India's trillion-dollar opportunities in ICT, IoT

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In recent years, Internet of Things (IoT) has emerged as a buzzword, with both service providers and businesses, exploring possibilities connected devices can bring to the services they render and the way they conduct their businesses. IoT solutions are impacting the healthcare in a significant manner.

Today, enterprises are realizing that the adoption of IoT in their operations will not only lead to increased productivity and process efficiencies, but also a reduction of costs.

As a society, we are becoming more connected and the pace at which new technology is impacting our everyday lives is increasing at lightning speeds.

IoT, M2M, ICT

Over the next decade, the IoT and M2M (machine-to-machine) are expected to bring billions of data-generating devices online, and connect a vast stream of data with people, processes and other devices. There are some niche applications such as sensors record, ambulatory medical record (AMR) modem, and asset tracking.

"In the pharma and healthcare industries," says Mr Sai Pratyush, Additional VP, Managed Services, Tata Teleservices, "we see the increasing use of IoT in the form of people connecting to various healthcare devices. Also the use of wireless technology will allow healthcare workers and patients to rapidly access information. M2M communication connected wirelessly via sensors that transfer data automatically will improve efficiencies."

The healthcare industry has long been overburdened by slow #mce_temp_url#moving innovation due to the complexity of the medical ecosystem that's changing aggressively, and IoT and M2M solutions are playing a catalyst role in this change and revolutionizing the pharma sector.

"It will also be helpful in providing better medication-management and will be the fastest growing segment in the whole IoT market," predicts Mr Pratyush.

Technology is playing a significant role in improving the quality of healthcare, cost efficiency, precision performance, proactive and on-time care, real-time communication and most importantly, saving lives.

Tata Teleservices is working with partners to develop scalable ICT (Information and Communication Technologies) and IoT solutions across the healthcare value chain which includes hospitals, vendor ecosystem, doctors and individuals.

The following are few areas which will see innovation, and will benefit both the industry as well as patients:

â€¢ Outpatient monitoring
â€¢ Wearables
â€¢ Remote monitoring or rural healthcare
â€¢ mHealth
â€¢ Location based services

ICT Trends In Indian Healthcare

ICT and IoT solutions are impacting the healthcare in a significant manner.

There is the wearables space which is enabling and pushing ordinary people to maintain a healthy lifestyle, and then, there are those simple innovations which are enabling the healthcare industry to provide better quality of care to its patients.

Outpatient monitoring and telemedicine applications are introducing the healthcare industry to newer ways of interaction with patients and enabling them to not only monitor patients on a continuous basis but also respond more quickly to situations that need their attention.

"As an example, a monitoring device is given to the patient at the time of discharge for a limited time frame, which helps the doctor to continue to monitor the patient and suggest corrective actions during the patient's recovery," states Mr Pratyush.

As per a Deloitte Report, telemedicine is witnessing fast adoption in India. In 2012, the telemedicine market in India was worth $7.5 million, and it is expected to rise 20% annually to $18.7 million by 2017.

Telemedicine can provide low-cost consultation and diagnostic facilities to the remotest areas via high-speed Internet and telecommunications, thus, bridging the rural-urban divide.

In addition, India's extensive mobile technology infrastructure and better connectivity infrastructure is expected to drive mobile

health (mHealth) adoption further.

He points, "Several people in our country do not have ready access to decent healthcare. There are many challenges to set up a full-fledged hospital at remote and rural locations. However, IoT-based wireless solutions are now making it possible for doctors based in cities to monitor patients located in remote villages. Now, villagers need not travel long distances to get a simple diagnosis done."

Mr Pratyush feels that solutions need not involve complex ICT infrastructure.

"SMS-based solutions are enabling doctors and hospitals to send reminders and alerts to their patients on medication or health checkups.

"This management of medication through SMS platform ensures doctors and hospitals provide best possible care to their patients," he adds.

Challenges To Disruption

Despite being an IT-enabled services behemoth, the use of ICT in the healthcare sector is limited in India.

The major users of ICT include big pharmaceutical companies, corporate hospitals and other private health sector institutions, while the public healthcare sector is lagging way behind in IT utilization. But the good news is that the situation is changing.

Mr Pratyush mentions, "Though ICT solutions have had a positive impact on the healthcare sector, there are some challenges that need to be overcome in order to provide affordable, high-quality healthcare solutions, and innovations to hospitals and their vendor ecosystem, doctors, and eventually the citizens of this country."

The Government is now cognizant that technology can help overcome challenges arising due to geographical size, high-population density, lack of healthcare infrastructure, inaccessibility in rural India, poor nutritional conditions, and low literacy, among others.

Furthermore, the National Health Policy endorsed by the Parliament of India encourages the introduction of electronic communication media in health sector.

The Government of India also brought in the National Rural Health Mission for delivering the best-in-class healthcare facilities to the rural population.

The Ministry of Health and Family Welfare and the Ministry of Communication and Information Technology are jointly creating a national health information infrastructure for easy capture and dissemination of health information.

Like all new disruptive technologies, IoT deployments face numerous challenges.

"With connected IoT devices, reliable bidirectional signaling is essential for collecting and routing data between devices. You need to be 100% sure that that stream of data is going to arrive at its destination every time," emphasizes Mr Pratyush.

Security is another important factor in IoT connectivity.

"What good is a smart home if anyone can unlock your doors, or for that matter anyone can access your health records?" asks Mr Pratyush. "Solutions need to ensure that when sending or receiving a stream of data, the IoT device or server has proper authorization to send or receive that stream of data, and most importantly, you need end-to-end encryption between devices and servers."

Huge and uninterrupted power consumption is also seen to pose challenges.

"Billions of IoT devices which are required to transmit data between one another will require uninterrupted power either through the grid or battery bank," he stresses.

Currently most solutions deployed in the country are based on proprietary technologies which make it difficult for customers to scale or opt out in case the solutions are not working for them.

Tata Teleservices is working with partners to create innovative ICT solutions for the healthcare Industry.

These solutions address the basic needs of providing telecom infrastructure as well as more complex IoT solutions such as LBS (Location-based services) or healthcare-related applications.

Trillion-Dollar Opportunity

As far as the IoT market opportunity is concerned, while findings of market research companies may vary, they are unanimous in their conclusion that this is a trillion-dollar opportunity in terms of revenue potential.

A recent study by a global networking major predicted that there will be 25 billion devices connected to the internet by 2015, and 50 billion by 2020, thus highlighting its prominence in the coming decade.

Mr Pratyush explains, "We have seen IoT and M2M deployments primarily in the utilities and transportation space, but that is changing slowly. As the devices, sensors and application ecosystems grow, we are seeing investments being made across BFSI (Banking, Financial Services and Insurance), retail, healthcare and even the home and building management space. The Government of India is also playing a significant role in adopting 'smart IoT technologies'. The 'Smart Cities' program as well as 'Digital India' is leading entrepreneurs to make substantial investments in this space."

Globally, IoT has seen deployments across transport, utilities, retail, logistics, home automation and security.

"The West is definitely a few steps ahead in terms of use cases and scale of deployments, but it would be incorrect to say that we are 'very' far behind," he opines. "The next few years will be critical for India, and I believe we have a good opportunity to bridge the gap. The Government's 'Digital India' program and 'Smart Cities' initiatives will further the cause of IoT substantially."

The Cloud Adoption

Though cloud computing is still a concept that exists only in theory for the Indian healthcare industry, the healthcare vertical has made it to the potential list of every Cloud vendor and service provider.

Mr Pratyush says, "It is not surprising, given the general opinion that healthcare industry is rapidly automating itself, and soon enough, will be leapfrogging towards the Cloud."

Research agencies like Zinnov have derived that the healthcare industry currently spends only about 2% of their total budgets on IT.

This figure is set to grow to 15 to 20% in 2015, and upto 40% in 2020, purely towards adoption of Cloud services.

This will mean that the Cloud opportunity within the healthcare segment could touch $600 million in 2020.

At a CAGR growth rate pegged at 25%, healthcare is definitely one of the most promising segments as far as Cloud adoption is concerned.

Healthcare A Key Vertical

Tata Teleservices has been developing IoT solutions for its customers across a host of use cases and industries which includes the healthcare industry.

"Our solutions encompass not only the telecom infrastructure but the devices and application as well in select verticals. Healthcare is a key vertical, and we are working with partners to create solutions which will be beneficial for our customers," concludes Mr Pratyush.

It is also working with Government agencies to bring about standardization in the IoT space in India.

Tata Docomo and its representatives are playing a leading role in the working groups, setup by the Telecommunication Engineering Center (TEC) in the areas of utilities, LBS, security & surveillance, and more recently, smart cities.