

Disrupting Technologies Transforming Health Care

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Imagine, you get an alert message on your mobile regarding increased sugar level and blood pressure of your old age father in India while you are on official tour to USA. Before you could take any action, the doctor calls you not to worry, as the necessary action has already been taken. Yes. The patient care is transforming with the help of various emerging technologies. In a life saving process, the availability of vital health parameters at the right time are decisive.

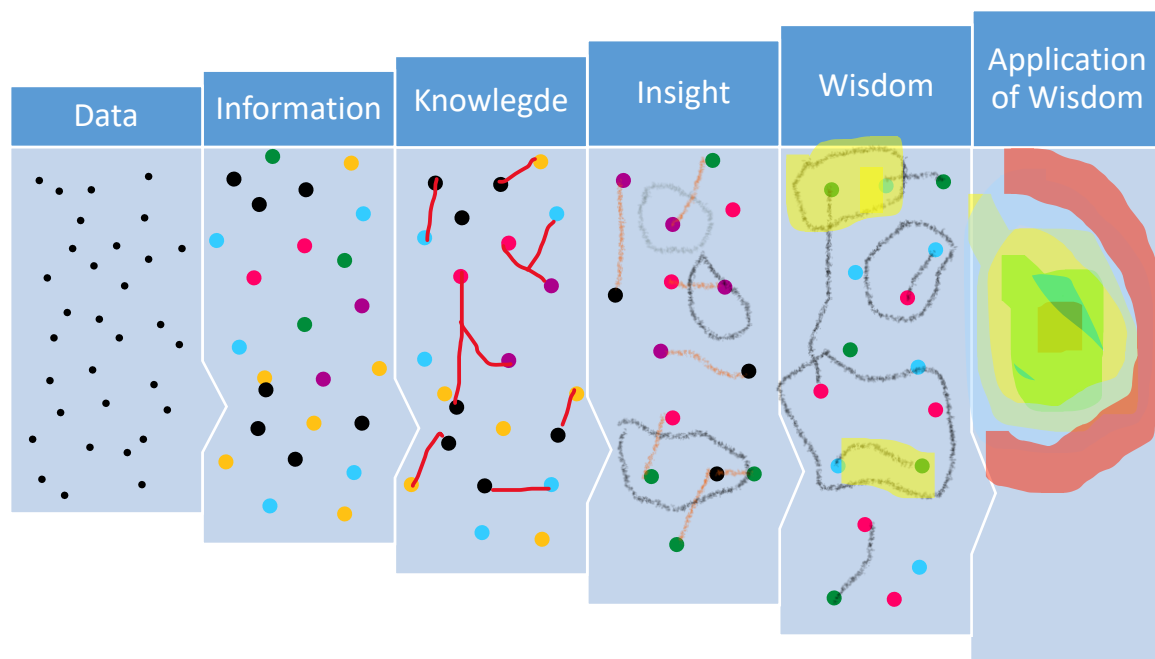
The *emerging technologies* are now playing a major role in transforming patient care. The word emerging technology some time confuses the decision makers whether to use the emerging technologies or to stick to the proven ones to mitigate the risk of failure. The emerging technologies include advances in edge computing, computer vision, data mining and analysis, statistical machine learning techniques; all driven by general advances in computational power. All these technologies are now mature enough to use. These technologies have already been deployed by various TOP500 companies for their general business needs. These technologies, therefore, have become *proven technologies*. We should not keep referring to them as “emerging”. Let us pave the way to other upcoming technologies to take over as emerging technologies.

Any transformation in the society is a journey with bag and baggage's. Generally, transformation comes with change management. It takes time to adopt the changes. The digital transformation is no different. However, in last two years, Corona pandemic has radically changed the overall dynamics of dealing with data and decision making. Decision maker struggled with quality of data. Most of the data capturing points were not only manual but also quality of the data was in question.

Automation in seeding the primary data is the starting point for building a platform for the decision support system. Purity of data is the most critical requirement in building a useful /effective decision support system. Generally, data capturing starts with manual entry of primary data. It always has high probability of erroneous data. Manual data entry highly depends on skills and efficiency of the person keying the data. Internet of Things (IoT) based on sensors is the going to be the most happening thing in Digital Transformation in coming decade especially in health sector. The manual data entry must be avoided as much as possible. Wherever, it is not possible to avoid the manual data entry, enough checks and balances be kept in place into the software developed for this purpose to ensure near error free data.

¹ The views of the author are his personal.

The journey of bringing impact in decision making also starts with data. Following are the stopovers in the journey of data transforming into an Application of Wisdom.



Therefore, the next radical change will be in way the data is extracted and inferred using advances in sensor technology. Smart watches laden with aforementioned sensors also hit the market and attracted a lot of users, interpolating useful information like oxygen level, SPO2, heartbeats per minute measurements, etc. The sensor-interpolated data is sent to the cloud servers of the smart watch company and is further analyzed. The insight of data is provided to the customer helping him to take informed decisions. At present, such facilities are available to very limited segment of individuals.

Privacy of personal sensitive data is a major concern especially in health sector. The thumb rule for data privacy is to protect data but to share the insight and wisdom extracted out of data. The application of wisdom will be visible to the stakeholders automatically. A mechanism is to be evolved so that the overall access control of personal data remains with the patient only. Hospitals, Clinics, Labs and Doctors should be able to access the relevant information with the consent of the patient. In absence of enabling legal provisions, a lot of these technologies are open for misuse and a potential of distrust from the user.

There is a need to take this transformation to the last mile of patient care. Enterprise Patient Care Architecture, factoring in the capabilities of edge computing and data analytics automation, will bring a complete transformation in health care sector. Following are the key enablers in the transformation of patient care using enabling technologies.

- Umbrella Open Standard Enterprise Architecture embedding Electronic Health Records (EHR).
- Open APIs to share data
- Data retention policy to manage voluminous data at various levels
- Legal framework for the protection of sensitive personal data.

This framework will be completely interoperable and provide freedom to the services providers to use any IT systems capable of plugin with Open Standard Enterprise Architecture and open APIs.

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