

## **Tomorrow is now – A workshop on 5G technology, operations and regulation**

In late March 2019, the ITS hosted an international workshop on 5G. This workshop, which included regulators, industry representatives and academics from around the globe, explored the multi-faceted nature of the challenges and opportunities of 5G.

Reflecting the scope and potentially impact of 5G, the presentations were wide-ranging in nature, ranging from a detailed discussion of the engineering that needs to be undertaken and finalized to a broad overview of the demand from users to the policies that need to be developed and implemented. The workshop began with Tom Hazlett exploring the spectrum needs of 5G, touching on issues such as liberalization, demand for data and the cost of spectrum. In many ways, this set the scene for the rest of the day. Michael Hong provided a technical overview of 5G centered around three trends: smaller cells, more antennas and more spectrum. This was then followed by Mike Murphy who presented a vendor's perspective on 5G, providing insights into how the technical characteristics of 5G interact with its regulation and commercial characteristics.

Operators from either side of the Pacific contributed their thoughts on 5G. Yoji Kishi from KDDI in Japan discussed the upcoming launch of 5G services in Japan. Changsoon Choi from SK Telecom in Korea then detailed the progress of 5G implementation in South Korea. The American perspective on 5G came from Gordon Mansfield from AT&T. AT&T has undertaken a series of tests and field trials, gaining valuable lessons into how to deploy 5G and what could and does attract users – these tests and trials provide valuable lessons that will shape its future deployment of the technology.

Four regulatory perspectives on 5G were presented. Erik Bohlin vividly illustrated the dynamic interplay between regulation and investment, showing how regulation will shape the investment and innovation that is necessary make 5G a success. The scale of the policy challenge associated with 5G is clearly shown by Hyeon-Woo Lee's discussion of Korea. Policies that cut across ICT as well as the sectors – vertical industries – that are expected to be heavy users of 5G are needed. Developing and then implementing the wide-ranging and integrated policies that are necessary is not without its challenges. Heidi Himmanen's presentation of 5G within Finland also highlighted the wide-ranging nature of the challenges, but it also showed the scope and diversity of the 5G ecosystem that is emerging. 5G should not be viewed in isolation but instead as being integral to the wider economy – the 5G trials and projects that are being undertaken in Finland are in areas as diverse as drones, road safety and maritime automation.

The workshop's speakers came from Asia, Europe and North America. Among them were regulators from Finland, South Korea and the United States and industry participants from South Korea, Japan and United States. When combined with academic contributions, the workshop provided multiple perspectives on a series of on-

going 5G debates – while the workshop was held in Canada, the issues raised in the workshop are clearly relevant elsewhere.

The workshop advanced our aspiration of convening timely and thoughtful conversations among academics, industry representatives and policy makers on crucial and contemporary policy issues. The 5G workshop also has the distinction of being the first ITS event to be made substantially available online. The presentations and videos can be found [here](#).

Erik Bohlin  
Chalmers University of Technology  
Program Coordinator

Stephen Schmidt  
TELUS  
Workshop Chair