

Big Data and its Applications in Various Industries

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Abstract. This article discusses the concept of big data and its application in various industries. It highlights the importance of big data in today's digital world and provides insight into customer behavior and business trends. The article looks at three key industries that use big data and how it is transforming those industries. It looks at the emergence of big data and its various applications in different industries. It looks at the concept of big data, its characteristics, and how it can be used to improve efficiency and productivity in various sectors. It also looks at how data analytics can help organizations gain insights into customer behavior, market trends, risk management, and other areas. Finally, it looks at the challenges of using big data, such as data privacy issues and security threats.

1 Introduction

Big data refers to the large volumes of structured and unstructured data generated by various digital devices and platforms. The use of big data is becoming increasingly popular in various industries, including healthcare, finance and e-commerce. Using big data helps companies analyze customer behavior and make data-driven decisions. In this issue, we'll look at how big data is being used in a variety of industries. In addition, big data can help create predictive models and algorithms to identify patterns, and trends that can be used to optimize operations, reduce costs, and increase revenue. They can also help develop personalized marketing strategies, customized product recommendations, and targeted advertising campaigns to improve the overall consumer experience.

2 Materials and Methods

Big data is used in healthcare to improve patient care and disease management. By analyzing patient data, physicians can identify patterns and predict health risks. They are also used in drug development and clinical trials, helping to identify drug targets and personalize medicine. In addition to improving patient care and drug development, big data is also being used to optimize hospital operations and reduce costs. By analyzing big data, hospitals can identify process inefficiencies, make data-driven decisions, and improve resource allocation

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and workflow management. Big data is also used to monitor patient outcomes and evaluate treatment effectiveness so that healthcare providers can adjust treatment plans accordingly. In short, big data is changing the healthcare industry, allowing healthcare providers to provide more personalized care, reduce costs and improve patient outcomes[1].

The financial industry is another sector that relies heavily on big data. Financial institutions use big data to detect fraud, manage risk and make data-driven investment decisions. By analyzing customer data, banks can better understand their customers and provide personalized services. And big data is also used in the financial industry to improve customer service and customer loyalty. By analyzing customer data, banks can identify their customers' financial needs and offer products and services that meet those needs. Big data is transforming the financial industry, allowing financial institutions to improve customer service, reduce risk and increase return on investment. The use of big data in the financial industry is expected to continue to grow as financial institutions look for new ways to use data to gain a competitive advantage[2].

E-commerce is one industry transformed by big data. Online retailers use big data to analyze customer behavior, preferences and buying patterns. This information helps retailers optimize their marketing strategies and improve the customer experience. Big data also plays an important role in supply chain management, allowing companies to track inventory and optimize delivery routes. Big data is used in e-commerce to optimize site design and usability. By analyzing site traffic and user behavior, online retailers can identify areas for site improvement and make data-driven decisions to improve the user experience.

Big data is becoming increasingly important in today's digital world. This refers to the large amount of structured and unstructured data that is generated from various sources such as social media, sensors and mobile devices. This data can be used to gain insights into customer behavior, trends and preferences, which can help organizations make better informed decisions and stay competitive[3]. Big data is used in a wide variety of industries for a variety of purposes. For example, in retail, big data analytics can be used to predict customer buying patterns and optimize inventory management. In healthcare, big data analytics can be used to identify trends in patients' medical records, which can lead to improved diagnostic accuracy or new treatments for diseases. In finance, big data analytics can be used to detect fraud or provide customers with personalized financial recommendations based on their individual needs and preferences. When it comes to effective use of big data, organizations must take several steps, including: collecting high-quality data sets; developing an effective strategy; implementing appropriate technology; identifying meaningful insights from analysis; and acting on those insights. In addition, organizations must ensure adequate security measures when handling sensitive information, such as customer information or financial reports. Overall, big data offers many opportunities for businesses in all industries, but they must be careful when using it so that they are not exposed to any risks associated with its use, such as privacy issues or security concerns[4]. By carefully planning how they will use this technology, companies can take advantage of its potential benefits while staying ahead of their competitors in a rapidly changing digital world.

3 Results and Discussion

Big Data has revolutionized the way businesses do business by enabling data-driven decision making based on real-time insights. As technology advances, the scope of Big Data is expanding and it has become an indispensable tool for companies in a wide range of industries. Big Data allows companies to unlock new business opportunities, increase efficiency and provide a better customer experience.

In addition to healthcare, finance and e-commerce, big data is used in a variety of industries, including manufacturing, transportation and energy. In the manufacturing industry, big data is used to optimize production processes and reduce waste by analyzing data on the performance of production lines, equipment status, and inventory levels. The transportation industry uses big data to optimize routes and improve fuel efficiency by analyzing data on traffic patterns, weather and driver behavior. In the energy industry, big data is used to monitor and manage power production by analyzing data on power consumption, weather conditions, and asset conditions[5,6].

Overall, the possibilities for using big data are almost limitless, and its use is growing rapidly across a variety of industries. As companies continue to collect and analyze more and more data, the role of big data in shaping business strategy and decision-making will continue to grow. The effective use of big data is a key differentiator in a competitive marketplace, helping companies innovate, improve efficiency and deliver greater value to customers.

Here are some examples of big data in big business:

- Structured data can be optimized, large banks also use this system to simplify their work and save their own money by applying a chat-bot which can take over part of a potential employee's work and if necessary switch to a specialist.

- Also with big data it is possible to predict the future of sales in the company. It is a very convenient system because it can determine the future sales and profit growth in the company.

How does it work? Here is an example with Amazon, currently the most popular online marketplace, it has launched a system of recommendation of goods, which runs on a system of machine learning.

Some of the big stores use data to analyze data and make a list of products that can be discounted for more profits.

Who works with big data?

Data scientists who are they? And what do they do? Just specialists like them work with big data. Data Scientists work wherever there is big data of all sorts - big businesses, startups, and scientific organizations.

Data Scientists work in different industries are in demand in many companies:

- marketers help analyze loyalty maps and understand what to advertise to certain companies.

- for logisticians analyze gps maps and find shortcuts for transportation

- salespeople analyze the relevance and seasonality of products

Startups are developing new technology that goes to the next level. For example, for the most popular tick tock platform using machine learning to recommend content.

Also with big data mostly data engineering works. Let's analyze in detail what for such a specialist is needed in the field of big data[7,8]. So, a data engineer (Data Engineer) is involved in the initial and final stages of the data analysis, ensures their work on the infrastructure of the company. He deals with ETL-processes, i.e. processes data: takes it out (extracts) from raw sources, transforms and loads it. After preprocessing, cleaning of repetitions, errors and unnecessary clarifications, it automates scripts execution and, if needed, configures monitoring, alerts if something went wrong in the models, sets the schedule for the service or program to work with data.

So what is the difference between data scientist and data engineer?

The tasks of a data scientist and a data engineer are at different stages of working with data. A data scientist is a researcher who figures out how to solve a business problem. For example, he predicts when a customer will come to the store next time. He prepares a dataset, extracts attributes, experiments with models, and does a pilot run of the model[9,10].

4 Conclusion

The use of big data can also cause privacy and security issues, so companies need to ensure their customers' data is properly protected.

Overall, big data continues to transform modern business and create new opportunities for companies, but it is important to consider the ethical use of data and respect privacy rules. Big data is an invaluable tool for companies of all sizes to gain insight into customer behavior, market trends, risk management and other areas. By harnessing the enormous potential of big data, businesses can stay ahead of the competition and remain competitive in a rapidly changing digital world. However, organizations must be mindful of related risks, such as data privacy concerns and security concerns when using big data. Through careful planning and implementation of strategies, companies can use big data to their advantage to achieve greater success.

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