Policy Defined Radio and Professional Certification

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Wireless technology is undergoing radical changes for a number of fundamental reasons. Three of those causal factors are:

- The explosive growth in the use of wireless technology - This growth is significantly impacted by the end point of a wireless technology increasingly being a device, not a person. Device-to-device wireless transmissions geometrically increase the number of wireless devices in use.
- The growing scarcity of spectrum – The demand created by new wireless services and technologies is creating a growing pressure for the finite resource of spectrum.
- The need to optimize wireless network performance dynamically – Organizations that use wireless networks need to optimize the performance of those networks according to their requirements, which are changing dynamically.

Research has demonstrated that the scarcity of spectrum is created not by fundamental limits of the resource but rather by the history manner in which spectrum is managed. Dynamic spectrum access has been introduced as a means for increasing the number of devices that can simultaneously use spectrum by orders of magnitude. However, implementing dynamic spectrum access will require that regulators change their method of managing spectrum in radial ways.

Policy defined radio has been created as an enabling technology to support implementation of dynamic spectrum access as well as allowing network managers to optimize the performance of their wireless networks.

While technologically promising these innovations create fundamental regulatory, legal and economic issues. Regulators and legal experts are currently embroiled in hot debate as to whether the public interest is better served by treating spectrum as a property right, analogous to real estate, or as a public resource and trust, to be managed, like a public park, for the common good.

Economically these innovations can be matured to be sustaining innovations, supporting and being introduced through the incumbent wireless providers. Alternately they could be matured and introduced to be disruptive to the current incumbents, allowing new participants to come into the market on an equal footing with incumbent providers.

In this complex and dynamic landscape non-profit organizations must adapt their services to continue to deliver their contribution. Standards developing organizations must

develop the standards needed to support the introduction of these new technologies. Professional certification agencies, such as the International Association of Radio and Telecommunications Engineers (iNARTE), must adapt professional engineering certification programs so that they remain market relevant.

This seminar will survey the current state of this quickly changing landscape. The dynamics of innovation and change will be observed as they manifest themselves in the wireless industry. As a case study, the challenge faced by iNARTE will be highlighted, to demonstrate the challenge faced by iNARTE but also other non-profit organizations.