Significant of Big Data in various fields

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Abstract

Big data is becoming a upcoming era or field. Big data means handling very large set of data which includes structured, semi-structured and unstructured data. Currently big data is most preferred in various fields like, finance, Retail industry, healthcare, insurance, socio-business intelligence, in digital oil field, cloud computing, banking, marketing data mining, etc. This paper will elucidate applications of these fields.

Keywords: Big data, Big data analytics, Big data applications, big data mining, banking, marketing

INTRODUCTION

Big data is a big game changer in the future because everything is based on data and information. According to Wikipedia[1] the Big data means that "Big data is the term for a collection of data sets so large and complex that it becomes difficult to process using on hand database management tools or traditional data processing applications." So we are circumstances to manage huge set of data which comes from social medium podium, online digital media, financial systems, insurance, healthcare, and transportation and telecommunication companies. Big data is united with 3V's Volume, Variety and Velocity.(Alternatively referred as V3). Volume: It states that amount or quantity of data. IDC's study for big data predict that from 2009 to 2020 digital data will breed 44 fold to 35ZB per year. The collection of this data will be both structured, semi-structured and unstructured data. IBM also explores more that $2.5*10^8$ of data per day i.e 2.5 quintillion bytes of data. Popular social media website facebook alone create more than 500 TB of data every day. Google create 1 petabyte of data for every hour. Velocity: The rate at which the data is created. More than80% of collected data will be unstructured data. The digital data is doubling every 2 years. Variety: It states that different types of data. i.e. The data which is coming from social-media data, sensor data, images, videos, etc. Big data has two more magnitudes Variability that is incompatible data flows with periodic peaks. Complexity means the need to correlate and share data across entities.

DEMAND OF BIG DATA

A research done by NASSCOM and CRISIL Global Research & Analytics [2] research emphasis five important insights about Big Data. 1. Big data will become all-encompassing with the effort to develop

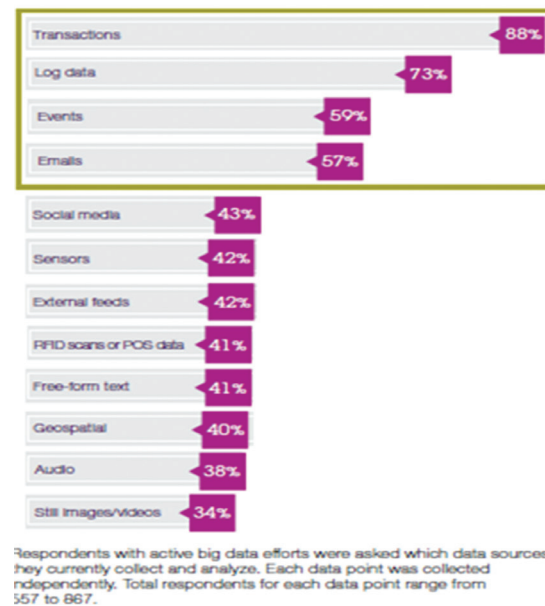*Corresponding Author :
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Fig 1. Big data sources

noteworthy benefits for most of the sectors. 2. Data Analytics have immense opportunities, globally. Big data market globally reach US$25 billion by 2015 from US$5.3 billion in 2011 a CAGR of 45 per cent. NASSCOM President says that "Big Data will grow exponentially over the next three years. Our study reveals that 90 per cent of Fortune 500 companies are likely to have Big Data initiatives underway by year-end. Already, new Big Data companies are attracting funding in excess of USD50 million. Currently, North America and Europe account for a substantial portion of the global demand potential for Big Data analytics." 3. CRISIL CEO expects that India will placed a influence this opportunity in IT and analytics field. The Indian big data field raise five-fold from the current level of US $ 200 million and touch US$1 billion by 2015. The opportunity for Indian service providers lies in offering services around Big

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Data implementation and analytics for global multinationals."The IT services segment will be the major contributor to the Big Data services market, currently accounting for 82.9 per cent of revenues, followed by analytics with 17.1 percent. 4. It prospective will be 45 percent growth by 2015 and technology will play a essential role. Open source platform s like Hadoop, with its parallel processing capabilities, will play a key role in this evolution. 5. Big data industry is in high demand of large skilled talented IT persons. The US alone is expected to witness a shortage of 190,000 data scientists by 2018.

Big data can be used on any and every machines. But the machines used to handle big data must have high configurations. At this point cloud computing plays and major and vital role. Cloud computing permit IT and any other industry to work on big data without the machine setup needed for Big data. So cloud computing offers hassle free for download and store the data. [3]A top research agency forecast that a demand of 140000-190000 analytics professionals by 2018. As we discussing about Big data the "Internet of Things" (IoT) refers a lot. IoT take away everything in technology perspective from a small financial billing to neural networks, sensory networks, machine learning and by installing sensors in every possible devices. Big data plays a essential role in the growth of the companies internal and external process. The process includes product design and development, after sales service, marketing, branding and other product related process. The modes of collecting the data like every sms, online ticket payment, medical bills, etc.
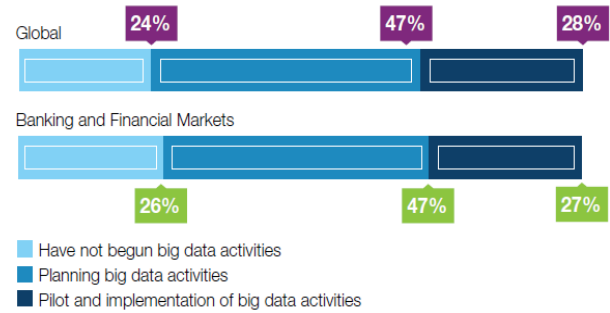
FINANCIALSERVICES

In financial sectors big data provides various remuneration to these organizations including Optimizing Pricing, Risk Management, Credit Worthiness, Investment Advice, Personalized Offerings, Better Operational Efficiency, Fraud Detection and Security, Improved Call Center Operations, Better Customer Insight and Service, Governance, Regulatory Compliance.

IBM Researches[6] explained that 71 percent of banking and financial firms reports use big data analytics to develop competitive advantage from their customers. This research also found that almost three-quarters of financial sectors have began to develop big data strategy or to put into practice the big data as their engines for process, on par with their cross-industry partners.

Financial sectors are dealing with diverse customers all over the world for transactions, queries, etc at any time. This sector is getting structured, unstructured and semi-strucuted data in huge manner from investment bankers, financial advisors, customer relationship
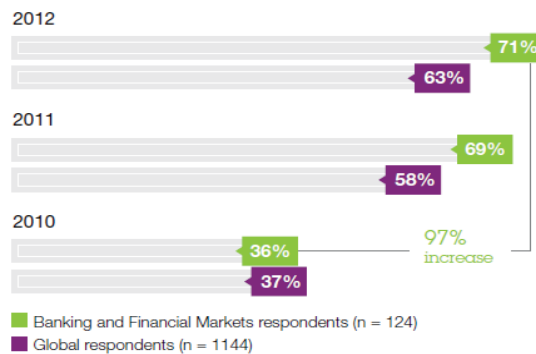

Fig.2 Big data activites in financial services

Fig 3. Competitive advantage in financial sectors

managers, loan officers and front-office employees too. IBM research also indentify important key findings that reflect how financial firms are approaching big data as follows:

1.Customer analytics are driving big data initiatives

2.Big data is dependent upon a scalable and extensible information foundation

3.Inital big data effors are focues on gaining insights from existing and new sources of internal data.

4. Big data requires stron analytics capabilites

HEALTHCARE

It has helped healthcare industry to develop by providing tailor-made remedies and prescriptive analytics, clinical risk intervention and predictive analytics, waste and care variability reduction, automated external and internal reporting of patient data, standardized medical terms and patient registries and fragmented point solutions.

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Health care sector is having promising future using big data. The Mckinsey company[5] researches explains that Pharmaceutical industry, payors and providers are in early stage of analyzing insights of big data. Within a single hospital, pharmaceutical company, patient can be in one group because of organization lack procedures for integrating patient data and their medical findings. Several issues are simulating the demand of big data, especially costs and the consequent changes in providing reimbursements. The cost for health expenses in US after more than 20 years of steady increases, health-care expenses now represent 17.6 percent of GDP—nearly $600 billion. Researchers can dig the data in the area where more specific treatment required and their supporting documents, have to identify the patterns related to medicines used for that treatment and the hospital history too. Recent trends advances in this industry have improved their ability to work such data with the help of big data, even those files are enormous and often have different database structures and technical characteristics.

MANUFACTURING

Manufacturing sector is using intensive data to drive quality, adopting information technology and automation to design, build and distribute product in this technological era. In this global manufacturing chain, manufacturers have to create, develop and to overcome productivity growth. For this they have give more important to their operational process, improvements for their quality of products they manufactured. Manufacturing sectors store more data than any other sectors. Recent research[7] found that more than 2 exabytes of data stored in 2010. This sector generates data from process control, to supply chain management systems, to systems that monitor the performance of products that already been sold. Manufacturing will also drive data from many systems including, computer-aided design, computer-aided engineering, computer-aided manufacturing, collaborative product development management and digital manufacturing. For these Product lifecycle management(PLM) the manufactures can capture significant big data opportunity that can get a platform to combine data sets from multiple systems to enable effective and consistent collaboration. In research and development and product design the usage of big data will speed up the opportunities that minimize the production, design costs.

CONCLUSION

The aim of this paper is to explore the role of Big data in above explained fields. It is a powerful tool that makes things more easier. It allows many sectors to create and develop highly specific segmentations and to their domain and services to meet their requirements. Big data give a new promising path to companies and to their products, services, with the existing ones and to their new business too.

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