



Diffusion of Innovation of E-Commerce among Service Sector SMEs in Malaysia During and Post-Pandemic Covid-19: A qualitative approach

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Abstract

This study investigates the critical determinant for e-commerce adoption in Malaysian SMEs. It aims to see how the adoption of e-commerce influenced the food and beverages service sector in Malaysian SMEs during the COVID-19 pandemic and to find out the benefits SMEs have gained from the implementation of e-commerce in Malaysia since the outbreak of the pandemic. Theoretically, the study develops an integrated framework to better understand e-commerce adoption in SMEs. At the same time, it leads to several significant findings that provide stakeholders with insight for developing appropriate strategies and policies to enhance the diffusion of e-commerce in Malaysia.

Keywords: E-commerce; SMEs; Diffusion of Innovation; Qualitative Method

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1.0 Introduction

The COVID-19 pandemic has affected the entire world, and Malaysia is no exception regarding the epidemic's impact. The health crisis also impacted the country's economic growth trajectory. The government had to take extra precautions by imposing many rules and regulations that make it difficult for businesses to operate normally. Small businesses were forced to close their premises and businesses to avoid spreading the virus while complying with the government's SOPs. On the other hand, when the government imposed the "Movement Control Order" (MCO), many companies currently operating in both local and international markets were forced to suspend operations due to the pandemic. Businesses needed to find a new method to survive in reaction to a loss in revenue caused by the COVID-19 pandemic, which they discovered in e-commerce (Lim *et al.*, 2021). Many aspects of business and social life are being reshaped by electronic commerce. Incorporating e-commerce into daily operations helped many businesses survive the outbreak by allowing them to shift their operations to online platforms. However, even though Malaysia has passed the pandemic phase, the effects of COVID-19 are continuous and slowing the economy's recovery, particularly among Small and Medium Enterprises (SMEs) (SME Corp, 2021).

1.1 Industry Background

The adoption of e-commerce in SMEs, especially in the food and beverage industry during the pandemic, was rapid as e-commerce assists firms as a new alternative to stay in the industry. The Malaysian government even announced a RM 250 billion PRIHATIN Package support program to help micro, small, and medium-sized businesses battling to retain employees (Md Shah *et al.*, 2020). Furthermore, RMR 40 million has been allocated to food production and agriculture SMEs. At the same time, grants of RM 1000 have been given to 10,000 e-commerce entrepreneurs. RM 20 million has been allocated to the Malaysian Digital Economy Corporation to transform rural internet centers (Pusat Internet Desa) into e-commerce hubs.

1.2 Problem Statement

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As the Diffusion of Innovation theory states, the diffusion and adoption of innovation will go through five stages: knowledge, persuasion, decision, implementation, and confirmation (Rogers, 2010). The final stage of confirmation is vital because it signifies that an organization is fully ready to adopt an innovation into its entire business process once the adoption has been tested for the first time during the implementation stage. Many Malaysian SMEs, however, still need to be equipped to make the digitalization transition into e-commerce and enter the confirmation stage of the diffusion of innovation, especially after the pandemic. According to the SME Association of Malaysia, only 26 percent of SMEs had chosen digital technologies such as e-commerce as their primary post-pandemic growth strategy despite implementing them during the pandemic to survive (SME Corp, 2021). Most SMEs (57 percent) have not considered digitalizing their business processes post-pandemic. Thus, it is critical to understand how SMEs have been affected and how they can reopen safely and efficiently and grow in the aftermath of the pandemic through adopting e-commerce. To further hasten the adoption of e-commerce among Malaysian SMEs, the government allocated RM1 billion in funds under Bank Negara Malaysia (BNM) to assist micro, small, and medium enterprises (SMEs) in automating their processes to digitalize their firms. Furthermore, RM100 million from the SME digitalization plan will be utilized to finance matching incentives of up to RM5,000 for SMEs who subscribe to applications to digitalize their businesses (Belanjawan, 2023). Through this study, it is hoped that it can assist the government and the agencies involved in understanding better e-commerce adoption in Malaysian SMEs for the funds to be utilized effectively.

Additionally, the need for more research into e-commerce adoption that investigates the factors driving adoption among SMEs, particularly in Malaysia, creates a significant gap that needs attention. Government bodies and academic institutions are interested in learning more about the factors driving e-commerce among SMEs. Nevertheless, little study has been conducted into the factors influencing e-commerce in the service sector on SMEs during and after the COVID-19 epidemic (Lim *et al.*, 2021). While there are studies investigating the adoption of e-commerce among SMEs, these studies have a small number of respondents who are either from a small number of companies or from different geographical regions other than Malaysia. Remarkably, while past studies investigating the adoption of e-commerce among business firms using the Diffusion of Innovation theory do exist (Lim *et al.*, 2021; Lim *et al.*, 2018; Mohamad Faisal and Idris, 2020; Chau & Deng, 2018; Lian *et al.*, 2022), these studies employed strictly quantitative research approaches such as survey questionnaire using instrumentations that already exist in the literature. However, according to Rogers (2010), it is highly recommended that each diffusion of innovation research in an organizational setting starts with an in-depth understanding of the context in which the diffusion of innovation occurs. This is due to the view that an organization is the sum of the individuals and the set of procedures in the organization or industry, which can influence the view on a particular innovation. As such, organizations that exist in a particular context or industry may view the diffusion of an innovation such as e-commerce differently than others, given that their level of readiness to adopt the innovation itself is different (Al-Ghamdi *et al.*, 2011; Greenhalgh *et al.*, 2004). Thus, there are two main objectives for this study which are:

- a. To investigate the characteristics of innovation diffusion that motivate SMEs in Malaysia to continue adopting e-commerce post-pandemic.
- b. To investigate the difference in characteristics affecting diffusion of e-commerce before and after the pandemic among SMEs in Malaysia.

2.0 Literature Review

2.1 SMEs and E-commerce

The definition of SME varies in each country, and different countries use different standards and criteria to measure the size of firms and, thus, to define SMEs. In Malaysia, the definition of SMEs is classified into two sections based on sales volume and the number of full-time employees (SME, 2015). In the manufacturing sector, SMEs are defined as companies having a sales turnover of less than RM50 million or fewer than 200 full-time employees. SMEs in the services and other industries are defined as businesses with a sales turnover of less than RM20 million or less than 75 full-time employees.

Dave (2019) states that "e-commerce" refers to all electronically mediated transactions between a company and third parties. E-commerce, also known as electronic commerce, is a business model that allows businesses and individuals to buy and sell goods over the Internet. Jain *et al.* (2021) also stated that electronic commerce is the buying and selling goods and services over the Internet. Aside from buying and selling, many people use the Internet to compare prices or look at the latest products on the market before purchasing online or in a traditional store. With consumers starting to accept the idea of technology-enabled payment solutions, from conventional online banking to mobile finance, Malaysia's e-commerce industry is expanding.

A few studies in Malaysia discussed the factors influencing e-commerce adoption using various approaches. Lim *et al.* (2021) stated that perceived benefits, organizational readiness, and external pressure significantly impact manufacturing SMEs' intentions to protract using e-commerce. SMEs will use e-commerce if they recognize it can benefit their business. If they have sufficient technological and financial resources, SMEs will moreover prefer e-commerce. Shanmugam (2021) highlights the importance of relative advantage,

complexity, trialability, and observability in user decision-making for technology adoption. Comparative advantage and observability are the most influential characteristics, with observability determining the application's effectiveness. However, another study reveals that e-commerce adoption during the pandemic varied, with perceived compatibility and complexity key factors. Therefore, sharing expertise and managerial attitude had minor impacts (Hossain *et al.*, 2022).

2.2 Diffusion of Innovations (DOI)

Roger's (1995) theory of Diffusion of Innovations will be applied to identifying potential factors that influence the adoption of e-commerce in Small and Medium Enterprise (SMEs). The theory defines innovation as "an idea, practice, or object perceived to be new by an individual or another unit of adoption" (Rogers, 2010). While diffusion refers to "the process of communication of innovation through channels over time among members of a social system" (Rogers, 2010).

The idea of innovation is about presenting SMEs with new ideas or means of solving problems, which is through e-commerce in this context. Since this theory seeks to explain how innovations are adopted in the population, using the Diffusion of Innovation (DOI) is more appropriate in studying e-commerce adoption among Malaysian SMEs. This model has been widely believed to 'best' explain such adoption of innovation and has been widely used in social science for a broad perspective (Liu, 2019). The DOI theory is also a practical framework for delivering new ideas, products, and services. This theory can explain the adoption pattern, clarify technology, and predict whether and how new technology will be beneficial (Adeola & Anibaba, 2018).

Rogers has identified the factors influencing the rate at which organizations or individuals adopt new technologies. These are the following factors: relative advantage, compatibility, complexity, trialability, and observability. Relative advantage is "the extent to which an innovation is perceived superior to the idea it replaces" (Rogers, 2010). Innovation's cost and social status motivation aspects are elements of relative advantage. It also means the same thing when the benefit perceived by SMEs from using e-commerce to conduct business is measured in terms of lower business costs and broader market coverage. Numerous studies have discovered and concluded that relative advantage influences technology adoption, such as e-commerce that stated relative advantage is an initial motivator for an organization to make adoption decisions (Md Shah *et al.*, 2020; Shanmugam & Shanmugam, 2021)

Compatibility is "the degree to which an innovation is perceived as relatively difficult to understand use" (Rogers, 2010). Potential adopters will be more likely to adopt an innovation if they can adjust, change, and modify it to fit their needs and context. In the case of the adoption of e-commerce by SMEs, compatibility deals with how well the e-commerce technology will suit the existing business process, their suppliers and customers, the organizational structure, and the perceived match of the business to e-commerce implementation. In this context, e-commerce is an innovation that have unique values, and compatibility refers to how a product or innovation is perceived in relation to these values, including the experiences and basic needs of the innovation (Hossain, 2022). Numerous studies have also discovered and concluded that compatibility influences technology adoption, such as e-commerce (Liu, 2019; Chau & Deng, 2018).

The degree to which an innovation is perceived to be consistent with existing values, past experiences, and needs is called its complexity (Rogers, 2010). The more complex the product, the longer it will take to accept it. For example, due to the complexity of online business, it has taken a long time to penetrate. In this context, SMEs may perceive e-commerce as something complicated that only applies to their business level. Because SMEs are known to have low managerial and technical skills, they are expected to view e-commerce implementation as extremely difficult. According to Mohamad Faisal and Idris (2020), the adoption of technology requires specific skills, operation is easy, but integration is difficult due to the complex process and complexity of its use.

Trialability is "the extent to which an innovation can be evaluated on a limited basis" (Rogers, 2010). The newer ideas that are tried, the more quickly they are adopted. E-commerce is more available if the business conversion can be done in stages and if a grant is provided to cover high start-up costs. Liu (2019) stated that trialability influences e-commerce adoption, related to managers' confidence levels. This occurs when management recognizes the perceived benefits of e-commerce and has faith in the implementation and adoption of e-commerce. In other words, as managers gain more information and become more familiar with the benefits of e-commerce adoption, their confidence level will eventually rise and indirectly increase the adoption of e-commerce among businesses.

The perceived observability of an innovation is the ability to observe the positive outcomes of other businesses' use of e-commerce (Rogers, 2010). The rate at which an innovation is adopted is directly related to its observability, making it more likely to be adopted. According to Shanmugam & Shanmugam (2021), observability is the most effective and predictable characteristic in technology adoption, focusing on how well a technology application's output is understandable to a user. It also serves as a platform for the user to understand the advantages. By seeking feedback from stakeholders and suppliers, a company or organization can assess the effectiveness of technology (Shanmugam & Shanmugam, 2021). Liu (2019) also stated that when the owners or managers observe and understand the perceived benefits and trust the implementation and adoption of e-commerce in their respective companies, their confidence level will inevitably rise.

However, most of the past studies of DOI theory are quantitative in nature (Lim *et al.*, 2021; Lim *et al.*, 2018; Mohamad Faisal and Idris, 2020; Chau & Deng, 2018; Faisal, 2020, Lian *et al.*, 2022) and there is a lack of qualitative studies within the context of DOI among

service-based SMEs. This eventually led to the methodology for this study, which will employ qualitative techniques. Hence, the researcher modified the study design as appropriate based on the research problem and literature review.

3.0 Methodology

Due to the nature of this study, a qualitative research methodology was chosen because of its ability to investigate the factors that influence the adoption of e-commerce during the pandemic among Malaysian SMEs through the collection and analysis of non-numerical data and in-depth interviews. This study complies with the interpretivism paradigm, employing a qualitative research methodology with both primary and secondary data to achieve the research objective. There are numerous reasons to employ a qualitative approach. To begin, rather than confirming or rejecting hypotheses, the research's goal is to describe e-commerce phenomena. Second, because the method requires more flexibility and adjustments, it is better suited to inexperienced researchers. Third, the secondary data source results will be considered. Qualitative research benefits include in-depth analysis of an emergency's impact, rich and detailed information about affected populations, the ability to investigate the viewpoints of homogeneous as well as comprehensive and varied groups of people, the ability to help unpack these various opinions within a community, and the ability to suggest potential relations, causes, effects, and life behaviour (Creswell, 2012). Furthermore, because of close researcher engagement, the researcher gains an insider's view of the field, allowing the researcher to find issues often missed by scholarly, more positivistic clarifications, encouraging innovation and creative explanatory frameworks.

Following the qualitative research methodology, an interview will be used as the data collection method. The researcher will conduct semi-structured interviews with several key questions to help define the areas to be explored while allowing the interviewer or interviewee to differ to pursue an idea or response in better detail (Britten, 1999). The targeted population is SME owners or managers in Kota Kinabalu, Sabah. Individuals involved in this study will be those who work in Malaysia's service sector, specifically in food and beverage services, which have been affected by the pandemic and have adapted and responded by adopting e-commerce during the pandemic.

Data will be analysed using NVIVO software. NVIVO is one of many software applications for organizing, managing, and analysing text, image, and audio data. Data can be transcribed, coded, searched for, and retrieved using the software (Cresswell, 2012). This assists in identifying the pattern of e-commerce adoption and leads to identifying the critical factors of e-commerce adoption in Malaysian SMEs. The researcher will use saturation as a guiding principle during data collection and conduct the research to achieve data saturation. In the later phase of the spiral, the researcher will interpret the data and then represent the data, packaging what was discovered in text, tabular, or figure form. Finally, the data presented reflects the data analysis steps, assisting in identifying the pattern of e-commerce adoption and key e-commerce adoption factors in Malaysian SMEs.

4.0 Findings

This paper is purely theoretical as of now, it does not contain any established findings. Once the interviews have been completed, the findings will be reported along identified themes according to the interview transcripts.

5.0 Conclusion & Recommendation

Qualitative research, while offering in-depth insights into a specific phenomenon, has limited applicability to larger populations due to its small sample size. Thus, a further quantitative study will be conducted to test the findings of the interviews which can lead towards a better generalization of the larger sample size.

This study, which delves into the evolving e-commerce dynamics affecting Malaysian SMEs during the COVID-19 pandemic, provides valuable insights. It enhances our understanding of the factors influencing e-commerce adoption and incorporates various aspects of technology implementation. The research may yield a comprehensive understanding relevant to businesses and governmental bodies, improving the adaptability and value of e-commerce platforms. It could also introduce innovative strategies to enhance organizational efficiency and assist e-commerce providers in promoting their solutions to SMEs.

Moreover, this study has a broader aim: to inform Malaysian policymakers about e-commerce adoption. Identifying factors and reasons for decline can facilitate the creation of appropriate actions and incentives for SMEs. To further advance this research, it is recommended to replicate the study's future findings in diverse contexts and industries, ensuring their applicability across various settings and sectors.

6.0 Paper Contribution to Related Field or Study

This study is crucial because it sheds insight into the distinct and ever-changing e-commerce dynamics influencing Malaysian SMEs during the COVID-19 outbreak. This study will help to enhance understanding and knowledge of the factors that influence e-commerce

adoption in SMEs and provide some insightful perspectives from Malaysia. It can provide a clearer understanding of the adoption and implementation process by considering various aspects of technology adoption and implementation in e-commerce research.

This research will provide a deeper understanding of the firm and government agency. It can also be used as a guide to reshape e-commerce applications to make them more versatile and valuable. Furthermore, it provides innovative approaches to increasing an organization's effectiveness. The findings can also assist e-commerce vendors in planning, developing, marketing, and promoting their e-commerce solutions for SMEs. Hence, SMEs can use the adoption profiles identified in this study to assess their current e-commerce adoption status. Other businesses can use the findings as a guideline if they go into e-commerce.

The study's findings also interest Malaysian policymakers for future e-commerce planning. Understanding firms' e-commerce adoption patterns and the factors associated with usage, and the reasons for rejecting e-commerce applications allows for developing appropriate measures and incentives to encourage adoption among service sectors in Malaysian Small and Medium Enterprises (SMEs).

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