IOT REDEFINING
HEALTHCARE ECOSYSTEM

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A mong the sectors where Internet of Things is offering a non-conventional way to address traditional challenges, healthcare stands out not just in its uniqueness but also in bearing significant potential to positively transform the quality of life of citizens. As the use cases increase, so does the scope for IoT to do more and this is just a beginning. In the days to come, IoT will bring in a drastic reduction in healthcare administration costs, improve the efficacy of

medicines and improve our ability to identify and isolate disease vectors well before they reveal their darker side.

Healthcare is a vast ecosystem. IoT has already made deep inroads into applications such as remote patient monitoring, clinical trials, pharma administration, personal healthcare, drug testing, insurance, robotics, smart pill cases, and treatment. Preventive healthcare is another area where IoT is helping. IoT enabled wearables are providing real-time data on every individual's health enabling physicians to diagnose early warning signs of disease and administer medication or other interventions before it turns into a major risk to the person's health.

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With evolving technology and improving connectivity (with the arrival of 5G) and personalization of medical attention, it will be possible to do a lot more with IoT. For instance, data on responses to a certain medicine (collected and analyzed anonymously) will enable doctors to derive the exact dose to be given to the patient to ensure maximum drug efficacy. Smart jars will also remind patients to have their medicines on time and in the right dosage. This will help prevent misuse of vital medicines such as antibiotics.

Smart pills add a unique dimension to IoT. Smart pills, or simply digital pills, are medications prescribed to patients and come with edible electronic sensors that dispatch wireless messages to devices like patches, tablets or smartphones that reside outside the body when ingestion of these pills. Since this technology will allow patients and doctors to track their drug regimen compliance, increasing patient adherence, it could lead to savings to the tune of $100 – $300 billion annually in the US alone.

Adoption challenges

Storing, securing and managing data are aspects that still pose a challenge to widespread IoT adoption in the sector. In addition, there are reliability and security issues with data alongside the lack of infrastructure and training among providers. This is because there are providers who lack the infrastructure to harness and analyze data even when it flows freely. Another issue is the cost of wearables. It is still not cheap enough for it to be used widely by populations in rural areas.

Security is still a key concern for the whole ecosystem. With a diversity of devices, communication flavors, storage options, through fare networks, every aspect brings in its own security challenge. Since patient data is involved in the form of healthcare records or treatment efficacy, there are many entities and individuals out there who would want to get their hands on this data. Healthcare devices could also be highjacked to be used as conduits to launch larger Distributed Denial of Service attacks on other networks.

With so much data floating around in the networks, privacy issues have already come to the fore. Groups are suggesting that with smart pills, for instance, a surveilled compliance scenario would emerge and the doctor or the pharma company may end up receiving and hoarding more data than necessary.

The road ahead

The challenges that IoT brings forth should be measured against the benefits that it delivers. Overall, it is now becoming increasingly difficult to view healthcare minus IoT interventions in varied aspects. As these interventions get bigger and the benefits expand, the challenges will also be addressed. For a country like India that is trying to bring affordable healthcare to the masses, IoT is more than a game changer. What changes is not just affordability but also the availability of timely Medicare. The savings in terms of replacing traditional and more costly alternatives are alone for India to give more attention to IoT.

India will definitely enable the emergence of many interesting use cases. CR