

The juggernaut of new generations of telecom—5G

Even while telecom operators in India are in the midst of rolling out 4G networks, the minister for telecom has announced that India would roll in 5G by 2020, a time frame that has been accepted by international standardization bodies, vendors, and service providers in many parts of the world. South Korea and Japan want to showcase leading 5G applications in the Winter and Summer Olympics in 2018 and 2020, respectively. However, Indian operators face several challenges for 5G roll-outs from a business point of view. They have far less spectrum in comparison to international operators. This increases their cost of operations. Many of them are also weighed down by debt. Ever faster rounds of new technology introduction when prior technology investments have not been recouped add further complexity. This juggernaut of ever evolving generations of technology and forthcoming 5G require a supportive policy and regulatory environment. Without it, the sector's health and India's economic competitiveness would be greatly impaired. The imperatives of remaining competitive and consumer demands of faster and higher quality services leave little choice to operators but to invest in 5G.

To understand the elements of the policy and regulatory environment, we first identify the characteristics of 5G. Unlike earlier generations that provided for ever higher speeds and more bandwidth, 5G also promises ultra-reliable, very fast speeds and high bandwidth mobile connectivity and supports massive interconnected devices spread across wide areas. 5G provides peak speeds of 20 times, compared with 4G, such as that required in virtual reality applications. It is also designed to provide latency at 10 times lower than 4G. Low latency is required in applications dealing with critical emergency health care, autonomous vehicles or disaster management. Support for widely spread networks of sensors—Internet of Things (IoT) require spectrum usage of a different type than in cellular networks. Sensors may require to transmit very small amounts of data intermittently; thus, the policy and regulation of making spectrum available for them should be different.

The diverse requirements of 5G highlighted above call for significant changes in the national spectrum policy and regulation. Unlike in the past, high reserve prices need to be done away with. Innovative licensing arrangements, including mechanisms to share spectrum, should be worked out in the Indian context, to mitigate the effects of high auction prices. The Wireless Planning and Coordination (WPC) Wing (responsible for spectrum management at the national level), department of telecom, must review its decision-making framework for efficiency and efficacy. It should now make available a large number of spectrum bands and large chunks of spectrum per operator (which is a requirement of 5G) within this band. These bands need to be globally harmonized in a short span of time. Harmonization would allow Indian operators to exploit the benefits of lower cost of equipment and, hence, provide lower cost services for 5G as has happened with 2G, 3G and 4G.

To make more spectrum commercially available, WPC would need to “refarm” spectrum for future applications from those government departments and ministries that are currently not using it. Mandating the switch-over from analog to digital transmission for all users will lead to lower spectrum usage for existing applications. This would increase the amount of available spectrum. For example, the US Federal Communication Commission had mandated digitalization of broadcasting spectrum several years ago. The spectrum released through this process has been auctioned for commercial use, while paying incentives to existing users to vacate the spectrum so released. Several other regulators across the world have also adopted a similar approach.

In addition to making more spectrum available in the licensed bands, as is required for enhanced mobile broadband, there is a need to make spectrum available by delicensing new bands. Delicensing is possible for applications that are designed for low power emissions and, thus,

reduce interference. Wi-Fi is an example of such an application in the delicensed band. As delicensed band is free, greater innovation and low cost delivery are possible. Thus, bands in which sensors transmit wirelessly may be delicensed. Both the licensed and delicensed bands need to be harmonized globally.

Since 5G roll-outs are likely even before 4G is extensively deployed, the adopted road map for 5G should ensure that the existing and near-future investments in 4G can be leveraged. One suggested approach has been that since operators are likely to deploy 5G in bands that they are currently using for 4G, policy should facilitate this by making spectrum usage service agnostic.

The role of wired infrastructure, especially fibre optic cables, is critical and complementary to growth of wireless. This is because very large capacities are required in the backhaul to cater to applications enabled through 5G. This would entail accelerating the BharatNet programme for deploying fibre optic cables to gram panchayats and increasing the involvement of the private sector to exploit complementarities and efficiencies of the private sector.

The key steps identified above need to be taken in a coherent and concurrent manner in a mission and immediate mode, if 5G is to take off in India.

Rekha Jain is executive chair, IIMA-Idea Telecom Centre of Excellence, Indian Institute of Management-Ahmedabad. This article presents the author's personal views and should not be construed to represent the institute's position on the subject.

END

Downloaded from crackIAS.com

© **Zuccess App** by crackIAS.com