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Big Data Leads to Big Future

BIG DATA PAPER
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History

Data has always been analyzed within companies and used to help benefit the future of businesses. However, the evolution of how the data stored, combined, analyzed and used to predict the pattern and tendencies of consumers has evolved as technology has seen numerous advancements throughout the past century. In the 1900s databases began as “computer hard disks” and in 1965, after many other discoveries including voice recognition, “the US Government plans the world’s first data center to store 742 million tax returns and 175 million sets of fingerprints on magnetic tape.” The evolution of data and how it evolved into forming large databases continues in 1991 when the internet began to pop up and “digital storage became more cost effective than paper. And with the constant increase of the data supplied digitally, Hadoop was created in 2005 and from that point forward there was “14.7 Exabytes of new information are produced this year” and this number is rapidly increasing with a lot of mobile devices the people in our society have today (Marr). The evolution of the internet and then the expansion of the number of mobile devices society has access to today led data to evolve and companies now need large central Database management systems in order to run an efficient and a successful business.

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Advantages of Big Data

Many corporations that consumers have access to today have databases that are large enough to supply information for millions of different products, employees, and customer information. As analysts look at companies such as Walmart, Target, Amazon, they notice how these very large databases are beneficial in the success of these companies. The Emerge textbook specifies the advantages of a centralized database as, “reduced data redundancy, improved data

integrity, easier modification and updating of data, easier access to reports and data; convenience of shared data access, better data security, and more efficient data storage" (*Emerge with Computers Version 7.0*). These advantages help Walmart run a successful business. Walmart relies on a very large database system to suffice the needs of all of their employees and customers. In the article, "How Big Data Analysis helped increase Walmart's Sales turnover," it is stated that "Walmart collects 2.5 petabytes of unstructured data from 1 million customers every hour." This is an extremely large amount of data and it takes a very large and efficient database to process and sort this amount of data. A database management system's advantages are visible within Walmart's database. The data redundancy is key in helping the company be successful. Data, such as the employee numbers and customer transaction, are not duplicated and Walmart is not losing money in products and employee salaries. With the centralized database management system, Walmart has a strong accuracy of orders and transactions among every store and online purchase. Walmart can also modify and update their store data nationwide from a centralized location. A central database management system for Walmart brings them better data security and efficiency among the 2.5 petabytes of data they receive every hour. Big data has provided Walmart with many advantages in continuing the big business success.

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General Uses of Big Data

As previously found, there are many advantages to centralized databases. There are also many uses that a company can use the information that is found in their database. According to the Emerge textbook, "business systems depend on databases for daily operations and strategic planning." (*Emerge with Computers Version 7.0*). Walmart, along with other businesses that utilize databases, relies on the information that their centralized database brings in to meet the

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wants and needs of their millions of customers that they serve every day. The information that is tracked through a central database of a corporation is necessary for the business supplying an accurate amount of a product in the thousands of stores that the company must stock for their consumers. It is stated that "One of the first steps in creating a database is to outline the logical and physical structure of the data as well as the relationships among the data in the databases" (*Emerge with Computers Version 7.0*). This is important for every company's database is to determine how their data is connected in order to analyze the patterns and tendencies of their consumers.

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How Does Walmart Use Big Data?

Walmart uses the data that their centralized database draws into "optimize the shopping experience for customers when they are in a Walmart store, or browsing the Walmart website or browsing through mobile devices when they are in motion" ("How Big Data Analysis helped increase Walmart's Sales turnover?"). The main focus of Walmart and their use of big data is to provide their customers with the most accurate information and to supply the needs of all of their daily customers with the perfect amount of a product. This accuracy to supply the most accurate information and the perfect amount of products for their daily customers begins with tracking their customers. A point of emphasis in this tracking for Walmart is data mining This is supported by the statement, "Data mining helps Walmart find patterns that can be used based on which products were bought together or which products were bought before the purchase of a particular product" ("How Big Data Analysis helped increase Walmart's Sales Turnover?"). The centralized database management system of Walmart leads to data mining for the analyst's and ultimately to an efficient output of products by the company. There are many aspects that the

Walmart lab analysts track based on the information that is brought into the database system. “Information such as what customer’s buy, where they live and what are the products they like through in-store Wi-Fi,” provides the lab analyst’s with adequate information to determine patterns among consumers of Walmart goods (“How Big Data Analysis helped increase Walmart’s Sales Turnover?”). Not only does Walmart use this information, but they also “analyze every clickable action on Walmart.com- what consumers buy in-store and online what is trending on Twitter, local events..., how local weather deviations affect the buying patterns, etc.” (“How Big Data Analysis helped increase Walmart’s Sales Turnover?”). Each and every purchase, click, and retweet by a Walmart consumer is tracked and stored in the database system and analyzed by the Walmart analyst’s in order to maximize profit while being efficient in the number and type of products that are being bought and sold online and in stores across the nation.

Effects of Big Data for Walmart

Walmart has been greatly impacted by Big Data in today’s society. However, Walmart has also made great strides with the information that they have received through their database system and they have found areas that have made them a large, successful, profitable company in a very competitive day in age. Big Data has had a positive effect on Walmart and has assisted in helping steer the company in how to be efficient and how to meet the wants and needs of their consumers. Big Data allows Walmart to have new products launched, have better predictive analytics, and have custom recommendations. For example, Walmart relies on social media data to help them determine what products are popular among the Walmart consumer population during a given time period. Walmart is able to use this data to sell new goods and also have new

shipping policies that benefit both the consumers and Walmart because Big Data has allowed Walmart to add “several new products to enhance the customer shopping experience” (“How Big Data Analysis helped increase Walmart’s Sales Turnover”). In addition to Walmart being able to launch new products and to make better predictions of their customers, Walmart also has the ability to make customized recommendations. As stated in the article, “just the manner in which Google tracks tailor-made advertisements, Walmart’s big data algorithms analyze credit card purchases to provide specialized recommendation to its customers based on their purchase history” (“How Big Data Analysis helped increase Walmart’s Sales Turnover”). A large centralized database management system has completely altered the way Walmart and numerous other corporations respond to the customers and simplify the process in which items are organized and tracked within the company.

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Future of Big Data

The future for Big Data is bright. Big Data has allowed Walmart to tailor to the needs of their customers and not just randomly guess what consumers would and would not purchase. The growth of data among consumers will continue to increase and the data that is received by Walmart and other companies will continue to grow and expand as we have seen happen throughout the past years. In the future, companies and consumers will watch the accuracies among business predictions of the wants and needs of consumers to become more and more accurate. Big Data has forced businesses to examine the preferences of their consumers and how their consumers react to certain goods and prices. The databases among companies will continue to grow, expand, and develop as new technology is discovered. Companies will also be able to predict the wants and needs of their consumers with an even stronger accuracy than they can

today as a result of better customer tracking and more data that is piled into the database system.

Walmart has and will continue to benefit from a large amount of data that is poured into its

central database management system each and every day.

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