** | ITU-T SG2, SG3, SG5, SG11, SG12, SG13, SG15, SG16, SG17, SG20, TSAG |
| **Approval:** | ITU-T SG9 meeting (E-meeting, 23 April 2020) |
| **Deadline:** | N/A |
| **Contact:** | Zhongzhao LiABP, NRTAChina | Tel: +86 10 86093737Fax: +86 10 86093658E-mail: lizhongzhao@abp2003.cn  |
| **Contact:** | Satoshi MiyajiKDDI CorporationJapan | Tel: +81 3 6328 1905 Fax: +81 3 6757 1271E-mail: sa-miyaji@kddi.com  |

This liaison answers [TSAG-LS32](https://www.itu.int/ifa/t/2017/ls/tsag/sp16-tsag-oLS-00032.zip).

A new liaison statement has been received from SG9.

This liaison statement follows and the original file can be downloaded from the ITU ftp server at <http://handle.itu.int/11.1002/ls/sp16-sg9-oLS-00109.docx>.

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|  | INTERNATIONAL TELECOMMUNICATION UNION**TELECOMMUNICATIONSTANDARDIZATION SECTOR**STUDY PERIOD 2017-2020 | SG9-LS109 |
| **STUDY GROUP 9** |
| **Original: English** |
| **Question(s):** | 10/9 | E-meeting, 16-23 April 2020 |
| **Ref.: SG9-TD874** |
| **Source:** | ITU-T SG9 |
| **Title:** | LS/r on hot topics (TSAG-LS32) [to TSAG, ITU-T SG2, SG3, SG5, SG11, SG12, SG13, SG15, SG16, SG17, SG20] |
| **LIAISON STATEMENT** |
| **For action to:** | - |
| **For comment to:** | - |
| **For information to:** | TSAG, ITU-T SG2, SG3, SG5, SG11, SG12, SG13, SG15, SG16, SG17, SG20 |
| **Approval:**  | **ITU-T SG9 meeting (E-meeting, 23 April 2020)** |
| **Deadline:** | N/A |
| **Contact:** | Zhongzhao LiABP, NRTAChina  | Tel: +86 10 86093737Fax: +86 10 86093658E-mail: lizhongzhao@abp2003.cn |
| **Contact:** | Satoshi MiyajiKDDI CorporationJapan | Tel: +81 3 6328 1905 Fax: +81 3 6757 1271E-mail: sa-miyaji@kddi.com  |

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| **Keywords:** | Hot topics; temperature |
| **Abstract:** | This liaison statement replies to TSAG with hot topics updated with the “temperatures”. |

ITU-T SG9 would like to thank TSAG for sending the liaison statement **(**[TSAG-LS32](https://www.itu.int/ifa/t/2017/ls/tsag/sp16-tsag-oLS-00032.zip)).

ITU-T SG9 would like to propose updates by giving “temperature” to hot topics relevant with SG9 as shown in Table 2.

ITU-T Study Group 9 looks forward to continuing collaboration with TSAG on this issue.

**Table 2 - Current summary list of Hot Topics**

| **#** | **Topic/Sub Topic** | **Source** | **ITU-T Topic Point of Contacts** | **Status** | **Temperature** |
| --- | --- | --- | --- | --- | --- |
| 1.00 | OTT Services and the economic impact, Cross-Industry (TSAG [TD101](https://www.itu.int/md/T17-TSAG-170501-TD-GEN-0101/en)) | CTO | **SG3 SG2 SG9 SG16 SG17** | No Change | Medium |
| 1.01 | The interplay of OTT service providers and operators particularly in developing countries |  |  |  |  |
| 1.02 | The economic impact of OTT services and operators |  |  |  |  |
| 1.03 | International standards frameworks, best practices and guidelines on OTT services |  |  |  |  |
| 2.00 | VoLTE/ViLTE interconnection and adoption of ENUM for IMS interconnection (TSAG [TD160](https://www.itu.int/md/T17-TSAG-180226-TD-GEN-0160/en)) | CxO | **SG11** in cooperation with SG2 | No Change |  |
| 3.00 | Intelligence for network automation, augmentation and amplification (TSAG [TD160](https://www.itu.int/md/T17-TSAG-180226-TD-GEN-0160/en)) | CxO | **SG13 SG9 SG20** | Updated | Hot |
| 3.01 | Identify the standardization needs for intelligence in 5G systems and the telecommunications sector |  |  |  |  |
| 3.03 | Automatic detection and resolution of anomalies and other incidents of inefficiency, as well as predictive maintenance will reduce the operational expenditure of network operators and service providers |  |  |  |  |
| 3.04 | Address the architecture interfaces, functional entities, service scenarios and protocols required for intelligence retrieval and actuation, and the performance benchmarking and certification of AI techniques |  |  |  |  |
| 3.05 | Usage of AI in security management solutions |  |  |  |  |
| 3.06 | Real-time network monitoring | CxO |  | Added |  |
| 3.07  | Automation informed by machine learning for network operation and maintenance | CxO |  | Added |  |
| 4.00 | Open APIs, enabling third parties to access and build on network capabilities to develop innovative, reusable services (TSAG [TD160](https://www.itu.int/md/T17-TSAG-180226-TD-GEN-0160/en)) | CxO | **SG13** **SG11** (Cooperating SG) **SG20** | Updated |  |
| 5.00 | Realizing 5G/IMT-2020 vision (TSAG [TD101](https://www.itu.int/md/T17-TSAG-170501-TD-GEN-0101/en), [TD160](https://www.itu.int/md/T17-TSAG-180226-TD-GEN-0160/en), [C27R2](https://www.itu.int/md/T17-TSAG-C-0027/en), [C29](https://www.itu.int/md/T17-TSAG-C-0029/en)) | CTO, CxO, Contributions | **SG13** in cooperation with SG2, 5, 11, 12, **15**, 16, 17, 20 | No Change |  |
| 5.01 | Unified access-independent network management |  |  |  |  |
| 5.02 | Standardization roadmap on IMT-2020 |  |  |  |  |
| 5.03 | ICN (Information Centric Networks) |  |  |  |  |
| 5.04 | Open-source software and standards for 5G |  |  |  |  |
| 5.05 | Software-based networking functions to optimize a per-session based performance |  |  |  |  |
| 5.06 | Emerging fronthaul and midhaul technologies to support the 5G deployment |  |  |  |  |
| 5.07 | Large-bandwidth backhaul and fronthaul solutions |  |  |  |  |
| 5.08 | Concrete strategies for the migration from 4G to 5G systems. |  |  |  |  |
| 5.09 | End-to-end network orchestration, control and management |  |  |  |  |
| 5.10 | Service-based network architecture |  |  |  |  |
| 5.11 | Open service management APIs for the Internet of Things |  |  |  |  |
| 5.12 | Electromagnetic field (EMF) studies around 5G beam-forming capabilities |  |  |  |  |
| 5.13 | Interoperability of services supporting public safety |  |  |  |  |
| 5.14 | Control and management protocols for IMT-2020 |  |  |  |  |
| 5.15 | Virtualized deployment of recommended methods for network performance, quality of service (QoS) and quality of experience assessment |  |  |  |  |
| 5.16 | End-to-end security and trust in 5G | CTO CxO |  | Added |  |
| 5.17 | Establish a 5G observatory to gain lessons from various technical developments and implementations of 5G technology, use cases and vertical experiments | CTO |  | Added |  |
| 5.18 | Develop guidance for operators on the business rationale for 5G deployment | CTO |  | Added |  |
| 5.19 | Standardization of open, interoperable RAN interfaces and RAN functional architecture” | CxO |  | Added |  |
| 6.00 | Gigabit-speed broadband access services and networks (TSAG [TD101](https://www.itu.int/md/T17-TSAG-170501-TD-GEN-0101/en)) | CTO | **SG15** SG9 | No Change | Hot |
| 6.01 | Support the delivery of high definition video services  |  |  |  |  |
| 6.02 | Broadband access networks; G.fast, G.hn, VDSL2, NG-PON2 |  |  |  |  |
| 6.03 | True fixed-mobile convergence, hybrid fixed wireless |  |  |  |  |
| 7.00 | Data Center Interconnection for OTT and vertical industries (TSAG [C37](https://www.itu.int/md/T17-TSAG-C-0037/en)) | Contribution | **SG15 SG11** (Cooperating SG) SG9 | No Change | Cold |
| 7.01 | OTT’s business and services models in relation to telecom services |  |  |  |  |
| 7.02 | Requirements from OTT for DCI/metro network technologies (such as short distance, large bandwidth, low-cost optical (WDM) technology, fixed network), and standards |  |  |  |  |
| 8.00 | Augmented reality & virtual reality, video services (TSAG [C6](https://www.itu.int/md/T17-TSAG-C-0006/en), [TD101](https://www.itu.int/md/T17-TSAG-170501-TD-GEN-0101/en)) | Contribution, CTO | **SG16 SG12[[1]](#footnote-1) SG11** (Cooperating SG) | Updated |  |
| 8.01 | Applications with high network requirements in throughput and latency  |  |  |  |  |
| 8.02 | A range of innovative technologies in transport, IP and access networking, media coding and cloud and edge computing |  |  |  |  |
| 8.03 | NG video codec standardization on 5G and vertical industries |  |  |  |  |
| 8.04 | Future Content Delivery Network (CDN) technologies standards. |  |  |  |  |
| 8.05 | Immersive live experience (ILE) |  |  |  |  |
| 8.06 | Digital signage |  |  |  |  |
| 9.00 | Accessibility by design mainstreaming the consideration of needs of persons with disabilities and other persons with specific needs to build inclusive ICT solutions (TSAG [TD160](https://www.itu.int/md/T17-TSAG-180226-TD-GEN-0160/en)) | CxO | **SG16 SG2 SG20** | Updated |  |
| 10.00 | Security and Trust (TSAG [TD101](https://www.itu.int/md/T17-TSAG-180226-TD-GEN-0101/en), [TD160](https://www.itu.int/md/T17-TSAG-180226-TD-GEN-0160/en)) | CTO, CxO | **SG2 SG17** | Updated  |  |
| 10.01 | Principles of transparency and technological integrity |  |  |  |  |
| 10.02 | Mitigation of the risks posed by IoT botnets |  |  |  |  |
| 10.03 | Assessment of the impact of quantum computing |  |  |  |  |
| 10.04 | Potential of blockchain and its implications for security |  |  |  |  |
| 10.05 | Data-centric security |  |  |  |  |
| 10.06 | Security and privacy by design, considering security and privacy from the outset of ICT services’s development through the proactive monitoring and protection of live services |  |  |  |  |
| 10.07 | Security, privacy and trust in the presence of AI and ML |  |  |  |  |
| 10.08 | Application security and quantum-safe cryptography through an incubation process |  |  |  |  |
| 10.09 | Identity and authorization, providing for the reliable identification essential to secure, efficient service provision |  |  |  |  |
| 10.10 | Security and privacy of human factor (intersection of computer science and the humanities) |  |  | Updated |  |
| 10.11 | Security of Robotics/IoT |  |  |  |  |
| 10.12 | Cybersecurity Services |  |  |  |  |
| 10.13 | Technical aspects of Cybersecurity Insurance |  |  | Proposed New |  |
| 10.14 | Edge Cloud Security |  |  | Proposed New |  |
| 11.00 | Analytics, supporting the development of evidence-based, data driven services (TSAG [TD160](https://www.itu.int/md/T17-TSAG-180226-TD-GEN-0160/en)) | CxO | **SG20 SG17** | No Change |  |
| 11.01 | Data processing and management for IoT and SC&C |  |  |  |  |
| 11.02 | Common things description methodology |  |  |  |  |
| 11.03 | Interoperability framework and functional architecture for IoT and SC&C |  |  |  |  |
| 11.04 | Industry dependent data models and formats to support development of data driven IoT and SC&C services |  |  |  |  |
| 11.05 | Features, requirements, framework and functional architecture of IoT device, gateway, platform, network |  |  |  |  |
| 11.06 | Edge Computing to support evidence-based, data driven IoT and SC&C services |  |  |  |  |
| 11.07 | Distributed ledger technologies for IoT and SC&C |  |  |  |  |
| 11.08 | IoT identification to support evidence-based data driven IoT and SC&C services |  |  |  |  |
| 11.09 | AI enabled IoT and SC&C |  |  |  |  |
| 11.10 | Data driven IoT verticals |  |  |  |  |
| 11.11 | Data Security |  |  |  |  |
| 12.00 | Intelligent network management towards future networks (TSAG [TD344](https://www.itu.int/md/T17-TSAG-181210-TD-GEN-0344/en)) | SG2 | **SG2** | No Change |  |
| 12.01 | Smart operation, management and maintenance. |  |  |  |  |
| 12.02 | Telecom anti-fraud management |  |  |  |  |
| 12.03 | REST-based network management framework |  |  |  |  |
| 13.00 | Environmental efficiency of emerging technologies (TSAG [TD374](https://www.itu.int/md/T17-TSAG-181210-TD-GEN-0374/en)) | SG5 | **SG5** | No Change |  |
| 13.01 | Assessment of the environmental impacts of deploying and implementing AI, Blockchain, and other emerging technologies |  |  |  |  |
| 14.00 | Digital health (TSAG [TD347](https://www.itu.int/md/T17-TSAG-181210-TD-GEN-0347/en)) | SG16 | **SG16 SG20** | Updated |  |
| 15.00 | Quantum based Security[[2]](#footnote-2) (TSAG [TD362](https://www.itu.int/md/T17-TSAG-181210-TD-GEN-0362/en)) | SG17 | **SG17 SG13** | Updated |  |
| 16.00 | Assessment and evaluation of smart city and IoT verticals (e.g. detailed mobility, detailed energy management, detailed water management, etc.) (TSAG [TD533](https://www.itu.int/md/T17-TSAG-190923-TD-GEN-0533/en)) | SG20 | **SG20** | Added |  |
| 17.00 | Solutions in smart sustainable cities using emerging technologies (e.g. IoT, AI, etc.) (TSAG [TD533](https://www.itu.int/md/T17-TSAG-190923-TD-GEN-0533/en)) | SG20 | **SG20** | Added |  |
| 18.00 | Smart villages and rural areas (TSAG [TD533](https://www.itu.int/md/T17-TSAG-190923-TD-GEN-0533/en)) | SG20 | **SG20** | Added |  |
| 19.00 | Identify scenarios and best practices for Network infrastructure sharing (TSAG [TD582](https://www.itu.int/md/T17-TSAG-190923-TD-GEN-0582/en), [TD661](https://www.itu.int/md/T17-TSAG-200210-TD-GEN-0661/en)) | CTO, CxO | **SG2, SG3, SG13, SG15** | Added |  |
| 20.00 | Performance, QoS and QoE assessment | CTO | **SG12, SG16, FG-AI4AD** | Added |  |
| 20.01 | Real-time monitoring of network performance | CTO | **SG12, SG16, FG-AI4AD** | Added |  |
| 20.02 | Network performance prediction | CTO | **SG12, SG16, FG-AI4AD** | Added |  |
| 20.03 | Compliance, conformance and quality testing for Intelligent Transport Systems | CxO | **SG12, SG16, FG-AI4AD** | Added |  |
| 20.04 | Measurement of user-perceived QoS | CxO | **SG12, SG16, FG-AI4AD** | Added |  |

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1. It is necessary to include SG12 as a cooperating group for AR/VR and Video topic [↑](#footnote-ref-1)
2. The long text in the initial TD606R1 is pushed in the detailed description of this Hot Topics [↑](#footnote-ref-2)