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It's the Age of Industry 4.0, and 5G Holds the Edge

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Let's imagine the future…
A critical surgery is being successfully conducted by doctors … only that it is being guided 'virtually' and 'remotely' in real time from thousands of kilometres away. Or two 'connected' cars averting a fatal collision in only milliseconds due to their ability to 'self-communicate' via sensors. Or people being able to download a two-hour movie, which took 26 hours on 3G and 6 minutes on 4G, in 3.6 seconds flat…

This doesn't look too far away as we are already experiencing a paradigm shift in digital advancement. And the COVID pandemic has clearly revealed the importance and value of technology and the need for ubiquitous connectivity everywhere.

From health and wellbeing to transport and everything 'smart,' the connectivity afforded by 5G is all set to revolutionize the world. With the capability to connect 1 million devices within 1 kilometre, or a whopping 30 billion devices to the Internet of Things by 2022, nothing seems to be beyond 5G's reach.

5G and Edge … Complementing and Creating Business Value Together

In discussing 5G, let us remember that this technology is incomplete without Edge computing. While 5G increases connectivity speeds, Edge reduces response times – or latency – by creating faster and intelligent systems by bringing compute capabilities into the network closer to the data source. Mobile Edge computing with 5G connectivity will transform how we add value to our data and the insights we derive in real time, thereby unlocking new possibilities for digital business.

Complementing 5G and mobile edge computing with cloud technology gives customers (both enterprises and consumers) the flexibility of distributing workloads and computing resources based on the response times needed for the particular service or application, as well as creating a distributed compute architecture.

In terms of relevance, 5G will contribute to industrial advances in three significant ways:

- Enable faster, effective inspections through computer vision and predictive intelligence
- Enhance operational effectiveness
- Improve workplace and worker safety

For long, mobile connectivity was seen and developed only from a consumer perspective. But once data became available and internet browsing became widespread – it opened new platforms for mobile broadband. The high progression in mobile communications resulted in a huge new wave in communications. But industry didn't adopt 5G technology in parallel, for the reason that industry requirements were different. Enterprises want fast and secure, industry-proven, and reliable networks, as well as a technology that is well suited and customisable to their needs. 5G promises to fulfil these expectations. It will be at the core of this data-driven transformation, spurring the next wave of digital transformation in enterprise business.

Impetus to Intelligent Industry – In Applications and Use Cases

5G and Edge networks will be a significant growth driver in intelligent automation – connected cars, ADAS and infotainment, smart factories, smart energy, smart health, smart cities, and more. As organisations seek to leverage new capabilities in data, digital and industrial technologies, it will enable network equipment providers and enterprises to implement 5G and Edge technologies at scale.

Given its capability to drive digitization and automation in Industry 4.0, the combined prowess of 5G and Edge will optimize service performance and experience. So, one can understand their usage across immersive technology, cognitive intelligence, image recognition, AI/ML, massive IoT, autonomous mobility, etc. – with the possibility of being delivered at scale and cost-effectively through a multipurpose and highly flexible network.

With COVID having pushed enterprises to adapt and evolve, enterprises across sectors have been forced to accelerate their digital transformation. Their focus is to digitize key industrial parts of their businesses and use embedded software, data, and new-generation wireless connectivity. And 5G and Edge could provide new approaches to technology, design, data, and communication to tackle the problems in business and society.

Future Challenges in 5G and Edge … and Prospects

5G and Edge are new technologies, and enterprises have to understand their functional capabilities for its adoption and how they can use them in their operations for maximum benefit, right from the use cases to enterprise architecture to the kind of 5G deployment – public or private 5G network.

The ROI market for 5G technology is projected to reach $320.1 billion by 2026, per *Allied Market Research.* We expect Businesses to adopt 5G in a big way in the coming years to enable them to compete better, improve operations, and create new products and services.

5G and Edge is still evolving and maturing – 5G standalone network solutions are now commercially available and the device ecosystem in growing fast. While countries across North America, Europe and Asia have started its commercial deployment, it is expected to take off in India later this year. This could usher in a new age of digital transformation in our country. We will see industry moving from pilots and trials to higher commercial adoption – with mass adoption expected from 2024 onwards.

In this scenario, 5G and Edge clearly appears to be the pathway for creating real socio-economic value in Industry 4.0!