THE ROLE OF BIG DATA IN THE EFFECTIVENESS OF DIGITAL BUSINESS STRATEGY ON AN E-COMMERCE PLATFORM

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ABSTRACT

This study aims to determine the shortcomings of Tokopedia as an online store that is commonly used by consumers. This study uses a qualitative method. primary and secondary data. Primary data, namely data obtained from offices and agencies related in a ready-made form or available as research-related references. Secondary data used by researchers is from the results of literature, references, journals, articles, magazines, the internet, and other documents related to the research. The results of the study are in order to evaluate and improve the sales system at online stores One of the drawbacks is in terms of timeliness in conveying the information conveyed on the website. This situation causes a lack of interest from consumers to use and shop on the Tokopedia website. Even though the website plays a very important role because, with big data and technical strategies, e-commerce is able to classify data based on keywords so that every activity on the e-commerce website is recorded in the database.

Keywords: Big data, e-commerce, business strategy.

1.   INTRODUCTION

The development of the current marketplace in Indonesia is increasingly rife. With of more than 270 million, Indonesia is the most populated country in Southeast Asia. The country consists of over 17 thousand islands, which further complicates communication between different regions. (Statita.com,2022)

In the digital era where everyone has internet access, the term "online business" is starting to run rampant because it's easier to do business anytime and anywhere, especially with social media. Currently, business people generally prefer to sell their products and services through social media rather than opening their business outlets. (Alifah,2022)

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Today, almost all business transactions take place online. This is where big data plays an important role in managing data from online transaction processes.

The presence of many marketplaces or online stores including Shopee, Lazada, OLX, Tokopedia, and many others can make it easier for people to find their daily needs. It cannot be denied that the existence of an online market is one of the positive impacts of the development of information technology occasionally. The development of science and technology, especially in Indonesia, has resulted in many changes, especially in the Indonesian economy with the support built by the government and related parties. Information technology is a form of technology used to create, store, modify, and useful information in all aspects of e-commerce. Through the use of information technology, micro, small and medium enterprises penetrate the global market. Companies that started out as small businesses, such as the Amazon bookstore, Yahoo Portal, and the simple auction company eBay, have now become giant companies in just a short time because of the advantage of information technology in developing their businesses. (Suyanto, 2003b).[1]

Big data is used as a sophisticated statistical model in analyzing increasingly complex data, including unstructured data such as images, conversations, images, audio and videos obtained from digital and social media. (Erevelles et al, 2016)

Electronic commerce or online market which is often referred to as e-commerce is the activity of buying and selling goods or services online. The emergence of e-commerce in Indonesia began in the early 1970s with the emergence of internal Dyvia com or D-Net which was considered the pioneer of online buying and selling. However, initially, D-Net was only limited to displaying products, then in mid-2010-2011, the era of e-commerce in Indonesia began to show its presence inspired by the Gojek application which developed a food ordering feature, making several online shopping sites such as Tokopedia follow in its footsteps.

However, amidst the many advantages of the marketplace, it is known that there are still many marketplaces that have deficiencies, especially in terms of the accuracy of delivering information. Running a business in the marketplace, especially Tokopedia is never separated from the use of Big Data. Tokopedia is one of the largest e-commerce platforms in Indonesia. As an e-commerce company, Tokopedia collects and processes enormous data from customer transactions and user interactions with its platform. This big data includes information about customer behavior and preferences, website performance and traffic on social media, and digital business strategy. The collection and analysis of this data can effectively increase the effectiveness of Tokopedia's digital business strategy.The use of data science, which makes it easier for businesses to reach information through the big data clusters they derive from the digital marketing environment and to create insights that can be decided upon and acted, has increased significantly. Grishikashvili and Meadows, 2014: 27). Thus, in this case, the role of Big Data is very important.

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[1] Hartawan, "Pemanfaatan Big Data dalam Bisnis E-commerce OLX."

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Tokopedia regularly tries to develop optimal systems and features to be able to create a customer experience through the support of Big Data through the use of Top Ads by sellers. The TopAds feature can help speed up product findings that consumers are looking for. The TopAds feature can also reach many buyers to maximize sales. The utilization of Big Data can help provide an optimal and personalized shopping experience so that Tokopedia can display related items that are frequently purchased by clustering data as well as assist consumers in displaying various products that match the items that are in great demand with high-value needs and value. The use of Big Data can improve operational systems rapidly and is also efficient in collecting large amounts of consumer data so in this case it can provide many opportunities for Tokopedia and provide convenience and benefits for various parties. [2]

It can be interpreted that Big Data presents an important role in increasing the effectiveness of the digital business strategy at Tokopedia. By leveraging data, large companies such as Tokopedia can understand customers and optimize the user's operating experience and logistics, as well as improve platform security. This will help companies maintain competition and expand their customer base in the increasingly competitive Indonesian e-commerce market. For this reason, the authors try to raise this research with the title "The Role of Big Data in Improving the Effectiveness of Digital Business Strategy at the Tokopedia Company.

2.   LITERATURE REVIEW

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[2] "Model Promosi Marketplace Berbasis Artificial Inteligence (AI) Di Indonesia. | JMBI UNSRAT (Jurnal Ilmiah Manajemen Bisnis Dan Inovasi Universitas Sam Ratulangi)."

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Big Data is the term given to data sets that are very large and complex, making it impossible to process them using conventional database management tools or other data processing applications. According to (Aryasa, 2015), big data technology has data that is too large and too fast or does not conform to the structure of conventional database architectures. Therefore, to be able to obtain value from the data, technology is needed in the form of software that can extract and obtain data that is specifically needed. In its development, the terminology of big data has been associated with science, data mining, and data processing. However, Big Data involves infrastructure and data mining or data processing techniques that are more sophisticated than before. In implementing Big Data technology in an area, four important elements are needed, namely: data, technology, processes, and human resources. [3]

Furthermore, the effectiveness of business strategy according to Handoko in Sujanto, the definition of effectiveness is the relationship between output and goals, the greater the output contribution to achieving goals, the more effective the organization, program, or activity. Another opinion according to Steers assesses organizational effectiveness as a measure of how far an organization has succeeded in achieving goals that are worth achieving. The response explains that although the ultimate goal of effectiveness is achievement. However, the concept of organizational effectiveness is a multidimensional concept due to the definition of experts applying different knowledge. According to Ridwan Sanjaya & Joshua Tarigan (2009:47) marketing activities include branding using various web-based media such as blogs, websites, email, AdWords, or social networks. Furthermore, digital marketing does not only talk about internet marketing, digital marketing uses the internet and information technology to expand and enhance traditional marketing functions (Urban, 2004). This definition concentrates on all of traditional marketing. We can also express opinions such as interactive marketing, one-to-one marketing, and electronic marketing Closely related to digital marketing. Tokopedia is one of the largest digital-based buying and selling companies in Indonesia. Since it was officially launched, PT. Tokopedia has succeeded in becoming one of Indonesia's internet companies with rapid growth. By carrying out the online marketplace and mall business model, Tokopedia allows every individual, small shop, and brand to open and manage an online shop. Since its launch until the end of 2015, Tokopedia's basic services can be used by everyone for free. Tokopedia has a vision to "Build a Better Indonesia Through the Internet", Tokopedia has a program to support Micro, Small, and Medium Enterprises (MSMEs) and individuals to develop their businesses by marketing their products online. The history of Tokopedia's establishment was officially launched to the public on August 17, 2009 under the auspices of PT. Tokopedia which was founded by William Tanuwijaya and Leontinus Alpha Edison on February 6, 2009. Pt. Tokopedia received seed funding from PT. Indonusa Dwitama in 2009. Then in the following years, Tokopedia received

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another injection of funds from global venture capitalists such as East Ventures (2010), Cyber Agent Ventures 28 (2011), Netprice (2012), and Soft Bank Ventures Korea (2013). Then in October 2014, Tokopedia succeeded making history as the first technology company in Southeast Asia, which in received an investment of USD 100 million or around Rp. 1.2 Trillion from Sequoia Capital and SoftBank Internet and Media Inc (SIMI). In April 2016, it was reported that Tokopedia received an investment of USD 147 million or around Rp. 1.9 Trillion. Tokopedia is an internet company that enables every individual and business owner in Indonesia to develop and manage their online business easily and for free while enabling a seamless online shopping experience. Tokopedia is an internet company that enables every individual and business owner in Indonesia to develop and manage their online business easily and for free while enabling a seamless online shopping experience. [4]

In the digital marketing era, the success of implemented strategies is calculated with a clear database and not only based on speculation, and both small and big brands also benefit from this. The benefits of using Big data for business include the following:

1. The customer knows particularly

Implementing big data means that we collect all information from customers who use services or businesses. collection of information as a reference for understanding consumers, so that the products produced by production are appropriate. From the data collected in big data, real facts in the field, not just assumptions, consumer tendencies towards a product, as well as consumer behavior and activities can be considered and taken into consideration. sometimes the results of observations or questionnaires distributed were not 100% answered correctly. But with big data, you will get more valid data from consumer behavior and activities with a faster process.

3.   DATA AND RESEARCH TECHNIQUE ANALYSIS

The type of research used is qualitative research. Primary data in this literature review is a journal that discusses great implementation opportunities and challenges data, selected subjectively by the researcher. Selection of journals based on not only topic suitability but also publications and excerpts from journals and the important ideas rearranged by chosen

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[5] Arifianto and Endah Pratiwi, "Lazada, Shopee atau Tokopedia?"

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that way logical, systematic, and argumentative critical. Furthermore, the description of this research is in nature and tends to use analysis with an inductive approach. Process and meaning (subject perspective) are emphasized in qualitative research. The descriptive data collected is in the form of words, pictures, and not numbers, meaning that the results of the research are carried out as they are or as they really are. Data collection techniques in the form of observation and documentation. Observations were made by direct observation of the problem under study. Observations were made directly on the Tokopedia website by visiting the site, then documenting the site by taking a screenshot to be able to take pictures of the website's appearance. In this research, the researcher explains the display of consumer preferences and behavior for products using Tokopedia e-commerce.

Tableau Software Analysis

In the method of this study, the author carried out the analysis using tableau analysis while the data recapitulation is complete, data processing and analysis are carried out using Tableau software on the website performance of the 20 e-commerce platforms. Analysis using the Tableau software is intended to find the 5 largest e-commerce out of 20 total e-commerce in Indonesia which have been described first. In addition, this analysis is also used to visualize e-commerce order data so that it is easier to understand and interpret. Below is the result of 20 e-commerce analyses using Tableau software.

Visualize e-commerce Analysis

This **visualizes the e-commerce Analysis** method used to visualize e-commerce in order for the data make easier to understand and making interpretation. The Softwares's capability of visualizing the imported data, and the possibilities for the viewer This process is repeated. For example, the data presented with the created charts, By changing the chart type to radar, adding the number of active customers as a second expression, and changing some general visual preferences, the figure on the bottom is generated. to alter these visualizations.

4.   RESULT AND DISCUSSION

The results of the above research on the role of Big data in increasing the effectiveness of digital business strategy at Tokopedia companies are increasing understanding of customer behavior and preferences for Tokopedia, optimizing Tokopedia website performance, and improving social media optimization and digital business strategy so that it has the highest traffic share. The following is a discussion of these results in more detail:

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1.   Analyzing the performance optimization of the Tokopedia website

The performance of the website shows that from the 20 e-commerce platforms, find the 5 largest e-commerce out of 20 total e-commerce. Below is the result of 20 e-commerce analyses using Tableau software.

Businesses are using electronic commerce to implement mass customization strategies, producing large numbers (mass) of customized items, to differentiate their products and services. Existing products can be customized in innovative ways
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Table 1: The biggest Indonesia e-commerce website visitor
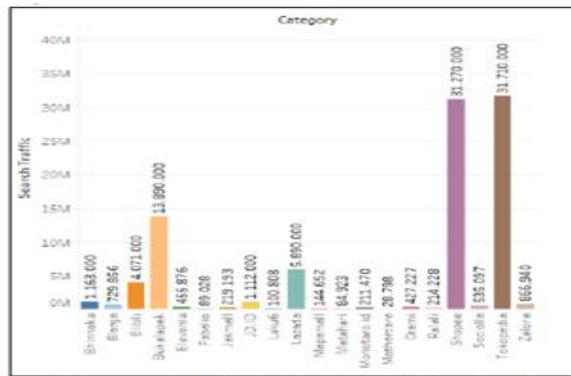*for the year 2020*
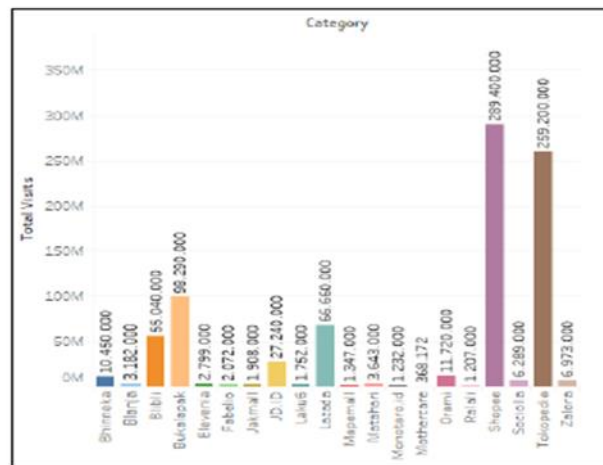
Gambar 1. *E-Commerce terbesar* di Indonesia berdasarkan *website total visitor* periode Juli 2020
Pengolahan Data Pribadi 2020 : *Software Tableau*

Based on e-commerce data processing through the table analytics software application, the five largest e-commerce in Indonesia based on total website visitors, namely Shopee with a total of 289 million visitors, followed by Tokopedia with 259 million, Bukalapak 98 million, Lazada with 66 million, and Blibli 55 million

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Gambar 5. *E-Commerce terbesar* di Indonesia berdasarkan *website search traffic* periode Juli 2020
Pengolahan Data Pribadi 2020 : *Software Tableau*

In the figure you can see the order of the largest e-commerce in Indonesia according to search traffic performance, namely user search traction on the e-commerce website starting from Tokopedia which was in first place with a value of 31.7 million searches, Shopee with 31.2 million searches, Bukalapak with 13.8 million searches, Lazada with 5.8 million searches, and Blibli with 4 million searches.

2. Improve social media optimization and digital business strategy
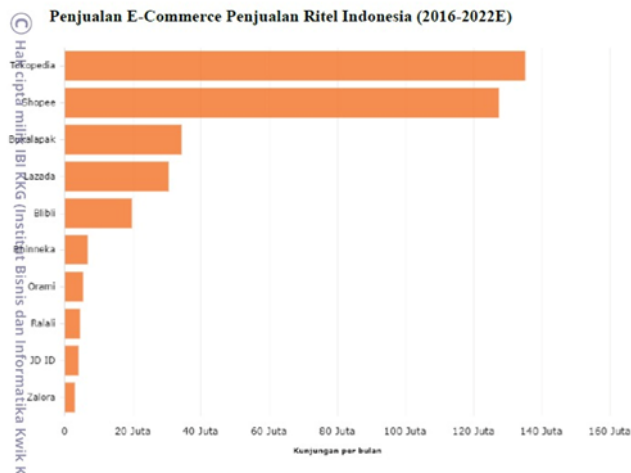
The proliferation of electronic commerce throughout business organizations is having profound effects on business strategies. "The rules of competition are being re-written and redefined as the technological revolution continues, particularly in the area of world-wide commerce.

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Based on data published by Similar web on Cncbindonesia.com (2021) that Tokopedia is an online shopping platform that has the highest traffic share among other online shopping platforms, with the number of visitors reaching 129.1 million per month. According to data from the central statistics agency Databoks (2020), Tokopedia's average monthly web visits in the third quarter of 2020 decreased by 1.3% to 85 million visits. In fact, since the third quarter of 2019, Tokopedia website visits have increased to their peak in the second quarter of 2020 to 86.1 million. This is because the public is curious about the products or facilities available at Tokopedia, which is accompanied by a marketing strategy carried out by Tokopedia that encourages people to visit the website. Tokopedia.

Increase understanding of customer behavior and preferences towards Tokopedia

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Componen	Pernyataan
Statement Components El-store (UK) reviews and complaints	I feel that I have benefited from the el-shop customer reviews on lazada/shopee/tokopedia
Certificate and Security (SK) (SK)	I find it helpful to have el-shop customer reviews on lazada/shopee/Tokopedia
Harga Produk (HP)	Saya merasa harga pada produk pada toko-el di Lazada/Shopee/Tokopedia sudah sesuai dengan kualitas yang ditawarkan.
Situs Web (SW)	Gambar produk yang ditampilkan pada toko-el di Lazada/Shopee/Tokopedia menarik perhatian saya.
Deskripsi Produk (DP)	Informasi mengenai produk yang ditawarkan melalui Lazada/Shopee/Tokopedia sudah cukup akurat dan lengkap.
Metode Pembayaran (MP)	Banyaknya pilihan metode pembayaran di Lazada/Shopee/Tokopedia mempermudah saya melakukan transaksi
Transportation (TR)	Toko-el di Lazada/Shopee/Tokopedia memberikan saya pilihan jasa pengiriman sesuai dengan keinginan saya.
Diskon (DI)	Saya lebih tertarik membeli produk-produk yang ditawarkan dengan potongan harga di Lazada/Shopee/Tokopedia

By grouping positive (SS and S) and negative (TS and STS) respondents' answers according to the table, it can be seen the advantages of each online market and what components exist in the three online markets. Respondents' experience when observing the three marketplaces became their consideration in responding to each statement. Researchers chose their responses as a reflection of what they felt, saw, and did during the transaction.

Tokopedia has advantages in the components of review and complaint (UK), certification and security (SK), product price (HP), product description (DP), and transportation (TR). Sudjatmika (2017) found a positive correlation between price, product reviews, convenience, and security of purchasing decisions on the Tokopedia online marketplace. Nurul et al. (2019) explained that the most important factor in sales through the online marketplace Tokopedia is that reviews are the most important factor compared to the number of visitors, product reputation and gold badges. This means that it supports reviews and complaints on Tokopedia as superior components. Arifuddin and Suwasono (2020) added that there was a marketing stimulus that attracted consumers to buy through the Tokopedia online marketplace.

The product range is complete and practical, low prices, fast delivery with many choices, lots of interesting promos, good seller response with clearly visible

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reviews and photos, and fast processing as expected. This shows that it is natural that Tokopedia's advantages are in the form of product prices, product descriptions, and transportation. Research from Arbaini et al. (2020) also explained that there was an effect of ratings and reviews on purchasing decisions at Tokopedia loka pasar. This shows that certification and security cannot be prohibited, and reviews are an important component of Tokopedia.

Overall, the use of Big Data can help Tokopedia increase the effectiveness of its digital business strategy. By leveraging big data, Tokopedia can understand customers, optimize user experience, improve operational efficiency, and reduce security risks. This can help Tokopedia in maintaining competition in the increasingly competitive e-commerce market in Indonesia and the world.

5. CONCLUSION

The significant potential of e-commerce in the world has a positive impact on the development marketplace industry in Indonesia. This development has made a way of simple and modern life due to the modern techniques, comfortable, and easy. The application of e-commerce in all sectors, including food, cosmetics, tours and travel, and others. There are three strategies in e-commerce *such as* analyzing the performance optimization of the Tokopedia website

This study identifies that This research is structured in a simple way with the aim of making it easy to understand. But with the limited data available, hopefully, it can provide us with a little information about some analysis of the Tokopedia web. The results of the study show that Tokopedia has an advantage over other marketplaces based on the data that has been concluded. And this will certainly help companies maintain competition and expand their customer base in the increasingly competitive Indonesian e-commerce market.

B. Suggestion
Researchers are still far from perfect. Constructive suggestions and criticisms will be things that can continue to be improved and developed from this research

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