TTC Activity Report

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CEO & S.V.P
TTC, Japan
1. TTC’s mission and organization
2. TTC’s hot standardization topics
   • 5G
   • IoT/M2M
   • All IP Interconnection
3. TTC’s challenge
4. TTC’s hot issues for ASTAP

Appendix; Supplementary slides
1. TTC’s mission

- TTC is a private and non-profit organization accredited by the Japanese Administration as an SDO (standards development organization) in Japan
- Established in 1985 (NTT’s privatization)
- TTC is an SDO qualified by ITU-T Recommendation A.5 & A.6
- Our mission is to develop and disseminate the TTC standards and their applications/solutions on ICTs (information & communication technologies) applicable both in Japan and in other areas, in particular in the Asia-Pacific region
TTC Standards Development

TTC standards are developed by the TTC approval process in accordance with WTO TBT agreement.

[Notes] MiC: Ministry of Internal Affairs and Communications
WTO: World Trade Organization  TBT: Technical Barriers to Trade
Why do we need national standards?

Importance of national SDO

WTO TBT agreement (since 1995): The agreement imposes an obligation to coordinate all of their domestic mandatory and voluntary standards with international standards on member states.

◆ It is important that domestic standards/regulations should reflect the international standards, but

◆ International standards may sometimes include a lot of options/ambiguity, which result in end-to-end interoperability problems.

◆ International standards do not always reflect adequately national market demands/requirements including regulations.
## Working Groups structure in TTC

<table>
<thead>
<tr>
<th>Divisions</th>
<th>Working Groups under the Division</th>
</tr>
</thead>
<tbody>
<tr>
<td>ICT Applications</td>
<td>Multimedia Application, Connected Car, BSG, e-health, IoT/SC&amp;C</td>
</tr>
<tr>
<td>Platforms</td>
<td>oneM2M, Security, Enterprise Network, IMS interconnection, Number Portability</td>
</tr>
<tr>
<td>Protocols, Network Management and QoS/QoE</td>
<td>Singalling, Network Management, Numbering Plan, Soft Error</td>
</tr>
<tr>
<td>Architecture</td>
<td>Network Vision, Mobile NW Management, 3GPP, 3GPP2, NW Softwarization, 5G standardization Coordination</td>
</tr>
<tr>
<td>Transport, Access and Area Network</td>
<td>IoT Area Network, Transport Networks and EMC, Access Network, Optical Fiber, Beyond 100G</td>
</tr>
</tbody>
</table>

[Notes] Working Group Subgroup on a topic
- Step forward of ICT global standardization from intra-industry innovation to inter-industry innovation

- TTC has established “Inter-Industry Innovation Center (I3C)” in April 2011, which surveys the trends of the inter-industry collaboration, identifies the areas where TTC should play an active role of innovation and develops new strategies of ICTs.

- The identified topics include IoT/M2M, Big Data, ITS (Connected Car), E-health, Smart cities, Disaster relief and emergency communications, etc.
2. Hot Standardization topics

- Promotion of strategic standardization activities
  - IMT-2020/5G (Future mobile): refer to A.1.3
    ITU-T SG13 & SG15, 3GPP
  - IoT/M2M: refer to A.1.4
    oneM2M, ITU-T SG20
  - All IP interconnection for PSTN migration: refer to A.1.5

- Global collaboration with the standardization organizations including ITU-T, APT/ASTAP, CJK, GSC, 3GPP, oneM2M and other Fora

- Promotion of TTC standardization publicity, especially by holding seminars and workshops on various emerging technical topics such as;
  NFV/SDN, Big Data, IoT area networks, e-health, ITS, Artificial Intelligence, Blockchain, etc.
3. TTC’s challenge

- Interest of ICT users are moving to services/applications, where not only telecom operators but also OTT players are active.
- How to make our activity more attractive to not only existing ICT industry but also other industries using ICT services?
- How to increase TTC members and make our financial status balanced?
- TTC has established IoT innovation promotion committee in I3C in June 2017, where various industry groups can form a forum (we call it IoT Working Party) across different IoT fields and discuss idea creation, business collaboration, etc. It is expected that their discussions could trigger new standardization activity in TTC.
4. TTC’s hot issues for ASTAP

- TTC contributes to ASTAP to promote the aspects of BSG (Bridging the Standardization Gaps) and Disaster response in APT region.

- TTC has contributed to development of ASTAP Report on “ICT solution handbook” and plans to update its revision to enhance the applications.

- In APT Project “Publication in 2016”, TTC plans to invite government officials and/or researchers of ASEAN countries to Japan and to hold a workshop on “Policy research on Smart city in Asian countries” in Tokyo on 14th September 2017.

- TTC supports a development of the V-HUB (Vehicle-hub) system specification based on the use cases of disaster responses in Asian countries and proposes it to the ASTAP-29 meeting as a draft ASTAP Recommendation.
APPENDIX:
Supplementary slides
A.1.1 TTC’s mission

- TTC is an SDO qualified by ITU-T Rec. A.5 & Rec. A.6 so that;
  - ITU-T Recommendations can include references to TTC Standards.
    - ITU-T Rec. A.5: Generic procedures for including references to documents of other organizations in ITU-T Recommendations
  - Information exchange with ITU-T
    - ITU-T Rec. A.6: Cooperation and exchange of information between ITU-T and national and regional standards development organizations
A.1.2 TTC’s mission

Substantial and preparatory discussions on the upstream activities to ITU-T are extended by TTC Working Groups (WGs) and Advisory Groups (AGs), and their outcomes will be submitted to MiC for authorization as formal Japanese opinions.

Examples:

- Optical Transport Networks and EMC WG for SG15
- Network Vision WG for SG13
- ICT&CC (Climate Change) WG for SG5
- Global collaboration AG (GCAG) for TSAG

(Note) MiC: Ministry of Internal Affairs and Communications
A.1.3 TTC Homepage

TTC: [http://www.ttc.or.jp/e/](http://www.ttc.or.jp/e/)

[Image of TTC homepage]

Mission

TTC is an incorporated association that contributes to standardization activities in the field of information and communication technology (ICT) by developing and disseminating standards for Information and communications networks. It thus participates in the creation of a safe and comfortable society supported by the rapid development of ICTs.

TTC Standardization Activity Structure

- **Divisions**
  - ICT Applications
  - Platforms
  - Protocols, NW Management and QoS/QoE
  - Architecture
  - Transport, Access and Area Network

- **Working Groups and major groups under the Division**
  - Multimedia Application
  - Connected Car
  - BSIGN
  - Security
  - Enterprise Network
  - oneM2M
  - Signalling
  - Network Mgmt.
  - Numbering Plan
  - Network Vision
  - Mobile NW Mgmt.
  - 3GPP
  - Network Management
  - Access Network
  - Optical Fiber
  - IoT Area Network
  - Transport Networks and EMC
  - Access Network
  - Optical Fiber

2017-07-28 TTC documents on 3GPP technical specifications and report completed
A.1.4 TTC’s Officers

- Chairman of the Board: Prof. Mitsutoshi HATORI
- CEO & Senior Vice President: Mr. Yoichi MAEDA
- Secretary General: Mr. Shuichi INADA
- Director General of I3C: Mr. Hiroshi HAMANO
### A.1.5 TTC Membership

<table>
<thead>
<tr>
<th>Category</th>
<th>No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Vendors</td>
<td>43</td>
</tr>
<tr>
<td>NW operators</td>
<td>13</td>
</tr>
<tr>
<td>Others</td>
<td>19</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>75</strong></td>
</tr>
</tbody>
</table>

[Note] As of March 2017

![Pie chart showing the distribution of TTC membership categories: Vendors (56%), NW operators (25%), Others (16%)](chart)

- **Vendors** (56%)
- **NW operators** (25%)
- **Others** (16%)
## A.1.6 Categories of TTC Documents

<table>
<thead>
<tr>
<th>Category</th>
<th>Description</th>
<th>Relevant SDOs</th>
</tr>
</thead>
<tbody>
<tr>
<td>JT</td>
<td>TTC Standards based on ITU-T Recommendations</td>
<td>ITU-T</td>
</tr>
<tr>
<td>JP</td>
<td>TTC Standards based on deliverables developed by regional SDOs or partnership projects</td>
<td>3GPP, 3GPP2, oneM2M</td>
</tr>
<tr>
<td>JF</td>
<td>TTC Standards based on the de-facto standards/deliverables developed by fora</td>
<td>IETF, IrDA, NMF, IEEE, etc.</td>
</tr>
<tr>
<td>JJ</td>
<td>TTC Standards developed originally by Japan/TTC</td>
<td>Japan/TTC original</td>
</tr>
<tr>
<td>JS</td>
<td>TTC Standards based on ISO Stds</td>
<td>ISO</td>
</tr>
<tr>
<td>TS</td>
<td>Technical Specifications</td>
<td>3GPP, 3GPP2, oneM2M, etc.</td>
</tr>
<tr>
<td>TR</td>
<td>Technical Reports</td>
<td>3GPP, 3GPP2, oneM2M, etc.</td>
</tr>
</tbody>
</table>
### Number of TTC documents

<table>
<thead>
<tr>
<th>Category</th>
<th>No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>JT</td>
<td>428</td>
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<tr>
<td>JP</td>
<td>173</td>
</tr>
<tr>
<td>JF</td>
<td>154</td>
</tr>
<tr>
<td>JJ</td>
<td>65</td>
</tr>
<tr>
<td>JS</td>
<td>40</td>
</tr>
<tr>
<td><strong>TS</strong></td>
<td><strong>11,803</strong></td>
</tr>
<tr>
<td><strong>TR</strong></td>
<td><strong>537</strong></td>
</tr>
</tbody>
</table>

[Note] As of March 2017

[Note] This graph does not include TS or TR.
A.2.1 IMT-2020 / 5G

- Started an initial study of IMT-2020/5G networking (Sept 2014 - March 2015) and developed White Paper on 5G networking (non-radio aspects): [http://www.ttc.or.jp/e/topics/20150413/download](http://www.ttc.or.jp/e/topics/20150413/download)

- The second phase of study was completed in September 2015, which identified the networking study issues such as network softwarization, mobile front/back-haul, mobile edge computing.

- Support 5GMF (the Fifth Generation Mobile Communications Promotion Forum) in Japan with keeping close collaboration with ARIB: [http://5gmf.jp/en/](http://5gmf.jp/en/)

- TTC’s 5G Standardization Adhoc comprised of Network Vision WG, 3GPP WG, Mobile Network Management WG, IoT Area Network WG members to keep the collaborative studies on 5G networking
IoT Acceleration Consortium (http://www.iotac.jp/en/) was established in October 2015 in Japan with the aim of creating an adequate environment for attracting investment in the future with IoT through public-private collaboration. TTC contributes to the management of Smart IoT Acceleration Forum in the Consortium in Japan.

Promotion of oneM2M partnership project in Japan in cooperation with ARIB.

TTC’s IoT/Smart Cities and Communities Adhoc is comprised of Multimedia Application WG, IoT Area Network WG, Connected Car WG, oneM2M WG, ICT & CC WG, Security WG, Network Vision WG & Signalling WG members and discussing how Japanese industry should contribute to the relevant SDOs and ITU-T SG20 activity.
A.2.3 All IP – IMS Interconnection

- **All IP Interconnection : 3GPP, GSMA**
  - PSTN migration to all IP networks (by year 2025) project in Japan
  - VoIP/VoLTE interworking guideline between IMS (JJ-90.30) in cooperation with GSMA (GSM Association)
  - ENUM (JJ-90.31)
  - Number portability (JT-E164 Sup.2)
  - VoLTE speech quality assessment guideline

- **All IP Interconnection Adhoc** comprised of Signalling WG, 3GPP WG & Mobile Network Management WG members to realize smooth transition from the existing PSTN to all IP networks.
Thank you very much for your attention!

If you have any comments or questions, please contact to

yoichi.maeda@s.ttc.or.jp

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http://www.ttc.or.jp/e