Outcome report: Advanced digital networks for data-oriented societies

Session Date and Time: Session 1, Thursday, 8 July 2021 (06:00 – 07:00 Geneva time). 60 minutes.

Moderator:

- Ms. Zahra Nazari, Board Member, Afghan Telecom Regulatory Authority (ATRA)

Speakers:

- Mr. Osamu Kamimura, Vice President and Head of Spectrum Policy Office, SoftBank Corp
- Mr. Bill Lan, Vice President, Wireless Network Development, Huawei Technologies
- Mr. Kartika Prihadi, Managing Director of Enterprise Networking for APJC, Cisco
- Mr. Scott Minehane, Managing Director, Windsor Place Consulting Pty Ltd.

Presentations available [here](#)

1. Session summary :

Panelists highlighted key advancements in the digital infrastructure, including looking at new innovative infrastructure technologies, along with the impacts of future hybrid workspaces on digital infrastructure. The session also provided key findings of the study on ASP regional trends on providing access to IMT bands for Mobile service.

2. Main outcomes highlighting the following:

a. Discussed Topics:

Non-terrestrial Networks (NTN) and High Altitude Platform Systems (HAPS), Low-cost Mobile Broadband (MBB) solutions, distributed work enterprise systems and hybrid workspaces, wireless spectrum assignments.

b. Key achievements and challenges shared by the panelists and/or the audience

- Non-terrestrial Networks and HAPS are a technology that can provide ground coverage from the sky. HAPS technology is already here, with test flights and LTE Connectivity demo successfully concluded, as noted by SoftBank.

- However, HAPS need adequate regulation to make this work, including through ongoing preparations for WRC-23 Agenda Item 1.4. Currently, more rules are needed, with proper regulation for NTN usage in coordination with global rules that need to be addressed. The private sector [HAPS Alliance](#) is focused on this subject too, and has created regulatory position papers. Establishment and coordination of rule making at international and national levels is needed.

- Innovation can happen within pre-existing telecommunications networks. Existing 2G, 3G, and 4G networks can be updated to provide meaningful connectivity to all. In addition high speed microwave links resilient to high winds are modern requirements for cities. In addition archipelago and SIDs need a resilient high speed and/or long distance microwave links with advanced beam stability to overcome backhaul challenges. Higher RF bands would be the trend for high capacity links in cities.

- Availability of reliable electricity can be bottleneck to rural connectivity, so any innovative rural MBB solution needs to take this into account. Huawei noted its' Ruralstar LTE site solution is a step to overcome this issue.

- The pandemic has accelerated key technology trends, but digital investments and resiliency are still a key question in the post-COVID world. CISCO created key principles of resilient enterprise architecture, but these require business policies and resilient IT infrastructure.

- Building a resilient distributed infrastructure also requires being able to work securely from anywhere; ability to collaborate from any device, ability to manage from anywhere and to maximize experience and productivity.

- For releasing spectrum, it is critical that licensees have a high degree of certainty as to what, when and how critical IMT spectrum will be made available so that they can plan deployments, technologies, investments etc.

- Spectrum roadmap is important as it is an agreed plan for both government and all stakeholders setting out the steps and timing in making available unused spectrum and in better utilizing existing spectrum allocations

- A number of exemplar practices were presented on spectrum management.

c. **Main conclusions reached during the discussion**

- We have to build resilient distributed infrastructure after COVID-19, with a key focus on the key components of digital transformation involving: resilient infrastructure, resilient enterprise architecture, and resilient IT operating models.

- There is a need for rules for frequency bands and other matters related to HAPS, as well as on the technical aspects. Rulemaking is very important to introduce new technologies

- Challenge of emerging technology is not technology itself, but maturity of related ecosystem. Innovative tech has already matured, but the technology solution is not the only determination. Without the support of the supply chain, there will be problems, so cooperation with the ecosystem is needed to decrease the risk.

3. **Panelists contributions to the outcome reports**

- For those countries without enough connectivity, NTN technology can be very helpful. It will be very useful as a technology solution

- Maturity of emerging tech is first priority in your decision making. It would not be suggested for LDC/LLDC/SIDS to take emerging tech, but to start with mature technologies first

- Once we have available connectivity, there are many things we can do to develop working model in new environment.

- On Spectrum

    For LDCs:
    - Critical to make more IMT spectrum available at reasonable and affordable prices with target of at least 840 MHz in total if not a reach target of 960 MHz for Asia-Pacific countries with a large population
    - Given the need for affordable retail services, prioritization should be on low and mid-band spectrum unless there is demand for high band spectrum. "Down-banding" of 4G and 5G spectrum and deployments is likely to result in lower capex and opex costs for MNOs especially in relation to towers, backhaul etc

- IMT spectrum allocations should be service and technology neutral to allow integrated 4G/5G services (eg in the 2.6 and 2.3 GHz bands) and to facilitate transition from legacy 2G/3G services

For SIDS
- Focus should be on making low band spectrum available with some mid-band spectrum to support higher speed broadband services in any urban areas. Should be more selective about IMT band availability
- Need to improve network resilience and disaster preparedness with infrastructure sharing/hardened infrastructure

For LLDCS
- Important to have cross-border co-ordination measures in place with neighbours especially in relation to TDD
    o Need to have harmonized spectrum allocations and work through the ITU and regional groups like APT, ASEAN, and SAARC, to achieve maximise spectrum availability and minimize harmful spectrum interference.