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Opinion Article

Integration of Analysis and Models of Managing Business Strategies using Big Data Technology

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DESCRIPTION

Big data technology has been a buzzword since the early 2000s when software and hardware capabilities enabled enterprises to process large amounts of unstructured data. Big data analytics describes the process of uncovering trends, patterns, and correlations in large amounts of raw data in order to make data-driven decisions. These processes take well-known statistical analysis techniques such as clustering and regression and apply them to larger datasets using new tools. Big data technology can be defined as software utilities designed to analyze process and extract information from extremely complex and large datasets that traditional data processing software cannot address. Our world is more technologically advanced than ever before. Technology is constantly attacking us in every aspect of our lives. Mobile phones, social networks, streaming video, and the Internet of Things (IoT) have all contributed to the massive data growth of the last few decades.

Due to the large amount of data generated by human and machine activity, the data is so complex and voluminous that it cannot be interpreted by humans or fit into a relational database for analysis. However, when properly evaluated using modern tools, these vast amounts of data can provide businesses with valuable insights that can help them improve their business by making informed decisions. Big data can be harnessed using technologies that can be categorized into four types.

Data storage

Dealing with data storage, big data technology has the ability to acquire, store, and manage big data. It consists of an infrastructure that allows users to store data in a way that is convenient for them to access. Most data storage platforms are compatible with other programs. Data storage is the use of recording media to store data on a computer or other device. The most common forms of data storage are file storage, block storage, and object storage, each serving a different purpose.

Data mining

Data mining is the process of sorting large data sets to identify patterns and relationships that can help solve business problems through data analysis. Data mining techniques and tools enable companies to predict future trends and make more informed business decisions. Data mining extracts useful patterns and trends from raw data. Big data technologies like Rapidminer and Presto can transform unstructured and structured data into actionable information.

Data analysis

Data analysis is the process of exploring and analyzing large data sets to find hidden patterns and invisible trends, discover correlations, and derive valuable insights to make business predictions. Improves the speed and efficiency of a business. Big data analytics uses technology to cleanse data and transform it into information that can be used to make business decisions. In this next step (after data mining), users run algorithms, models, etc. using tools like Apache Spark and Splunk.

Data visualization

Data visualization is the graphical representation of information and data. By using visual elements such as charts, graphs, and maps, data visualization tools provide an accessible way to see and understand trends, outliers, and patterns in data. Finally, big data technology can be used to create stunning visualizations from data. In a data-centric role, data visualization is a skill that helps present stakeholders with recommendations about business profitability and operations, telling powerful stories with simple graphs. Many new technologies such as Hadoop, NoSQL databases, and cloud computing are being used to collect, store, and analyze big data. Each of these technologies has its own advantages, but they share the ability to process large amounts of data quickly and efficiently. These technologies will become increasingly important as the amount of data the world generates increases. Big data is still on the rise as existing

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big data technologies are more widely adopted and applied and new solutions related to big data security, cloud integration, data mining, etc. are introduced.

Processing such amounts of data can be very time-consuming, for example, months of processing. Of course, to test these types of applications, it's preferable to use small test datasets that effectively represent large amounts of data. Current industry practice is to manually generate small test data sets for testing big data applications.

However, manual design can be time-consuming, labor-intensive, and error-prone. Furthermore, there is no automated method to ensure the validity and quality of the generated datasets.