Study on Big Data Analytics and Its Applications in Industrial Sectors

C.Thiyagarajan[1], G. Meena Suguanthi[2], A.Vaideghy[3]
[1,3]Assistant Professor, Department of Computer Science, PSG College of Arts & Science, Coimbatore
[2]Assistant Professor, Department of Business Administration, Sri Ramakrishna College of Arts & Science for Women, Coimbatore.

Abstract - This paper describes the fundamental concept of Big Data and its application in various industries .the first part of the paper deals with the conceptual frame work of big data and the second part of the paper deals with the application part of the big data in different industries along with the observations made from different research publications .Big Data has become a vital part of every industry.

Keywords - Big Data, Business Model, Industry application

I. INTRODUCTION TO THE STUDY

Big Data is also data but with a huge size. Big Data is a term used to describe a collection of data that is huge in size and yet growing exponentially with time. In short such data is so large and complex that none of the traditional data management tools are able to store it or process it efficiently. These data are accessed by large number users at the same time , it consists of large volumes of data stored, utilized and referred effectively .it plays a key role in serving different industry , it fulfills the companies purposes and its resources can be altered according to its usages.

Examples of Big Data - Indian stock Exchange -using information for determining stock sales , prediction of rise and fall of stock prices.
Social media platforms like Twitter , Facebook, Youtube are linked and followed by companies for the following purposes
- Promoting products
- Serving the customer
- Customer Relationship Management
- For boosting up customer base.
- For solving complex problem in real time
- For strengthening the brand presence in social media
- For risk assessment and analytics
- Supporting innovation
- Enhancing New product development
- 24X 7 sorting supply chain management

II. INTRODUCTION ON BIG DATA

Big data comprises of large data set which is capable of analyzing the trends, patterns and study of human behavior or the communication made with the system.
It deals with complex data and data processing which get information in a systematic form.

Big Data' could be found in three forms:
1. High Volume
2. High velocity
3. High variety

Many new technologies are developed for this purpose, functions of new technologies includes
- Data capturing
- Storing
- Analyzing
- To get the basic information
- Administering new technologies for recording task
- Volumes of data are stored and accessed by various users for variety of their needs

III. BENEFITS OF BIG DATA PROCESSING

Big data can be used to derive benefits in the following ways
- Decision making system
- Framing strategies
- Serving customers
- Used for getting feedbacks
- Used for risk assessments
- To achieve operation efficiency

IV. INDUSTRIAL UTILITY OF BIG DATA

Business intelligence (BI) is a term used to describe a broad category of applications, technologies, architectures, and processes for gathering, storing, accessing, and analyzing operational data to provide business users with timely competitive information to enable better insights for operational and strategic decision making (Negash, 2004, Watson, 2009). Organizations are increasingly facing the challenge of managing "big data". Big data is characterized by higher volume, velocity, and variety (the three Vs) of data than traditional database management tools can handle (Zikopoulos, Eaton, Deroos, Deutsch, & Lapis, 2012). The phrases analytics and big data have become synonymous with BI in some vendor circles, and, to others, these phrases incorporate traditional BI but add elements such as predictive analytics, data mining, and operations research/management science approaches and tools. For our purposes, we use the term business intelligence and analytics (BI&A) to represent the broadest interpretation of the field. In May 2011, the McKinsey Global Institute predicted there would be a debilitating shortage in the

coming years of talent who possess depth in BI&A (Manyika et al., 2011). Similar reports have echoed the trend toward a need for organizational harvesting of knowledge from the vast amounts of data now being generated. McKinsey estimates an unanswered need for 140,000 to 190,000 workers with deep analytic skills, plus 1.5 million managers and business analysts who can put big data to use to support better organizational decision making, innovate new product and service solutions, and improve and optimize business processes and performance. While the purview of a growing number of masters of science in business analytics programs will likely be to address the need for deep analytic skills, new BI&A model curriculum is needed to prepare the future managers and business analysts discussed in the McKinsey report.

How industries can utilize the Big Data?

Business areas like
- Supply chain
- Retail markets
- Services industry
- Manufacturing units

Are more likely to use the data for framing strategies, for solving complex problems and for developing innovation.

V. BIG DATA IN SUPPLY CHAIN

In fact large data is gathered by supply chain & logistics every time if a product is moved. The company captures those information and use it for analytical purpose, with the booming ecommerce the companies use more refined way of Enterprise Resource Planning- ERP & SCM – Supply Chain Management.

It is considered as a powerful statistical tool for existing data and for also adding new data, it helps them in following avenues:
- Planning inventory
- Sourcing a product
- Tracking packages
- Selection of suppliers
- Planning manufacturing process
- Giving warehousing solutions
- Supporting point of sales.

VI. BIG DATA IN RETAIL MARKETING

Marketing is significant activity which drives the buying and selling , companies takes tremendous risk to push their products into the market . Now days big data comes in helping hand by providing smart marketing tools , analytical reports .

It links customer 24X7 with companies by giving the following facilities
- Companies can understand shopping trends
- Computing consumer behavior
- Analyzing customer consumption pattern
- Fixing marketing strategies
- Forecasting demand predicting product prize
- Optimizing social media

- Enhancing customer care

VII. BIG DATA IN SERVICES INDUSTRY

Services industry is one of the major industries to adopt Big Data in rapid manner, this is the fast responding sector, here the data are captured in large volume. The companies get benefits in the following areas:
- Capturing customer data
- Detecting fraud & investigation
- Tracking buying habits
- Risk analysis
- Tracking service quality
- Measuring customer expectation with actual service rendered

VIII. BIG DATA IN RETAIL MARKETING

Vast quantities of data are utilized for analyzing and helping in setting up of protocols by using some statistical tools Following areas can be improved in manufacturing process
- Customizing the products according to customer design
- Companies can provide quality assurance
- Efficiently managing supply chain

IX. CONCLUSION

Different sectors has its way of working , its own way of using the data .it play a vital role in structuring the organizational usage of the formation and bridges the gap between the companies expectation in using the information from the actual information available .

The significance of the Big data utility lies in what kind of information they require for taking decision, framing strategies and for other internal and external activities of the organization.

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