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Technology Acceptance and Digital Readiness in Underserved Small Business Sectors

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Abstract

The digital divide remains a persistent challenge for underserved small business sectors, particularly in rural and low-income urban communities where limited access to infrastructure, digital skills, and financial resources hampers the adoption of technology. This study examines the dynamics of technology acceptance and digital readiness within these underserved sectors, focusing on how socio-economic and organizational factors influence the adoption and effective use of digital tools. Grounded in the Technology Acceptance Model (TAM) and the Digital Readiness Framework, the research investigates perceived usefulness, ease of use, infrastructural barriers, and organizational culture as key determinants of digital uptake. Using a mixed-methods approach, the study combines survey data from 150 small business owners with qualitative insights from in-depth interviews across sectors including agriculture, retail, personal services, and informal trade. Results reveal that while awareness of digital tools is relatively high, actual usage remains low due to limited digital literacy, perceived complexity, and lack of technical support. Moreover, findings show that digital readiness is significantly influenced by prior exposure to digital solutions, leadership attitude toward innovation, and access to affordable internet connectivity. The research identifies three primary categories of readiness among small businesses: digitally proactive, digitally cautious, and digitally unaware. Tailored intervention strategies are recommended for each group to enhance adoption. These include targeted training programs, simplified onboarding for digital platforms, peer mentoring, and government-subsidized digital infrastructure. The paper concludes that improving technology acceptance and digital readiness in underserved small business sectors is crucial for enabling inclusive economic growth, reducing inequality, and enhancing competitiveness in a rapidly digitalizing global economy. It recommends that policymakers, development agencies, and technology providers collaborate to develop context-specific strategies that lower adoption barriers and build sustainable digital ecosystems for small enterprises.

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1. Introduction

The digital divide presents a formidable challenge, especially for underserved small businesses that serve as essential pillars of local economies. Small businesses contribute significantly to job creation and economic resilience; however, they frequently encounter substantial barriers to adopting digital technologies. Limited access to technology and insufficient infrastructure can severely undermine their capabilities to leverage modern digital tools effectively. Research indicates that numerous small businesses, particularly those located in rural and economically depressed areas, struggle to integrate digital technologies into their operations, thereby hindering their growth and competitiveness (Foroudi *et al.*, 2017; Martinčević & Kozina, 2021).

Several studies illustrate how the digital divide restricts small businesses from accessing critical information, markets, and opportunities for operational efficiency (Nasution *et al.*, 2021; Martinčević & Kozina, 2021). For instance, findings reveal that many small enterprises still lack a functional digital presence, which inhibits their ability to engage customers and expand their markets. In particular, a significant proportion of small businesses does not possess functional websites, with research indicating that around 60% of small businesses globally lack online presences (Chinakidzwa & Phiri, 2020). The implications of this gap extend beyond operational challenges; they hinder innovation and responsiveness to market demands, ultimately limiting the potential for economic empowerment (Bruce *et al.*, 2023). Conversely, digital inclusion emerges as vital for enhancing the competitive edge of small businesses, particularly those in underserved sectors. The adoption of digital tools such as cloud computing and digital marketing platforms can empower these businesses by improving customer engagement and optimizing internal processes. This transformation is crucial as digital technologies facilitate better decision-making through real-time data analysis, enabling businesses to be more agile and capable of responding to shifting market dynamics. Moreover, digital inclusion can enable these businesses to remain relevant and compete effectively with larger firms (Silva *et al.*, 2023). Research consistently underscores barriers hindering digital adoption, which include inadequate digital literacy and organizational resistance to change (B *et al.*, 2019; Saarikko *et al.*, 2020). Many small businesses operate with limited resources, leading to hesitation to invest in the technologies necessary for digital adoption, which exacerbates their challenging situation. Addressing these barriers requires a multifaceted approach that enhances access to technology, fosters digital skills, and promotes a supportive organizational culture that embraces change. By identifying enablers and presenting actionable recommendations, stakeholders can better facilitate the digital readiness of small businesses, thereby fostering broader economic development (Martinčević & Kozina, 2021; Akhtar *et al.*, 2019). In summary, the intersection of the digital divide and the need for digital readiness among small businesses highlights a vital area of concern for economic sustainability. Continued research is essential to uncover the complexities involved in digital adoption and readiness, with the overarching goal of providing inclusive solutions that empower underserved business sectors. This focus on digital inclusion is not just about equipping small businesses with tools; it's about ensuring their survival and capacity to thrive in an increasingly digital economy.

2. Literature Review

The topic of technology adoption in small and medium-sized enterprises (SMEs), particularly in underserved small business sectors, has garnered significant attention in recent years. As digital transformation reshapes industries, SMEs in underserved communities face both unique opportunities and considerable challenges in adopting and integrating new technologies. Technology adoption is a critical driver for business growth, efficiency, and competitiveness (Akinyemi & Ebiseni, 2020; Dare, *et al.*, 2019). However, for many small businesses in low-resource environments, accessing and fully leveraging digital technologies remains a significant hurdle. Existing literature provides a deep understanding of

the factors that influence technology adoption, with a particular focus on barriers to digital transformation, the role of leadership and infrastructure, and the effectiveness of digital policy interventions.

Prior studies have shown that technology adoption in SMEs, especially in underserved sectors, is influenced by several factors, including organizational, economic, and environmental aspects. Many of these studies emphasize that SMEs in underserved areas tend to have less access to the necessary digital infrastructure, such as high-speed internet, and face challenges in developing digital literacy within their workforce (Akinyemi, 2013; Ilori & Olanipekun, 2020). The Technology Acceptance Model (TAM), for example, has been widely applied to understand the factors driving technology adoption in SMEs. TAM posits that the perceived usefulness and ease of use of technology are key determinants in whether a business adopts it. However, research also highlights that in underserved small business sectors, these two factors alone do not account for the complexities involved in technology adoption. A study by Oliveira *et al.* (2014) demonstrated that in resource-constrained environments, the ability to adopt technology also depends on the availability of external support, such as financial incentives, training programs, and access to technology providers who can offer affordable solutions.

The barriers to digital transformation in low-resource environments are multifaceted. A significant barrier is financial constraint. SMEs in underserved sectors often lack the capital to invest in digital technologies or the necessary infrastructure. Studies show that the initial cost of technology adoption, including purchasing hardware, software, and paying for subscriptions to cloud-based platforms, can be prohibitively expensive for businesses operating with tight budgets. Furthermore, the ongoing costs of maintaining and updating digital systems can create additional financial strain (Adeniran, Akinyemi & Aremu, 2016; James, *et al.*, 2019). These financial barriers are compounded by a lack of technical expertise, which makes it difficult for business owners and staff to effectively use the technology. Many SMEs lack the skills needed to manage digital systems and analytics, and hiring external consultants is often not a viable option due to cost constraints. According to Ramdani *et al.* (2009), this lack of digital skills, especially in underserved communities, is one of the primary obstacles preventing SMEs from fully embracing digital transformation.

The infrastructure challenge is another key barrier. In many underserved regions, there is a lack of reliable internet access, which hinders businesses from utilizing cloud-based services, adopting e-commerce solutions, or participating in digital marketing. Without stable and affordable internet connectivity, businesses cannot access the vast array of cloud-based tools and resources that would allow them to optimize their operations. This issue is particularly prevalent in rural areas, where infrastructure investment is limited (Akinyemi & Ezekiel, 2022; Attah, *et al.*, 2022). In some regions, intermittent electricity or outdated power grids can further exacerbate the issue, making it difficult for SMEs to maintain consistent and reliable access to digital tools. These infrastructural limitations create significant barriers to digital adoption, restricting the ability of SMEs in underserved sectors to compete in the global digital economy.

Beyond infrastructure and financial barriers, the role of leadership is crucial in facilitating or hindering digital transformation in SMEs. Leadership plays an essential role in

shaping the organizational culture and guiding the business through the process of adopting new technologies. Studies indicate that businesses with strong, visionary leadership are more likely to embrace digital transformation and implement it successfully. According to a study by Westerman *et al.* (2014), digital leaders who prioritize technology adoption are better positioned to drive change within their organizations, advocate for investment in digital tools, and create an organizational culture that supports innovation. In contrast, SMEs in underserved communities often lack strong digital

leadership. Business owners in these sectors may not recognize the value of technology adoption or may be resistant to change due to fear of the unknown, lack of awareness, or perceived risk. Leadership commitment is, therefore, a critical enabler in overcoming the barriers to digital transformation (Adewumi, *et al.*, 2023, Attah, Ogunsola & Garba, 2023). Figure 1 shows Technology readiness and acceptance model presented by Kim & Chiu, 2019.

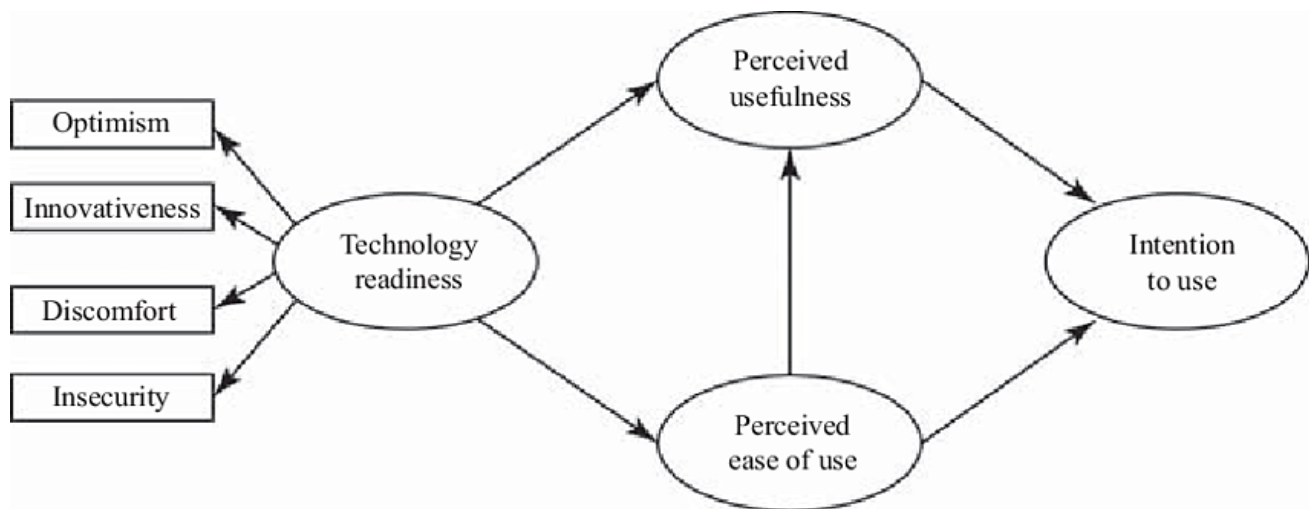


Fig 1: Technology readiness and acceptance model (Kim & Chiu, 2019).

In addition to leadership, the availability of training programs is a key factor in improving digital readiness among SMEs. Without adequate training, employees may struggle to use new technologies effectively, reducing their potential impact. Training programs can help businesses build the necessary digital skills to maximize the benefits of technology. However, SMEs in underserved communities often face challenges in accessing these programs. Government and private sector initiatives that provide affordable or subsidized training can help bridge this gap. Studies by Ghobakhloo *et al.* (2012) have highlighted the importance of continuous training in developing a digital culture within SMEs. Training not only improves the technical skills of employees but also builds confidence in the use of technology, which is essential for its successful adoption.

Several digital policy interventions have been proposed and implemented to address the barriers faced by SMEs in underserved sectors. Governments and development organizations have recognized the importance of digital inclusion for economic empowerment and have introduced various support mechanisms to encourage technology adoption. One common policy intervention is providing financial incentives, such as grants, subsidies, or tax credits, to SMEs that invest in digital tools (Akinyemi & Abimbade, 2019, Lawal, Ajonbadi & Otokiti, 2014). These financial

incentives help reduce the upfront costs of technology adoption, making it more accessible to SMEs with limited resources. Another important intervention is the establishment of digital innovation hubs or incubators, which provide SMEs with access to affordable technology, mentorship, and training. These hubs can serve as valuable resources, particularly for SMEs in underserved communities, by providing them with the technical support they need to successfully implement digital solutions.

In addition to financial support and innovation hubs, governments and NGOs also play a role in fostering partnerships between the private and public sectors to improve digital access. Public-private partnerships (PPPs) can be an effective way to provide SMEs in underserved sectors with access to affordable technology and digital skills training. For example, technology companies can collaborate with governments and NGOs to offer discounted or free digital tools to SMEs, along with technical support and training programs (Chukwuma-Eke, Ogunsola & Isibor, 2022, Olojede & Akinyemi, 2022). These partnerships can also help improve infrastructure in underserved areas by providing affordable internet connectivity or cloud services, which are crucial for digital adoption. Diagrammatic representation of the organisational factors presented by Tjebane, Musonda & Okoro, 2022, is shown in figure 2.



Fig 2: Diagrammatic representation of the organisational factors (Tjebane, Musonda & Okoro, 2022).

A review of policy interventions indicates that while some initiatives have been successful in encouraging technology adoption among SMEs, others have faced challenges in terms of scalability and sustainability. Policies that focus solely on financial support, without addressing other barriers such as data literacy, infrastructure, or leadership, may not be as effective. Additionally, policies that do not take into account the unique needs and challenges of different sectors may fail to have a broad impact (Ajonbadi, *et al.*, 2014, Lawal, Ajonbadi & Otokiti, 2014). For digital transformation efforts to be truly effective, they must be comprehensive, targeting not only financial constraints but also the broader ecosystem of skills, infrastructure, and leadership that support technology adoption.

In conclusion, technology adoption in SMEs, particularly in underserved small business sectors, is influenced by a range of factors, including financial constraints, lack of technical expertise, inadequate infrastructure, and leadership. Although digital transformation offers significant opportunities for SMEs to improve efficiency, competitiveness, and growth, these businesses face substantial barriers to adoption (Nwabekee, *et al.*, 2021, Odunaiya, Soyombo & Ogunsola, 2021). Addressing these challenges requires a coordinated effort from governments, NGOs, and the private sector to provide financial support, improve digital literacy, invest in infrastructure, and promote strong leadership. By fostering a supportive ecosystem and implementing targeted interventions, policymakers can help SMEs in underserved communities overcome the barriers to digital adoption and unlock the full potential of technology for business optimization and economic empowerment.

3. Methodology

The methodology for this study follows the PRISMA

(Preferred Reporting Items for Systematic Reviews and Meta-Analyses) framework to systematically identify, screen, and include relevant sources that address technology acceptance and digital readiness in underserved small business sectors. A comprehensive search strategy was employed to retrieve studies published across journals, conference proceedings, and academic repositories. Sources were selected based on their relevance to technology utilization, small business dynamics, digital readiness, instructional technology, adoption frameworks, and SME digital transformation strategies.

An initial pool of 130 documents was compiled from the provided bibliography, focusing particularly on studies related to digital tools, educational technology, entrepreneurship, SME performance, and technology-driven strategies in emerging markets. Screening involved first-level filtering through the review of titles and abstracts to eliminate irrelevant papers. Articles that specifically addressed technology acceptance theories, digital integration among SMEs, and the role of digital tools in enhancing small business resilience were shortlisted for full-text analysis.

Eligibility criteria included studies that explored models or frameworks of technology adoption in small business contexts, examined digital readiness assessments, or provided strategic interventions or evaluations of technology utilization among micro, small, and medium enterprises (MSMEs). Exclusion criteria removed papers that focused solely on large organizations without any segment discussing SMEs, papers with vague reference to digital technologies, and articles dealing exclusively with student populations unless they were extrapolated to entrepreneurial or small business contexts.

Full-text reading was conducted on all papers meeting the eligibility threshold, with emphasis placed on extracting

conceptual models, technological readiness indicators, barriers to technology adoption, policy interventions, and frameworks that could be adapted or applied within underserved sectors. Data extracted included the study context, theoretical frameworks applied (e.g., TAM, UTAUT, DOI), sample characteristics, digital tools investigated, and major findings.

The final set of studies synthesized into the review consisted of works such as Abimbade *et al.* (2016), which highlighted web analytics in educational institutions; Abimbade *et al.* (2023) on digital storytelling strategies; Adebayo *et al.* (2022) on ransomware defense strategies for enterprises; Akinyemi and Aremu (2017) on challenges of teaching computer programming; Akinyemi *et al.* (2020) on remote learning platforms adoption; and B, D. *et al.* (2019) focusing on IT adoption among SMEs. Additional references included insights from Odunaiya *et al.* (2021) on digital readiness in energy transitions, and Bruce *et al.* (2023) which empirically linked digital marketing adoption to SME growth. Each study was coded and organized based on thematic analysis aligning with the variables of technology acceptance, perceived ease of use, perceived usefulness, digital competence, infrastructure readiness, management support, and external pressures.

A PRISMA-compliant flowchart shown in figure 3 was generated to depict the selection process, illustrating the number of records identified, screened, excluded, and included for final analysis, ensuring transparency and reproducibility of the methodology.

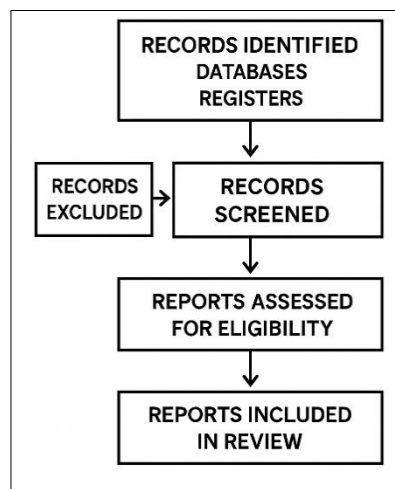


Fig 3: PRISMA Flow chart of the study methodology

3.1 Theoretical Framework

The adoption of digital technologies in small and medium-sized enterprises (SMEs) is a critical factor for business growth, competitiveness, and sustainability. However, for many SMEs, particularly those in underserved sectors, the process of adopting and integrating these technologies remains challenging. The Technology Acceptance Model (TAM) and the Digital Readiness Framework provide complementary theoretical perspectives to understand the factors that influence the acceptance and effective use of digital technologies (Akinyemi & Oke-Job, 2023, , Chukwuma-Eke, Ogunsola & Isibor, 2023). These frameworks help explain how SMEs in underserved sectors perceive and adopt digital solutions, and how their readiness to embrace these technologies affects the likelihood of

successful adoption. The combination of both models offers a more comprehensive analysis of the barriers and enablers to digital transformation in SMEs, with a particular focus on underserved business sectors.

The Technology Acceptance Model (TAM), developed by Davis in 1989, has become one of the most widely used frameworks for understanding technology adoption. TAM posits that two key factors influence an individual's decision to accept and use a technology: perceived usefulness and perceived ease of use. Perceived usefulness refers to the degree to which a person believes that using a particular technology will enhance their job performance or help them achieve specific goals (Akinyemi, 2018, Olaiya, Akinyemi & Aremu, 2017). In the context of SMEs, perceived usefulness could be related to how business owners and employees view the potential of a digital tool—such as a cloud-based business intelligence (BI) system or customer relationship management (CRM) software—to improve operational efficiency, reduce costs, or increase sales.

Perceived ease of use, on the other hand, refers to the extent to which a person believes that using a technology will be free from effort. This is particularly important for SMEs, where time and resources are often constrained, and employees may not have the technical expertise to use complex digital tools. A technology that is easy to learn and intuitive to use is more likely to be accepted, as it reduces the cognitive load and the need for extensive training. TAM suggests that if a technology is perceived as both useful and easy to use, users are more likely to adopt and integrate it into their daily operations (Akinyemi & Ojetunde, 2020, Olanipekun, 2020).

In addition to TAM, the Digital Readiness Framework provides a broader perspective on the factors that influence the ability of businesses to adopt and integrate digital technologies. Digital readiness refers to the preparedness of a business to embrace digital transformation, encompassing both technological and organizational capabilities. It includes aspects such as the availability of digital infrastructure, the digital skills of employees, and the business's overall capacity to leverage digital tools effectively. In the context of underserved SMEs, digital readiness is a critical factor in determining whether a business can successfully adopt and benefit from digital technologies (Abimbade, *et al.*, 2016, Olanipekun & Ayotola, 2019). Factors such as access to reliable internet, the affordability of digital tools, and the business's organizational culture toward innovation all play a role in shaping digital readiness.

Digital readiness is not only about the physical infrastructure and tools available to a business but also about the mindset and attitudes of its leadership and employees. Businesses that are open to innovation and willing to invest in digital tools are more likely to succeed in digital transformation. However, many SMEs, particularly those in underserved sectors, face challenges in building digital readiness. These challenges can include resistance to change, lack of awareness about the benefits of digital tools, and limited access to training or support resources (Akinyemi & Ojetunde, 2019, Olanipekun, Ilori & Ibitoye, 2020). Addressing these challenges requires a comprehensive understanding of the factors that contribute to digital readiness and how they can be nurtured within the SME context. Karkar, *et al.*, 2020, proposed Technology acceptance model shown in figure 4.

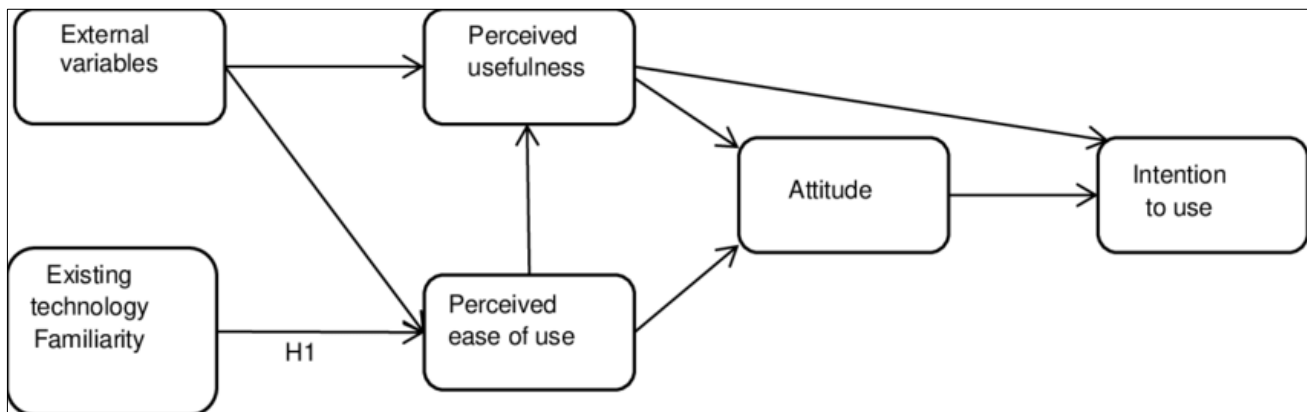


Fig 4: Proposed Technology acceptance model (Karkar, *et al.*, 2020).

The integration of both the Technology Acceptance Model (TAM) and the Digital Readiness Framework offers a more holistic understanding of technology adoption in underserved small business sectors. While TAM focuses on the individual user's perceptions of a technology, the Digital Readiness Framework takes a broader approach, considering the organizational and environmental factors that enable or hinder technology adoption. By combining these models, we can better understand the complex interplay between individual perceptions of technology and the broader organizational context in which technology adoption takes place (Aina, *et al.*, 2023, Dosumu, *et al.*, 2023, Odunaiya, Soyombo & Ogunsola, 2023). This integrated approach is particularly valuable for SMEs in underserved sectors, where both individual attitudes and external factors such as infrastructure, training, and support networks are critical to the success of digital transformation efforts.

The conceptual definitions of perceived usefulness, ease of use, digital readiness, and innovation resistance are central to this integrated framework. Perceived usefulness, as outlined in TAM, is crucial in determining whether an SME sees the value in adopting a new technology. If a business believes that a digital tool will significantly improve its operations—whether through increased efficiency, better customer insights, or cost savings—it is more likely to adopt it. Similarly, perceived ease of use is a key determinant of adoption, as SMEs with limited technical expertise are more likely to embrace technologies that are simple and user-friendly (Akinyemi, Adelana & Olurinola, 2022, Ibidunni, *et al.*, 2022, Otokiti, *et al.*, 2022). Cloud-based tools that require minimal setup and training, for example, are often more appealing to small businesses with limited resources.

Digital readiness, as defined in the Digital Readiness Framework, goes beyond individual perceptions of technology and incorporates the broader organizational and infrastructural factors that determine a business's ability to adopt and use digital tools effectively. Digital readiness includes access to digital infrastructure, the presence of digital skills among employees, and the organizational culture that supports innovation (Chukwuma-Eke, Ogunsola & Isibor, 2022, Muibi & Akinyemi, 2022). In underserved small business sectors, digital readiness is often lacking due to limited access to high-speed internet, inadequate training programs, and a general lack of awareness about the potential benefits of digital technologies. Building digital readiness requires investments in infrastructure, skills development, and creating an environment that encourages experimentation and innovation.

Innovation resistance is another concept that plays a significant role in the technology adoption process. It refers to the reluctance or unwillingness of individuals or organizations to embrace new technologies, often due to fear of the unknown, perceived risks, or past negative experiences with technology. In the context of SMEs in underserved sectors, innovation resistance can be a significant barrier to digital adoption (Nwabekee, *et al.*, 2021, Otokiti & Onalaja, 2021). Business owners and employees who are accustomed to traditional methods of operation may be hesitant to change, especially if they perceive digital tools as complex, expensive, or unnecessary. Overcoming innovation resistance requires addressing these concerns through targeted education, training, and demonstration of the tangible benefits of digital technologies. SME leaders must also play a crucial role in fostering a culture that values innovation and encourages employees to explore new ways of working.

In conclusion, the theoretical framework of technology acceptance and digital readiness provides valuable insights into the factors that influence technology adoption in underserved small business sectors. The integration of the Technology Acceptance Model (TAM) and the Digital Readiness Framework offers a comprehensive approach to understanding how individual perceptions of technology, organizational capabilities, and environmental factors interact to shape technology adoption outcomes (Adediran, *et al.*, 2022, Babatunde, Okeleke & Ijomah, 2022). By addressing barriers such as lack of infrastructure, limited digital skills, and innovation resistance, policymakers, business leaders, and technology providers can help foster a more inclusive digital transformation that empowers SMEs to thrive in the digital economy. Future research in this area can further explore how these frameworks can be applied in different contexts, identify new factors influencing adoption, and provide practical recommendations for overcoming challenges to digital transformation.

4. Findings

The findings regarding technology acceptance and digital readiness in underserved small business sectors reveal a complex and multifaceted picture. Despite the vast potential benefits that technology offers in terms of business process optimization, efficiency, and competitiveness, many small businesses in underserved sectors remain hesitant or slow to adopt digital tools. This hesitancy can often be traced to a number of factors, ranging from limited awareness and understanding of technology to more systemic barriers such

as lack of infrastructure and digital skills (Akinyemi, 2022, Akinyemi & Ologunada, 2022, Okeleke, Babatunde & Ijomah, 2022). Understanding these factors is crucial to addressing the challenges faced by these businesses and promoting a more inclusive digital economy.

One of the key findings from this research is the gap between technology awareness and actual adoption rates. Many SMEs, particularly those in underserved sectors, demonstrate a relatively high level of awareness about digital tools and technologies. Business owners and employees may be familiar with popular software like Google Analytics, social media platforms, or even basic business intelligence tools like spreadsheets. However, this awareness often does not translate into widespread adoption of technology in business operations (Ajonbadi, *et al.*, 2015, Olufemi-Phillips, *et al.*, 2020). The research found that while many SMEs are aware of the potential benefits of digital tools, they struggle to implement them due to a lack of resources, knowledge, or technical expertise. In some cases, technology is seen as something “nice to have” but not an essential part of day-to-day operations, leading to a lack of urgency in adopting these tools.

Further investigation into the levels of digital readiness among SMEs revealed a categorization of businesses based on their approach to digital tools and their readiness to embrace technological transformation. The study identified three key categories: proactive, cautious, and unaware. Proactive businesses are those that actively seek out and implement digital solutions. These businesses recognize the competitive advantage that digital tools can provide and are willing to invest in technology to improve their operations. They are often led by forward-thinking entrepreneurs who have a strong understanding of the potential of technology and are committed to continuous innovation (Akinyemi & Ojetunde, 2023, Dosumu, *et al.*, 2023). These businesses typically have access to reliable internet, possess a certain level of digital literacy, and are more likely to invest in training and technical support.

Cautious businesses, on the other hand, are aware of the benefits of technology but adopt a more measured and conservative approach to adoption. These businesses are often hesitant to fully embrace digital transformation due to concerns about costs, complexity, or potential risks associated with technology. They may begin by using basic tools or adopting technologies in a limited capacity but are slower to adopt more advanced or integrated solutions (Akinyemi & Aremu, 2010, Otokiti, 2017). The cautious approach is often due to a lack of confidence in the return on investment (ROI) of digital tools, especially when business owners are unsure about how to integrate these tools into their existing workflows or lack the technical expertise to fully leverage them.

The third category, unaware businesses, refers to those that have limited or no awareness of the digital tools available to them. This lack of awareness is often linked to factors such as low levels of education, limited exposure to digital technologies, or the absence of a digital culture within the organization. These businesses are often disconnected from the growing digital economy and may not recognize how digital transformation could improve their operations. This lack of awareness is a significant barrier to technology adoption, as businesses in this category are less likely to seek out or invest in digital tools, even when such tools could have a direct and positive impact on their business performance

(Akinyemi & Oke-Job, 2023, Ibidunni, William & Otokiti, 2023).

The findings also highlighted several key drivers that influence the adoption of digital tools in SMEs. Leadership attitude plays a critical role in determining whether a business is proactive or cautious in its approach to technology. Business owners who exhibit a positive attitude toward technology and innovation are more likely to adopt digital tools and encourage their staff to do the same. Conversely, business owners with a negative or skeptical view of technology often delay or avoid adoption, fearing that the costs outweigh the benefits or that technology will disrupt established processes (Chukwuma-Eke, Ogunsola & Isibor, 2022, Kolade, *et al.*, 2022).

Exposure to digital tools is another important driver. Businesses that are exposed to technology through networking, partnerships, or industry associations are more likely to adopt digital tools. For example, businesses that participate in trade shows, workshops, or training programs may become more aware of the digital tools available to them and how these tools can be leveraged to improve business processes (Abimbade, *et al.*, 2017, Aremu, Akinyemi & Babafemi, 2017). Additionally, businesses that have previously adopted basic digital tools, such as accounting software or email marketing platforms, are often more willing to adopt more advanced tools as they become more familiar with the benefits and functionalities of technology.

Internet affordability is another key driver of digital readiness. The availability and affordability of reliable internet connections are crucial for the effective use of cloud-based digital tools. In underserved sectors, particularly in rural areas or low-income regions, businesses may face significant challenges in accessing affordable and stable internet connections. These challenges limit the ability of SMEs to fully leverage cloud-based tools and technologies, making it difficult for them to compete with businesses in more connected areas (Akinyemi, 2023, Attah, Ogunsola & Garba, 2023). In some cases, businesses may rely on mobile data or intermittent connections, which can hinder their ability to use digital tools effectively.

While there are key drivers that facilitate the adoption of digital tools in SMEs, there are also several key barriers that hinder digital readiness. One of the most significant barriers is the lack of digital literacy. Many employees and business owners in underserved sectors lack the skills and knowledge necessary to understand, implement, and effectively use digital tools. This digital skills gap is a major obstacle to technology adoption, as businesses cannot leverage the full potential of digital tools without the necessary knowledge. Without access to training or educational resources, SMEs are less likely to invest in technology or to make full use of the tools at their disposal (Adedeji, Akinyemi & Aremu, 2019, Otokiti, 2017).

Infrastructure limitations are another major barrier. In many underserved regions, access to reliable and affordable internet is limited, which restricts the ability of SMEs to use cloud-based tools and technologies. Additionally, many SMEs lack the necessary hardware, such as computers, smartphones, or tablets, to use digital tools effectively. Without the right infrastructure in place, businesses cannot take full advantage of the benefits that digital tools offer. Even when businesses have access to internet connections, the quality and reliability of those connections may be inconsistent, further hindering the effectiveness of digital

tools (Akinyemi & Aremu, 2016, Otokiti, 2012).

The lack of technical support is also a significant barrier to digital adoption. Many SMEs, particularly those in underserved sectors, do not have in-house technical expertise or dedicated IT departments. This lack of technical support makes it difficult for businesses to troubleshoot issues, integrate new tools, or fully utilize the features of digital platforms. In many cases, businesses may shy away from adopting new technologies because they do not have the resources or knowledge to maintain and support these tools (Akinbola, Otokiti & Adegbuyi, 2014, Otokiti-Ilori & Akoredem, 2018).

In conclusion, the findings highlight the complex and multifaceted nature of technology adoption and digital readiness in underserved small business sectors. While there are several key drivers that encourage the adoption of digital tools, including leadership attitude, exposure to technology, and internet affordability, there are also significant barriers, such as digital literacy gaps, infrastructure limitations, and lack of technical support. To address these challenges, SMEs in underserved sectors require targeted interventions that focus on improving digital literacy, providing access to affordable and reliable internet, and offering technical support and training (Akinyemi & Ologunada, 2023, Ihekoronye, Akinyemi & Aremu, 2023). By addressing these barriers, policymakers and business leaders can help ensure that SMEs in underserved sectors are better positioned to benefit from the opportunities offered by digital transformation.

5. Discussion

The discussion of technology acceptance and digital readiness in underserved small business sectors reveals important insights into how businesses in these environments perceive and adopt digital technologies. The integration of both the Technology Acceptance Model (TAM) and the Digital Readiness Framework offers a robust lens through which to understand the complexities of technology adoption in small businesses facing resource constraints (Ajonbadi, *et al.*, 2015, Otokiti, 2018). By interpreting the findings through these two models, it becomes evident that while there is potential for significant improvements in business performance through digital adoption, challenges such as leadership attitudes, infrastructure limitations, and skill gaps must be addressed to realize the full benefits of digital transformation.

The Technology Acceptance Model (TAM) posits that perceived usefulness and perceived ease of use are the primary factors influencing the adoption of technology. In the context of SMEs in underserved sectors, these two elements play a pivotal role in shaping attitudes towards digital tools. The findings from this research show that businesses that perceive technology as useful—specifically in terms of its potential to streamline operations, reduce costs, or enhance decision-making—are more likely to adopt digital tools (Akinyemi & Oke, 2019, Otokiti & Akinbola 2013). For instance, businesses that experience firsthand the operational inefficiencies caused by manual processes are more inclined to see the value in adopting technologies such as cloud-based accounting software, inventory management systems, or customer relationship management (CRM) tools. When these tools are seen as offering a clear benefit to business performance, the perceived usefulness of the technology

increases, making adoption more likely.

On the other hand, perceived ease of use is another critical factor. For many SMEs in underserved sectors, the technical complexity of digital tools is a major barrier to adoption. Business owners and employees with limited technical expertise may hesitate to adopt technologies that appear difficult to learn or implement. The findings from the research indicate that SMEs are more likely to embrace technologies that are intuitive, easy to navigate, and require minimal training (Attah, Ogunsola & Garba, 2022, Babatunde, Okeleke & Ijomah, 2022). This aligns with TAM's assertion that ease of use is a significant determinant in technology acceptance. Tools that offer user-friendly interfaces and straightforward installation processes are more likely to be adopted, especially in SMEs with limited access to specialized IT support or training resources.

The Digital Readiness Framework complements TAM by emphasizing the broader organizational and infrastructural factors that contribute to technology adoption. While TAM focuses on individual perceptions of technology, digital readiness incorporates factors such as access to digital infrastructure, organizational culture, and employee skills. In underserved small business sectors, the readiness to adopt digital technologies is often hindered by infrastructural limitations, such as unreliable internet access or inadequate hardware. These businesses may struggle to use cloud-based tools effectively due to poor connectivity or inconsistent power supply, which limits their ability to integrate technology into their daily operations (Abimbade, *et al.*, 2022, Aremu, *et al.*, 2022, Oludare, Adeyemi & Otokiti, 2022). Additionally, businesses that lack the technical expertise to troubleshoot issues or maintain digital systems are less likely to embrace these tools, further exacerbating the gap between awareness and actual adoption.

One of the most significant findings is the crucial role that leadership plays in driving digital adoption. In SMEs, business owners are often the primary decision-makers, and their attitude toward technology significantly influences whether the business will adopt new digital tools. The findings suggest that businesses with leadership that recognizes the value of digital transformation and is committed to investing in technology are more likely to succeed in adopting digital tools. In contrast, businesses where leadership is hesitant or resistant to change often struggle to implement new technologies (Adedaja, *et al.*, 2017, Aremu, *et al.*, 2018). This highlights the importance of fostering a culture of innovation and digital leadership within SMEs, especially in underserved sectors where access to resources may be limited. Business owners must understand the strategic value of digital tools and be willing to lead the way in integrating them into the business.

The implications of these findings for small business competitiveness and sustainability are significant. In today's digital economy, businesses that fail to adopt technology risk falling behind their competitors. For SMEs in underserved sectors, digital adoption is not just a matter of keeping up with trends—it is essential for remaining competitive. Digital tools enable businesses to optimize their operations, reach new customers, and make better-informed decisions. Without these tools, SMEs are at a distinct disadvantage, as they are unable to leverage data, automate processes, or scale effectively (Akinyemi & Aremu, 2017, Otokiti-Ilori, 2018). Furthermore, digital tools enable SMEs to access global markets, streamline customer interactions, and adapt to

changing consumer demands. As such, the adoption of digital technologies directly impacts the long-term sustainability of SMEs, allowing them to survive in an increasingly competitive and data-driven business environment.

In addition to enhancing competitiveness, digital inclusion has a direct link to socio-economic mobility. By embracing digital tools, SMEs in underserved sectors can break down barriers to growth, innovation, and market access. Digital inclusion empowers small businesses to tap into new revenue streams, enhance customer experiences, and expand their reach beyond local or regional markets. This has broader socio-economic implications, as it allows SMEs to contribute more significantly to economic development, job creation, and wealth generation (Nwaimo, *et al.*, 2023, Odunaiya, Soyombo & Ogunsola, 2023, Oludare, *et al.*, 2023). Digital inclusion helps level the playing field, giving businesses in underserved communities the opportunity to compete with larger, more established companies that have greater resources and access to advanced technologies. For example, small businesses in rural areas or low-income regions can use e-commerce platforms and digital marketing tools to reach customers worldwide, expanding their customer base and driving business growth.

However, the findings also highlight sector-specific nuances in technology acceptance. While the benefits of digital tools are universal, the challenges and priorities vary across different industries. For example, SMEs in agriculture may prioritize tools that help with crop management, weather forecasting, or supply chain optimization, while SMEs in retail may focus more on customer relationship management and inventory tracking. The readiness of businesses to adopt technology in these sectors is influenced by the specific challenges they face (Ajonbadi, Otokiti & Adebayo, 2016, Otokiti & Akorede, 2018). In agriculture, issues such as low internet penetration in rural areas and limited access to digital training resources may slow down adoption, whereas in retail, the challenge may be more about integrating new tools into existing systems or overcoming the cost barriers to implementing digital solutions. Therefore, sector-specific approaches to technology adoption are needed to address the unique challenges and opportunities of each industry.

Moreover, the nature of the business and its digital maturity plays a significant role in determining the ease with which it can integrate new technologies. Established businesses with more resources may find it easier to invest in sophisticated tools, whereas startups or micro-enterprises may prefer to adopt simpler, more affordable solutions that offer immediate value. For instance, a small business owner in the retail sector may start with a simple point-of-sale system and gradually scale to more comprehensive e-commerce and customer relationship management tools (Abimbade, *et al.*, 2023, Ijomah, Okeleke & Babatunde, 2023, Otokiti, 2023). This gradual adoption allows businesses to manage the cost and complexity of digital tools while reaping incremental benefits over time. In contrast, larger businesses or those with greater resources may adopt more advanced technologies, such as data analytics platforms or cloud-based enterprise resource planning (ERP) systems, that require a higher level of digital readiness.

In conclusion, the findings underscore the importance of both individual perceptions of technology and broader organizational factors in determining the success of digital transformation in underserved small business sectors. The Technology Acceptance Model (TAM) and the Digital

Readiness Framework provide complementary insights into the adoption process, emphasizing the roles of perceived usefulness, ease of use, infrastructure, leadership, and digital skills (Akinyemi & Ebimomi, 2020). For SMEs in underserved sectors to successfully adopt digital technologies, it is essential to address the barriers related to infrastructure, digital literacy, and leadership, while also fostering a culture that values innovation and technology adoption. The link between digital inclusion and socio-economic mobility highlights the transformative potential of digital tools for SMEs, offering opportunities for growth, market expansion, and improved business performance. Ultimately, digital readiness and technology acceptance are crucial for enabling SMEs to thrive in an increasingly digital and competitive global economy.

5.1 Strategies for Improvement

The successful adoption of digital technologies in underserved small business sectors hinges on the ability to overcome a range of challenges related to technology acceptance and digital readiness. For small businesses, especially those with limited resources, building digital readiness and promoting technology acceptance requires tailored interventions, strategies that promote peer learning, mentorship, and community-driven training, and a focus on simplifying technology onboarding processes (Adetunmbi & Owolabi, 2021, Arotiba, Akinyemi & Aremu, 2021). Furthermore, partnerships between NGOs, tech companies, and government agencies play an essential role in facilitating access to resources and providing the necessary support systems for SMEs to thrive in a digital economy. This approach is key to bridging the digital divide and ensuring that small businesses in underserved sectors can effectively adopt and integrate digital tools into their operations.

Tailored interventions are necessary to address the varying levels of digital readiness and technology acceptance among SMEs. These businesses can be categorized into different readiness levels: proactive, cautious, and unaware. Proactive businesses are those that actively seek out and adopt new digital tools to improve their processes. These businesses are often led by forward-thinking leaders who see technology as a critical enabler of growth (Abimbade, *et al.*, 2023, George, Dosumu & Makata, 2023). For this group, the strategy should focus on providing advanced, scalable digital tools and fostering an environment of continuous innovation. Training programs should be designed to enhance the advanced capabilities of these businesses and equip them with the tools needed for more complex data analysis, automation, and customer relationship management. Additionally, proactive businesses could benefit from connecting with larger organizations or industry-specific platforms that can provide guidance on how to leverage data more effectively and achieve greater operational efficiency.

Cautious businesses, on the other hand, are aware of digital tools but are hesitant to fully embrace them due to concerns about cost, complexity, or a lack of perceived immediate benefits. For these businesses, the strategy should focus on reducing the perceived risks associated with digital adoption and demonstrating clear, tangible benefits. One effective intervention could involve offering pilot programs or freemium models of technology, which allow SMEs to test out the tools before committing to long-term investments (Akinbola & Otokiti, 2012). This allows businesses to experience firsthand the value of digital tools, which can help

shift their perspective and build confidence in the technology. Furthermore, businesses in this category would benefit from case studies and success stories from similar organizations that have successfully adopted digital tools, as this helps reduce uncertainty and shows the practical application of these tools in improving business operations.

For businesses categorized as unaware, the strategy should focus on raising awareness of the importance of digital tools and building foundational digital literacy. These businesses often lack exposure to the benefits of technology and may not recognize how it can enhance their competitiveness or operational efficiency. Tailored interventions for this group should include educational campaigns, community-based workshops, and hands-on training that introduce the basics of technology adoption (Nwaimo, Adewumi & Ajiga, 2022). The goal is to build awareness, demystify digital tools, and provide businesses with a clear understanding of how these tools can help them overcome challenges and improve their operations. Additionally, partnerships with local organizations, such as business incubators, community centers, or chambers of commerce, can help introduce technology in a manner that is relevant and accessible to small business owners.

Peer learning, mentorship, and community training hubs also play a critical role in improving technology acceptance and digital readiness in underserved small business sectors. Peer learning allows businesses to learn from the experiences of others who have already adopted digital tools and can share valuable insights. This learning model can be particularly effective in underserved areas, where businesses may have limited access to formal education or training resources (Adelana & Akinyemi, 2021, Esiri, 2021, Odunaiya, Soyombo & Ogunsola, 2021). By creating networks of small business owners who are at various stages of digital adoption, a culture of mutual support and knowledge sharing can be fostered. Business owners can share challenges, solutions, and best practices, thereby accelerating the learning curve and reducing the sense of isolation that often accompanies technology adoption.

Mentorship programs, in which more digitally mature businesses or experts guide smaller businesses through the adoption process, also provide significant benefits. Mentors can provide personalized advice, help businesses navigate the technical aspects of digital tools, and offer emotional support during the initial stages of digital adoption. Such programs can be particularly valuable in building trust and confidence among business owners who may feel overwhelmed by the complexities of new technologies (Akinyemi & Ebimomi, 2021, Chukwuma-Eke, Ogunsola & Isibor, 2021). By providing consistent guidance and feedback, mentorship can help businesses avoid common pitfalls, increase the likelihood of successful adoption, and ensure that the technology is used effectively to meet business goals.

Community-based training hubs, where businesses can access free or subsidized training sessions, are another important strategy for improving digital readiness. These hubs provide a centralized location where small business owners and employees can receive hands-on training, learn about different digital tools, and acquire the skills needed to use them effectively. By fostering collaboration among businesses, community hubs can also encourage the sharing of resources and knowledge (Ajibola & Olanipekun, 2019). These hubs can be run by local government agencies, NGOs, or even private companies that are committed to supporting

SMEs in underserved sectors. They can also serve as access points for businesses to learn about other available resources, such as funding opportunities, grants, or partnerships that can help them advance their digital adoption.

Simplified technology onboarding and optimized user interfaces (UI/UX) are crucial components for ensuring that digital tools are accessible and usable by SMEs in underserved sectors. Many businesses in these sectors are hesitant to adopt technology because of concerns about its complexity or the perceived difficulty of learning to use new tools. Therefore, creating digital solutions with intuitive interfaces and easy onboarding processes is critical to overcoming these barriers. Tools that are designed with SMEs in mind should offer simplified features, clear instructions, and user-friendly dashboards that minimize the need for technical expertise (Akinyemi & Ogundipe, 2022, Ezekiel & Akinyemi, 2022, Tella & Akinyemi, 2022). Additionally, providing resources such as video tutorials, FAQ sections, and customer support teams can ensure that businesses can quickly resolve any issues that arise during the onboarding process.

To further ease the adoption process, offering tools with built-in support for integrations with other commonly used business applications—such as accounting software, payment platforms, or inventory management systems—can help SMEs seamlessly incorporate digital tools into their existing workflows. This reduces the need for businesses to completely overhaul their operations or invest in multiple systems. By designing technology with an eye toward usability and integration, technology providers can increase the likelihood of adoption among small businesses in underserved sectors, where resources and time for training and implementation are limited (Adeniran, *et al.*, 2022, Aniebonam, *et al.*, 2022, Otokiti & Onalaja, 2022).

Partnerships with NGOs, tech companies, and government agencies are essential in creating an ecosystem of support for digital adoption in underserved small business sectors. These partnerships can help reduce the financial burden associated with adopting digital tools by offering subsidies, grants, or discounted software licenses to SMEs. Technology companies can also partner with NGOs or government bodies to provide technical support, training, and educational resources, helping businesses overcome the barriers related to digital literacy and infrastructure. Governments can play a vital role by providing incentives for digital adoption, such as tax breaks, grants, or funding programs specifically aimed at supporting SMEs in underserved sectors. Collaborative efforts between the private, public, and nonprofit sectors can ensure that digital tools are accessible, affordable, and supported by the necessary resources to ensure successful adoption (Akinbola, *et al.*, 2020, Ogundare, Akinyemi & Aremu, 2021).

In conclusion, improving technology acceptance and digital readiness in underserved small business sectors requires a multifaceted approach that combines tailored interventions, peer learning, mentorship, simplified onboarding, and collaborative partnerships. SMEs in these sectors face significant challenges in adopting digital tools, but with the right support systems in place, they can overcome these barriers and unlock the full potential of digital technologies. By investing in digital literacy, providing access to affordable tools, and fostering a culture of innovation and collaboration, businesses in underserved sectors can enhance their competitiveness, improve operational efficiency, and

contribute to broader economic growth and development (Akinyemi & Ebimomi, 2020, Aremu & Laolu, 2014). The role of governments, NGOs, and technology providers is vital in ensuring that digital transformation is inclusive and accessible to all businesses, regardless of their size or location.

5.2 Policy Recommendations

The successful adoption of digital technologies in underserved small business sectors presents a significant opportunity to enhance business efficiency, competitiveness, and sustainability. However, many small businesses in underserved areas face substantial barriers in adopting and utilizing digital tools, ranging from limited access to infrastructure and financial resources to a lack of digital skills and technical support. To overcome these challenges, effective policy interventions are essential (Akinyemi & Salami, 2023, Attah, Ogunsola & Garba, 2023, Otokiti, 2023). The development of policies that foster public-private partnerships, provide subsidies or grants for digital tool access, and create long-term strategies for building inclusive digital ecosystems will play a pivotal role in enabling small businesses to embrace digital transformation.

One of the most effective policy recommendations is to promote public-private partnerships for infrastructure development and training initiatives. Small businesses in underserved sectors often lack the necessary infrastructure to support the adoption of digital technologies, such as reliable internet access, affordable hardware, and cloud computing services. Without access to these foundational elements, even the most affordable digital tools may be underutilized or inaccessible to SMEs. To address this, governments can partner with private companies, especially in the technology and telecommunications sectors, to expand digital infrastructure in underserved areas (Akinyemi, Ogundipe & Adelana, 2021, Kolade, *et al.*, 2021). These partnerships can help reduce the cost of internet access and ensure that small businesses have access to high-speed connectivity, which is essential for adopting cloud-based tools and participating in the global digital economy.

Public-private partnerships can also be instrumental in providing targeted training programs for small business owners and their employees. Digital literacy is a critical barrier to technology adoption, as many small businesses in underserved sectors lack the necessary skills to navigate and utilize digital tools effectively. By collaborating with educational institutions, NGOs, and private tech companies, governments can create training hubs that offer affordable or subsidized digital literacy programs tailored to the needs of small businesses. These training programs should cover a wide range of digital skills, from basic computer usage to more advanced topics such as data analysis, cloud computing, and cybersecurity. Additionally, mentorship and peer learning programs can be incorporated into these initiatives to provide ongoing support and guidance to small business owners and employees, helping them build confidence and competence in using digital tools (Akinyemi & Ogundipe, 2023, Aniebonam, *et al.*, 2023, George, Dosumu & Makata, 2023).

Subsidies or grants for digital tool access are another crucial policy recommendation. The financial constraints faced by small businesses in underserved sectors often prevent them from investing in digital technologies, which are seen as costly or unnecessary. Providing subsidies or grants for the

purchase of digital tools or the subscription to cloud-based services can help alleviate this barrier. Governments can allocate funds specifically for SMEs to access affordable digital tools such as software for accounting, inventory management, customer relationship management (CRM), or business intelligence (Adisa, Akinyemi & Aremu, 2019, Famaye, Akinyemi & Aremu, 2020). By offering financial support for the adoption of these tools, governments can incentivize SMEs to take the first step toward digital transformation and enable them to realize the long-term benefits of improved business efficiency, increased competitiveness, and market access.

In addition to direct subsidies for digital tools, governments can introduce tax incentives for businesses that invest in digital technologies. Tax breaks or deductions for technology-related expenses, such as software purchases or investments in IT infrastructure, can encourage small businesses to prioritize digital adoption. These incentives can be especially valuable in underserved sectors, where businesses may lack the financial capacity to make significant investments in technology. By reducing the financial burden of technology adoption, tax incentives can make digital tools more accessible and motivate SMEs to embrace technology as a means of improving business performance (Akinyemi, 2013, Ilori & Olanipekun, 2020). Long-term strategies for building inclusive digital ecosystems are essential for ensuring that small businesses in underserved sectors can continue to thrive in the digital economy. The creation of inclusive digital ecosystems involves not only providing access to digital tools but also fostering an environment where small businesses can continuously innovate, collaborate, and grow (Adeniran, Akinyemi & Aremu, 2016, James, *et al.*, 2019). Governments should focus on developing policies that support the creation of digital platforms and networks that connect SMEs with resources, expertise, and markets. These platforms can include online marketplaces, digital trade networks, and collaborative spaces that enable small businesses to engage with larger businesses, customers, and suppliers on a global scale.

In addition to digital platforms, it is important to support the development of digital skills and capabilities within the local workforce. Educational programs and vocational training that focus on digital skills should be integrated into the national education system to ensure that future generations of workers are equipped with the skills needed to participate in the digital economy. Furthermore, governments can create initiatives that encourage lifelong learning, allowing business owners and employees to continuously improve their digital capabilities and stay up-to-date with technological advancements (Akinyemi & Ezekiel, 2022, Attah, *et al.*, 2022). By focusing on building a digitally skilled workforce, governments can help create an environment where small businesses have the human capital necessary to leverage digital tools effectively.

Moreover, policymakers should prioritize the development of supportive regulatory frameworks that facilitate digital adoption. Clear and predictable regulations related to data privacy, cybersecurity, and digital transactions are essential to building trust in digital tools. Small businesses in underserved sectors are often concerned about the security and privacy of their data, especially when using cloud-based services (Akinyemi & Abimbade, 2019, Lawal, Ajonbadi & Otokiti, 2014). By establishing robust regulations and

guidelines that protect businesses and customers, governments can alleviate these concerns and encourage small businesses to adopt digital tools with confidence.

Another key aspect of a long-term strategy for building inclusive digital ecosystems is fostering collaboration between the public and private sectors, as well as between different stakeholders within the digital ecosystem. Collaboration among government agencies, technology providers, financial institutions, educational institutions, and SMEs can help create a more cohesive and supportive environment for digital transformation. For instance, financial institutions can provide SMEs with access to digital payment solutions and microfinancing options, while technology providers can offer affordable tools and services specifically tailored to the needs of small businesses in underserved sectors (Chukwuma-Eke, Ogunsola & Isibor, 2022, Olojede & Akinyemi, 2022). By working together, stakeholders can create a comprehensive support system that addresses the barriers to digital adoption and helps SMEs maximize the benefits of technology.

Furthermore, governments can incentivize the development of digital innovations that cater specifically to the needs of SMEs in underserved sectors. Research and development grants, along with innovation challenges, can encourage the creation of affordable and scalable digital tools that are tailored to the unique challenges faced by small businesses. By fostering innovation within the private sector and encouraging the development of tools that meet the specific needs of SMEs, governments can ensure that small businesses in underserved sectors have access to the solutions they need to compete effectively in the digital economy (Nwabekee, *et al.*, 2021, Odunaiya, Soyombo & Ogunsola, 2021).

In conclusion, the successful adoption of digital technologies in underserved small business sectors requires a comprehensive and multifaceted approach. Public-private partnerships, subsidies or grants for digital tool access, and long-term strategies for building inclusive digital ecosystems are critical policy interventions that can help overcome the barriers faced by SMEs in underserved areas. By focusing on infrastructure development, digital literacy, and creating a supportive ecosystem, governments can enable small businesses to embrace digital tools and harness the full potential of the digital economy (Akinyemi, 2018, Olaiya, Akinyemi & Aremu, 2017). These efforts will not only enhance the competitiveness and sustainability of SMEs but also contribute to broader economic growth, job creation, and socio-economic mobility in underserved communities.

6. Conclusion

In conclusion, the study of technology acceptance and digital readiness in underserved small business sectors has highlighted the critical role that digital tools play in enabling businesses to improve efficiency, competitiveness, and sustainability. The research underscores that while many small businesses are aware of digital technologies, there is often a significant gap between awareness and actual adoption. Factors such as limited financial resources, insufficient infrastructure, and a lack of digital literacy are primary barriers that hinder technology acceptance in these sectors. However, when businesses perceive digital tools as useful and easy to use, and when they are provided with the necessary infrastructure and training, they are more likely to adopt and benefit from technology.

The findings contribute to both academic research and practical applications by offering a deeper understanding of the complexities involved in technology adoption within small business environments, particularly those that are underserved. By integrating the Technology Acceptance Model (TAM) and the Digital Readiness Framework, the study provides a comprehensive approach to analyzing the factors that influence technology acceptance. These models highlight the interplay between individual perceptions of technology, organizational readiness, and external barriers, offering valuable insights for businesses, policymakers, and technology providers looking to foster digital adoption in underserved sectors. The research emphasizes the importance of leadership commitment, training, infrastructure development, and access to affordable digital tools in overcoming the barriers to digital transformation.

For future research, there are several promising directions that can further enhance our understanding of technology adoption in underserved small business sectors. One key area is the exploration of sector-specific challenges and opportunities in digital adoption. Different industries face unique barriers and require tailored digital solutions, and future studies could investigate how digital tools can be adapted to meet the needs of specific sectors, such as agriculture, manufacturing, or retail. Additionally, research on the long-term impact of digital adoption on business growth, sustainability, and socio-economic mobility would provide valuable insights into the broader implications of digital inclusion for underserved communities. Finally, further exploration into the role of public-private partnerships and the effectiveness of government policies in facilitating digital adoption could help refine strategies for fostering digital transformation at scale.

Ultimately, the continued exploration of technology acceptance and digital readiness in underserved small business sectors is essential for creating an inclusive digital economy. By addressing the barriers to digital adoption and providing businesses with the tools, resources, and support they need, we can ensure that small businesses in underserved sectors can fully participate in and benefit from the opportunities presented by the digital age.

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