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## Future of big data

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### Abstract

A term encompassing the use of techniques to analyse, capture, visualize and process large datasets in a rational timeframe not accessible to standard IT technologies is defined as “Big Data”. In the present times Big Data analytics is a significant resource for Private and Public enterprises, any organisation can analyse and track huge volume of data to bring vital changes to the business processes with the help of innovative advancements of cloud software.

This paper discusses the meaning, characteristics, technologies and latest trends in big data analytics an industry predictions for prominent future growth.

**Keywords:** Big data, map reduce, hadoop, cloud computing, HDFS (Hadoop distributed file system)

### Introduction

The globe has entered an era of Big Data, and creating extraordinary opportunities for businesses to attain deeper, faster insights which can strengthen the organisation’s decision making and improve the customer experience mounting the pace of innovation. Big Data techniques accolades business intelligence (BI) tools to reveal value from enterprise information. Where big data analytics provides a forward looking view business intelligence (BI) provides a rear view into business performance which empowers organisation to anticipate and execute opportunities for a great future.

Big Data comprises a more structured and transaction based data which includes videos, social networking chats, sensor networks, RFID logs, search indexes, medical scans, and environmental conditions through the paths of clicks through internet produced by web surfers. Government expect Big Data to boost its ability to aid their population, hurdles pertaining the economy, jobs, health care, terrorism, disaster and much more. The drift towards visualization based data discovery tools is worth reconnoitring by any organisation’s business that pursues to derive more value from big data, businesses use big data to make profits whereas government use it to provide good services to its citizens.

### Characteristics of big data

It’s not just a size of data, it also includes data Volume, data Variety and data Velocity significantly known as 3Vs of Big Data.

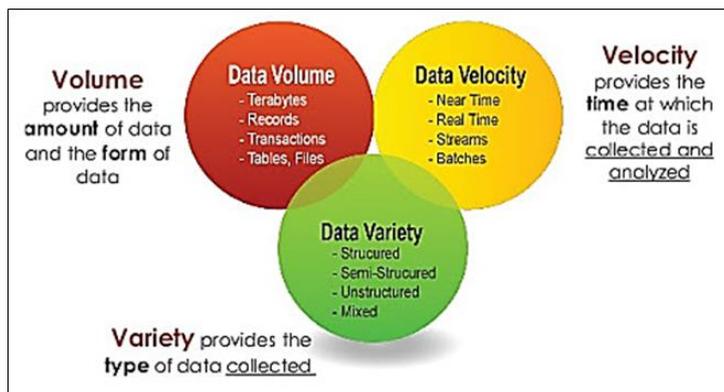


Image reference: rd-alliance.org

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Working on the 3Vs helps organisations extract the real value of Big Data and the value eventually turns the 3Vs into 3Is –

- Informed Intuition – Predicting future happenings and the likely applicable course of actions to be successful.
- Intelligence – Monitoring the happenings close to real time and determining the action to be taken.
- Insight – Reviewing what has happened and the possible actions to be taken.

### Big data technology

This technology can set apart into two major mechanisms – Hardware and Software. Hardware refers to the infrastructure layer whereas Software can be divided into management software, analytics, discovery software and data organisation along with decision support and automation software.

### Infrastructure

It's the foundation of the Big Data Technology, according to the industry standards x86 servers along with networking bandwidth of 10 Gbps can be extended to a Big Data storage facility.

### Data organisation and Management

This layer of software mechanism processes all types of structured and unstructured data for analysis. NoSQL database management Relational Database Management System (RDBMS) this two architectures are developed to manage different types of data.

### Decision support and Automation interface

A closed loop decision making model is in the process of data analysis which at a minimum frameworks steps such as track, analyse, decide and act. To support collaboration and risk management additional functionalities such as decision capture and retention are required.

### Data analytics and Discovery

This encompasses two data analytics – software that supports offline, discovery, ad hoc and deep analytics and the other software that supports dynamic real time analysis alongside automated, rule based transactional decision making. There can be set of tools with various and multiple features residing in a system to enable Big Data analytics.

### Hadoop map reduce and Hadoop distributed file system (HDFS)

Hadoop is framework which enhance open source libraries for using Map Reduce software and it distributed file system, commonly known as the Hadoop Distributed File System (HDFS). It is uniquely designed to scale out from few computing nodes to lakhs of machines each offering storage and local computation.

Hadoop Distributed File System (HDFS) is fault tolerant storage system that can store colossal amount of information, scale up and survive storage failure without losing data. HDFS manages storage on its cluster dividing files and storing duplicate copies across the pool of nodes. As compared to severance techniques like Redundant Array of Independent Disks (RAID) machines, HDFS offers non requirement of special hardware and it's an efficient technique of data processing in the form of Map Reduce.

### Latest trends in big data analytics

By the end of 2025, 75% of enterprises will shift from piloting to operationalizing Artificial Intelligence (AI), driving a 5X increase in streaming data and analytics infrastructures and the followings will be the ideal opportunities for everyone to look at Big Data trends for 2021.

DS & CDOs – Data Scientist & Chief Data Officer the prerequisite is currently high, the developing volume of data demands data professionals for business requirements. An authority at the risk data availability and security in an organisation the DS & CDOs are transforming into a new norm to stay in bid data trends for a much longer time.

Investments in Big Data Analytics will give an upper hand to any organisation, analysing the sustained adoption cycle beginning in 2019 it is anticipated to grow reliably Multi Cloud & Hybrid advances keep on developing, business organisation are gradually liable want a spot in the cloud, firstly is the more confused and tedious process is of moving the data integration and preparation from an on – premises solution to the cloud and secondly to relocate huge amount of existing data. 2021 should see Multi – Cloud & Hybrid deployment brining the philosophy to the front line of data ecosystem. Growth of Actionable Data will be in the trend and will be recognised to be faster processing indicating the missing connection business preposition and big data.

Continuous Intelligence is an outline that is unified real time analytics with business operations, measuring recorded and current data to confer decision making automation or support. By 2021 about 50% of new business systems will utilize continuous intelligence.

Machine Learning (ML) will be a significant innovation in big data trends 2021 which certainly will affect the future fundamentally as ML is a fastest developing advancement that used to expand activities and organisation processes.

Spark & Databricks are the new and glossy as Hadoop has been disapproved and criticized by many professionals for its multifaceted nature whereas Spark & Databricks has been uprising as data science workers considering them to be an answer against Hadoop.

In Memory Computing has been proving biggest advantage for businesses like retail chains, banks etc. Reduction of costs for memory is a significant factor in the growing interest for in memory computing revolution which is utilised to perform complex data analyses in real time.

Internet of Things (IoT) & Big Data enormous numbers of advancements are expected to be the game changers on 2021. Approximately 50% companies that have IoT solutions in progress expecting to use digitalized portables in coming ahead years.

Digital Transformation subsequently with IoT, AI, ML and Big Data, it is expected that about 75 billion IoT connected devices will be operative by 2025 and surely one can see where the bid data is originating from and this unbeatable combination of IoT, AI, ML is taking care of Big Data making its unbelievable mark in mankind's history.

### Conclusion

This paper had given a brief exposure to the integral trends and technologies in big data analytics. A cautious view at the foregoing reveals the possibilities of data and its technologies for insight generation. Overview of big data as it recounts to the trends and technologies engaged covering

NoSQL, Map Reduce, Hadoop and HDFS, explaining the various trends in Big Data Analytics.

Briefing IoT, AI, ML in Big Data in this paper I should also mention that the multinational and foreign companies with heavy financial backup like Microsoft, Google, Facebook, IBM are heavily investing on big data, building upon the research finding and making it clear that the next future is Big Data.

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