

## **Title: Networking in 2030: A Wireless World Forum (WWRF) Perspective**

### **Abstract:**

Our society will be evermore mobile and data-driven where voice communication will be free, and everything will run on data network, enabled by fast, unlimited wireless connectivity which would be ubiquitous and low cost. The next generation of network beyond 5G will emerge around 2030 to satisfy the unmet expectations of previous generations. It would be driven by network densification with wide range of wireless access technologies, spectrum sharing (both in the licensed and unlicensed band), cloud computing/virtualization, and will extensively utilize the technologies of AI, machine learning and block chain. The quantity and variety of data will call for fundamentally new and innovative business models. Not only would the consumers benefit from the above advancements, the vertical industries would be the significant beneficiaries of the expected performance and cost improvements. These key future trends are driving the work of the WWRF, which we present in this talk, including a short overview of the WWRF, its vision and accomplishments.

The talk will focus on the following topics:

- new requirements and technologies that look beyond 5G to fulfill the unmet objectives of 5G;
- potential new breed of applications, such as augmented reality, multi-party gaming, multi-sensory conferencing, almost real-time tele-surgery, manufacturing, driverless vehicles, among others, but going to the next level of rendering in 3D;
- significant changes in the utilization of spectrum (extending into the THz) and the concept of network resources (evolution of the resources notion itself, resulting from the network infrastructure modules sharing and novel ownership models);
- cloud-based radio network architectures and cloudification of most of the network functions in today's wireless networks;
- research into new, cross-disciplinary areas, such as THz communications, molecular communications and big data driven optimization, and
- the role of AI, machine learning, cloud computing and block chain to make networks smarter and autonomous.

WWRF believes that the above research areas will drive networking in 2030.

Finally, we wrap-up the presentation with some thoughts on new business models that are likely to emerge, which would depart from the traditional service providers, collecting usage statistics, such as the amount of data consumed, duration, etc, and the network in 2030 will usher into an era of unlimited data consumption with no time bounds.

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