

MANUSCRIPT

TITLE: An exploration of factors influencing variations in digital technology adoption by small and medium enterprises (SMEs)

ABSTRACT:

Digitalisation has become a key component of modern businesses, which significantly impacts their operations, competitiveness, and growth. SMEs are recognised as a major contributor to economic growth and expansion, creating jobs and driving innovation and new business creation (Maga & Modiba 2022). Digital transformation provides opportunities and challenges for existing businesses to maintain a competitive edge (Azevedo & Almeida, 2021). However, the extent and rate at which SMEs adopt digital technology vary significantly (Bhardwaj, Garg & Gajpal, 2021; Shahadat et al, 2023; Ta & Lin, 2023). This study examines the factors influencing the variations in digital technology adoption by SMEs and the reasons for these variations. It will also identify the internal and external barriers affecting digital technology adoption. Finally, it will recommend strategies and policy interventions aimed at promoting digital technology adoption by SMEs.

Keywords: Digitalisation, digital technology, adoption, variations, digital, SMEs; Small and Medium Enterprises (SMEs).

Track: Innovation

Word Count: 1600

Introduction

The rapid spread of digital technologies has changed the landscape of Small and Medium Enterprises (SMEs) across several industries. However, the adoption of digital technologies by SMEs has been found to vary. Despite the perceived benefits of digitalisation, studies aimed at digital technology adoption among SMEs are limited as many existing studies in this area tend to be geared toward digital technology adoption in large firms and factors that affect the adoption of digital technologies between large firms and SMEs might be different (Faiz, 2024).

Initial findings suggest that a variety of factors, including technological, organisational, and environmental elements, play critical roles in influencing the diverse patterns of digital technology adoption. The variability also depends on factors such as lack of information technology platforms, digital human resources, ability to finance technology and independent transformation capability (Ta and Lin, 2023).

These findings often present conflicting perspectives, failing to provide a cohesive framework for understanding digital technology adoption by SMEs. Therefore, the current research aims to conduct a new study, examining the main factors influencing variations in digital technology adoption by SMEs. It will explore reasons for the variation in digital technology adoption by SMEs. It will also identify the internal barriers and external barriers affecting digital technology adoption by SMEs. Finally, the study will recommend strategies and policy interventions aimed at promoting digital technology adoption among SMEs.

Literature Review

Although digitalisation is of importance to SMEs as it enables them to stay ahead with the digitalisation trend, many SMEs are still undecided in their decision to digitalise their business operations which makes the rate of digitalisation significant, behind large businesses (Qalati et al., 2020). However, the COVID-19 pandemic has highlighted increased awareness and importance of digitalisation to SMEs as some were able to utilise online tools to conduct their businesses during the crisis (Gavrila Gavrila & De Lucas Ancillo (2021). For example, a study by Guo, et al, (2020) found that digital technologies played an important role in crisis responses, indicating that SMEs with a higher degree of digitalisation were more likely to respond effectively to public crises and achieve better performance during the COVID-19 outbreak. This is in line with the research which suggests that lockdowns and social distancing resulted in a reappraisal of business models leading to firms moving their operations online at short notice to enable them to remain in business and overcome disruptions (OECD, 2020).

Priyono, Moin & Putri (2020) summarise SME digital adoption into three categories depending on contextual factors; SMEs with a high level of digital maturity who respond to the challenges by accelerating the transition toward digitalized firms, SMEs experiencing liquidity issues but a low level of digital maturity who decide to digitalize the sales function only and SMEs that have very limited digital literacy but are supported by a high level of social capital. Several studies have identified major determining factors of digital technology adoption by SMEs. These include the fear, uncertainty, and worry by some SME practitioners arising from a lack of knowledge of digital technology, lack of digital literacy, lack of understanding of the relevance and benefits of digital technology, and perceived cost of adoption (Bhardwaj, Garg & Gajpal, 2021; Shahadat et al, 2023). Digital technology adoption by SMEs can also be determined by perceived relative advantage, technology readiness, technology compatibility, the perceived cost of technology adoption, top management support, suppliers support, competitive pressure, and government support ((Bhardwaj, Garg & Gajpal, 2021; Ta & Lin, 2023).

Additionally, the perceived risk of a specific technology and lack of financial resources can influence the decision to adopt digital technologies by SMEs (Ngo et al., 2020; Pradhan et al., 2020; Shahzad et al., 2020). Furthermore, the lack of government support, poor IT infrastructure, and inadequate IT expertise and marketing knowledge or skills can limit digital technology adoption (Prasanna et al., 2019). Moreover, Firm size, product characteristics, competitive pressures, support from technology

vendors and management innovativeness and involvement are also determinants of SME digital transformation (Yuniarty, Prabowo & Noegraheni (2019).

Theoretical Framework: Technology-Organisational-Environment Theory (TOE)

The technology-organisational-environment (TOE) (Tornatzky and Fleischer, 1990) is widely recognised as one of the key theories in digital innovation adoption. TOE suggests a three-part framework that covers the three main factors that influence firms' adoption and utilisation of digital innovations: technological, organisational, and environmental.

By combining the environmental factors with technical and organisational factors, the TEO model provides deep insight into digital technology adoption and innovation (Lawan et al., 2021). It also proposes a multidimensional approach to technology adoption decisions by considering both external (environmental) and internal (organizational) factors, as well as technical parameters, to anticipate innovation adoption decisions at an organizational level (Ngo, Pham & Nguyen, 2023).

In contrast to other models of innovation diffusion (Rogers, 2003) or technology acceptance (Davis, 1989), which focus on the acceptance and adoption of technology by individuals, TOE is well-suited for this study due to its emphasis on organisational factors rather than individual factors. As a result, the model will be able to provide valuable insights into the adoption of digital innovations (Lawan and Buckley, 2021).

Knowledge Gap and Research Rationale

The existing body of literature on the variation of the adoption of digital technology by SMEs reveals a notable gap that requires further investigation. Initial findings suggest that a variety of factors, including technological, organisational, and environmental elements, play critical roles in influencing the diverse patterns of digital technology adoption. However, these findings often present conflicting perspectives, failing to provide a cohesive framework for understanding digital technology adoption in SMEs. To advance digital technology knowledge and support SMEs to appreciate the benefits of digital tech knowledge, the current research is proposed.

The existing body of literature on the variation of the adoption of digital technology by SMEs reveals a notable gap that requires further investigation. This study seeks to bridge the gaps by providing an in-depth analysis of the differences in digital technology adoptions using qualitative methods.

Expected Research Outcome and Implications.

The study contributes to existing knowledge on digital technology adoption. The lack of consensus and consistency in the existing literature underlines the need for in-depth research in this area. Bridging this gap will provide a better understanding of digital adoption and, as a result, allow SMEs to reap the full benefits of modern technological developments. Providing academically relevant and up-to-date, research on the adoption of digital technology aligns with the current business and technological trends and challenges.

Additionally, exploring this topic further will provide new insights into the complexities of digital adoption in SMEs, provide academic and business insights and assist SME owners and management in making informed decisions on digital technology adoption. In addition, SMEs, can benefit from best practices, optimise their resource allocation, and concentrate on the areas that are most relevant to their specific circumstances. Moreover, SMEs that embrace digital technology have the potential to gain a competitive advantage. Achieving this advantage through the implementation of digital strategies and technologies can be of great benefit to other local businesses that are seeking to digitalise their businesses.

. Methodology

We will conduct a qualitative study. According to Denzin and Lincoln (2011: 3), “Qualitative researchers study things in their natural settings, attempting to make sense of, or to interpret, phenomena in terms of the meanings people bring to them”. Using this method is also likely to provide a deeper understanding of the specific challenges and opportunities that individuals encounter. SME data will be

collected using semi-structured interviews of 15-20 participants SME personnel with different ranks of positions subject to the data saturation principle. Online business directories will be used to identify and contact potential SMEs by phone or email and request their willingness to take part in the study.

The consent of all participants in the interview will be sought before embarking on the project. How the data will be collected, used, and shared post-project will be explained to the participants through the information sheet. Before the data collection, all participants will be asked to sign the Consent Form. No personal data will be collected. Data collected will be stored securely on OneDrive and sharing of data will be limited to researchers. Interviews will be conducted through face-to-face or video conferencing platforms such as Microsoft Teams.

Data will be analysed using thematic analysis (Braun and Clarke, 2006) and NVivo as the analytical software. This will enable the identification of common themes, trends, and factors that affect digital technology adoption among these SMEs and reasons for the variations in the adoption. Codes (Pseudonyms) will be used rather than participants' names. Codes will pseudonymise participants and it will help protect their identity.

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