

# A Big Data Analytics Perspective in Indian Scenario

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**Abstract** : “In the present scenario Big Data analysis is the process of examining and interpreting large and complex data sets to identify patterns, trends, and insights that can inform business decisions, drive innovation, and improve outcomes. Big data analysis involves the use of advanced data analytics tools and techniques, such as data mining, machine learning, and natural language processing. Big data analysis can be applied to various domains, such as healthcare, finance, retail, manufacturing, and transportation, among others. Some common use cases of big data analysis include fraud detection, customer segmentation, predictive maintenance, and sentiment analysis. To carry out big data analysis, organizations need to have a robust data infrastructure, skilled data professionals, and appropriate data governance policies in place. India is a developing country and too competitive than the developed countries. Nowadays in the information technology sector, Indian IT professionals are doing well even in the domain of Big data analytics we are at the top position, and this sector also affects the lifestyle and Indian perspectives in a positive shape. This paper is an attempt to portray the small piece of the picture in reference to big data analytics and development in India.

**Key Words** : Big data, Enormous, Machine Learning, Business Intelligence Analyst, E-commerce

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## 1. Introduction

Big data analytics has the potential to revolutionize various sectors of the Indian economy, such as healthcare, education, finance, e-commerce, and manufacturing. With the rise of digital technologies and the increasing volume of data generated by them, the importance of big data analytics in India has grown significantly in recent years. One of the main areas where big data analytics has made a significant impact in India is healthcare. By leveraging big data analytics, healthcare organizations can analyze vast amounts of patient data to identify patterns and insights that can lead to better diagnosis and treatment. This can improve patient outcomes, reduce costs, and enhance the overall quality of healthcare.

Another area where big data analytics has made an impact is an e-commerce. Indian e-commerce companies are using big data analytics to gain insights into customer behavior, preferences, and purchase patterns. This enables them to personalize their offerings, improve customer engagement, and increase sales.

In the financial sector, big data analytics is being used to manage risk, detect fraud, and improve customer service. Banks and financial institutions are leveraging big data to analyze customer data, transactional data, and market data to make informed decisions and drive business growth.

Manufacturing is another area where big data analytics is gaining traction in India. By using sensors and other connected devices, manufacturers can collect vast amounts of data on machine performance, production efficiency, and quality control. This data can be used to optimize production processes, reduce waste and improve overall productivity. However, there are also challenges that need to be addressed in the Indian contexts, such as data privacy and security concerns, inadequate infrastructure, and shortage

of skilled data professionals. Addressing these challenges will be critical to realizing the full potential of big data analytics in India.

## 2. 6V's of Big Data Analytics :

The analysis of big data requires specialized skills and tools, as traditional data analysis techniques are inadequate to handle the volume, variety, and the velocity of big data. The three main characteristics of big data, known as the three Vs, are :

1. Volume : The sheer amount of data that needs to be analyzed is enormous, typically measured in petabytes, exabytes, or zettabytes.
2. Velocity : The speed at which data is generated, processed, and analyzed is extremely high, often in real-time or near- real-time.
3. Variety : The types and formats of data are diverse, including structured, semi- structured, and unstructured data from various sources such as social media, IoT devices, and sensors.
4. Veracity : This refers to the quality, reliability, and trustworthiness of the data. With big data, there is often a concern about the accuracy and completeness of the data, as it may come from a wide range of sources and may not always be fully validated.
5. Value : This refers to the usefulness and relevance of the insights gained from big data analysis. It is important to ensure that the insights are actionable and can lead to tangible benefits, such as increased revenue, cost savings, or improved customer satisfaction.
6. Variability : This refers to the degree of change or inconsistency in the data over time. In many cases,

big data is generated in real-time or near real-time, and the patterns and trends observed may change rapidly. This requires a flexible and adaptable approach to big data analysis to keep up with the changing data landscape.



FIGURE 1 – Prime Analytics based Jobs in India

In totality, the 6 Vs provide a more complete and a nuanced understanding of the challenges and opportunities presented by big data, and can help organizations to develop effective strategies for leveraging big data to drive business value.

The field of big data analytics is rapidly growing in India, and there is a high demand for skilled professionals who can work with large and complex data sets. Some of the popular job roles in big data analytics in India are :

1. **Data Analyst** : A data analyst is responsible for analyzing data and identifying patterns and insights that can inform business decisions. They use statistical tools and techniques to clean, process, and transform data to make it usable for analysis.
2. **Data Scientist** : A data scientist is responsible for developing and implementing advanced statistical models and machine learning algorithms to analyze and interpret data. They use programming languages such as Python and R to manipulate data and develop predictive models.
3. **Big Data Engineer** : A big data engineer is responsible for designing and building the infrastructure required for storing, processing, and analyzing large and complex data sets. They work with tools such as Hadoop, Spark, and NoSQL databases to develop scalably and distributed systems.
4. **Business Intelligence Analyst** : A business intelligence analyst is responsible for developing and maintaining dashboards Business Intelligence Ana-

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5. **Data Architect** : A data architect is responsible for designing the data the architecture of an organization, including the data storage, integration, and processing systems. They work closely with other data professionals to ensure that the data architecture is scalable, secure, and meets the needs of the organization.
6. **Machine Learning Engineer** : A machine learning engineer is responsible for developing and implementing machine learning algorithms that can learn from data and make predictions or decisions. They work with tools such as TensorFlow, Keras, and Scikit-Learn to develop and deploy machine learning models.

These are the primary job titles among the many job roles available in the field of big data analytics in India. With the increasing importance of data- driven decision-making, the demand for skilled professionals in this field is only expected to grow in the coming years.

The Data scientist job framework is just similar profiled job to Data analytics both are required similar kinds of skills. In the Indian scenario, there are key skills that may secure Data Scientists/ analytics jobs are mentioned in the figure-2. There is a clear depiction that statistical proficiency, communication skill both oral and written along with computer programming knowledge is the basic need.

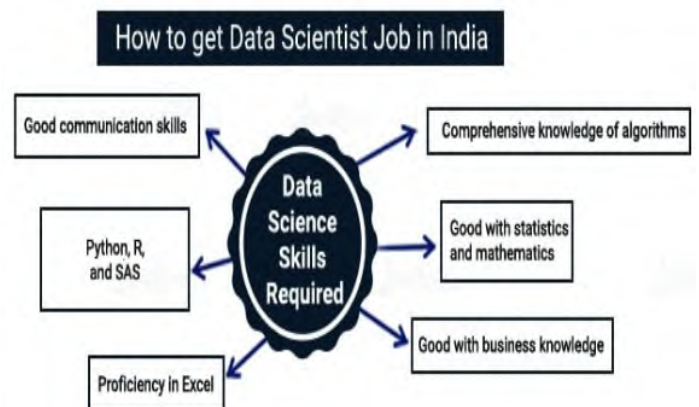


FIGURE 2 – Skill Require for Data Analytics and Scientist

### 3. Financial Statistics of Big Data Analytics Productivity of India

There is limited information available on the financial statistics of big data analytics productivity in India. However, the Indian big data analytics market is expected to grow at a compound annual growth rate (CAGR) of 30.08% from 2021 to 2026, according to a report by Mordor

Intelligence. The report also states that the market is driven by factors such as the increasing the volume of data generated by organizations, the growing adoption of cloud-based big data solutions, and the rising demand for real-time analytics.

Furthermore, the report suggests that the banking, financial services, and insurance (BFSI) the sector is one of the major end-users of big data analytics in India. The BFSI sector uses big data analytics for various purposes such as fraud detection, risk management, and customer segmentation, among others.

In terms of productivity, big data analytics has the potential to improve decision-making, optimize operations, and drive innovation in various industries. For example, a study by the National Association of Software and Services Companies (NASSCOM) and CRISIL found that the use of big data analytics in the Indian retail sector could lead to a 60-65% improvement in inventory turnover, a 5-10% increase in sales, and a 25-30% reduction in inventory carrying costs. On the whole, while there is limited information available on the financial statistics of big data analytics productivity in India, there is no doubt that the the market is growing and has significant potential to drive business value across various industries.

#### 4. Job Number Statistics in Big Data Analytics in India

Rendering to a report by Analytics India Magazine, the big data analytics job market in India has been growing rapidly over the past few years. The the report suggests that the number of job openings in this field has more than doubled from 2016 to 2019, with an average annual growth rate of 36%.

Moreover, a study by the National Association of Software and Services Companies (NASSCOM) and BlueOcean Market Intelligence estimates that the big data analytics industry in India will require around 1.5-2 million data scientists and analysts by 2020.

The report by Analytics India Magazine also identifies the top cities in India for big data analytics jobs, based on the number of job openings. These include Bengaluru, Mumbai, Delhi NCR, Pune, and Hyderabad. In addition, the report suggests that the most in-demand skills for big data analytics jobs in India include proficiency in programming languages such as Python and R, knowledge of big data technologies such as Hadoop and Spark, and experience with machine learning and artificial intelligence. These statistics suggest that the big data analytics job market in India is growing rapidly and is expected to continue to do so in the coming years, creating significant opportunities for skilled professionals in this field.

#### 5. Revenue Generation from Big Data Analytics in India

The revenue generation from big data analytics in India is significant and is expected to grow in the coming years. According to a report by Markets and Markets, the big data analytics market in India is expected to reach USD 13.95 billion by 2025, growing at a compound annual growth rate (CAGR) of 26.4% from 2020 to 2025. The report suggests that the key drivers of this growth are the increasing volume of data generated by organizations, the growing adoption of cloud-based big data solutions, and the rising demand for real-time analytics. Furthermore, the report identifies the banking, financial services, and insurance (BFSI) sector as the largest end-user of big data analytics in India, followed by healthcare, retail, and e-commerce.

In addition, a study by the National Association of Software and Services Companies (NASSCOM) and CRISIL found that the use of big data analytics in the Indian retail sector could lead to a 60-65% improvement in inventory turnover, a 5-10% increase in sales, and a 25-30% reduction in inventory carrying costs. This highlights the potential for big data analytics to drive revenue growth and cost savings for organizations across various industries in India. The revenue generation from big data analytics in India is significant and is expected to grow in the coming years, driven by the increasing demand for data-driven decision-making and the growing adoption of big data technologies across various industries.

#### 6. Conclusion

Big Data Analytics is becoming increasingly important in the field of finance in India, as it can help financial institutions make informed decisions, improve risk management, and enhance customer experiences. Some of the key ways in which Big Data Analytics is being used in finance in India include : Fraud detection, Risk management, Customer analytics, Trading and investment decisions etc. Big Data Analytics can help financial institutions make more informed trading and investment decisions by analyzing market trends and predicting future outcomes. Big Data Analytics has the potential to revolutionize the financial industry in India, enabling financial institutions to make faster, more accurate decisions and improving their overall performance. However, there are also challenges that need to be addressed, such as data privacy and security concerns, as well as the need for skilled professionals who can analyze and interpret large amounts of data.

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