

Data... Data... Data Everywhere

Big Data Analytics in digital transformation

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In the last few years we observe that data is gaining more prominence in the market. Data is considered as a high value commodity and business houses pull up their sleeves and run around to acquire data, clean, polish and secure them to preserve. Data theft incidents suddenly are looked at as serious sensitive occurrences. Facebook data leak relating to Cambridge Analytica and several such incidents have created a sense of seriousness about the data. At the same time the volume of data analyzed is growing and the practitioners have started coining several names to signify that: Data Processing, Data Analytics, Big Data Analytics, Data Lake, Data fabric and so on. Market leaders believe that businesses become more and more data dependent. The institution that has the capability to capture the data process them and use effective tools to analyze them to get actionable insights has a competitive edge in the marketplace. In 2016 the big data analytics market was USD 12.018 as per a market report. Market Research Future has predicted that the market will grow with CAGR 30.08% and reach USD 77.64 Billion in 2023. In this article we see the role of data in the digital transformation and the efficiency of data analytics in making human life better, safer and more productive.

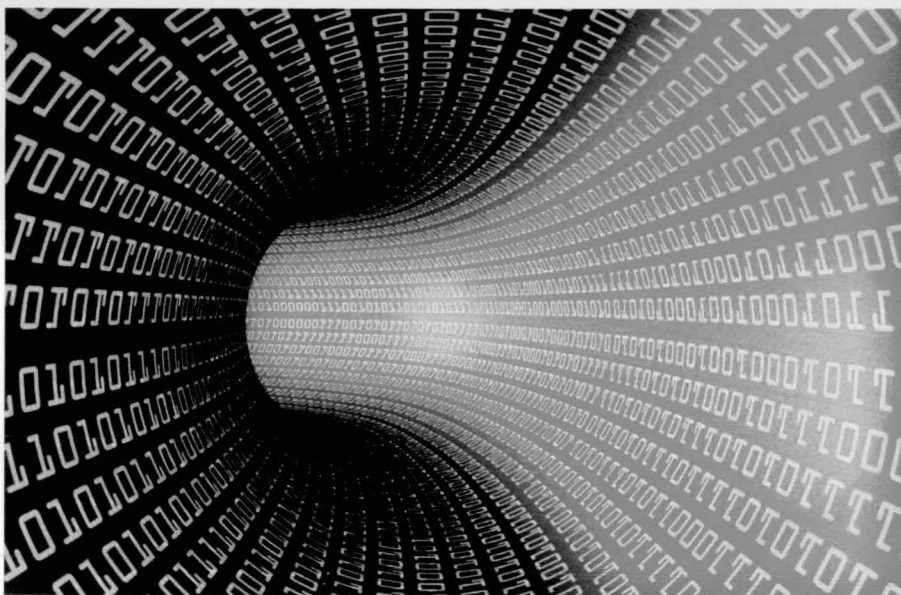


Fig. 1 : Digital Transformation

In traditional business, business leaders focused on the business domain and the business domain knowledge was with individual humans. While technology grew, businesses became technology-enabled. In the last decade businesses have moved from

technology enabled model to data driven model and called the digital transformation.

Technology Enabled business

In technology enabled era, every business house had the required technology to drive efficiency and improve customer

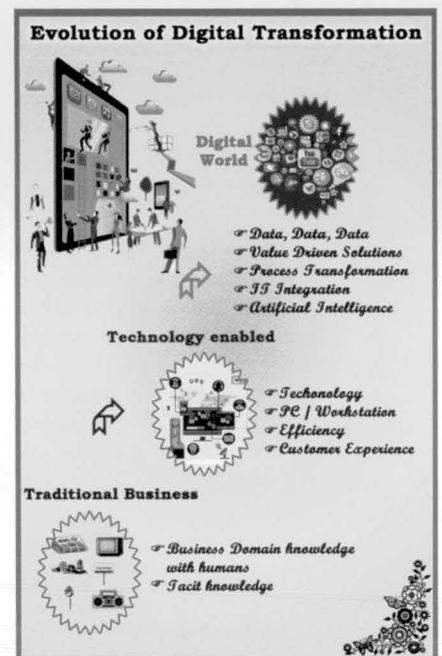


Fig. 2 : Evolution of Digital Transformation

experience. The following are some simple examples:

1. FMCG Vending Machine
2. Train Ticket Vending Machine

3. Self – Service Kiosk for flight check-in
4. Coffee / Tea Vending Machines

Digital Transformation – Key Drivers

Transformation of businesses driven by data is called the digital transformation. The following are the key drivers for digital transformation.

1. Customers demand increases into live and real time requirements. Due to the rapid growth of social media culture, customer expectations have grown significantly.
2. High volume of data is generated by the business through their customer interactions, business transactions, market trend and the industry trend. Businesses have the responsibility to acquire the data, process them quickly and make them competitive in the marketplace.
3. Availability of high-end technologies in Business Analytics and Machine Learning. Rapid growth of technology has made data analytic almost real time.

Features of Digital Transformation

Digital Transformation happens as follows:

1. **Leverage Data:** Identify the data sources and leverage both the structured and unstructured data. Data plays a lead role in business. So, capturing the data at the source, analyze them quickly and arrive at actionable insights and reacting to them is key in the digital business.
2. **Valued driven solution:** Bring value driven solution matching the demand using the data. Customers are expecting a high value service from the institutions. So, in order to retain the customer base, the business houses have to do the extra homework on the value delivered. For example, in a telephone bill customer expects the analysis of the usage, comparison with various price plans and recommendations for the benefit of the customs.
3. **Process Transformation:** Transform the business processes into more agile and dynamic response system. This has opened several channels for customer interaction and service delivery. New channels included are: Social media, mobile application, chatbots, Voice bots etc.



Fig. 3 : Banking business - Digital Transformation

4. **IT Integration:** Make the IT function a partner fully integrated to the business. IT is not considered as a separate function to support business. IT is an integral part of business. So, emerging technologies such as Social Media, Mobile Computing, Data Analytics, Cloud Computing, Artificial Intelligence,

Blockchain and Internet of Things must be a part of the business. For example, several banks and supply chain companies have integrated Blockchain based services. The future road map of the business has services using these emerging technologies.

Data, Data, Data everywhere:

There is a bunch of market reports published in the industry on the data growth in this decade. The following are some highlights.

- Annual global IP Traffic has surpassed two zeta byte threshold. (1 zeta byte = 103 exabytes, 1 exabyte = 1018 bytes)
- More than half of IT Traffic originate from non-PC devices such as TV, Tablet, smart phones and other machines.
- Number of devices connected to IP Network is 3 times the global population. This means, for every human being in the world three devices are connected to IP network.
- Video Content: Enormous volume of video are available in the IP network. One estimate published recently says that it would take an individual over 5 million years to watch all the video available in 2019.
- Video on Demand (VoD) is doubling every year.
- Mobile data traffic has increased 10 fold in the last 3 years.

Let us have a detailed look at an example of a digital transformation. In the last 20 to 40 years Banking business has undergone full scale digital transformation.

In a traditional bank that ran operations during 1980s, the bank had a few employees, ledger books for keeping the account and currency chest for keeping the cash safely. The banking transactions happened in person and the pass book signed by the banker was an important record.

During 1990s, computers were introduced and the computerized banking was introduced. In large banks, the core banking solutions were running on the central server where every branch connected their systems and transaction happens. In short, the ledgers were replaced by computers.

In the period from 2000 onwards, digital transformation kicked in at rapid scale.

- Customers get internet banking facility.
- Debit cards and credit cards opened a new channel for business.
- ATM machines provide the cash dispensing and deposit service.
- Customers can apply for loan, new account and almost all services through internet banking.
- In the last few years, mobile apps are provided to the customers to make the experience better. Live SMS / Whatsapp alert on every transaction.
- Data analytics provide the customer behavior and spending, savings pattern. Predictive Analysis based recommendations provide a new wave of information to the customers.
- Loyalty programs are managed digitally. Customers are given the flexibility to use the loyalty points in various services and get benefited.

We have seen the digital transformation of banking business. In a similar manner every business has undergone digital transformation.

- Travel and Hospitality
- Manufacturing

- Marketing
- Sales
- Telecommunication
- Insurance
- Education

Every industry is becoming digital and hence has the following key advantages of using an efficient data analytics tool.

- Detect and correct the errors in the datasets with the help of data filtration techniques
- Improve the quality of data and hence Improve productivity and efficiency in the field operation
- Optimize the resources including the workforce

Key players in the Big Data Analytics market

As per market research report published recently, the following are some names of the key players in the big data analytics market. Microsoft, SAP SE, Amazon Web Services, Oracle Corporations, SAS Institute Inc., Dell Inc., Alteryx Inc., Datameer, Looker Data Sciences Inc., IBM Corporations.

Conclusion

Data has become very significant in human life including the business. Human behavior related data are used in various industries to manage the relationship. It is expected that technologies such as Internet of Things, Machine Learning, Deep Learning will fuel the growth of Big Data Analytics. The role of data will make human life better in the future. ■

About the Author



Dr. Xavier Chelladurai (Life Member No. 019588) is a Professor in the Department of Computer Science and Engineering, School of Engineering and Technology, Christ (Deemed to be University), Bangalore, with specialization in Parallel Algorithm, Artificial Intelligence, Machine Learning, and Deep Learning. He was in the Computer Science department in St. Xavier's College (Autonomous), Tirunelveli, from 1983 to 2000. He has written 10 computer science textbooks published by John Wiley & Sons, USA, McGraw Hill and New Age International Publishers, and successfully guided 7 Ph. D. Computer Science Scholars. He has served from 2000 to 2019, on Software Development and Maintenance and Automation with Artificial Intelligence in leading IT companies HCL Technologies, Tech Mahindra and Capgemini Technology Services in various roles from Project Manager to Vice President. He was a member of the Information Technology Task Force for Government of Tamilnadu during 1998-2000.

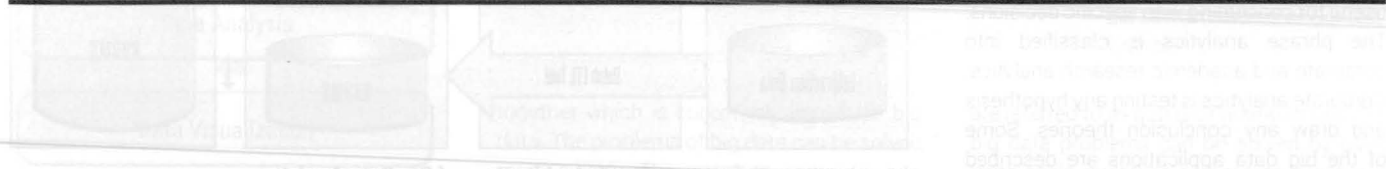


Fig. 2 : Big Data Analytics Architecture