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Samosir Arabica Coffee Business Expansion Strategy to the International Market by Era Digital

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Abstract

This study aims to analyze the strategy of Samosir Arabica Coffee's business expansion to the international market through the use of digitalization as the main driver. Samosir Arabica coffee has superior potential thanks to its unique flavor character and the support of ideal geographical conditions, but it still faces constraints on productivity, market access, and conventional marketing. Through a qualitative descriptive approach, data was obtained from interviews, observations, and documentation of coffee business actors, cooperatives, and government institutions. The results of the study show that the adoption of digital technology plays a significant role in expanding market reach and increasing global competitiveness. The use of social media and e-commerce platforms is an effective strategy in promotion and sales, while institutional strengthening, quality certification, and local identity-based branding have also strengthened Samosir's position in the global market. Government support in digital training and export facilitation is accelerating this transformation. Theoretically, this study combines the Uppsala Model and the TOE (Technology Organization Environment) framework to explain the gradual and continuous process of internationalization. Thus, digitalization is the main key to the success of Samosir Arabica Coffee penetrating the international market and improving the welfare of farmers.

Keywords: *Samosir Arabica Coffee, digitalization, business expansion, international market, marketing strategy.*

1. INTRODUCTION

Samosir Arabica Coffee is one of the leading commodities from Samosir Island, North Sumatra, which grows in the highlands around Lake Toba. The fertile volcanic soil conditions and cool climate make this coffee have a distinctive floral flavor character with a soft acidity so that it is in great demand by domestic and foreign consumers.

Even though it has premium quality, the welfare of coffee farmers in Samosir is still relatively low. Based on research in Samosir Regency, the average income of Arabica coffee farmers is only around Rp 14.8 million to Rp 19.2 million per year, with production costs reaching Rp 5.7 million per year, so the net profit received by farmers is still limited. In addition, coffee productivity in the Lake Toba area is also not optimal. Based on data from the Central Statistics Agency and agribusiness studies, the average productivity of Arabica coffee in North Sumatra is only around 0.85 tons per hectare, below its ideal potential of more than 1 ton per hectare. This low productivity is caused by factors such as traditional cultivation techniques, limited access to superior fertilizers and seeds, and lack of post-harvest technology assistance.

In terms of marketing, the coffee distribution chain is still long. Most farmers sell raw coffee beans (green beans) to local collectors at low prices, while the biggest added value is obtained by wholesalers and exporters. This condition causes farmers not to enjoy a proportional profit from the selling value of the final product in the export market. Therefore, even though Samosir Arabica Coffee has great potential in the international market, various challenges in terms of production, cost efficiency, and digital market access still need to be addressed so that this coffee is truly able to compete globally and improve the welfare of farmers in its producing areas.

Research (Deras et al., 2025) provides an interesting empirical picture of the condition of Arabica coffee farming in Paraduan Village, where the farming has proven to be quite profitable with an income to cost ratio (R/C ratio) of 2.56, which means that every Rp 1 of capital is able to generate Rp 2.56 in income. These findings show that in terms of production, Arabica coffee

has strong economic potential and can be a significant source of income for local communities. However, the study also emphasizes that despite the high profitability of production, the success of market expansion does not only depend on production capabilities, but is also influenced by business management factors and marketing strategies. In the context of today's digital era, the ability of farmers and businesses to leverage digital technology, build market networks, and manage supply chains efficiently is a crucial aspect that determines the extent to which local coffee can penetrate international markets. Thus, this study shows that the main challenge is not only on production, but also on adapting to the dynamics of the global market that is increasingly driven by digitalization.

In this study, the theoretical approaches used include the Uppsala Model, TOE (Technology-Organization-Environment) Theory, and Global Value Chain. The Uppsala model explains that the business internationalization process is usually carried out in stages, starting from local sales, then small exports, until finally entering the global market after business actors have enough experience and information. Research by (Ulfa Maghfiroh & Bidin, 2024) applied this theory to coffee MSMEs in Pasuruan, Indonesia, and found that the internationalization process can be explained through the Uppsala Model, which helps coffee MSMEs in Pasuruan improve their business activities in the international market. TOE theory helps understand how technology readiness, organizational support, and environmental factors affect digital adoption in the coffee business. Meanwhile, Research by (Nguyen et al., 2022) shows that the factors in the TOE framework influence e-commerce adoption and business performance in Vietnam, which is relevant for understanding digital adoption in the coffee business in Indonesia.In addition, the Global Value Chain theory emphasizes the importance of digital branding, certification, and innovation strategies so that local products such as Arabica coffee can get higher added value. Study by (Byrd et al., 2025) identifies that innovations such as blockchain-based tracking, IoT sensors to monitor farm conditions, and digital certification platforms are overhauling governance and increasing transparency in the coffee supply chain.

Previous studies have generally focused only on Production and profitability aspects Arabica coffee at the farmer level. For example, research (Deras et al., 2025) highlighted that Arabica coffee farming in Paraduan Village is quite profitable with an R/C ratio of 2.56, meaning that this business is economically efficient. However, the study has not addressed how Local coffee products can be developed and marketed globally**,** Especially by utilizing digital technology which is now the main key in international trade. Likewise with other studies such as(Ulfa Maghfiroh & Bidin, 2024) and (Nguyen et al., 2022), which emphasizes the theory of internationalization and technology adoption in general, without looking specifically at how digital strategies can be applied in the context of Arabica coffee typical of regions such as Samosir.

This is where the novelty of my research lies. This research focuses on the strategy of expanding Samosir's Arabica coffee business to the international market with a digitalization approach**,** namely how technology can be used to strengthen the position of local coffee in the global market ranging from digital branding, e-commerce, online certification, to technology-based supply chain integration. So, this study not only looks at the economic and production sides, but also highlights how digitalization can be a bridge between local potential and global opportunities**.** Thus, this research presents a new perspective that is more relevant to the times, where digital transformation is an important factor in building the competitiveness of Arabica Samosir coffee internationally.

2. REVIEW OF LITERATURE

After the researcher conducted a review of several previous studies, a number of studies were found that were closely related to the research topic entitled *"Samosir Arabica Coffee Business Expansion Strategy to the International Market in the Digital Era."*

a. The first relevant research was conducted by (Maspul, 2023) Titled *"Digital Innovation in the Specialty Coffee Market: Revolutionizing Business and Competitive Advantage."* Research published in *EKOMA Journal of Economics, Management, and Accounting* It aims to examine how digital innovations such as *blockchain*, *data analytics*and *Remote Sensing* can change the business model of specialty coffee and increase global competitiveness. The results show that digitalization in the coffee industry is able to strengthen supply chain efficiency, increase customer engagement, and create a competitive advantage for coffee producers.
b. Further research was conducted by (Vahabzada & Andersone, 2024). By title *"Assessment of the Impact of Digital Marketing Strategies on Consumer Behaviour of Specialized Coffee Shops."* The study was published in *Proceedings of the 28th World Multi-Conference on Systemics, Cybernetics and Informatics (WMSCI)* and using quantitative methods with tests *Chi-square* and *T-test* to measure the influence of digital marketing strategies on consumer behavior in Latvia and Azerbaijan. The results of the study show that social media activities, customer reviews, and digital content have a significant effect on the purchase decision of specialty coffee.
c. Research conducted by (Achmad et al., 2024) Titled *"Analysis of Coffee Shop Digital Marketing Strategy through Social Media to Increase Product Sales"* and published in *International Journal of Education, Social Studies, and Management (IJESSM)* using quantitative methods with the *path analysis* to 30 coffee shops in Medan City. The results of the study show that digital marketing strategies through social media have a positive and significant effect on increasing sales of coffee products, so that social media has proven to be effective as a means of promoting coffee businesses in the digital era.
d. Subsequent research by**.** (Sia et al., 2025). Titled *"Sustainability Assessment of the Arabica Coffee Agribusiness in North Toraja"* published in the journal *Sustainability (MDPI)* Using the *Multidimensional Scaling (MDS)* to assess the sustainability of Arabica coffee agribusiness. The results of the study showed a sustainability index of 73.78 with technology and infrastructure aspects being the weakest factors. The recommendations of this study are the need to improve rural infrastructure, technology training, and institutional strengthening to increase the competitiveness of Arabica coffee exports.
e. Furthermore, research by (Irmayani et al., 2025). Titled *"Strategy for Strengthening Arabica Coffee Agribusiness Institutions through an Interpretative Structural Modelling Approach in South Sulawesi, Indonesia"* published in *Agrisep Journal* Using the *Interpretative Structural Modeling (ISM)*. This research shows that strengthening farmer institutions and coordination between institutions has a strategic role in increasing productivity and market access for Arabica coffee, especially in facing the challenges of globalization and trade digitalization.
f. Then research by (Irjayanti et al., 2025) deep *Journal of Innovation and Entrepreneurship* with title *"Transformative Innovations Igniting Coffee Supply Chain Process Efficiency"* using quantitative descriptive methods to analyze the efficiency of the coffee supply chain in Indonesia. The results of the study show that the application of process innovation, efficient production layout, and the use of technology can increase productivity and prepare coffee business actors to compete in the export market.
g. Research by (Ginting et al., 2024) deep *Jurnal Agrica* researching the development strategy of Arabica coffee farming in Ronggur Nihuta District, Samosir Regency. Use SWOT analysis through interviews and *Focus Group Discussion* With 30 farmers, this study identified the main strengths in the form of land availability, superior seeds, and infrastructure support. Significant external opportunities include high market demand and ideal geographical conditions. The suggested strategies are optimal land utilization,

increased cultivation knowledge, and the use of technology to increase production. This result is an important basis for the expansion of Samosir coffee, as it strengthens production capacity and quality of raw materials before heading to the international market.

h. Research (Harahap et al., 2023) deep *International Journal of Research and Review* Analyze marketing strategy for coffee exports in North Sumatra Province during the COVID-19 pandemic using descriptive methods and SWOT analysis. Strength factors include the physical quality of Arabica coffee, the timeliness of delivery, and the exporter's network; Meanwhile, the weakness lies in digital promotion and capital limitations. This research emphasizes the importance of digital innovation in export promotion, which is relevant for the development of Samosir Arabica coffee to be able to expand the global market post-pandemic.

i. (Kaido et al., 2021) deep *Asian Journal of Agriculture and Rural Development* highlighting the challenges of Arabica coffee marketing in Kerinci Regency, Indonesia. Through a descriptive approach and semi-structured interviews, obstacles such as quality inconsistency, price fluctuations, long export bureaucracy, and lack of government support were found. This research recommends strengthening product quality, access to capital, and synergy between the government and cooperatives. This study is relevant because it illustrates the context of the challenges that Arabica coffee producers Samosir also experience when they want to penetrate the export market.

j. Study (Lubis & Lubis, 2024) from *International Journal of Innovative Research and Scientific Studies* Researching Indonesia's coffee trade strategy and global export barriers Using the Historical Simulation and adaptive econometric model. This study found that the advancement of production technology has not been followed by an increase in export prices due to protectionist policies and high interest rates. The main recommendations are trade policy reform and expansion of global market access. This study provides a macro view that is relevant to the policy context in the international expansion of Samosir Arabica coffee.

k. Study by (Fazra El Ghifari et al., 2024) deep *Journals Together* Researching implementation of digital marketing strategies in Waken Cafe MSMEs. Using a descriptive qualitative approach and analysis of Miles & Huberman's interactive models, the study found that digital marketing increases the number of consumers, sales, and market expansion. These findings are empirical evidence that the adoption of digital technology is effective in expanding market reach, which is relevant to be applied to coffee business actors in Samosir.

3. METHOD

This study uses qualitative descriptive approach with the aim of in-depth describing the strategy of Samosir Arabica Coffee's business expansion to the international market in the digital era. This approach was chosen because it is suitable for understanding complex social and economic phenomena such as digitalization, institutional strengthening, and internationalization strategies in local coffee business actors. This method refers to the approach used in research (Irmayani et al., 2025) who utilize *Interpretative Structural Modeling (ISM)* to map the relationship between strategic factors in strengthening Arabica coffee agribusiness. However, in this study, the model was adapted to the context of Samosir by emphasizing the role of digitalization and global market strategy.

Primary data were obtained through in-depth interviews, field observations, and documentation Coffee farmers, cooperative administrators, local exporters, and local governments related to the development of the coffee industry. This method of data collection refers to the (Sia et al., 2025) which assesses the sustainability of Arabica coffee agribusiness through multidimensional measurements (MDS) based on social, economic, technological, and

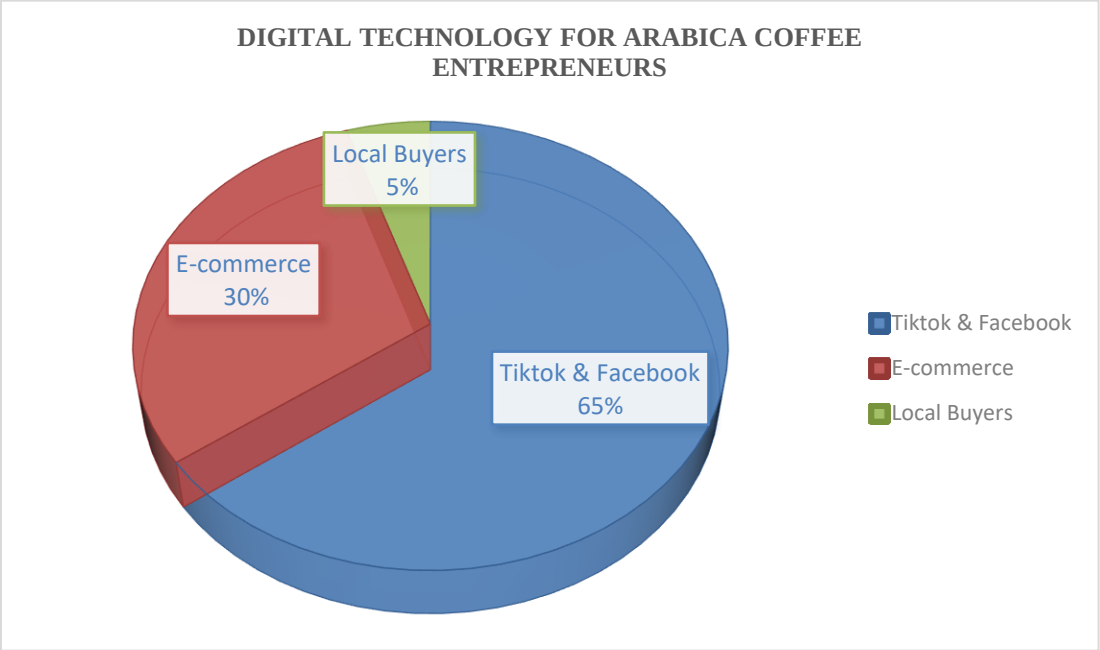
environmental aspects. Meanwhile, secondary data were collected from various sources of literature such as government publications, and official statistical data to strengthen the validity of the analysis.

Data analysis is carried out by model Miles dan Huberman (1994) which covers three main stages: *data reduction, data display*and *conclusion drawing/verification*. This stage is used to systematically organize field data and literature so that it can produce a complete understanding of the digital expansion pattern of Samosir Arabica Coffee. This analytical approach is also in line with the descriptive method applied by Maya (Irjayanti et al., 2025) in assessing the efficiency of the coffee supply chain based on technological innovation.

The validity of the data was maintained through triangulation of sources and methods, by comparing the results of interviews between respondents, direct observations in the field, and secondary data from official reports and academic publications. Thus, this research method is designed to produce a comprehensive and contextual understanding of how digitalization is key in strengthening the position of Samosir Arabica Coffee in the international market.

4. RESULT & DISCUSSION

1. Digital Adaptation of Samosir Arabica Coffee Business Actors in International Market Expansion



This pie chart shows that the majority of Arabica Samosir coffee business actors have successfully adapted to digital developments as the main strategy to expand the reach of the international market. The dominance of social media use such as Instagram, Facebook, and TikTok reflects that business actors have understood the importance of digital presence in building brand image and attracting consumer interest. Through social media, they can showcase the uniqueness of Samosir Arabica Coffee, from its origins in volcanic soils to its distinctive processing process, thus creating its own emotional value and appeal for overseas buyers. Relatively low promotional costs and wide audience reach make social media the most effective means of introducing local coffee products to the global market.

Meanwhile, the increase in the use of e-commerce platforms such as Shopee, Tokopedia, Alibaba, and Amazon shows a significant change in business patterns from the traditional system to cross-border online trade. This shows that Samosir coffee business actors are starting to take advantage of digital opportunities to expand their distribution network without geographical boundaries. However, the presence of a small number of business actors who rely on conventional sales systems shows the need for continuous support from local governments and related institutions. Digital literacy training, the provision of adequate internet infrastructure, and assistance in digital marketing are important factors so that all business actors can actively participate in sustainable and inclusive digital transformation.

2. Strategic Factors Influencing the Digital Expansion of Samosir Arabica Coffee

The results of the study show that the digital expansion of Samosir Arabica coffee plays an important role in increasing the global competitiveness of local products through the use of technology, improving organizational capabilities, and supporting the external environment. This expansion process not only focuses on sales, but also on building a digital ecosystem that strengthens Samosir's coffee position in the international market.

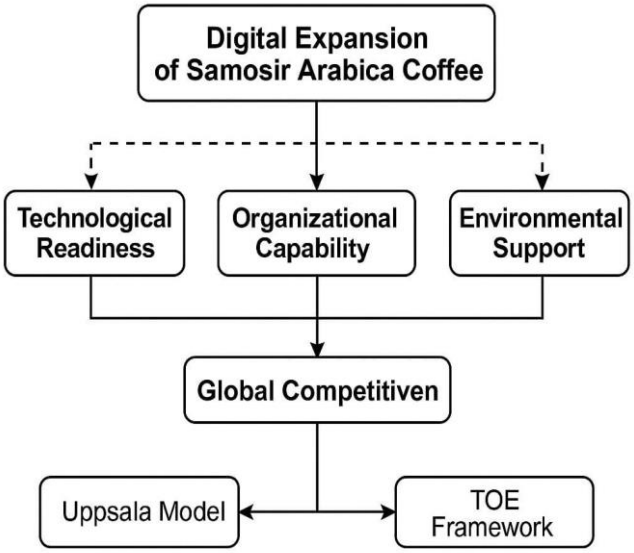


Fig. 1. Framework of Samosir Arabica Coffee digital expansion strategy

Table 1. Key Factors in the Digital Expansion of Samosir Arabica Coffee

Technology Readiness	***Organizational Capabilities***	***Environmental Support***
The use of digital platforms such as e-commerce (Shopee, Tokopedia, Alibaba) and social media (Instagram, TikTok, Facebook) for promotion and sale of coffee.	Strengthening the institution of farmer cooperatives, quality certification (Geographical Indications, Fair Trade), and developing the branding of Samosir Arabica Coffee as a typical regional product.	Support for local governments and related institutions through digital training, export facilitation, and promotion through international coffee festivals and exhibitions.
Improving digital literacy and the ability of business actors to manage content and online marketing strategies.	Good coordination between farmers, cooperatives, and exporters to maintain product quality and smooth supply chains.	Collaboration with export promotion institutions such as ITPC, and government policies that support digital-based exports.

5. CONCLUSION

This research confirms that digitalization is the main key in encouraging the expansion of the Samosir Arabica Coffee business to the international market. The challenges that farmers initially faced, ranging from limited market access, low productivity, to dependence on conventional sales systems, can be overcome through the use of appropriate digital technology. Through a digital-based expansion strategy, coffee business actors in Samosir have succeeded in increasing product visibility, expanding the global market network, and strengthening the image of local brands rooted in the uniqueness of Batak geography and culture.

The results of the study show that the success of this expansion is supported by three main factors, namely technological readiness, organizational capabilities, and environmental support**.** The use of digital platforms such as e-commerce and social media has proven to be effective in increasing sales and building emotional relationships with international consumers. On the other hand, strengthening cooperative institutions, quality certification, and branding strategies that highlight local identities strengthen market trust and loyalty. Local government support through training, export facilitation, and international promotion has helped accelerate digital transformation in the Samosir coffee sector.

Based on the *Uppsala Model* and *the TOE Framework (Technology Organization Environment),* the internationalization process of Samosir Arabica Coffee takes place gradually and sustainably, starting from the local market to the global market with strengthening capacity, experience, and digital innovation. Digitalization is not only a promotional tool, but also a strategic foundation for creating added value, improving supply chain efficiency, and strengthening sustainable competitiveness. Therefore, collaboration between business actors, cooperatives, and the government is an absolute requirement for Samosir Arabica Coffee to be able to stand on par with the world's leading coffee products in the digital economy era.

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