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| **Contact:** | Leo LehmannOFCOMSwitzerland | Tel: +41 32 327 5752 Fax: +41 32 327 5528E-mail: leo.lehmann@bakom.admin.ch  |

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| **Keywords:** | SG; Lead Study Group; IMT-2020; 5G; cloud computing; trust and trusted network infrastructures; roadmap; report; workshop; cooperation; |
| **Abstract:**  | This document reports a progress to date on each of the lead study group roles of SG13. It covers the period from end of TSAG meeting, September 2020, and addresses some anticipated activities. |

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# Assigned lead study group duties

WTSA-16 assigned Study Group 13 to be the lead study group:

* on future networks such as IMT-2020 networks (non-radio related parts)
* on mobility management
* on cloud computing
* on trusted network infrastructures

# Lead study group activities on future networks such as IMT-2020 networks (non-radio related parts)

The studies on IMT-2020 networks are being carried out by Q2/13, Q6/13, Q20/13, Q21/13, Q22/13 and Q23/13 belonging to WP1/13 and WP3/13.

## *2.1 SG13 related studies*

SG13 has continued its active role in IMT2020/5G standardization by approving/consenting the following new standards since the last TSAG meeting:

* Y.3113 “Requirements for latency guarantee in IMT-2020 network”
* Y.3177 “Architecture framework for AI-based network automation of resource adaptation and failure recovery for future networks including IMT-2020”
* Y.3157 “IMT-2020 network slice configuration”
* Y.3135 “Service scheduling for supporting FMC in IMT-2020 network”

Liaison relations concerning Future Networks including IMT2020 include besides ITU-T SG’s organizations outside ITU as IETF, IRTF, IEEE, 3GPP, ETSI, ARIB, ATIS, CCSA, TTA, TTC, OIF, ONF, NGMN Alliance, GSMA, Broadband Forum, Wi-Fi Alliance.

Currently progressing work items include (among others) Y.IMT2020-SOCN-req-frame “Future networks including IMT-2020: requirements and framework for self-organizing core network”, Y.IMT2020-STI-NS network slicing in satellite-terrestrial integration in IMT-2020 networks and beyond, Y.ICN-SEAN" Architecture and Functional Framework for on-Site Elastic and Autonomous ICN", Y.FMSC-frame “Framework of fixed, mobile and satellite convergence in IMT-2020 network and beyond”, Y.IMT2020-qos-req-tcn (QoS requirements for train communication network supported by IMT-2020), Y.IMT2020-qos-req-sg (QoS requirements for smart grid supported by IMT-2020), Y.IMT2020-qos-lstn-req (Requirements and framework of Deterministic QoS in large-scale telecommunications networking for IMT-2020 networks and beyond), Y.ML-IMT2020-serv-prov (Architecture framework of user-oriented network service provisioning for future networks including IMT-2020), Y.IMT2020-mAI (Traffic typization IMT-2020 management based on an artificial intelligent approach), Y.IMT2020-EIL (Evaluating intelligence capability for network slice management and orchestration in IMT-2020), Y.IMT2020-NSL-fra (Framework for classifying network slice level in future networks including IMT-2020), Y.ICN-DOS (Requirements and capabilities of data object segmentation in information centric networking for IMT-2020), Y.ICN-interworking (Framework on internetworking of heterogeneous application domain connected objects through information-centric networking in IMT-2020), Y.ICN-NMR (Framework of locally enhanced name mapping and resolution for information centric networking in IMT-2020), Y.ICN-TL (Requirements and Capabilities of Transport Layer for ICN in IMT-2020), Y. FMSC-MEC (Multi-access Edge Computing for fixed, mobile and satellite convergence in IMT-2020 networks and beyond), Y.FMC-SDWAN (Fixed Mobile Convergence enhancements to support IMT-2020 based Software-defined wide area networking service). For details see SG13 work program which can be found at SG13 homepage.

Considering the activities related to IMT, the development of Q.174X-series of Recs in collaboration with organizational partners of 3GPP and 3GPP2 (ARIB, ETSI, TIA, ATIS, TTC, TTA, CCSA) is currently on hold due to lack of editors.

## *2.2 JCA IMT-2020*

SG13, through its JCA-IMT2020, coordinates work with the focus on the non-radio aspects within ITU-T and coordination of the communication with standards development organizations, consortia and forums also working on IMT2020 related standards. Tool for this is the IMT-2020 standardization roadmap. It represents a snapshot who is doing what in this area in the standardization world.

The latest revision of the roadmap can be found in Supplement 59 to ITU-T Y-series. The roadmap is also available via data base access <https://www.itu.int/net4/ITU-T/roadmap#?topic=0.130&workgroup=1&searchValue=&page=2&sort=Revelance>.

Next meeting of JCA IMT2020 is scheduled to take place alongside the March 2021 meeting of the SG13.

## *2.3 IMT2020/5G related activities by other ITU-T study groups*

For IMT2020/5G related activities of other ITU-T Study Groups (as SG2, SG5, SG11, SG15, SG17 and S20) it is referred to the corresponding Work Program of those Study Groups.

#  Lead study group activities on mobility management

The studies on mobility management (MM) are being carried out by Q23/13.

Currently progressing work items include MM aspect: Y.FMSC-frame “Framework of fixed, mobile and satellite convergence in IMT-2020 network and beyond”, FMSC-MEC (Multi-access Edge Computing for fixed, mobile and satellite convergence in IMT-2020 networks and beyond), Y. FMSC-MM (Mobility Management for fixed mobile, NGSO-satellite convergence in IMT-2020 networks), Y.Suppl.MM-SDN (Supplement on use cases of mobility management over SDN) and seven more. For details see SG13 work program which can be found at SG13 homepage.

#  Lead study group activities on cloud computing

The studies on Cloud Computing are being carried out by Q17/13, Q18/13 and Q19/13 belonging to WP2/13.

##  *SG13 related studies*

Since last report there were no new documents for approving/consenting.

Q17/13 continues to maintain/update *the Cloud Computing Standard Roadmap*. Roadmap represents a snapshot who is doing what in this area in the standardization world.

Liaison relations concerning cloud computing include beside ITU-T SG’s organizations outside ITU as ATIS, BBF, DMFF, IEEE, ISO/IEC, MEF, TMF.

## Currently progressing work items include studies on BigData (Y.bDDN-FunArch, -req, - MCMec, -MLMec, Y.bdi-reqts, Y.sup.bdsr2), on Cloud Computing (Y.ecloud-reqts , Y.CCDCFA, Y.ccdm-reqts ,Y. scb-arch, Y.cccm-reqts, Y.ccrm, Y.mc-reqts, Y.ccfrcm, Y.ccgmfdc, Y.e2efapm, Y.ccvnf-dm). For details see SG13 [work program](https://www.itu.int/itu-t/workprog/wp_search.aspx?sg=13) which can be found at SG13 homepage.

## *4.2 Cloud Computing related activities by other ITU-T study groups*

For Cloud Computing activities of other ITU-T Study Groups it is referred to the corresponding Work Program of those Study Groups.

#  Lead study group activities on trusted network infrastructures

The studies on trusted network infrastructures are being carried out by Q16/13 belonging to WP3/13.

## *5.1 SG13 related studies*

Since summer 2018 SG13 start working on quantum key distribution network. SG13 has continued its active role in trusted network infrastructures standardization by approving/consenting the following new standards since the last TSAG meeting:

* Y.3056 “Framework for bootstrapping of devices and applications for open access to trusted services in distributed ecosystems”

SG13 continues to maintain/update the roadmap on **trustworthy networking** and services including quantum enhanced networks. This roadmap provides the standardization roadmap on trustworthy networking and services including quantum enhanced networks.

Currently progressing work items include studies on TR.QKDN-mla “Applications of Machine Learning in Quantum Key Distribution Networks”, Y.trust-index, Y.trust-arch, Y.SNS-trust, Y.SBN-TR and Y.DNI-fr, Y.QKDN-frint, -SDNC, -BM, qos-gen and –qos-req.

For details see SG13 work program which can be found at SG13 homepage.

## *5.2 Trusted network infrastructures related activities by other ITU-T study groups*

For Trusted network infrastructures related activities of other ITU-T Study Groups it is referred to the corresponding Work Program of those Study Groups (SG17).

# Other important activities of SG13 related to its Lead Study Group mandate

## *6.1 Workshops related to SG13 lead activities*

At its meeting on 17 December 2020 SG13 has approved the 8th SG13 Regional Workshop for Africa, intended to be held during May 2021 (virtual).

***6.2 Next Study Period preparations***

SG13 has approved the set of 13 Questions for study in 2021-2024 study period as appears in [TSAG TD 979](https://www.itu.int/md/T17-TSAG-210111-TD-GEN-0979/en).

SG13 has not approved the tentative FVCN related Questions F and G. There was also no consensus to continue consideration of the matter.

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