SUSTAINABLE TOOLS FOR MICROENTREPRENEURS: A THEMATIC ANALYSIS OF TRIPLE BOTTOM LINE CHALLENGES

DEMONG, N. A. R.[1*] – KHIR, M. M.[2] – HAMZAH, M. I.[3] – GHAZALI, N.[3]

[1] *Department of Technology and Supply Chain Management Studies, Universiti Teknologi MARA, Selangor, Malaysia.*

[2] *Department of International Business and Management Studies, Universiti Teknologi MARA, Selangor, Malaysia.*

[3] *Department of Entrepreneurship and Marketing Studies, Universiti Teknologi MARA, Selangor, Malaysia.*

**Corresponding author*
e-mail: rochin[at]uitm.edu.my

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Abstract. Microentrepreneurs play a crucial role in the economy of East Peninsular Malaysia, contributing to job creation, income generation, and local economic development. However, they often face numerous challenges, including limited access to resources, intense competition, and the need to adopt sustainable business practices. The advent of digital technologies and the increasing importance of sustainable business models present both opportunities and challenges for these microentrepreneurs. This study aims to examine the adoption of sustainable business tools and services among microentrepreneurs in East Peninsular Malaysia, focusing on the economic, social, and environmental dimensions of their operations. By analyzing their approaches to technology, marketing, and payment systems, this research seeks to identify the enablers and barriers to their success and sustainability. Through a thematic analysis of 21 participants, the study investigates the utilization of technology, marketing methods, and payment systems. It assesses the impact of these factors on their ability to compete in the market. Findings reveal a significant disparity in technology adoption, with some entrepreneurs leveraging digital tools for enhanced business operations while others rely on traditional practices. This divergence significantly affects their marketing reach, payment efficiency, and competitiveness. The study highlights the need for targeted interventions and support to bridge the digital divide and promote sustainable business practices among microentrepreneurs in the region, ensuring their resilience and contribution to the local economy.
Keywords: *sustainable business, technology tools and services, microentrepreneurs, economic, social, environment*

Introduction

Business technology tools and services are increasingly being used by micro-entrepreneurs to streamline their operations and improve their bottom line (Azman et al., 2020). These tools include accounting software, customer relationship management (CRM) systems, point-of-sale (POS) systems, and social media marketing platforms. By leveraging these tools, micro-entrepreneurs can automate their operations, better manage their finances, and reach more customers (Isaacs et al., 2022). According to a study by SME Corp Malaysia and Huawei Technologies (M) Sdn Bhd in 2018, 50% of SMEs adopt ICT to develop competitive advantage, while 20% wait until it is tested and proven. 44% use cloud computing, 35% IoT solutions, 71% use ecommerce and social media, but most transactions are manual (OCBC Business Banking on the 1st January 2022). Malaysia's e-commerce value increased by 33% to RM896bil in 2020, but the

overall rate of digital adoption is low, with only 53.9% of SMEs represented in the World Wide Web and only 6.3% exploring frontier technologies like IoT, cloud computing and data analytics (SME Corp, Malaysia, 20 October 2021). Moreover, SME Corp Malaysia also highlighted the digitalization of Malaysia's businesses is facing several challenges, such as financing or digitalization costs, lack of digital talent, and gaps in digital infrastructure. A survey conducted by SME Corp and Huawei found that 60% of firms do not know about financing options and 34% thought that cloud computing is expensive (Bangkok Post, 2022).

Low adoption of business technology tools and services can have significant implications for micro entrepreneurs. It can limit their ability to effectively manage and grow their businesses, as well as compete with larger businesses that have embraced technology (Neumeyer et al., 2021). Without access to digital tools and services, micro entrepreneurs may struggle to streamline their operations, reach new customers, and access funding opportunities. This can ultimately impact their bottom line and long-term sustainability (Lehoux et al., 2021). Business technology tools and services provide a range of cost-effective solutions that can help entrepreneurs streamline their operations and maximize their profits (Aithal, 2023). Micro entrepreneurs in Malaysia are increasingly turning to digital tools and services to help them better manage their businesses. However, they face many challenges in adopting the services, such as not being aware of the features and lack of knowledge about business technology services.

In regions like East Peninsular Malaysia, these small-scale businesses are especially vital, often serving as the primary source of income for families and contributing significantly to the Gross Domestic Product (Pulka and Gawuna, 2022). However, their path to growth and stability is often fraught with complex challenges, particularly when it comes to adopting sustainable practices. Thus, this study adopts thematic analysis, focusing on sustainable business tools and services for microentrepreneurs in East Peninsular Malaysia, explored the relationships of economic, social, and environmental obstacles these businesses face. The study reveals that while the intention to operate sustainably might exist, the practical implementation is hindered by a lack of access, awareness, and tailored support.

Literature review

Business technology services provide a wide range of services that help businesses stay competitive in today’s digital world (Zaki, 2019). These services can include web design, software development, data management, cloud computing, network security and more. By taking advantage of these services, businesses can ensure their systems are up-to-date and secure while also providing the best user experience possible for their customers (Torous et al., 2021). With the help of a business technology service provider, businesses can stay ahead of the competition by utilizing the latest technologies to grow their operations and increase profitability (Javaid et al., 2022). Cloud-based solutions are used for storing large amounts of data, on-premise solutions for secure systems, web-based solutions for easy-to-use interfaces, application programming interfaces (API) for more customization, and Artificial Intelligence/Machine Learning (AI/ML) solutions for advanced analytics capabilities (Lux Dryselius, 2023). No matter the type of business, there is likely a technology solution out there that can help them optimize their operations.

A sustainable business technology service framework is a set of components that enable organizations to successfully implement and manage technology services

(Fernando et al., 2019). It includes several elements such as strategy, process, architecture, infrastructure, security, and governance (Anthony Jnr, 2021). These components are essential for ensuring that the organization has the necessary resources and capabilities to deliver quality services in a cost-effective manner. Furthermore, sustainable business technology service framework helps organizations to identify potential risks and opportunities associated with their technology investments. It also provides guidance on how to maximize the value of their investments while minimizing costs. By utilizing this framework, businesses can ensure that they are able to provide reliable services with minimal disruption while achieving long-term sustainability goals.

Materials and Methods

Sustainable development is an essential component of entrepreneurship especially among micro-entrepreneurs, and information technology has become a valuable tool for development. Various tools can be used to assess the sustainability of business technology tools and services and serve as a foundation for creating customized assessment frameworks. Existing body of literature related to microentpreneur sustainability have been reviewed as a foundation for the instruments or items to be asked during the focus group discussion session. To ensure the relevance, clarity and comprehensivenss of the focus group discussion guide, the content experts in entrepreneurship for the validation of the instruments. Their feedback were incorporated to refine the questions and ensure they are appropriate to achieve the main objective of this study. Subsequently, the guide were piloted on a small group of representative microentrepreneurs from the target region to test the relevance, assess the clarity, identify potential areas of confusion and provide preliminary insights into the types of responses to anticipate. This study have identify the sustainability indicators that can be applied to determine the model employed, such as cooperative or micro-enterprise, and the technologies currently in use via focus group discussion based on micro-entrepreneurs' limitations and requirements. The establishment of technology-based enterprise development tools and services was essential in measuring program sustainability and the success of enterprises along three performance dimensions: program sustainability, economic sustainability, and environmental sustainability. This study employs a qualitative research approach, using a thematic analysis of 21 participants to gain insights into the experiences of microentrepreneurs in East Peninsular Malalysia. The selection of participants were based on type of business, location, years in operation, total number of workers and total revenue in which must fulfil the criteria for micro entrepreneurs. Data was collected through focus group discussion. Thematic analysis wasa conducted, focusing on identifying recurring themes related to technology adoption, marketing methods, payments systems, competition, and overall sustainability.

Results and Discussion

The analysis of 21 participants revealed significant variations in the adoption of sustainable business tools and services among microentrepreneurs. Focusing on three different aspects of sustainable business namely economic, social and environmental themes, all 21 participants highlights a significant digital divide among them. The difference in technology adoptions directly impacts their ability to compete effectively,

reach a wider customer base, and streamline their business operations. All of the participants have been divided into four groups to proceed with the discussion using focus group approach. *Table 1* indicates the initial thematic setting based on three different criteria.

Table 1. *Initial thematic setting based on economic, social and environmental criteria*.

Themes	Criteria	Description
Economic	Technology and Payment Methods	The use of QR code payments as a tech solution for efficient transactions.
	Advertising	Social media (Facebook, WhatsApp) as an economic tool for reaching customers without significant costs
	Delivery Services	The necessity of delivery services (like Food Panda and Grab) in maintaining or growing business, reflecting a shift toward digital platforms in food service
Social	Connection	The entrepreneurs use WhatsApp and Facebook to maintain local community connections and promote their businesses, especially within the Terengganu district.
	Customer Convenience	The shift in customer behavior, such as a preference for delivery services instead of going out to eat, which affects business strategy
Environmental	Indirect Environmental Impact	The increased use of delivery services could result in more delivery vehicles on the road, potentially affecting the environment

Technology adoption

Micro-entrepreneurs' group 1 actively uses technology to enhance business operations. This includes QR code payments, social media marketing (Facebook and WhatsApp), and online food delivery services (Food Panda, Grab). They are the most tech-savvy of the group, leveraging digital tools for customer engagement and streamlining business processes. Micro-entrepreneurs' group 2 uses WhatsApp for basic communication and marketing but does not engage in advanced technology or digital payment systems. Their approach is more traditional, relying on word-of-mouth and an established reputation in the community. Micro-entrepreneurs' group 3 uses QR payments and engages in Facebook marketing for occasional promotions. They also utilize TikTok for marketing but only on rare occasions. While they adopt some digital tools, they are not as consistent or widespread as Micro-entrepreneurs' group 1. However, Micro-entrepreneurs' group 4 has minimal use of technology. They rely on bank transfers for payments and depend on word-of-mouth and government promotion for marketing. Their business model is highly traditional, with little adoption of digital tools. There is a clear divide in technology adoption. Micro-entrepreneurs' group 1 is the most digitally integrated, while Micro-entrepreneurs' group 4 uses technology the least, with others falling in between.

Marketing methods

Micro-entrepreneurs' group 1 uses social media platforms like Facebook and WhatsApp for targeted local advertising, investing in paid ads to reach customers in their community. This digital approach enhances their visibility. Micro-entrepreneurs' group 2 relies entirely on word-of-mouth and organic growth through reputation in the local community, with no paid advertising or significant digital marketing efforts. Micro-entrepreneurs' group 3 uses Facebook for event-based promotions and occasionally uses TikTok for marketing. Their strategy is somewhat digital but not as consistent as Micro-entrepreneurs' group 1. Micro-entrepreneurs' group 4 depends entirely on word-of-mouth and the government for marketing. They do not invest in digital advertising or social media, which may limit their business's reach. There is a mix of traditional and digital marketing methods. Micro-entrepreneurs' group 1

employs modern digital tools for marketing, while Micro-entrepreneurs' group 4 relies entirely on traditional methods like word-of-mouth. The other entrepreneurs fall in between, using a mix of both approaches.

Payment methods

Micro-entrepreneurs' group 1 primarily uses QR code payments, which is a convenient, modern digital payment method. This simplifies transactions and aligns with current business trends. Micro-entrepreneurs' group 2 continues to handle payments through cash, with no mention of digital payment methods. Micro-entrepreneurs' group 3also uses QR payments, similar to Micro-entrepreneurs' group 1, reflecting a more modern approach to transactions. Micro-entrepreneurs' group 4 uses bank transfers and cash. Their reliance on traditional payment methods may create inefficiencies compared to the other entrepreneurs who are using more convenient digital systems. Payment methods reflect the level of technology adoption. Micro-entrepreneurs group 1 and Micro-entrepreneurs' group 3 use digital payments, while Micro-entrepreneurs group 2 and Micro-entrepreneurs' group 4 still rely on traditional cash and bank transfers.

Competition

Micro-entrepreneurs' group 1 faces competition but utilizes technology (delivery platforms, social media marketing) to maintain their position in the market. Their ability to offer online ordering and digital engagement gives them a competitive edge. Micro-entrepreneurs' group 2 does not explicitly mention competition but relies on their long-standing reputation and community relationships to sustain their business. This method may work well in a smaller, loyal community but limits growth. Micro-entrepreneurs' group 3 acknowledges the competitive market but adapts by using social media for marketing and leveraging digital payment options to stay relevant. Micro-entrepreneurs' group 4 struggles with competition, especially from larger companies that dominate the market. Their reliance on word-of-mouth and traditional methods places them at a disadvantage in the competitive landscape. Micro-entrepreneurs' group 4 faces the most difficulty in competing due to limited use of technology and marketing. Entrepreneurs who have adopted digital tools (like Micro-entrepreneurs' group 1 and Micro-entrepreneurs' group 3) are better equipped to handle competition and maintain market presence.

The findings highlight a significant digital divide among microentrepreneurs in East Peninsular Malaysia. The difference in technology adoption directly impacts their ability to compete effectively, reach a wider customer base, and streamline their business operations. East Peninsular Malaysia (Kelantan, Terengganu, and Pahang) presents a unique economic context characterized by a blend of traditional industries, resource-based activities, and a growing tourism sector. While the region boasts abundant natural resources and a rich cultural heritage, it also faces challenges such as lower income levels compared to the West Coast, limited infrastructure development, and a reliance on industries vulnerable to global market fluctuations. Microentrepreneurship plays a crucial role in the regional economy, particularly in rural areas, providing livelihoods and contributing to local economic development (Jarinaa and Manida, 2024). However, microentrepreneurs in East Peninsular Malaysia face specific challenges related to geographical remoteness, limited access to markets and

information, and a lack of specialized skills and training (Kamarudin et al., 2024). This study emphasizes the importance of developing targeted support programs that leverage the region's strengths, such as its natural resources and cultural heritage, while addressing its specific challenges, such as infrastructure gaps and limited access to finance (Yu et al., 2024). Microentrepreneurs is not just a small part in the economy, their small-scale businesses, driven by resourcefulness and resilience, are emerging as powerful catalysts for holistic sustainability, especially when equipped with the right digital tools.The economic implications of digital tool adoption increased adaptability, expanded market reach, and improved profit margins.

Figure 1 illustrates the reflective connection between economic, social, and environmental factors which are not isolated concerns but deeply intertwined dimensions of sustainable business. The long term sustainability of microenterprises basically relies on the ideal integration of economic, social and environmental dimensions. At the economic level, technologies such as digital payment solutions and social media markeign transform local operations into globally accessible storefronts. This digital integration streamlines transactions, reduces operational costs, and expand market reach, thereby establishing the economic security required for navigating market uncertainties and promoting business growth. Building upon this robust economic base, the social pillar emphasizes the human elements by using digital platforms to facilitate active community engagement, consumer feedback and enhance overalll accessibility and convenience. By bridging traditional barriers and limitataions, this digital connectivity encourage social equity, which directly translates into sustained customer trustand long term brand loyalty. Concurrently, the environmental dimension representing the green environment beneftis indirectly yet significantly form this digital transformation. The shift towards online operations, digital communications and e-commerce promotes ecologically responsible business practices by mitigating pollution, specifically through reduced physical transportation and minimize paper waste. The conceptual intersections of these three pillars demonstrate their intensive mutual dependence. Financial viability and economic security empower microentrepreneurs with the capital necessary to prioritize and invest in enviromentally sustainable technologies. Simultaneously, enhanced social awareness drives the adoption of responsible, community oriented practices that further minimize environmental impacts. Eventually, highlighting the digital divide is an important step to ensure equal and fair access to these technology enabler that empowers microentrepreneurs to coordinate economic success with social equity and environmental protection, thereby achieving a comprehensive, resilient and sustainable business model.

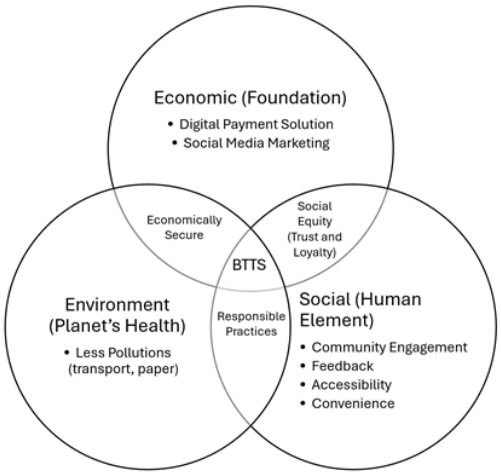


Figure 1. *The relationship between economic, social, and environmental interconnection in the context of sustainable business, with digital tool adoption acting as a crucial catalyst for microentrepreneurs.*

Conclusion

This study provides valuable insights into the challenges and opportunities for microentrepreneurs in East Peninsular Malaysia. The findings emphasize the need for targeted interventions to bridge the digital divide and promote sustainable business practices. Recommendations include government support that implements programs to provide microentrepreneurs with access to affordable technology, digital literacy training, and financial assistance for adopting digital tools. Furthermore, industry collaboration helps to encourage collaboration between technology companies and microentrepreneur associations to develop customized digital solutions that meet the specific needs of microentrepreneurs. Besides, community engagement will help to promote awareness of the benefits of digital tools through community-based workshops and mentorship programs. For further research, we plan to explore the specific factors that influence technology adoption among microentrepreneurs in different sectors and regions of East Peninsular Malaysia. By addressing these challenges and implementing targeted support programs, it is possible to empower microentrepreneurs to thrive in the digital age and contribute to the sustainable economic development of East Peninsular Malaysia. Achieving sustainability requires a holistic approach that integrates these three dimensions into all aspects of business operations. For microentrepreneurs, adopting sustainable practices can enhance their brand reputation, attract socially conscious customers, improve resource efficiency, and build long-term resilience to environmental and social risks.

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Conflict of interest

The authors confirm that there is no conflict of interest involve with any parties in this research study.

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