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Review Paper

Determinants of Digital Technology Adoption Among Rural Entrepreneurs in Malaysia

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Abstract: Digital technology could boost a company's ability to compete by enhancing the flexibility of its goods and services. However, a big number of these research studies have been done in urban areas, with limited studies focusing on rural entrepreneurs in Malaysia. A comprehensive literature review was pushed forward to examine the rural market sector, intention to adopt digital technology, and factors that can influence the adoption of digital technology, which eventually could lead to gaining profitable business. Thus, the objective of this study is to determine the factors that can influence rural entrepreneurs' digital adoption in Malaysia. Two objectives will be achieved: (1) to identify the relationship between perceived usefulness and perceived ease of use towards the intention to adopt digital technology (2) to propose a new framework that integrates the models of TAM and EST in the investigation. A systematic literature review was adopted to classify and evaluate articles using Google Scholar, Social Science Citation Index, and Science Direct. In this literature review, 95 documents were reviewed. Inclusion and exclusion criteria were applied, which reduced the list to 50 articles. The findings of this paper provide a literal idea suggesting that the decision-makers involved in digital adoption must focus on the specific digital technology demands of rural entrepreneurs and the best solution for the business. This paper may only provide an applicable guideline from a theoretical perspective. Future studies suggest using an empirical approach to validate the proposed framework.

Keywords: Intention to adopt digital technology; rural entrepreneurs; perceive usefulness; perceive ease of use, PEDi

Introduction

After the financial crisis of 2008, governments had to reconsider development policies to make them more goal-based considering Industry 4.0 (the fourth industrial revolution) at the turn of the millennium. Industry 4.0, which directed 21st-century economic development, was mostly driven by digital technologies. Every year, hundreds of thousands of new firms are started up, generating millions of new jobs (Kuratko, 2005; Dutot & Van Horne, 2015) in the rising markets. As a distinct form of entrepreneurial practice, digital entrepreneurship is also an evolving term, as innovative technologies are created to assist entrepreneurs in their business processes. Business management has witnessed drastic technological transitions. Electronic trading activity, using digital technology, can boost company performance by improving productivity and sustainability (Turban et al., 2008; Porter, 2001; Celuch et al., 2014).

Digital technology has been used as a strong platform that helps small companies to operate equally with bigger companies, and there have been big improvements in the way industries will be made available to Small and Medium Eterprise (SME)-sized firms (Celuch et al., 2014). Digital technology plays a critical role

in creating a balance between business organisations in emerging and industrialised countries. Digital technology also plays an important role in creating a balance between urban and rural business organisations in several developing countries (ITU, 2011). Through leveraging advanced technologies, business enterprises can make more effective, strategic, and creative decisions. It is supported by a strong positive association between digital technology and business success that has indeed been disclosed by scholars in both developed and developing countries (Apulu & Latham, 2011; Rastrick & Corner, 2010; AlBar & Hoque, 2019). Increased competitive pressures on international and domestic markets have led to rapid alterations of value chains through the digital technology adoption process. Governments from emerging markets implement several initiatives to encourage entrepreneurs to adopt digital technology, especially in Malaysia.

Notwithstanding, digitalisation process requires a significant change of mindset among the business community, particularly in rural areas, as it emphasizes the mastery of new skills such as e-commerce and telecommunications skills. According to research on rural development in the digital age by Salemink et al. (2017), accessibility to and the price of faster internet technologies in rural areas may contribute to the widening of the gap between those who have access to and the skills to use ICT and those who lack such access or skills, creating inequalities in technology usage and opportunities between urban and rural areas, which is known as the digital divide.

The rural market sector is fiercely challenging and battling not only to gain benefit from survival but also to retain its strategic edge. Entrepreneurs must constantly update and improve their services because customers are highly knowledgeable and have a lot of choices of products from local and international competitors. Since severe competition results in little variation among product offerings, the marketing strategy of using digital technology becomes the main factor to pursue maximum revenue in sales.

To assess digital technology adoption behavior, the model of the Theory of Acceptance Model (TAM) by Davis (1989) turned out to be the famous model used in several studies. A large body of literature focuses on and investigates digital technology usage behavior to investigate digital technology adoption among SMEs (Ramdani, Kawalek, & Lorenzo, 2009; Zaremohzzabieh et al., 2016). TAM is a clear and functional system that has been commonly implemented to clarify the adoption of digital technology by users (Diop, Zhao & Duy, 2019). Furthermore, this study includes a theory that investigates human behavior, namely the Ecological System Theory (EST) model. Human development and behavior are significantly influenced by how people interact with the various layers of their environments (Bronfenbrenner, 1979). In the theory of human ecology, there are five layers of the environment, namely the microsystem, mesosystem, exosystem, macrosystem, and chronosystem. Within this context, the idea emphasizes how important the environment is, which centers on facilities to understand rural entrepreneurs' perspectives on digital technology usage. It views the ecology of learning and self-concept development as reliant on a range of dynamics found in an entrepreneurial environment.

This study will focus on exosystem layers, which included Pusat Ekonomi Digital (PEDi), to investigate rural entrepreneurs' intention toward actual usage of digital technology. PEDi, which is an initiative by the Ministry of Rural & Regional Development (MRRD) in collaboration with the Malaysian Communications and Multimedia Commission (MCMC) and the Malaysia Digital Economy Corporation (MDEC), is a centralized hub to promote digital economic growth in Malaysia. In an era increasingly driven by digital technology, PEDi acts as a catalyst to raise awareness, impart skills, and broaden access to the digital economy for rural communities that previously had limited opportunities.

In Europe, a similar facility is provided by the governments for rural communities called Digital Innovation Hubs (DIH). According to the European Network of Rural Development (ENRD), rural DIHs provide physical locations with dependable and fast internet access, along with a wide range of business support services like peer-to-peer and networking activities, training, mentoring, business advisory, e-commerce, and very basic services like childcare and libraries. In the unique context of rural digital solutions for rural entrepreneurs, this helps operationalize environmental and economic sustainability. ENRD also stated that rural DIHs represent efficient tools for improving digital opportunities and consequently enhancing local environments in a more sustainable way. Thus, PEDi and DIH have the same characteristic to assist rural communities.

Extensive previous studies examined the intention of entrepreneurs to embrace digital technologies as their consequences and variables. The low rate of digital technology adoption through industries in rural regions is presented in a study summary report (Wolcott, Kamal, & Qureshi, 2008; Lee, Falahat, & Sia, 2021). Similarly, research on digital technology performance in rural small businesses demonstrates a low rate of adoption of digital technology by rural businesses relative to urban businesses (Anderson, Tyler, & McCallion, 2005; Zaremohzzabieh et al., 2015). There is a scarcity of study contexts in rural areas for SMEs to adopt technological applications, including a research framework of technology adoption that focuses on entrepreneurs in the rural context (e.g., Rozmi, Nohuddin, Hadi, Bakar, & Nordin, 2020; Koe & Sakir, 2020; Khyer, Talukder, Bao, & Hossain, 2020). Furthermore, a local study by Zaremohzzabieh et al. (2016) that examined the acceptance of ICT by youth entrepreneurs in rural areas in Malaysia did not cover important variables such as the PEDi as a potential moderator.

Albar & Hoque (2019) demonstrated very little evidence of factors that could influence the intention to adopt digital technology, which might be present in the rural enterprises' context in Malaysia. Like several Asian nations, Malaysia is less technologically sophisticated than its Western peers, and Malaysian rural entrepreneurs are also unable to make effective use of emerging technologies in their companies (Zaremohzzabieh et al., 2016). In this respect, the technology adoption phenomenon remains unclear. It might limit the understanding of the technology adoption issue for Malaysian entrepreneurs operating in rural areas, particularly in this new normal of the business environment.

The TAM has recently been duplicated, expanded, and used by many studies focusing on the adoption of digital technology by small enterprises in Malaysia (Ndubisi & Jantan, 2003; Ramayah & Lo, 2007; Zaremohzzabieh et al., 2016). However, a small number of studies integrate the models of TAM and EST in the investigation of the adoption of digital technology among rural entrepreneurs in Malaysia. Furthermore, limited studies have modified the framework of TAM with entrepreneurship latent factors such as perceived usefulness and perceived ease of use as mediators and facilities (PEDi) as potential moderator.

This study intends to fill the gap in the literature by including facilities (PEDi) as a potential moderator variable in the study in the context of Malaysia. Therefore, this study aims to provide a theoretical framework that can facilitate future research to identify the effect of PEDi on rural entrepreneurs in Malaysia. This paper aims to identify the main factor in the intention to adopt digital technology among rural entrepreneurs in businesses that could contribute to business development growth since the changes in the economy and society happened in most parts of developing countries, particularly in Malaysia.

On this basis, a systematic literature review approach was employed to achieve this objective. Compared with descriptive literature reviews, a systematic review minimizes the bias and random error through a replicable, scientific, and transparent process (Cook et al., 1997; Tranfield et al., 2003). A systematic review not only summarizes the results from prior literature but also explains the differences among studies (Cook et al., 1997). By ensuring “context sensitivity” in a methodologically rigorous way, systematic reviews help policymakers and firm managers build a reliable knowledge base for decision-making (Tranfield et al., 2003).

Methodology

Google Scholar, Social Science Citation Index, based in the Web of Science™ Core Collection Collection of Thomson Reuters, and Science Direct of Elsevier databases were searched. The Web of Science Core Collection is frequently utilized as a source of bibliometric data since, since 1956, it has covered more than 3000 publications in 55 different fields and uses the widely recognized citation indexing to guarantee the quality of the literature. A list of potentially significant new journals that are not yet listed in the citation indexes is provided by the "Business, management, and accounting" section of Science Direct, which covers more than 100 magazines. In this subject, the majority of studies are covered by these three databases.

A keyword search was conducted in the Web of Science Core Collection and Science Direct for the topic field (title, abstract, and keywords) from 1945 until January 2025. Then, articles were selected according to their field, document type, and language. The selection was bounded primarily to the following studies: (1) those documents that are written in English, (2) documents that are published in the 1990s and afterwards, and (3) examining intention to adopt digital technology in the rural entrepreneur field in multiple sectors located

in several rural community areas. The keywords that were included in this literature combined intention to adopt digital technology among rural entrepreneurs, perceived ease of use, perceived usefulness, and actual usage of digitalisation. In this literature review, 95 documents were reviewed. Inclusion and exclusion criteria were applied, which reduced the list to 50 articles. Emphasis on implementation aspects of digital technology adoption. During the content screening process, authors chose articles that test or explain the effect of specific factors on digital technology adoption and studies that engage in any kind of technologies to support rural entrepreneurs.

Articles focused on the consequences of the digital technology adoption, evaluation of digital technology, and articles that merely studied the development of digital technology adoption were excluded from the literature review. By using these criteria, the authors excluded 45 articles. 50 articles were further analyzed to fulfill the purpose of this research. The authors also used internet searches as sources to access these documents. It included the searching using the Google search engine and Internet searches of the professional organization and government websites that produce media releases, action reports, discussion papers, and unpublished research studies that relate to rural entrepreneur issues. Not all studies have identified the practice areas from which the study sample was drawn; the sample collected was from different kinds of practice settings.

The Findings and Discussion

1. Digital Technology Adoption

Emerging technology has been one of the important elements of corporate planning in today's global climate. It is consistent with previous studies that indicate the significance of adopting emerging technologies for entrepreneurs (Etemad et al., 2010; Ong, Habidin, Salleh & Fuzi, 2020). By adopting digital technology, the barrier of restricting the participation of the workforce, cultural standards, and position as homemakers can be overcome. Beninger et al. (2016) observed that digital technology has allowed entrepreneurs to communicate in ways that were not feasible before with new industries, vendors, and consumers. This could allow rural entrepreneurs to embrace the benefits of adopting digital technology.

Empowering small businesses to manufacture, produce, and enter new markets, especially in rural areas, has become a key component of digital technology consumption in emerging economic structures. This is linked to a study by Barba-Sa´nchez and Jime´nez-Zarco (2007), which stated that small companies should be motivated to incorporate digital technology, make modern goods, and be competitive.

However, despite these technology advantages and despite the important contribution of entrepreneurs to gross domestic product (GDP) and job creation, several studies conducted in different countries have shown that entrepreneurs are less likely to adopt technology than large firms, as technology adoption seems to be a challenge for entrepreneurs, as they appear reluctant to adopt it [Fink (1998); Southern and Tilley (2000); Johnston and Wright (2004); Dibrell et al. (2008); Qureshi and York (2008); Bhattacharya (2015); Hsu and Lin (2016); Hamdan and Yahaya].

Examining the adoption and diffusion theory, Straub (2009) discovered several variables that affect a person's decision to embrace a technology. To accelerate the digital technology adoption process in SME businesses, family businesses must have a well-defined digital entrepreneurship model (Basly & Hammouda, 2020). Furthermore, according to Jahanmir and Cavadas (2018), attitudes toward technology, brand image, consumer innovativeness, and lead-user profile resulted in the late acceptance of innovation. Sales, marketing, process innovation, and product development are the primary forces behind small and medium-sized businesses' use of digital technology (Lee, Falahat & Sia, 2021).

The adoption of digital technology by rural entrepreneurs, however, is in lack of use and awareness. A study by Stojanova, Verhovnik, Božić, Trilar, Kos, & Stojmenova Duh (2022) claims Kedah has lower rates of computer ownership and internet penetration than the national average, per the SKMM (2006) study. Kedah's overall ICT growth is still in its early stages, and there is still considerable room for improvement in the state's governmental and private sectors. Despite all the benefits that have been stated in previous studies, rural entrepreneurs may take the adoption of digital technology as a burden due to low levels of education backgrounds.

2. The Process of Digital Entrepreneurship

The word entrepreneurship process is discussed in several studies. The entrepreneurship method is defined as the steps from an initial concept to receiving the benefits from hard work that a startup founder must take in three major, large phases, with several sub-phases. Le Dinh et al. (2018) define the growth of the digital business model, each starting with the generation of a concept, followed by the start-up process, then followed by entrepreneurial business administration. Entrepreneurs ruminate on key concerns about advantages, prices, viability, and implementation during the concept creation process.

The start-up system is described by business preparation and the development of a team for sharing roles and spreading skills and experience around the entrepreneur. At this level, extensive product and/or service tests are also essential components. The digital start-up enters the entrepreneurial business administration process as soon as the company and intellectual property are registered. In this stage of digital business growth, improving goods and services, creativity, and control are the main practices promoted by entrepreneurs. Around the same time, the market strategy process is characterized by the refinement of goods and services as well as the introduction of technologies. Business growth should also be seen as a period of many phases that arise continuously throughout the life cycle of the organization while continuously reshaping it (Ebel et al., 2016). Business owners use digital technologies for networking with different kinds of stakeholders. With that, they know from consumer expectations for creativity. Digital technology is used to preserve and collect data from business operations. In addition to conventional ways of networking, developers often make use of knowledge collection on digital platforms to fuel innovation. These processes in business growth have become increasingly seamless across digital technologies but vary in their presentation.

For example, platforms rely heavily on self-generated social interactions and therefore adopt a self-generation process in general. As an outcome, a considerably high degree of uncertainty is confronted by entrepreneurial practices and performances. Innovation and product growth in digital industries are extremely path dependent. Further production and processing of information and communications technologies support the potential to innovate. When an entrepreneur makes use of digital technology, their desire to evolve further shapes the growth and advancement of this specific technology. Network impacts and the complexity of further growth are also factors for the ambiguity of digital business models (Nambisan, 2017).

The entrepreneurial mechanism as growth in digital entrepreneurship is a widely debated problem in the field of digital entrepreneurship. A big finding from a large-scale analysis of entrepreneurs showed that digital business models were far more dynamic than conventional firms. The growth of digital start-ups follows steps of reinterpretation repeatedly. In addition, the founder and the founding team are the core component of the organisation in its infancy. To be efficient, it is also important to bring the right and effective team together. It is important to be able to change stuff and remain flexible during the trial-and-error business growth process. The digital entrepreneur is therefore experiencing highly complex routes, characterized by different events with unpredictable time frames (Nambisan, 2017).

3. Challenges in Technology Adoption among Rural Entrepreneurs

There are several challenges confronted by rural entrepreneurs in terms of the adoption of digital technology. Past studies show that there are six main factors, namely financial, technical, human, regulatory, social, and organisational (Hosseini et al. 2009; Jensen & Esterhuysen, 2001; Conradie et al., 2003; Gulati, 2008; Heeks, 2008; Rashid, 2016). Businesses in rural areas that are mostly SMEs find it difficult to get resources to develop strong technology systems (Shafi & Mohtar 2021).

Small and medium-sized firms are companies with less than 500 staff and generally have difficulties embracing digital technologies (Riemenschneider et al., 2003; Wolcott, Kamal, & Qureshi, 2008). Similarly, entrepreneurs in rural areas also produce tiny businesses known as micro-enterprises. A micro-enterprise is an organization of five or fewer workers (Nebraska Micro Business Resource Directory, 2007). These firms can be home-based, farm-based, or street-front businesses and can be part-time or full-time enterprises. Microenterprises are at the forefront of the process of business creation and are visible everywhere in both developed and emerging countries.

Moreover, SMEs are typically slower to accept new technologies than large companies, leaving rural SMEs fragile (Tan, Chong, Lin, & Eze, 2009; AlBar & Hoque, 2019). Lack of top management encouragement, owners/managers who lack innovation, opposition, and a lack of qualified staff are the biggest hurdles to better use of emerging technologies for SMEs (Arendt, 2008; AlBar & Hoque, 2019). It is also asserted that the digital divide will grow, and as a result, companies in developing countries, especially small and medium-sized businesses in rural areas, face greater challenges than their counterparts, both in their own countries and in developed countries (Apulu, Latham, & Moreton, 2011).

Small business owners often have little or no digital technology experience and lack knowledge of the advantages that digital technology can offer to their business. This is an important challenge that hinders digital infrastructure ventures from being introduced. It has been found that this lack of awareness is the key explanation why entrepreneurs in rural areas are less concentrated on development and lack a global orientation (Hawkins & Prencipe, 2000; Deakins et al., 2003; Jaganathan, Ahmad, Ishak, Nafi & Uthamaputhran, 2018). Decision makers should launch awareness campaigns highlighting the benefits of digital technology adoption, tailored specifically for rural entrepreneurs. Use local media, social media platforms, and community events to disseminate information. Other than that, local government should increase its support for digital marketing initiatives, including workshops on social media marketing, search engine optimization (SEO), and online advertising. The role and support of government policy plays a very important role in promote the growth of rural entrepreneurs (Tukiran, Idris, Jamaludin, Bahar, & Abdul, 2024).

Studies have also shown that low levels of new technology knowledge and expertise are due to low levels of income and training (Jaganathan et al., 2018). The effect is a significant obstacle to the implementation of new technologies. The smaller the company, the greater the issue, since most small businesses do not use modern technologies for their business operations, except for minimal accounting services (Barba-Sanchez et al., 2007; Almoawi & Mahmood, 2011). Decision makers should establish a partnership with universities, vocational schools, and non-governmental organizations to deliver training programs. Utilize both in-person workshops and online courses to ensure accessibility.

In addition, the lack of connectivity to high-speed and cost-effective telecommunications networks makes it debatable for rural industries to leverage the advantages of emerging technologies (Anderson, 2001; Deakins et al., 2003; Jaganathan et al., 2018). Therefore, adequate infrastructure is also important for enhancing connectivity and the capacity for rural enterprises to use technology. Decision makers should accelerate implementation by expediting the implementation of the National Fiberisation and Connectivity Plan (NFCP) and Jalinan Digital Negara (JENDELA) to ensure comprehensive coverage in rural areas.

Extensive previous studies examined the intention of entrepreneurs to embrace digital technologies as their consequences and variables. The low rate of digital technology adoption through industries in rural regions is presented in a study summary report (Wolcott, Kamal, & Qureshi, 2008; Lee, Falahat, & Sia, 2021). Similarly, research on digital technology performance in rural small businesses demonstrates a low rate of adoption of digital technology by rural businesses relative to urban businesses (Anderson, Tyler, & McCallion, 2005; Zaremohzzabieh et al., 2015). Nevertheless, this research has studied entrepreneurs in the banking sector. Few studies have looked at entrepreneurs in rural areas in multiple sectors.

4. Relationship between Independent Variables and Dependent Variable

Perceived Usefulness and Intention to Adopt Digital Technology

Perceived usefulness is the degree to which a person believes that using a particular system would enhance his/her job performance (Davis, 1989). Evidence that supported the impact of system performance expectancy on system usage led to the operationalization of perceived usefulness (Robey, 1979). A study by Kumar, Goel, Joshi & Johri (2024) identified perceived usefulness and social influence as crucial factors influencing digital technology adoption behavior, and it is in line with findings from Hanggraeni (2021), Kumar et al. (2023), and Lee et al. (2023), who similarly highlighted the importance of these factors in influencing SMEs' decisions to adopt new technologies in developing countries.

Numerous studies have demonstrated that perceived usefulness effectively supported the intention to adopt digital technology. (Davis & Venkatesh, 2004; Kim, Mannino, & Nieschwietz, 2009; Loo, Yeow, &

Chong, 2009; Sentosa & Mat, 2012; Teo & Noyes, 2011; Wang & Wang, 2010). Kamble et al. (2019), who investigated the use of blockchain technology in supply chains in India and e-government technology in China, respectively, came to similar conclusions.

Perceived Ease of Use and Intention to Adopt Digital Technology

In the context of rural entrepreneurs' response to digital technology adoption, perceived ease of use applies to terms such as legibility, understandability, and learning flexibility. (Davis, 1989). Perceived ease of use is the degree to which a person believes that using a particular system would be free of effort (Davis, 1989). Studies have shown that legibility and understandability are essential considerations shaping the adoption of new technologies by rural entrepreneurs. Therefore, a clear association between perceived ease of use and the decision to embrace new technologies might well be presumed. The findings of previous TAM research also show a favorable association between perceived ease of use and the intention to adopt digital technology (Davis, Bagozzi, & Warshaw, 1989).

The ease of use of technology has been described as a major factor driving technology adoption (Moore & Benbasat, 1991; Premkumar, Ramamurthy, & Nilakanta, 1994; Davis, Bagozzi, & Warshaw, 1989). Small companies are indeed worried about the introduction of complex technology (Igbaria et al., 1997; Saadé & Kira, 2007). Normally, for experimenting with emerging technology or educating their staff in these technologies, they do not have comprehensive in-house digital technology skills. Therefore, ease of use may have a positive impact on the choice of a small company to adopt the technology. Beatty et al. (2001) and Eze et al. (2018) identified complexity in the perception of an invention as a degree of difficulty

Perceived Usefulness and Actual Usage of Digitalisation

Venkatesh and Davis (2000) confirmed that both perceived ease of use and perceived usefulness directly influence the adoption of digital technology, as well as digitalisation. A study by Zaremohzzabieh et al. (2016) hypothesized that the effect from the perceived usefulness to actual usage was found to be significant. The sturdiness of perceived usefulness as a cause of usage is supported by the entrepreneurs' theory of production (Harper, 1989).

According to the theory, entrepreneurs are likely to identify and use technology that leads to enhanced processes, yields, and infrastructure. King and He (2006) discovered a significant correlation between behavioral intention and perceived usefulness ($\beta = 0.51$, 95% CI = 0.46–0.55). It has been noted by entrepreneurs that regardless of the system's usability or complexity, the use of technology will continue as long as it benefits the company. This is one of the causes why technology usage decisions have been typically characterized by a strong productivity adjustment.

Perceived Ease of Use and Actual Usage of Digitalisation

In general, TAM identifies the relationships between perceived ease of use, perceived usefulness, and intention to adopt digital technology towards a system (Davis et al., 1989). A person's attitude toward utilizing a system and their perception of its ease of use work together to affect their intention to use it, according to TAM. This suggests that users will feel more confident in their ability to operate the device comfortably if it is easier to use.

Perceived Ease of Use and Perceived Usefulness

Moreover, perceived usefulness is believed to be influenced by perceived ease of use because increased perceived ease of use contributes to improved performance. Prior studies have indicated that people are more inclined to adopt technology if they believe their interactions with it are transparent and easy to grasp. Since technology can be more useful if it is easier to use, TAM proposes that perceived usefulness is influenced by this factor (Venkatesh & Davis, 2000).

When it comes to Malaysian mobile website usage, Amin et al. (2014) discovered a positive correlation between perceived ease of use and perceived usefulness. Furthermore, perceived ease of use can operate through perceived usefulness, suggesting that a technology's perceived ease of use can increase its usefulness. When a user perceives a technology as effortless, this characteristic assists in optimizing their benefits from

it (Kamble et al., 2019). A study by Ulhaq, Pham, Le, Pham, & Le (2022) found that perceived ease of use positively influences perceived usefulness in the study of factors influencing intention to adopt digital technology among intensive shrimp farmers. These results are consistent with an overwhelming amount of research, indicating that a potential adopter is more likely to view technology as useful if they believe it is simple to use (Adrian et al., 2005).

5. Underpinning Theory

Technology Acceptance Model

Numerous theories and models, such as the Unified Theory of Acceptance and Use of Technology, Resource-based Theory, the Organizational Imperative Model, Institutional Theory, the Perceived E-Readiness Model, the Diffusion of Innovations Theory, the E-Readiness Assessment Model, the Managerial Imperative Model, and the IT Business Value Model, have been developed and utilized to study how digital technology is being adopted by businesses. Various theories and models are intended to explore different aspects of the adoption of digital technology, and they differ in their goals. Certain theoretical models simply consider elements of the external environment factors, while others look at technological aspects. In addition, the majority of earlier research based on theories of technology adoption places a strong emphasis on the personal and national contexts in which digital technology is adopted.

After a critical review of the theories that are commonly used in explaining the adoption of digital technology, this study will apply the TAM. TAM was first introduced by Davis (1996, 1989). Perceived usefulness and perceived ease of use are two specific ideas that influence users' attitudes toward information systems and technology, according to TAM, which was an adaptation of the Theory of Reasoned Action (TRA). The attitude, in turn, leads to behavioral intention to adopt the digital technology and then generates the actual usage behavior (digitalization). If potential users think a particular application system will help them execute their jobs better within an organizational setting, then they will consider it beneficial; if a potential user thinks using the system will be effortless, they will perceive it as being easy to use. The findings of the Davis et al. (1989) study suggest that behavioral intention, perceived usefulness, and perceived ease of use are the only three key factors that account for user behavior. TAM has consistently done well in predicting intentions. Much additional research dropped the attitude element in order to simplify the model (e.g., Adams, Nelson, & Todd, 1992; Chau, 1996; Lu & Gustafson, 1994; Venkatesh & Davis, 1996, 2000). Furthermore, Szajna (1996) empirically tested the revised TAM suggested by Davis et al. (1989), in which the attitude construct was excluded (Figure 1).

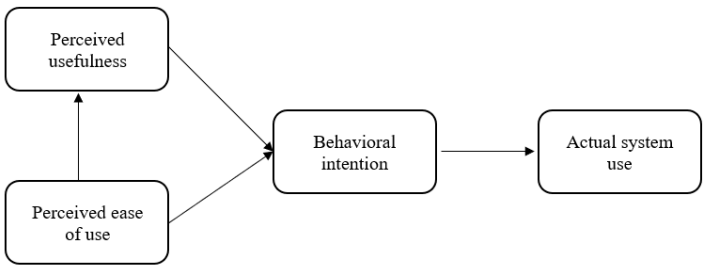

Figure 1. Technology acceptance model

Ecological System Theory

According to Bronfenbrenner's ecological system theory, the socio-environment is divided into several complicated layers, each of which has an impact on how a person interacts with it. The microsystem, mesosystem, exosystem, macrosystem, and chronosystem are the five systemic levels that make up an individual. An individual's social environment is closest to them in the microsystem, where they mostly interact with other individuals. The primary contexts or surroundings in which individual development takes place, such as cultural values, norms, and gazetted law, are comprised of the mesosystem. The exosystem

consists of settings that are not directly related to an individual's experience but have an impact on them, such as the neighborhood, parents' places of employment, parents' acquaintances, and the media. The relationships between family members, urban life, and workplace culture are examples of the microsystems that are interrelated and comprise the macrosystem. This study's theoretical framework is based on Bronfenbrenner's EST, which is particularly relevant to comprehending the factors that influence rural entrepreneurs' adoption of digital technology. This theory offers a thorough viewpoint that goes beyond the confines of the classroom and acknowledges the dynamic interactions among people, communities, and institutions that shape a child's development. Bronfenbrenner's ecological systems theory originally posits that a child's environment interacts with and influences their growth and development over time (see Figure 2).

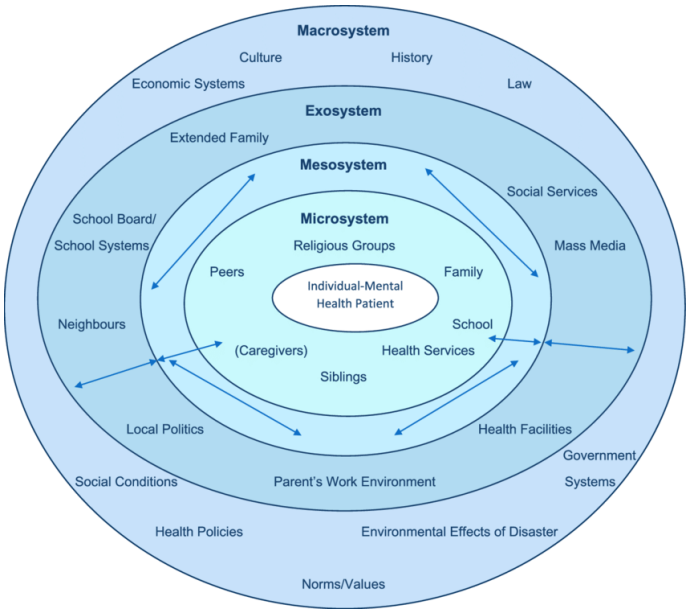

Figure 2. Bronfenbrenner's ecological systems theory

Conclusion

Overall, there are factors that can contribute to the intention to adopt digital technology among rural entrepreneurs in Malaysia. It included perceived usefulness and perceived ease of use. There are many researchers that provided factors influencing the adoption of digital technology among entrepreneurs, but as far as the authors' are concerned, there are limited resources regarding the factors influencing the intention to adopt digital technology among rural entrepreneurs, particularly in Malaysia. The rural entrepreneurs must embrace digital technology to increase the competitiveness of their company, which could give impact to the organisation and not to gain burden by acquiring losses in profit in the current organisation. The development of this framework will allow future researchers to measure intention to adopt digital technology in multiple sectors in rural areas.

Based on the discussion above, this study proposes a framework-based concept as shown in Figure 1.3 below. The analyses carried out by this study are driven by Davis's (1989) TAM model and Bronfenbrenner's (1979) EST. This study included facilities (PEDi) as a potential moderator between the intention to adopt digital technology and actual usage of digitalisation. The first two original independent variables, namely perceived ease of use and perceived usefulness, were taken from the study by Davis (1989). To extend and to fill the deficiency of the past research, this study included facilities (PEDi) as a potential moderator variable as well as perceived ease of use and perceived usefulness as potential mediators to fill the gap since there are limited studies focused on rural entrepreneur settings in Malaysia. The study framework as proposed by this study can be referred to in Figure 3.

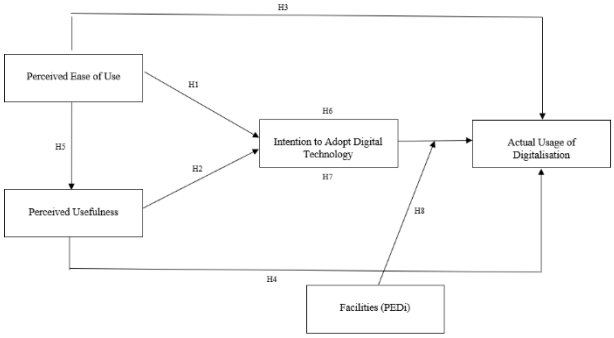

Figure 3. Proposed study framework

The proposed theoretical framework above could potentially contribute to existing literature. Although the influence of perceived ease of use and perceived usefulness may have been extensively researched as independent variables in TAM, these two elements are rarely identified as mediators, which may have an impact on the intention to adopt digital technology. Thus, this study will provide more evidence and value to the existing literature on the intention to adopt digital technology.

Compared to major corporations, rural entrepreneurs are currently less likely to use these technologies. To prevent these challenges, the fundamental distinctions between digital technology in large enterprises and digital technology in rural entrepreneurs must be understood by IT service providers. Adoption of digital technology is viewed differently in the context of rural entrepreneurs. First and foremost, decision-makers need to formally embrace digital technology; before putting digital technology into practice, plans and strategies must be made. In addition, rural entrepreneurs have straightforward, highly centralized organizational structures, with senior managers influencing all business operations, attitudes, and digital technology engagement. After that, managers need to make sure they support, engage, participate, and get involved in every step of the digital technology adoption process, including the initial adoption stage, which involves developing decisions and strategies, the implementation stage, and the post-adoption stage, which involves using and maintaining the solution.

Lastly, rural entrepreneurs typically have restricted access to certain financial, human, and technical resources. Decision-makers involved in digital adoption must focus on the specific digital technology demands of rural entrepreneurs, their budget, and the best solution for the business. The relationship needs and resources must be considered by decision-makers in order to choose the best option for the business. The results of this study are estimated to contribute to rural economic development that can create prosperous community well-being by leading to new job opportunities focusing specifically on the youths that live in rural communities. Developments in digital technologies have certainly eliminated some of the restrictions on such development, as it is a major revenue generator, spreads tasks, improves competitiveness, accelerates connectivity, and much more (Ghazy et al., 2008; Rahman et al., 2005). It is also estimated that this study will be crucial for the owners and managers to improve their management system in business based on the results of this study. The findings of this paper may only provide an applicable guideline from a theoretical perspective. Future studies suggest using an empirical approach to validate the proposed framework.

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