Information Technology Competence and Innovation in Small and Medium Enterprises

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ABSTRACT

The increasingly competitive environment occasioned by advances in technology, social and economic changes demands that firms embrace innovation as a strategy. Innovation plays a critical role in the survival and growth of any business. International research shows clear evidence of the benefits of adopting innovation practices. For over the years, Nigeria has faced socio-economic hiccups characterized by poor economic performance, slow industry growth, high unemployment rate, increased poverty, poor service delivery by public entities, inter alia. As such, Small and Medium Enterprises (SMEs) are regarded as key players in the economy and their significance is demonstrated by the government's support through formulation of policies with agencies specifically for SMEs. However, SMEs face difficulties to remain competitive in the market. Information Technology (IT) which plays a pivotal role in innovation, provides SMEs a better chance of surviving in the competitive market of the 21st century. The role of IT is significant, and its competence is considered as a main component in an organization to improve performance. This paper attempts to explicitly connect IT competence and innovation in SMEs in Nigeria.

Keywords: Innovation, Information Technology (IT), IT competence, SMEs

INTRODUCTION

Small and Medium Enterprises (SMEs) have played crucial role in promoting industrial and Economic development across the world in both developed and developing economies. According to 2018 research by the Organization for Economic Co-operation and Development (OECD), SMEs are vital to the transition of developing nations to an industrial economy. The report indicated that SMEs often make up more than 90% of all businesses outside the agricultural sector. They were the primary source of income, and thus they account for a significant portion of both domestic and export earnings.

Small and Medium Enterprises (SMEs) are critical to the growth and development of the Nigerian economy. They contribute significantly to employment generation, income creation, and poverty reduction. However, SMEs in Nigeria face numerous challenges, including limited access to finance, inadequate infrastructure, and low levels of technology adoption. In recent years, there has been growing recognition of the potential of Information Technology (IT) capability and innovation to enhance the competitiveness and sustainability of SMEs in Nigeria. This paper aims to review the existing literature on IT competence and innovation in SMEs in Nigeria, identify the key concepts, theories, and frameworks related to the topic, and analyze the trends, patterns, and gaps in the literature.

In the next section, the paper will provide a brief background and context of the SME sector in Nigeria and its role in the economy. It will also discuss the challenges and opportunities faced by SMEs in Nigeria and explain the importance of IT competence and innovation for SMEs in Nigeria. The subsequent section will review the existing literature on IT capability and innovation in SMEs in Nigeria, analyze the data, and identify the similarities and differences in the findings. The paper will also provide examples and case

studies of SMEs in Nigeria that have leveraged IT capability and innovation to drive growth. The following section will discuss the implications of the findings for SMEs in Nigeria and other developing countries, identify the opportunities and challenges of IT capability and innovation in SMEs, and provide recommendations for SMEs, policymakers, and other stakeholders. Finally, the paper will summarize the main points, highlight the contributions and significance of the literature review, and suggest directions for future research.

LITERATURE REVIEW

The existing literature on IT competence and innovation in Nigeria highlights the importance of IT competence for driving innovation and competitiveness in SMEs. Several studies have found that SMEs with a higher level of IT competence are more likely to engage in innovation activities and achieve higher levels of performance. However, there are also challenges associated with the adoption and implementation of IT in SMEs in Nigeria. These challenges include limited access to capital, a lack of IT expertise, and a lack of infrastructure.

Overall, the literature suggests that SMEs in Nigeria can benefit significantly from the development of IT competence and a strategic approach to innovation. By leveraging technology, SMEs can become more competitive, create new jobs, and drive economic growth.

Innovation

Innovation has emerged as a critical component of corporate survival and expansion as well as a source of competitiveness for businesses. Kahn (2018) documented three different ways in which innovation can be defined: as an outcome, as a process and as a mind-set. As an outcome, innovation comprises creating new products or services, new production processes, new supplies, new organizational structures, and new marketplaces. Innovation according to OECD (2018) refers to a shift in a firm's operations, and based on this, innovation can be divided into four categories, which are: product innovation, process innovation, organizational innovation and marketing innovation.

Innovation has been defined as the introduction of new products or services, new processes, the development of new markets, and the utilization of novel resources to boost market value (Bate, Wachir & Sandor, 2021). It is the successful implementation of brand-new processes and products created for an organization's benefit and that of its stakeholders. Organizations take advantage of opportunities provided by technology to innovate in response to shifting customer wants and market dynamics. Investment in innovation and adoption of technology highly explains the introduction of new products by SMEs (Chang-Muñoz et al., 2023). Product innovation and process innovation enhances a superior performance of SMEs in the business environment (Kowo, 2019). Innovation fosters sustainability in SMEs. Heenkenda et al. (2022) found in a study that innovation capability and disruptive technology had positive effects on SMEs in Sri Lanka. SMEs in Lagos State, Nigeria were more competitive because of strategic innovation in their entrepreneurship development (Ogunkoya & Hassan, 2019).

Kalafsky (2017) indicated that the numerous failures witnessed among SMEs in the first five years in Romania. Thirty-three percent (33%) of small businesses survive to the fifth anniversary and 12% make it to their tenth which is largely attributed to lack of innovative capability. SMEs in Nigeria continue to encounter difficult situations truncating their performance, occasioning their inability to remain afloat, viable and innovative, thus, strangulating their sustainability and growth (Bushe, 2019; Organisation for Economic Co-operation and Development [OECD], 2018). These challenges are exacerbated by several inhibiting factors (Abdullahi, Jakada & Kabir, 2017), some of which are attributed to lack of innovation and increasing cost of production which negatively impact the SMES performance. Furthermore, SMES dwindling performance is attributed to some factors such as lack of product innovation, process innovation,

embedded innovation, system innovation and technology (Twaliwi & Isaac, 2017). Due to the intense competition resulting from globalization, SMEs are expected to enhance their competitiveness through buying into new technology and produce new and enhanced products in their markets (Mabenge, Ngorora-Madzimure & Makanyeza, 2022).

Information Technology (IT) plays a pivotal role in innovation, given that hardly any product innovation, service innovation or process innovation can succeed without being enabled, by IT. However, despite the widespread adoption of IT by businesses in a variety of industries, studies have found that many businesses struggle to move forward through the stages of the business lifecycle (Chege, Wang & Suntu, 2019; Frogeri et al., 2019). Businesses need to know how to develop the IT competences required for innovation and how to use them to foster innovation.

Overview of SMEs in Nigeria

Small and Medium Enterprises Development Agency of Nigeria (SMEDAN) (2018) defined SMEs as businesses that employ between 5 and 500 persons, while having assets of between N5 million and N500 million. These businesses were categorized as employing less than 300 employees while having an annual turnover of less than N100 million (Oyelaran-Oyeyinka, 2020). These definitions show that different criteria can be used in defining what businesses can be regarded as SMEs, which include but not limited to number of employees, value of assets owned, and annual turnover. It is argued that SMEs contribute over 55% of gross domestic product (GDP) and over 65% of total employment in developed countries (Aremu, Aremu & Olodo, 2015; Eniola & Entebang, 2014), while in some developing countries they contribute over 60% of the GDP and 70% of the total employment (Shettima, 2017). A report has indicated that Nigeria's SMEs contribute nearly 50% of the country's GDP and account for over 80% of its employment (PwC, 2020).

SMEs play a critical role in the Nigerian economy, accounting for over 80% of employment and contributing significantly to GDP. However, the sector faces a number of challenges, including limited access to financing, a lack of infrastructure, and a challenging business environment. Despite these challenges, SMEs in Nigeria have demonstrated resilience and innovation, and there is significant potential for the sector to drive economic growth and development. The Nigerian government has recognized the importance of SMEs and has implemented a number of policies and initiatives to support the sector, including the establishment of a National Micro, Small, and Medium Enterprises Development Fund and the development of a National Enterprise Development Programme (SMEDAN, 2018).

SMEs in Nigeria face a number of challenges, including limited access to financing, a lack of infrastructure, a challenging business environment, and limited access to skilled labour. These challenges can make it difficult for SMEs to compete with larger firms and to grow and expand their businesses (Ngibe & Lekhanya, 2019). However, there are also significant opportunities for SMEs in Nigeria, particularly in the areas of innovation and technology. By developing IT competence and adopting innovative business practices, SMEs can become more competitive and better positioned to succeed in the global economy. The development of IT infrastructure and the availability of low-cost digital technologies have made it easier for SMEs to access new markets, engage with customers, and streamline their operations.

At the same time, the importance of IT competence and innovation in SMEs in Nigeria cannot be overstated. Studies have shown that SMEs with a higher level of IT capability are more likely to engage in innovation activities and achieve higher levels of performance. By leveraging technology, SMEs can improve their productivity, reduce costs, and increase their competitiveness. Overall, the challenges and opportunities faced by SMEs in Nigeria highlight the need for a strategic approach to business development that emphasizes innovation and technology. By developing IT competence and adopting innovative business practices, SMEs can overcome the challenges they face and capitalize on the opportunities available to them.

Concept of IT Competence

The role of IT is significant, and its competence is considered as a main component in an organization to improve performance. However, lack in IT is one of the major problems in most of the SMEs in developing countries (Zahra, Hameed, Fiaz & Basheer, 2019). Considering the growing importance of information in today's business environment, achieving competence and capability with regard to the tools and processes used to manage information has taken on a new urgency. IT competence refers to the ability to develop and design new products, process and enhance knowledge of the physical world in unique ways, thereby transforming this knowledge into designs and instructions for the creation of desired outcomes (Zahra et al., 2019).

Establishing strategic capabilities such as IT competence is paramount for firms to be competitive and at the same time achieve superior performance. Performance is the key force for the existence of all firms (King'oo, Kimencu & Kinyua, 2020). Arokodare, Asikhia & Makinde (2019) noted that possession of IT competence is a resource, and a strategic asset that when properly put into use, can differentiate the overall performance of one firm from the other. The resource-based view describes IT competence as more than a mere tool or an asset, it is an organizational capability for competitive advantage (Mao, et al. 2020).

Resource-Based View Theory (1991) and IT Competence

The Resource-Based View (RBV), often termed Resource-Based Theory (RBT), was proposed by Barney (1991). It is a managerial framework used to determine the strategic resources a firm can exploit to achieve sustainable competitive advantage. RBV proposes that firms are heterogeneous because they possess heterogeneous resources, meaning, firms can have different strategies to leverage the different resource mixes (Lavie, 2008). The RBV focuses managerial attention on the firm's internal resources in identifying those assets, capabilities and competencies with the potential to deliver superior competitive advantages. Rantakari (2010) defines RBV as where the outsourcing decision is based on the client company's ability to invest in internal capabilities and thus sustain competitive advantage. RBV as suggested by Lacity and Willcocks (2008) deliberate on the resources that are possessed by a firm are the primary determinants of its performance, and may contribute to a sustainable competitive advantage of the firm. In this strategic RBV theory according to Rantakari (2010), a firm is viewed as a collection of physical and intangible resources that enable it to compete with other firms. To provide a sustained competitive advantage, a resource must have four qualities and RBV compose them as heterogeneous resources, and can be classed as Valuable, Rare, In-Imitable, And Non-Substitutable (VRIN). Barney (1991) and Talaja (2012) studies acknowledge that a company that possesses VRIN and exploits its capabilities will certainly achieve sustainable competitive advantage and above-average performance.

This theory suggests that firms can achieve a competitive advantage by leveraging their unique resources and capabilities. IT competence is seen as a valuable resource that can help SMEs to innovate and improve their performance. It provides a useful lens for understanding the complex relationship between IT capability, innovation, and performance in the context of Nigerian SMEs.

IT Competence and Innovation

There is a growing interest in the relationship between IT competence and innovation in SMEs in Nigeria. Most studies use a quantitative research design and survey methodology to investigate this relationship. The majority of studies find a positive relationship between IT competence and innovation performance in SMEs in Nigeria. Studies often focus on the role of IT infrastructure, IT skills, and IT governance in enhancing IT capability and innovation in SMEs. Studies often adopt a resource-based view (RBV) or dynamic capabilities perspective to explain the relationship between IT capability and innovation in SMEs. Most

studies focus on the manufacturing, services, or ICT sectors in Nigeria. Studies often use innovation outputs (e.g., new products, processes, services) or innovation outcomes (e.g., revenue growth, profitability) as measures of innovation performance.

Much of the literature reviewed modelled innovation to ascertain how it influences the performance of SMEs (Adamu, Hussin & Ismail, 2020; Asnimar, Lita & Ma'ruf, 2022; Ernest, 2020; Nwangene, Dibua & Edoko, 2019; Nwankwo & Ezeibe, 2021), competitiveness and competitive advantage of SMEs (Ogunkoya & Hassan, 2019; Quaye & Mensah, 2018), and entrepreneurship development (Ogunkoya, 2020).

There is a lack of qualitative research that explores the experiences and perspectives of SME owners and managers regarding the relationship between IT competence and innovation. Most studies focus on the internal factors that influence IT competence and innovation in SMEs, while neglecting the external factors (e.g., market competition, government policies) that may also play a role. There is a need for longitudinal studies that investigate the long-term effects of IT competence on innovation performance in SMEs. There is a lack of studies that investigate the role of IT competence in social innovation and sustainable development in SMEs in Nigeria.

Overall, the literature on IT competence and innovation in SMEs in Nigeria is growing, but there are still gaps that need to be addressed to provide a more comprehensive understanding of this relationship.

OPPORTUNITIES AND CHALLENGES FOR SMES

IT competence and innovation present both opportunities and challenges for SMEs. Here are a few key points to consider:

Opportunities:

1. IT competence can help SMEs to streamline their operations, reduce costs, and improve customer service.
2. Innovation can help SMEs to develop new products and services, enter new markets, and achieve higher levels of performance.
3. Digital technologies can help SMEs to access new customers and markets, and compete more effectively with larger firms.
4. IT competence and innovation can help SMEs to become more resilient and adaptable to changing market conditions.

Challenges:

1. SMEs may lack the financial resources to invest in IT competence and engage in innovation activities.
2. SMEs may lack the skills and expertise necessary to effectively use IT and engage in innovation activities.
3. SMEs may operate in regulatory environments that are not conducive to innovation and growth.
4. SMEs may face competition from larger firms that have greater resources and capabilities.

RECOMMENDATIONS

1. SMEs should prioritize the development of IT competence and the adoption of digital technologies in order to drive innovation and growth.
2. SMEs should develop partnerships and collaborations with other firms and organizations in order to share resources and expertise.
3. Policymakers should develop policies and programs that can support SMEs in their efforts to develop

IT competence and engage in innovation activities.
4. Policymakers should create a favourable regulatory environment and provide government support programs that can help SMEs to overcome the challenges they face.
5. Other stakeholders, such as investors and industry associations, should support SMEs in their efforts to develop IT competence and engage in innovation activities.

Overall, IT competence and innovation present significant opportunities for SMEs, but also pose challenges that must be addressed. By following these recommendations, SMEs, policymakers, and other stakeholders can work together to create an environment that supports innovation and growth for SMEs.

The main points of the literature review are as follows:

1. IT competence and innovation present significant opportunities for SMEs, such as cost reduction, improved customer service, and access to new markets.
2. SMEs may face challenges in developing IT competence and engaging in innovation activities, such as lack of financial resources, skills, and expertise, as well as regulatory and competitive pressures.
3. Policymakers and other stakeholders can play a role in supporting SMEs in their efforts to develop IT capability and engage in innovation activities.

SUMMARY

The literature review contributes to our understanding of the challenges and opportunities facing SMEs in the area of IT competence and innovation. It highlights the importance of developing IT competence and engaging in innovation activities in order to achieve growth and competitiveness. It also emphasizes the need for policymakers and other stakeholders to create an environment that supports SMEs in their efforts.

Future research could explore the effectiveness of different policies and programs aimed at supporting SMEs in their efforts to develop IT competence and engage in innovation activities. It could also investigate the role of different stakeholders, such as investors and industry associations, in supporting SMEs. Additionally, future research could explore the impact of IT capability and innovation on SME performance and competitiveness.

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