

BIG DATA ANALYTICS: DEFINITION, ADVANTAGES AND TYPES

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Annotation. Big data analytics is responsible for some of the biggest industry advancements in the world today, whether they are used in the government, finance, healthcare, or other sectors. To provide useful insights for businesses, big data analytics applies advanced analytics to sizable collections of both structured and unstructured data. It is widely used to understand what is working and what is not, to improve processes, systems, and profitability, in fields as diverse as health care, education, insurance, artificial intelligence, retail, and manufacturing.

Key words: Big Data Analytics, Descriptive analytics, Diagnostics analytics, Predictive analytics, Prescriptive analytics.

Definition. Big data analytics is the process of collecting, examining, and analysing large amounts of data to discover market trends, insights, and patterns that can help companies make better business decisions. This information is available quickly and efficiently so that companies can be agile in crafting plans to maintain their competitive advantage.

Organisations can use business intelligence (BI) tools and systems to collect structured and unstructured data from a variety of sources. Input from users (typically employees) into these tools helps to understand business performance and operations. The four data analysis methods are being used by big data analytics to find significant insights and make solutions.

Importance. Big data analytics is important because it enables businesses to use their data to find areas for growth and improvement. Across all business sectors, improving efficiency results in more intelligent operations overall, bigger profits, and happy customers. Big data analytics aids businesses in reducing costs and the creation of better, client-focused goods and services.

Data analytics assists in generating insights that enhance how our society operates. Big data analytics is essential to measuring COVID-19 outcomes globally in addition to monitoring and analysing individual patient records. It informs each country's health ministries on vaccination strategies and develops plans for preventing pandemic outbreaks in the future.

Almost eight out of ten users (79%) think that "companies that do not embrace big data will lose their competitive position and may even face extinction," according to an Accenture report [1]. Accenture found that 95% of Fortune 500 companies with revenues over \$10 billion said they were "highly satisfied" or "satisfied" with the results of their big data-driven business outcomes (Figure 1)

Benefits of Big Data Analytics:

- **Cost savings:** Storing all business data in one location can save money thanks to big data. Monitoring analytics also enables to identify areas where they can operate more cost-effectively.
- **Product development:** When based on data gathered from customers' needs and wants, developing and marketing new products, services, or brands is much simpler. Additionally, big data analytics helps one to understand product viability and trend monitoring for businesses.
- **Strategic business decisions:** The ability to continuously analyse data enables businesses to make quicker, more accurate decisions like supply chain and cost optimization.
- **Entertainment:** The provision of personalised movie and music recommendations based on a customer's specific preferences has revolutionised the entertainment industry.
- **Risk management:** By examining data patterns, businesses can spot risks and create plans to address them.

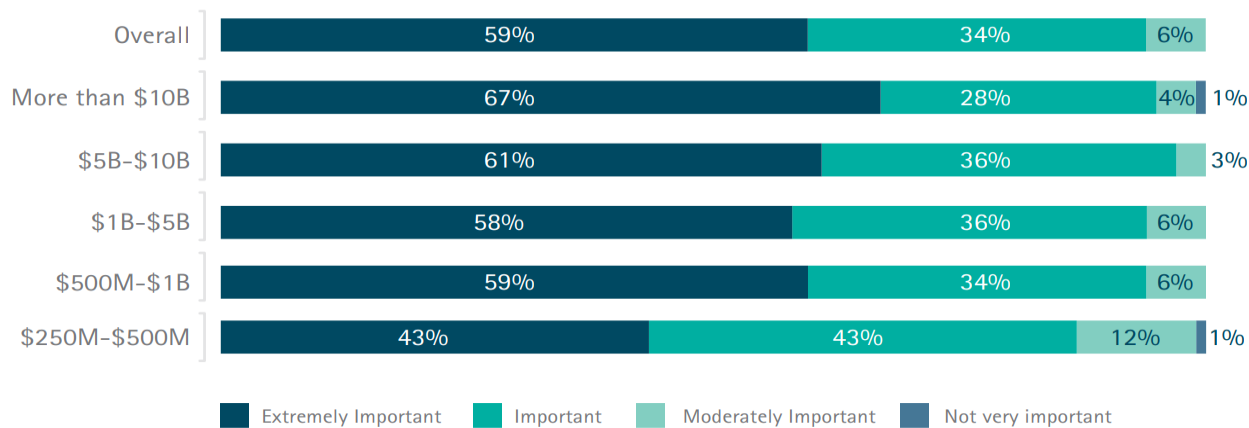


Figure 1 - How important is big data to your organisation?

- **Education:** Based on student needs and demand, big data enables educational technology providers and schools to create new curriculum and enhance already-existing ones.

- **Health:** Keeping track of patients' medical histories enables doctors to identify and prevent diseases.

- **Government:** To better manage the public sector, big data can be used to gather information from CCTV and traffic cameras, satellites, body cameras and sensors, emails, calls, and more [2].

Types. Big data analytics comes in four main categories and is used to support and inform various business decisions.

1. **Descriptive analytics.** Data that is straightforward to read and interpret is referred to as descriptive analytics. With the aid of this data, reports and information that can describe business sales and profits can be created. As an example, a top pharmaceutical company examined data from its offices and research facilities during the pandemic. They were able to find underused areas and departments that were consolidated thanks to descriptive analytics, which helped the company save millions of dollars [2].

2. **Diagnostics analytics.** Business organisations can better understand problems by using diagnostic analytics. Users of big data technologies and tools can mine and recover data that helps in analysing problems and preventing them in the future. Example: Even though customers keep adding items to their shopping carts, a clothing store's sales have decreased. Diagnostic analytics were useful in determining why the payment page had been failing for a few weeks.

3. **Predictive analytics.** To make predictions, predictive analytics examines both current data and statistics. Data mining, artificial intelligence (AI), and machine learning enable users to analyse the information to forecast market trends. A good example is the manufacturing industry, where businesses can forecast whether or when a piece of equipment will malfunction or break down using algorithms based on historical data.

4. **Prescriptive analytics.** Prescriptive analytics uses AI and machine learning to collect data and use it for risk management, offering a solution to a problem. To reduce risk, utility companies, gas producers, and pipeline owners in the energy sector identify the factors that affect the price of oil and gas.

Conclusion. Big Data Analytics is a valuable tool for understanding and leveraging vast amounts of data to gain insights. It offers significant advantages such as improved decision-making, improved customer experiences, greater operational efficiency, and increased revenue. With these insights, businesses can make better informed decisions and optimise their operations to achieve success.

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