

From the Patron's Desk

BIG DATA ANALYTICS IN PHARMACEUTICAL DEVELOPMENT



Unlike the fast paced innovations that happen across other industry segments, pharmaceutical industry is slower and reluctant to adopt changes. This is not without reason, being one of the most heavily regulated industry in the world, the pharmaceutical industry is a bit wary of adopting newer changes in its value chain because of the spin offs it creates in the process.

When looking at present pharmaceutical industry value chain there are five segments of operation - Research & Development, Manufacturing and Supply Chain, Sales and Marketing, Regulatory and Corporate Functions. Of which the first functional segment the research and development of the pharmaceutical products is long winding and follows an uncertain destiny. With the increased cost of the healthcare for the progressively aging populace across the world affordable and reliable pharmaceutical products are indispensable. The present cost of drug development has rendered that requirement asymmetric because of the development costs involved.

Industry practices surveys have shown that there are at least fourteen unique steps in drug discovery and development which makes the process tedious and fraught with failures. But, during the last decade the industry has started adopting novel IT practices that have significantly changed the landscape.

However this not brought any disruptive changes it should have. The pharmaceutical industry generates lots of data and has more research insights than ever before. Several predictive analytics tools are available and can use this data to make discovery more productive. However, this analysis process is Struggling because over 80% of this data is unstructured and up to 50% of information is not indexed and is not easy to find later.

This is a huge loss of information that the pharmaceutical industry will soon be able to avoid with the help of data and information management technologies and an analytics foundation using big data solutions.

The use of big data technology helps in managing and effectively using data for more accurate research prediction. This helps us to identify the right development candidate more quickly. We are experiencing a proactive shift in pharmaceutical discovery in which “treat disease after they have come” to the “prevent disease before they occur”.

In the coming decades medicines will be highly personalized through the frenzied rate of discovery related to genomics. There will be a need to define, create, manage and analyze personal data along with the huge load of research data in order to create much awaited breakthroughs.

The big data analytics will play a central role in this shift. Surveys suggest that it might free up over US\$ 100 billion from the R&D spends in the pharmaceutical industry by managing the industry's data explosion better. A fully integrated R&D (internally and externally), real-time visibility of clinical trials and monitoring marketed drugs for adverse events more effectively will make this possible, and in the process making the pharmaceutical development more iterative, interactive and affordable.

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