

The introduction of 3G/4G services, growing smartphone penetration and lower data tariffs have led to a data surge in the country. In a bid to meet this data demand, operators are continuously reworking on their network strategies to ensure seamless and quality service delivery. The evolving long term evolution (LTE) landscape promises significant opportunities for telecom operators to enhance their data play and reach. Besides, operators are adopting new technologies such as big data, internet of things (IoT), machine-to-machine communications, artificial intelligence (AI), virtual reality and augmented reality as key tools in their customer engagement strategy and their attempts to keep ahead of the competition. To this end, operators' investments in new technologies will help them customise their products and solutions to meet changing user requirements. It will also help them assume a bigger role in the evolving telecom value chain and compete with more nimble players like over-the-top service providers. Technology evolution has always been at the core of Telenor India's growth strategy. The company offers superior quality services to users in its six circles of operations. It has made a foray into the 4G space through the new narrow band LTE technology. The service is currently available in over 50 towns and the network is growing through its arrangement with Bharti Airtel. In an interview with tele.net, Avinash Mittal, chief information officer (CIO), Telenor India, shared his views on the evolving telecom technology landscape in the country, uptake of data services, market readiness for 5G deployment and the way forward. Excerpts...

How has the telecom technology landscape evolved over the years in India? What are the key trends?

The future of telecommunications in India will depend largely on the regulatory ecosystem, customer demand and adaptation of operators to these changes. While the basic objective remains to connect people, the platform has evolved from plain vanilla voice to SMS and now data-centric services. Revenue from data-based services will take centrestage. Digitalisation has become the core of businesses and telecom players are betting big on making their customers more digitally abled and providing them with a complete ecosystem of services. Going forward, telecom operators will invest in creating better networks and a digital ecosystem that offers a quality customer experience. Avenues to ensure internal efficiencies and cost optimisation will be explored to provide affordable services.

Where does Telenor stand in terms of technology advancement of networks? What are the various technology solutions deployed by the company for a better user experience?

Telenor India has invested in a modern mobile network and has ensured a best-in-class customer experience. We offer seamless, high speed internet connectivity and superior voice quality across six commercially operational circles. We have optimised our resources and extracted more from less by innovating on the technology side. For example, we deployed the Lean GSM solution to increase our network capacity by nearly 25 per cent without adding any extra spectrum. Moreover, the state-of-the-art equipment used by us is environment friendly as it consumes up to 30 per cent less power.

How has been the uptake of 4G/data services?

Telenor India is a mass market operator with a major focus on offering relevant, value-for-money and affordable voice and data services to its customers. We realised that our customers need to experience the digital lifestyle and hence, we introduced 4G services on a new technology called narrow band LTE, in 53 towns across our six operational circles. We have now expanded our network through an arrangement with Airtel. Eligible customers can enjoy seamless data services and improved voice quality while roaming outside their hometown.

What is your view on the adoption of VoLTE service in India? Do you see it gaining mass adoption, replacing traditional voice services in the near term?

VoLTE adoption is moving faster in many countries, but mass adoption of VoLTE service will depend on the VoLTE device penetration and the affordability quotient. The adoption of VoLTE and the actual numbers vary from market to market. India is a very price-sensitive market and feature phone penetration without VoLTE capabilities is very high. Hence, mass adoption will depend on VoLTE device penetration. Only time can tell how it will impact traditional voice services.

What is your view on the market readiness for 5G deployment in India? What lessons can be learnt from global markets?

I believe there is a lot to be achieved in 4G/LTE (LTE-Advanced, LTE-PRO, etc.) when it comes

to capabilities, capacity and efficiency improvements. We need to fully utilise what 4G has to offer. Standardisation of technology and key topics such as the radio aspects need to be addressed to ensure mass deployment of 5G services. Trials and pilots are taking place on 5G, but a lot will also depend on customer demand, specific service needs and spectrum availability. The 5G services are set to take real shape by 2020, as they require heavy investment and deployment will depend on the investment capabilities and monetisation opportunities.

As CIO of a leading telecom player, what challenges do you foresee for the company and the industry at large? What are your strategies to deal with these?

The rate of technology change has increased multifold and companies that are slow to adapt to the changes will perish. The focus of technology companies has shifted to delivering a personalised experience and relevant services to customers. Telecom service providers are striving for a digital transformation of customers' lifestyle. Having real-time insight into usage patterns will be the key to success on this journey. How do we balance the investment requirement for ensuring this experience with profitability to sustain business is a question that everyone is trying to answer.

Which are the three technology or related trends that you believe will shape the future?

In our industry, only one thing is constant – change. Telecom is all about adopting disruptive technologies that make the lives of subscribers simple and easy. I see the following key trends impacting the way we live and shaping the future of communications.

- **Artificial intelligence:** It will soon be difficult to imagine a “dumb” digital service, one that does not tailor itself to customer needs and preferences, nor takes into consideration the specific context in which the service is used. Artificial intelligence will impact all aspects of our lives in the near future. From socio-economic issues to the way we work and behave, AI will force us to transform completely. Companies would start focusing on training and development programmes for their workforce to equip them for the changing digital environment that AI would bring in. However, AI will also prompt us to manage and protect user data and how it is used. The debate around the “ethics of AI” is likely to intensify as we adopt more of it.
- **IoT:** IoT will change our life and as we start consuming internet-based services, more and

more devices will get connected. They will start interacting with each other and we will see the dawn of a connected society. Starting from smart homes to smart cities, from health care to agriculture and infrastructure, change will be experienced in every possible sector. IoT will enable companies to offer smarter products and services. Business models will see a drastic change and our lifestyles will also see a transformation.

- **Augmented and virtual reality:** Bridging real life and the digital world, augmented and virtual reality will completely change people's lifestyles. It will change the way we learn, making it more practical and visual than ever. We will be able to communicate in a simulated world. The shopping experience will be different and transformed. Right from hospitals to education and marketing to communications, augmented reality and virtual reality will change the human experience.

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