Utilization of Big Data for SWOT Analysis in Improving Business Sustainability of MSMEs

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	SWOT analysis has become an essential method in assessing company risks, particularly in coffee shop micro, small, and medium enterprises (MSMEs), in the current digital age. This study facilitates the identification of current strengths, weaknesses, opportunities, and threats, hence empowering MSMEs to effectively address potential risks through suitable strategies. This study employs qualitative methodologies in conjunction with the utilisation of big data to get more profound understandings of company operations and market trends that impact micro, small, and medium enterprises (MSMEs). By conducting interviews and directly observing the owners and management of UMKM Cava Brew, as well as analysing large data such as online customer reviews, consumer behaviour, and transactional data. The SWOT analysis, enhanced with big data, has led to the recommendation of adaptive tactics for Cava Brew. The ideas entail including sitting amenities and expanding the range of payment options, including the integration of digital payment systems like digital wallets and QRIS, to attract a broader customer base. These measures are anticipated to enhance customer happiness and bolster Cava Brew Kopi's competitive standing in the coffee shop MSME industry.

1. Introduction

Business development in various fields is one part of efforts to improve the economy at the level of society. Many MSMEs (Micro, Small and Medium Enterprises) operating in the culinary sector have run their businesses either through direct sales or using online sales (Setrojoyo, Sutrisno, et al., 2023; Sudarmo, 2021). This matter is also strongly supported by changes in transaction trends in society, which have been supported by the internet so that it has changed transaction patterns for many buying and selling companies to digital transactions (Muzdalifah et al., 2020; Sudipa et al., 2020).

Behind the times and technological developments, there are many coffee shop businesses in the Bandung area. Coffee shops are loved by the millennial generation because they can be a gathering place for young people while enjoying a meal. The coffee shop business is one of the businesses that has an attraction for the younger generation segment, but because there are so many coffee shops, of course it cannot necessarily be a reference that running this business can always increase sales and expand market share. Of course, all coffee shop businesses have their own advantages and disadvantages which can trigger the risk of problems.

In the current digital era, Micro, Small and Medium Enterprises (MSMEs) face increasingly fierce competition, especially in the rapidly growing coffee shop sector. The use of information technology, especially big data analysis, is key in identifying opportunities and threats in a dynamic business environment. An effective SWOT (Strengths, Weaknesses, Opportunities, Threats) analysis allows MSMEs to formulate robust and adaptive strategies. However, the use of big data in SWOT analysis has not been widely utilized by coffee shop MSMEs, which are often hampered by limited access to technology and analytical expertise. Technological advances and changes in consumer behavior require MSMEs to be faster and more precise in making strategic decisions (Meinarni et al., 2021; Permana, 2023; Sudipa et al., 2023; Urva et al., 2023). Neglecting the use of big data can cause MSME coffee shops to miss important opportunities and be unable to face rapidly emerging threats. By using big data for SWOT analysis, coffee shop MSMEs can not only improve the effectiveness of their strategies (Arta et al., 2024), but also strengthen their competitiveness in a volatile market.

Understanding risk management in marketing is crucial for MSMEs as it greatly impacts their ability to develop effective marketing strategies that focus on service quality, product diversification, and boosting sales turnover (Ali et al., 2023; Handayani & Mahendrawathi, 2019; Marhaeni et al., 2023). Marketing management is a managerial role that aims to understand and serve the genuine needs of consumers. When developing a marketing plan, it is possible to do risk management analysis for MSME enterprises to understand consumer needs. Undoubtedly, the administration of MSMEs possesses inherent benefits and drawbacks that can potentially give rise to problematic situations (Chotimah et al., 2019; Oktaria & Yusda, 2020). Implementing risk management is crucial for MSMEs since it enables them to be prepared for unpredictable circumstances, such as a decrease in sales demand. Hence, it is imperative to assess the potential hazards that MSME enterprises will encounter, particularly by employing the SWOT analysis approach including Strengths, Weaknesses, Opportunities, and Threats. The utilisation of SWOT analysis is quite advantageous in investigating the challenges and vulnerabilities that a firm is likely to encounter.

This research aims to explore the use of big data in carrying out a more in-depth SWOT analysis for coffee shop MSMEs. By leveraging big data, coffee shops can gain greater insight into market trends, consumer preferences and competitive dynamics. This also includes tracking real-time customer feedback and monitoring competitor activity through abundant online data. Therefore, the integration of big data in business strategy is vital for optimizing decisions that will improve business sustainability.

2. Literature Review

To enhance the business sustainability of Coffee Shop Micro, Small, and Medium Enterprises (MSMEs), utilizing Big Data for SWOT analysis is a valuable strategy. SWOT analysis is crucial for designing marketing development strategies that improve production efficiency and marketing effectiveness in MSMEs (Candrasari et al., 2022; Suwarni & Handayani, 2021). Effective strategies, such as SWOT analysis, are important for sustainable coffee shop business management (Jang & Lee, 2019). Additionally, green innovation and green-market-orientation strategies play a significant role in enhancing the business performance of MSMEs, particularly in the context of environmental awareness (Tjahjadi et al., 2020). In the coffee industry, managerial approaches to food waste mitigation in coffee shops are gaining interest, indicating a growing focus on sustainability practices within the sector (Filimonau et al., 2019). Sustainability considerations in the coffee shop industry extend beyond ethical coffee production to address how businesses are adapting to increased consumption and its consequences (Ferreira, 2018; Setrojoyo, Rony, et al., 2023). Moreover, conducting SWOT analyses to formulate survival strategies for MSMEs during challenging times like the COVID-19 pandemic is crucial (Mariani et al., 2022; Putri & Novitaningtyas, 2021; Wijaya et al., 2022). E-commerce and digital marketing play a key role in increasing sales and sustaining MSME businesses, especially during crises (Hidayat & Arifin, 2021; Indriyani et al., 2023). Leveraging Big Data for SWOT analysis, integrating green innovation, and adapting to changing consumer behaviors through digital transformation are essential steps for Coffee Shop MSMEs to enhance their business sustainability in a competitive market landscape. To analyze SWOT in the context of Big Data, there are several suitable data analysis methods. One effective method is Clustering. Clustering is a machine learning technique used to group data sets so that data in one group (or cluster) is more similar to each other compared to data in other groups. This is very useful in identifying patterns and trends from predefined analysis.

Risk Management

Risk refers to the potential danger, outcome, or effect that may arise from an ongoing or future process. Risk can be defined as a state of uncertainty, in which the occurrence of an unpleasant circumstance can result in a loss. Business operations inherently entail various risks (Tao et al., 2021). Risk management has a significant impact on corporate activity. If the business is effectively managed, the operations conducted within the firm will encounter minimal hindrances due to the dangers it encounters (Suryaningrat et al., 2021). The purpose of risk management is to identify risks on a project and utilise management abilities to mitigate or prevent them, while also making efforts to maximise existing opportunities (Siswanti et al., 2020). The objective of risk management is to minimise events that may adversely effect financial gains or losses, while increasing events that have a favourable impact, and decreasing events that have an unfavourable impact on work.

SWOT Analysis

SWOT is an abbreviation of the internal strengths and weaknesses of a company or institution, as well as opportunities and threats in the environment faced by the company (Benzaghta et al., 2021; Teoli et al., 2019). SWOT analysis is a systematic way to identify these factors and strategies that best describe the match between the objects under study. This analysis is based on the assumption that an effective strategy will maximize strengths and opportunities and minimize weaknesses and threats. When applied accurately, this simple assumption has a profound impact on the design of a successful strategy. SWOT analysis is a systematic form of analysis used by company or organization management and can assist in efforts to prepare a mature plan to achieve the goals of a company or organization (Benzaghta et al., 2021; Teoli et al., 2019). Both long-term goals and short-term goals.

A. Strength

Strength can be defined as a circumstance or state that serves as an indicator of the present fortitude of an organisation or business. Each organisation or business utilising this analysis must first evaluate its own strengths and weaknesses before comparing them to those of its competitors.

B. Weaknesses

Weaknesses refer to the specific situations or conditions that indicate the existing vulnerabilities or shortcomings of an organisation or firm. Weaknesses refer to the identification and examination of deficiencies inside an organisation or firm. These weaknesses can pose significant barriers to the advancement and development of the company or organisation.

C. Opportunities

Opportunities refer to external situations or conditions that have the potential to benefit an organisation or firm in the future. Opportunities analysis is a method used to identify and exploit favourable circumstances or significant advancements that facilitate the growth of a company or organisation. Both currently and in the upcoming times.

D. Threats

Threats are circumstances that pose a risk to the operations of a firm or organisation. Threats refer to the process of assessing the difficulties or risks that a firm or organisation encounters when dealing with different adverse environmental variables. This menace has the potential to precipitate the downfall of a corporation or organisation. If not promptly resolved, this menace will impede the operation of a business.

3. Research Methods

This research will use a qualitative quantitative approach to deepen understanding of how Cava Brew coffee shop MSMEs utilize big data in their SWOT analysis (Ibrahim et al., 2023). Qualitative methods were chosen because of their ability to explore the richer context and nuances of the daily operations and strategic decision making carried out by coffee shop owners and managers. In this context, the research will focus on data collection techniques involving interviews with owners and key management staff at Cava Brew to understand their perceptions, experiences

and challenges in implementing big data in their strategy. The interview questions will be designed to reveal how big data has helped in identifying strengths, weaknesses, opportunities and threats. Observe daily operations and use of information technology systems at Cava Brew. This observation aims to see the practical application of big data in daily activities, including how staff process and analyze data from various sources. Observe daily operations and use of information technology systems at "Cava Brew". This observation aims to see the practical application of big data in daily activities, including how staff process and analyze data from various sources.

For conducting a SWOT analysis within the framework of Big Data, a variety of appropriate data analysis methods are available. A method that has proven to be effective is clustering. Clustering is a machine learning methodology employed to categorise data sets into groups, wherein the similarity between elements in one group (or cluster) is greater than that of elements in other groups. This is extremely helpful for identifying trends and patterns in the sustainability of business operations for Immami coffee shop MSMEs.
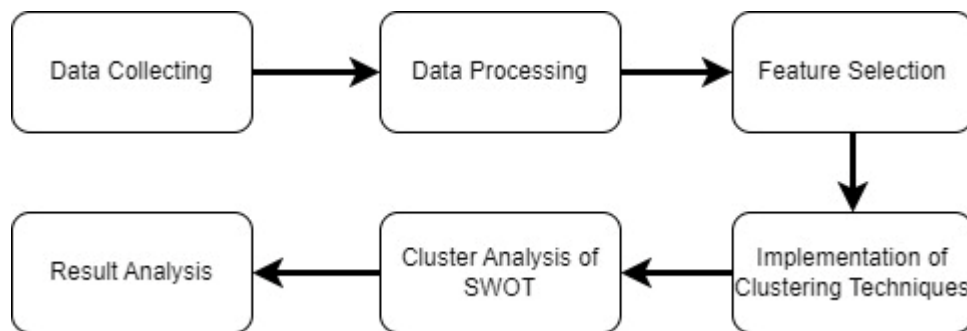

Fig. 1. Flow of Big Data Utilization for SWOT Analysis

Based on Figure 1, it can be explained that the initial stage that can be done is to collect data from Immami Coffee Shop, namely sales transaction data, customer feedback and operational data. then perform data cleaning and data normalization. At the feature selection stage, it is determined that the features that will be the parameters of SWOT analysis such as Customer Satisfaction, Operational Efficiency and Profitability, which will then be applied to the appropriate clustering technique, namely using K-means Clustering in determining the optimal number of clusters with the Elbow Method, clustering data based on the selected features. The next stage is cluster analysis for SWOT by clustering Strengths, Weaknesses, Opportunities and Threats factors. In the final stage there is an analysis of the results both by interpretation and visualization.

4. Results and Discussions

In analyzing business risks in coffee shop MSME businesses, data is collected regarding research locations, business transaction processes, as well as facilities from research sites and others. The goal is to find out the factorsstrengths and weaknesses, as well as opportunities and threats in the environment faced by MSME coffee shop businesses(Sutrisno, 2018). There is a SWOT analysis of the Imami coffee shop MSME business, as follows:

1. Analysis from the Strength side

From the research results, the Imami coffee shop MSME business has many advantages that are useful for developing the company to become better, here are some of the advantages it has, namely:

   a. The variety of product variants available in MSMEs creates many choices for consumers in choosing products and making transactions.

   b. Affordable prices make these MSMEs have great value in terms of price, so consumers can compare prices and choose the price that best suits their budget.

   c. The excellent service from the waiters makes consumers satisfied with the kopitiam service.

   d. Indoor and outdoor places, complete toilet facilities and very clean, this makes customers feel comfortable when they are in the coffee shop.

2. Analysis of Weaknesses

There are several weaknesses of the coffee shop MSME business, including:

a. Payment transactions still use direct payments or cash.
b. There is a lack of seating for customers, so often when it is busy some customers choose to stand in the coffee shop area.
c. Not yet fluent in implementing online payment transactions,
d. It is felt that the use of the internet to increase the number of consumers and marketing targets has not been optimal.

3. Analysis from the Opportunities side

The existence of the Imami coffee shop MSME business certainly still has a great opportunity to increase sales, because one of the biggest opportunities is because the customer segmentation of this business already has regular customers, so this business does not have problems related to business income. However, there are several opportunities related to digital transactions and marketing that can be implemented by MSME coffee shop businesses if seen from the weakness factors, namely:

a. Transformation of Digital Payment Mechanisms. Changes in transaction payment procedures are also very important in smooth transactions, so payments should use online transactions.
b. Utilizing the internet as a marketing medium to support business operations, internet facilities are not only useful as consumer facilities but also in supporting business operational processes.
c. Expanding market segmentation to the millennial generation with an urban lifestyle, nowadays consumers prioritize practicality where everything is instant.

4. Analysis from the threat side (threats)

Even though there are no obstacles from a financial perspective, threat factors both internal and external to the business must also be considered, there are several things, namely:

a. The transition from the pandemic to the new normal meant that customers decreased but not too drastically.
b. There are many competitors for the coffee shop business, with product variant types that tend to be the same.
c. Each consumer's tastes are different so sometimes they don't become regular customers.
d. Unable to reach the increasingly large target market in introducing new products
e. Consumers prefer payments such as using Q-ris, digital wallets and other online transactions.

Strategy Recommendations for MSMEs

Based on the risk identification analysis using SWOT, strategy recommendations can then be given to MSMEs related to the results of the SWOT analysiscan be used in the continuity of MSME operations so that they can continue to survive and increase their business sales. Strategies that can be implemented by MSMEs include:

a. Adding seating facilities for visitors, so that you can maximize the business location area, and can prevent potential new customers from moving to other locations.
b. Improved product quality, both in terms of taste and product variety
c. HR support from business managers so they can utilize technology and the internet in operations. Changes to the payment mechanism which still uses direct payments.

5. Conclusion

The research findings indicate that the Cava Brew coffee MSME business faces certain risk factors, as determined by the business risk analysis. The opportunities and strengths of the Cava Brew MSME business may serve as a guide for MSMEs seeking to comprehend risk management in MSME operations and ensure their continued viability; specifically, the business maintains a stable income stream and maintains a consistent customer segmentation. This study demonstrates how the incorporation of big data into SWOT analysis can enhance the process of identifying risks and developing strategies for micro, small, and medium-sized enterprises (MSMEs) in the coffee shop industry, thereby creating new prospects and reducing potential threats. The risk assessment identifies the following as treatment factors: the continued use of direct payments in the payment process; the absence of digital marketing implementation in marketing media; and the provision of additional seats for customers. On the basis of the results of the business risk analysis, a recommendation can be made for the strategic development of MSME enterprises: the provision of consumer amenities, including

seating and alternative online payment methods (e.g., digital wallets and QRIS). In addition, suggestions for managers on how to optimise the internet as a marketing channel in order to increase consumer segmentation and business growth. The suggested research direction is to investigate marketing strategies that are appropriate for MSME enterprises.

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