

Big Data users and trends

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Big data, as the name suggests, is data in huge amounts, and the process of its acquisition, retention, and analysis is very old. In modern times, it gained popularity in early 2000 when industry analyst Doug Laney introduced its definition with three V's, namely Volume, Velocity, and Variety. (National Institute of Standards and Technology, 2019)

Volume: The huge volume of data originates from business transactions, social media research, and other machine-to-machine data. **Velocity.** The data is being created at an enormous rate and needs to be dealt with in real-time.

Variety: Data comes in many formats, including numeric data, emails, forms, structured documents, and raw databases.

Users of Big Data

Such big data is being created at an enormous rate, and it keeps on growing. There is a huge potential that if all this data is analyzed, it can bring great operational and economic benefits for businesses in every industry.

Banking: Big data, if analyzed properly, can help banks come up with financial solutions for customers while maintaining legal compliance and keeping the risk of fraud to a minimal level.

Education: Educators who are equipped with well-analyzed big data can reduce the risk of students' failure and can have a significant impact on the learning process by making adequate changes to curriculums.

Government: If Government agencies apply big data analytics appropriately, they can produce solutions for managing utilities, traffic monitoring and control, and reducing crime. (National Institute of Standards and Technology, 2020)

Health Care: With big data analytics, healthcare providers can get insight into the seasonality of different diseases and patient trends, and fixes can be devised quickly and effectively.

Manufacturing: With a deeper insight into the data, manufacturing industries can amend their business process, aiming at waste reduction and better production control while catering to customer demands.

Retail: By having the proper insight, retailers can better market their products to customers, thus enhancing customer relationships and boosting the business.

Trends of Big Data

1. Big data becomes fast and approachable.

In previous years, there have been several technologies on the rise that are aimed at fulfilling the needs of analytics on big data. With the growing complexities, larger corporations are now in need of more than one tool for data analytics and data sourcing. They can get this data from a wide variety of sources, like warehouse clouds, which may be structured or non-structured.

2. Establishment of manmade data lakes.

It is similar to the concept of building a dam on a river and then utilizing the water for different purposes. First, a cluster, a data reservoir, is built, and data is gathered in it. Once a sufficient quantity has been gathered, this data may be used for various purposes. At this point, the data analytics tool walks in to play its role.

Lately, it has been common for every organization to have its own data lake, but this trend is changing now. At this point, corporations must critically analyze their data needs before investing in any infrastructure – be it personnel or data. Companies now demand a repetitive, efficient, and effective use of data lakes for better information. It will lead to stronger collaborations between business and IT.

3. Variety is a key driver of big data investments.

Big data is defined by the three V's: volume, velocity, and variety. Currently, all three V's are registering enormous growth. However, in the near future, variety will be the key driver behind big data investments. This trend will be on the rise as more and more businesses aim to consolidate the data coming from different sources, incorporating a variety of high-quality data. There are a lot of new data formats like schema-free JSON, nested type databases, and non-flat data. In the future, the performance of all the data analytics tools shall be measured by their ability to provide real-time connections to data sources.

5. Big data is shaped by the end-user.

There is going to be a rise in the self-service data analytics platforms. Keeping this in mind, business users are now demanding a reduction in the complexity and time needed to prepare the data analysis as they have to deal with data from a number of variety sources. This data is often in a lot of formats. Intelligent, smart, and powerful data analytics tools have the capacity to present data as snapshots, which reduces the time and sources needed to interpret the data.

The rise of self-service analytics platforms has improved this journey. However, business users want to reduce the time and complexity of preparing data for analysis further, which is especially important when dealing with a variety of data types and formats. Many new companies like Paxata, Alteryx, and Trifacta are focusing on end-user data prep.

6. Rejection of same-size frameworks.

Currently, many organizations are working toward catering to the need for hybrid data. It is being done by utilizing case-specific architecture designs. An organization's data strategy now depends on a number of factors, like user profiles, the volume of data, questions, timings, frequency of access, data speed, and the level of consolidation. These are not standardized architectures but are driven by the need. Due to the flexibility of these designs, technology is now reaching new horizons. (International Telecommunication Union, 2024)

References

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