Utilization of Big Data in Increasing the Competitiveness of MSMEs

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Abstract: MSMEs play a vital role in the Indonesian economy with a contribution of 61.07% to GDP and absorbing 97.2% of the workforce. In the digital era, MSMEs face intense global competition. To remain competitive, they need to carry out digital innovation to increase efficiency and competitiveness. HR and capital competency are also crucial in determining the quality and competitiveness of MSMEs. Big Data is important in managing large and complex information, helping MSMEs increase global competitiveness. This research highlights the role of Big Data, digital innovation, quality of human resources and capital in increasing the competitiveness of MSMEs. The methods used include literature study and observation. The research results show that Big Data and digital innovation can increase the competitiveness of MSMEs by optimizing cost and differentiation strategies. Good quality human resources improve business capabilities. Adequate capital is significant in the development of MSMEs. This research emphasizes the importance of information technology, Big Data, digital innovation, quality of human resources and capital in increasing the competitiveness of MSMEs in the digital era.

Keywords: Big Data, Competitiveness of MSMEs, Innovation, Quality of Human Resources, Capital.

INTRODUCTION

Micro, Small and Medium Enterprises (MSMEs) play a vital role in the Indonesian economy. MSMEs contribute 61.07% to Gross Domestic Product (GDP) and absorb 97.2% of the total workforce in Indonesia. Ministry of Cooperatives and SMEs (2022) . In the current digital era, MSMEs face increasingly fierce competition from business actors from various countries. To remain competitive, MSMEs need to carry out digital innovation. Digital innovation is the application of digital technology to increase company efficiency, effectiveness and competitiveness. Winarno and Hartanti (2023) . Likewise, the high competency possessed

by human resources in an organization or company will of course determine the quality of the human resources they have and will ultimately determine the competitiveness of the company itself. Likewise in Micro, Small and Medium Enterprises (MSMEs), HR competency also has an important role in the development of MSMEs. According to (Widjadja *et al.* , 2018) and capital is very important in setting up a business. The size of the capital required depends on the size of the business to be established. (Purwanti, 2013)

Big Data is a term given to collections of data that are very large and complex, making it impossible to process them using conventional database management tools or other data processing applications. (Maryanto, 2017) The development of science and technology, especially in Indonesia, has brought many significant changes to the economy, supported by the efforts of the government and related parties. Information technology is a type of technology used to create, store, change and use information in all its forms. By utilizing information technology, micro, small and medium companies can enter the global market. Real examples are small companies such as the Amazon bookstore, the Yahoo portal, and the simple auction company eBay which have become industry giants in a short time thanks to the use of information technology in their business development. (Hartawan, Della Irawan and Ananta, 2021)

So, this journal research will explain the role of Big Data in managing large and complex information that is relevant for business development. with various variables including digital innovation, quality of human resources and capital which influence the competitiveness of SMEs

METHOD

Research in this journal uses several methods namely data collection and analysis carried out by searching literature and observation. In this case, the theoretical basis for the research was obtained through a literature search from books, other journals or other trusted sources. Apart from that, analysis of the data and information used was carried out using the observation method, namely the use of Big Data to increase competitiveness in MSMEs.

RESULTS AND DISCUSSION
Utilization of Big Data

Big Data is a trend that covers a wide area in the world of business and technology. Big Data refers to technologies and initiatives that involve data that is so diverse, rapidly changing, or supersized that it is too difficult for conventional technology, expertise, or infrastructure to handle it effectively. Big Data is not a stand-alone technology, technique or initiative, but rather a trend that encompasses various aspects of business and technology. Big Data refers to technologies and initiatives that deal with data that is highly diverse, rapidly changing, or so large that it is difficult to handle by conventional technology, expertise, or infrastructure. In other words, Big Data has a size (volume), speed (velocity) or variety that is too extreme to be managed with conventional techniques. Big Data involves processes of data creation, storage, information extraction, and analysis that stand out in terms of volume, velocity, and variety (Pujianto, Mulyati and Novaria, 2018). And according to (Santoso *et al.* , 2022) the use of big data is good in the sector. corporate and public where related to business development. If people perceive the usefulness and ease of use positively and feel the benefits and ease of using a technology, interest in using it will arise (Qibtiyana and Ali, 2024)

Increasing the Competitiveness of MSMEs

The presence of micro, small and medium enterprises (MSMEs) is one of the economic forces that has supported state and regional economies (Febriyantoro and Arisandi, 2018) Basically, every company that competes in an industrial environment has the desire to be superior to its competitors. The notion of competitive advantage has two different but related

meanings. The first understanding emphasizes excellence or superiority in terms of resources and expertise owned by the company (Ulfa and Ali)

However, actors in this sector still seem to have problems which result in the competitiveness of MSMEs still being low, so this journal article will develop

According to Riestyaningrum and Aziza , digital innovation can have a positive influence on the competitiveness of MSMEs in Indonesia. Digital innovation can help MSMEs to implement cost leadership and differentiation strategies, so that they can gain a competitive advantage in an industry because the influence of digital innovation can help MSMEs to save operational costs, thereby increasing profitability. For example, MSMEs can use an online accounting system to save on administration costs or use process automation to save on labor costs.

According to Suastini and Dewi (2018) , the quality of human resources can influence the understanding of MSMEs in preparing financial reports. Through education, knowledge and understanding in the field of accounting, a person's quality can be improved in various aspects and research results show that the quality of human resources has a positive effect and significant to the understanding of MSMEs.

According to Gonibala, Masinambow and Maramis (2019), the effect of capital on MSME income is that it has a significant effect in line with the proposed hypothesis and is both positive and negative. This shows that if capital is increased there will be an increase in income, but if capital decreases then will reduce the income aspect. Likewise, research according to (Takhim and Meftahudin, 2018) shows that capital prices have a positive effect on the development of MSMEs.

CONCLUSION

MSMEs play a vital role in the Indonesian economy with a contribution of 61.07% to GDP and absorbing 97.2% of the workforce (KemenkopUKM, 2022). However, in the digital era, they face global competition. To remain competitive, MSMEs need digital innovation to increase efficiency and competitiveness (Winarno and Hartanti, 2023) .

Human resource and capital competencies are also crucial in determining the quality and competitiveness of MSMEs. Big Data is relevant in managing large and complex information for business development, enabling MSMEs to increase global competitiveness (Hartawan, Della Irawan and Ananta, 2021) .

This research highlights the importance of Big Data, digital innovation, quality of human resources and capital in increasing the competitiveness of MSMEs. The use of Big Data can increase interest in the technology if it is considered useful and easy to use.

Digital innovation helps MSMEs implement cost and differentiation strategies, increasing competitiveness (Riestyaningrum and Aziza). Good quality human resources improve business capabilities (Suastini and Dewi, 2018). Adequate capital has a significant effect on the development of MSMEs (Gonibala, Masinambow and Maramis, 2019 ; Takhim and Meftahudin, 2018)

Overall, this research emphasizes the importance of information technology, Big Data, digital innovation, quality of human resources, and capital in increasing the competitiveness of MSMEs in the digital era to further develop their companies.

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DESCRIPTION OF TABLES AND FIGURES

Table

Variables from the use of big data in increasing competitiveness are no longer new because many studies have raised cases in the form of these variables so that there are many studies that confirm this article.

**Table 1.** Results of research on the use of big data in increasing the competitiveness of previous relevant MSMEs

Source: Research data

No	Author (Year)	Previous research results	Similarities to this article	Differences with this article
1.	Riestyaningrum and Aziza	research revolves around the need for MSMEs to adapt to digital innovation and the challenges faced in doing so	Digital innovation can provide various benefits for MSMEs	MSMEs consider technological maturity, resource availability and the business environment to fully realize the potential of digital innovation.
2.	Suastini and Dewi (2018)	This research aims to determine the influence of human resource quality variables and business size on understanding of MSMEs	Analyzing the influence of the quality of human resources on the development of MSMEs	Measures to determine a business's understanding of MSMEs
3.	Gonibala, Masinambow and Maramis, (2019)	find out how much influence the Capital and Production Cost variables have on MSME income	Analyzing capital for MSMEs	Other variables are production costs, capital and production costs
4.	Santoso *et al.*, (2022)	Proposing the coexistence of technology and humans to improve the quality of human life in a sustainable manner. Industry must innovate to drive the economy and encourage social sustainability	Utilizing big data in developing its business	Combining digital media technology with creative cultural expression.
5.	Takhim and Meftahudin (2018)	analyze the relationship between business capital, creativity and competitiveness on the development of MSMEs.	find out how big the influence of business capital is by connecting MSME businesses	find out how much influence business capital, creativity and competitiveness have on the development of MSMEs
6.	Darwanto (2013)	MSMEs as part of the economy must also increase their competitiveness by innovating.	Analyzing innovation in increasing the competitiveness of MSMEs	Analyzing creativity in increasing the competitiveness of MSMEs

Source: Research data

Figures

Based on relevant previous research and discussing the influence of variables, the framework for this article is as follows.
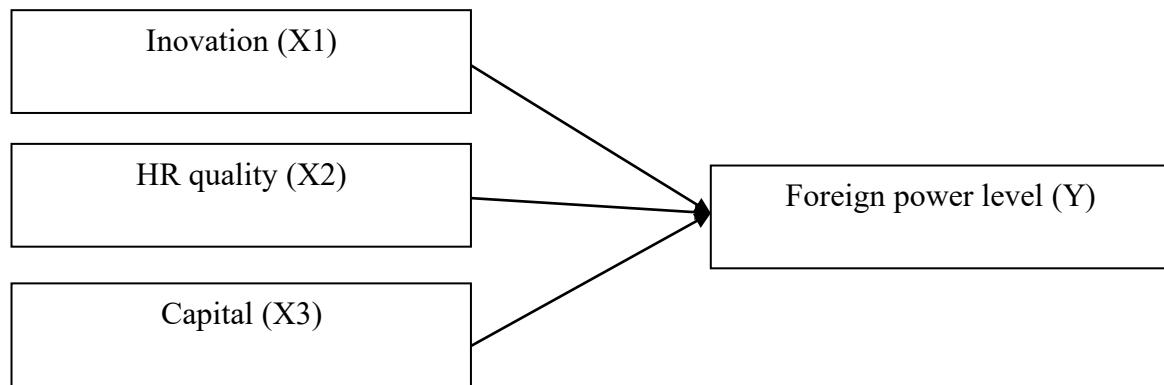
Source: Research Results
Figure 1. Conceptual Framework