



Cybersecurity at Mr. Sukadi's Super Tempe Factory SME in Enhancing Competitiveness in the Modern Era

Yulia Rasita Dewi^{*1}, Najma Nur Fadhilah², Dwi Amalia Rachmah³

¹²³Tidar University

Corresponding Author e-mail: yuliarasita9@gmail.com

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Abstract: *Digital transformation is currently a critical necessity for Micro, Small, and Medium Enterprises (MSMEs) to survive and thrive amid modern technological advancements. This study focuses on Tempe MSMEs as part of the traditional food industry that must adapt to digital developments to enhance competitiveness and maintain cybersecurity. The purpose of this study is to analyze the extent to which the use of digital technology and data protection systems contributes to improving operational efficiency and consumer confidence in tempe products. The approach used is descriptive qualitative with data collection methods through direct observation and interviews with MSME actors involved in the process of digitalization and cybersecurity. The results of this study indicate that most business activities are still carried out manually and do not yet utilize digital systems. The lack of digital literacy and weak data protection are major obstacles that require attention. Therefore, the implementation of digital transformation accompanied by increased awareness of cybersecurity can be an important strategy to strengthen competitiveness and ensure the sustainability of Tempe MSMEs in a technology-based global era.*

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Introduction

Micro, Small, and Medium Enterprises (MSMEs), including Bapak Sukadi's Super Tempe Factory, must adopt digital transformation to increase their competitiveness in the modern technological era. MSMEs can expand their market reach and optimize operational efficiency by implementing digital innovations such as electronic-based recording systems using the Accurate application, utilizing e-commerce platforms, and digital marketing strategies. Digitalization reduces production costs and enables more innovative collaboration

and product development. Therefore, the implementation of digital technology needs to be planned strategically and involve adequate training for MSME players so that they can effectively and comprehensively integrate technology into all their business activities. (Digital, 2022)

Although it provides many opportunities, digital transformation also carries security risks that need to be taken seriously. Cyber security is very important to protect MSMEs from potential threats such as data theft, online fraud, and malware attacks that can cause huge losses. Therefore, recommended strategic actions include implementing a robust digital security system that encompasses the use of antivirus software, firewalls, data encryption, and two-factor authentication (2FA) on the Accurate platform (Aska et al., 2024). In addition, to make MSME players more vigilant and prepared to face cyber threats, the implementation of cyber awareness education and training programs also needs to be integrated into the digital transformation agenda. (Management, 2025)

Based on the latest report from the National Cyber and Crypto Agency (BSSN), there was a significant increase in the number of cyber attacks in Indonesia in 2023, with more than 900 million attacks detected within a year. These threats took various forms, such as phishing, malware, and Distributed Denial of Service (DDoS) (Safitra & Lubis, 2023). This data indicates that Indonesia still faces major challenges in protecting important data and information systems from potential disruption and damage caused by cyber attacks.

Cybersecurity builds consumer trust in MSMEs, especially at Pabrik Tempe Super Bapak Sukadi, in addition to protecting business and customer data. A robust digital security system enables businesses to maintain a positive reputation and enhance competitiveness in an increasingly competitive digital market. To keep data secure and perform regular data backups, security technologies such as Virtual Private Networks (VPNs) should be incorporated into SME operational strategies (Management, 2025). Therefore, digital transformation can be carried out sustainably, effectively, and safely from cyber threats.

Research Method

The method used in this study is a qualitative descriptive method. This method is a research approach that aims to understand and describe a social phenomenon in depth based on real conditions in the field, without manipulating the variables being studied. Qualitative descriptive research focuses on exploring the meaning behind the behavior, experiences, and views of individuals or groups in a particular context (Wekke, 2020). This study uses primary data obtained through field observations and direct interviews at the Super Tempe Factory SME owned by Mr. Sukadi, located in the city of Magelang, with the research subjects being the SME owner. In this method, the researcher plays an active role as the main instrument that interacts directly with the research subjects. The data analysis technique used is the Miles and Huberman interactive qualitative analysis method. The Miles and Huberman qualitative data analysis model is a systematic approach used to process, understand, and interpret research data in depth. This model emphasizes that data analysis takes place interactively and continuously, starting from the data collection process to the conclusion stage (Sakiah et al., 2021). In this



model, there are three main stages, namely data reduction, data presentation, and conclusion drawing.

Results and Discussion

A. Overview of Mr. Sukadi's Super Tempe Factory MSME

Based on the interview results, it appears that Tempe MSMEs have not implemented a digital transformation system, as order and financial records are still kept manually.

Mr. Sukadi's Super Tempe Factory is a micro-business in the traditional food sector that focuses on the production of tempeh as its main product. This business has been operating since 2005 and is located in the city of Magelang. The products produced include soybean tempeh in various sizes and shapes, such as square tempeh and long tempeh, which are tailored to the needs of consumers, whether for households, traditional markets, or food stalls.

The production process at this factory still uses manual and traditional methods, from the soaking, boiling, yeast mixing, fermentation, to packaging stages. Each stage is carried out simply under the direct supervision of the owner to maintain the taste and texture of the tempeh.

In operational activities, the use of technology is still very limited. All order, financial, and raw material stock records are still kept in conventional notebooks. To date, there has been no implementation of digital systems such as accounting applications or production management software. Therefore, it is recommended that Tempe Super MSMEs utilize applications such as Accurate or similar digital platforms to assist in financial recording, improve production efficiency, and improve business management systems. With this step towards digital transformation, it is hoped that business productivity will increase, but owners also need to pay attention to cybersecurity aspects to protect business data from potential leaks or misuse.

B. The State of Digital Transformation at Tempe Super Factory MSME Mr. Sukadi

Based on the results of observations and interviews conducted, the level of digital transformation implementation at Mr. Sukadi's Tempe Super Factory SME is still in its early stages. In fact, due to the demands for efficiency and increased competitiveness in the technological era, business owners are beginning to realize the importance of digitalization. However, their understanding of how digital technology can be used in business processes is still limited. Most operational activities are still carried out manually, such as financial recording, raw material stock management, and customer order processing.

Limited human resources and a lack of knowledge about the long-term benefits of using digital systems are the main obstacles in the digitization process. These factors mean that financial reporting and administration are still carried out manually. As a result, there is an increased risk of recording errors and business decision-making errors.

The impact of not implementing a digital system is evident in terms of productivity and competitiveness. Mr. Sukadi's Super Tempe Factory MSME faces difficulties in adapting to the



ever-changing market, especially in meeting the needs of customers who want fast service. Surpluses or shortages of raw materials are often the result of incorrect stock monitoring. On the other hand, financial records that are not made in real time make it difficult to assess business performance objectively. Ultimately, this reduces the ability of MSMEs to compete with other businesses that have already implemented digital systems.

The researchers recommend using Accurate, an accounting software that can automate financial reporting, order management, and transaction recording to improve the efficiency and accuracy of data management. By implementing this system, the authors hope to help Bapak Sukadi's Super Tempe Factory SME improve operational efficiency, accelerate decision-making, and strengthen its competitiveness in an increasingly competitive digital market. Additionally, it is recommended that MSMEs receive technical assistance and training in software use to maximize the utilization of digital technology across all aspects of their business.

C. Cybersecurity Risks in the Implementation of Digital Transformation at Bapak Sukadi's Super Tempe Factory MSME

The interview results show that Bapak Sukadi's Super Tempe Factory SME is still unaware of cybersecurity and the importance of data protection, even though digital technology is increasingly being used in their business. Threats such as customer data theft, account hacking, malware distribution, and phishing practices are becoming greater as business processes shift to digital systems. These threats not only disrupt business operations, but also have the potential to cause financial losses and reduce consumer confidence.

Digitalization without a strong security system allows irresponsible parties to exploit sensitive data such as financial records, transaction details, and customer information. Therefore, planned and systematic cybersecurity must always accompany digital transformation.

Although digital transformation has many benefits, such as increased efficiency, accuracy, and market expansion, cybersecurity risks also increase. If digitization is not properly understood, it can actually lead to data theft and operational disruptions. MSME owners must understand cybersecurity principles, such as using strong passwords, installing antivirus software, and backing up data to prevent the loss of important data.

D. Efforts to Improve Cybersecurity at Bapak Sukadi's Super Tempe Factory SME

Almost all activities in the modern era are digital. In response to this situation, Bapak Sukadi's Super Tempe Factory SME needs to start paying attention to cybersecurity so that business activities can continue to run smoothly and safely. Currently, this SME still uses a manual system to record orders and finances, so it is relatively safe from cyber threats. However, if the SME later switches to a digital system using Accurate to record and report finances, the risk of cybersecurity will certainly increase.

Various methods can be used to prevent threats, such as account hacking, data theft, or recording errors. MSME owners need to take the right steps. Use official and licensed software such as Accurate to avoid viruses. Owners must create strong passwords and change them regularly every month. In addition, back up data periodically.



Training on cybersecurity is necessary to improve the understanding of MSME owners and employees regarding digital security. Thus, owners and employees can distinguish suspicious emails or messages, such as phishing. These efforts not only protect MSME data and systems but also increase customer trust. Good cybersecurity will be the foundation for improving the competitiveness of Bapak Sukadi's Super Tempe Factory MSME in this digital era.

E. Cybersecurity as a Competitive Factor for Bapak Sukadi's Super Tempe Factory in the Modern Era

Cybersecurity is an important factor in increasing the competitiveness of Bapak Sukadi's Super Tempe Factory SME. The planned transformation of this tempe factory is to use Accurate so that data management is more organized and work efficiency is improved. These benefits can be felt if the digital system used is secure and trusted.

Cybersecurity plays a major role in building customer trust. If cybersecurity is not taken into account, it can trigger hacking and data leaks that damage the reputation of MSMEs and can also cause financial losses. Thus, strong digital security is one of the strategies for increasing business competitiveness. The implementation of cybersecurity also shows that Bapak Sukadi's Super Tempe Factory MSME is truly ready to face the developments of the modern era. MSMEs that can implement technology well and maintain its security will find it easy to compete in the market. Therefore, cybersecurity for Bapak Sukadi's Super Tempe Factory MSME is not only a protection from digital threats, but also a strategy to increase competitiveness and strengthen the business's position in the market competition.

Conclusion and Recommendations

Based on the results of the research conducted on Bapak Sukadi's Super Tempe Factory MSME, it can be concluded that the level of digital transformation implementation is still relatively low. All operational processes, from order recording, finance, to raw material management, are still carried out manually using notebooks. This results in a lack of efficiency, an increased risk of recording errors, and delays in business decision-making.

The implementation of digital systems such as the Accurate application is recommended as a solution to help with real-time and integrated data management. With the use of digital technology, MSMEs are expected to increase productivity, efficiency, and expand their market reach. However, this digital transformation also poses new risks, namely cyber security threats such as data theft and account theft.

Therefore, awareness and understanding of cybersecurity are very important, and MSME owners need to implement preventive measures such as using official software, using passwords, backing up data regularly, and participating in digital security training. By implementing digital transformation alongside robust cybersecurity systems, the Super Tempe Factory SME owned by Mr. Sukadi can strengthen its competitiveness, customer trust, and business sustainability amid the challenges of the modern technology-driven era.



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