# Adoption of Digital Technologies in Women-Owned Small Businesses: A Global Review of Patterns, Growth Factors, and Barriers

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***Abstract***
*Digital technologies are increasingly central to small business growth; still, adoption among women-owned small businesses (WOSBs) remains uneven worldwide. This study systematically reviews 117 peer-reviewed articles published between 1987 and 2023, with Tanzania as a central case study, focusing on Sub-Saharan Africa. The findings reveal persistent divides: in developed economies, WOSBs integrate advanced systems such as e-commerce, customer relationship management, and cloud computing. In contrast, in developing contexts, adoption is mainly limited to mobile money and social media, with slow and uneven progression toward advanced digital systems, particularly in Tanzania. Barriers, including weak infrastructure, limited finance, low digital literacy, socio-cultural constraints, and inadequate policy support, continue to restrict sustainable adoption. The review extends the Technology Acceptance Model (TAM) by showing that adoption depends not only on perceived usefulness and ease of use but also on systemic and socio-cultural dynamics. This highlights that bridging digital divides requires more than access; it requires supportive ecosystems, affordable infrastructure, and gender-responsive policies. The study contributes by offering practical strategies for inclusive digital transformation and identifying priorities for future research in Sub-Saharan Africa, emerging technologies, and long-term adoption.*

***Keywords:*** *Women-owned small businesses, Digital technology adoption, Technology Acceptance Model, Tanzania, digital divide.*

## INTRODUCTION

Digital transformation is reshaping industries worldwide and creating both significant opportunities and persistent challenges for small businesses. Women-owned small businesses (WOSBs) are poised to gain significantly from these changes, as digital tools help expand market

access, enhance operational efficiency, and strengthen competitiveness (Marino-Romero & Fernández, 2024; Vial, 2019). However, the pace and extent of adoption remain uneven. In many developing countries, women entrepreneurs continue to face substantial challenges, including inadequate infrastructure, high costs, and limited digital literacy (Qureshi, 2023; UNCTAD, 2025). In contrast, women entrepreneurs in developed economies are better positioned to access advanced technologies, but they continue to face barriers such as intense competition, cybersecurity threats, and persistent financing gaps (OECD, 2024).

Despite the growing volume of research on digital transformation and entrepreneurship, existing studies remain limited. Many studies group women-owned enterprises with general small and medium-sized enterprises (SMEs), making it difficult to understand their unique experiences. Consequently, there is limited clear evidence on how digital technology adoption affects women-owned small businesses and how adoption patterns, enabling factors, and barriers differ across economic and socio-cultural contexts.

This imbalance is significant because WOSBs contribute meaningfully to inclusive economic growth, employment creation, and sustainable development. Their ability to benefit from digital technologies depends not only on access but also on broader enabling conditions, including financial resources, skills development, institutional support, and social networks (Sharabati et al., 2024; Camps, 2025). Empirical studies indicate that digital tools such as social media, e-commerce platforms, mobile money services, and cloud-based systems can improve productivity, market reach, and customer engagement among small businesses (Qalati et al., 2022; Nyarko et al., 2022; Octafia et al., 2025). Nevertheless, important questions remain regarding how adoption patterns vary across regions and which factors most strongly enable or constrain the sustainable use of digital technologies, particularly in developing contexts such as Tanzania.

Tanzania presents a relevant and under-examined context for exploring these issues. Despite rapid growth in mobile connectivity, empirical evidence on how women-owned small businesses in Tanzania transition from basic digital tools to more advanced systems remain fragmented and insufficient. While the country has experienced rapid growth in mobile technologies and digital financial services, many women entrepreneurs continue to operate under conditions of informality, limited access to

finance, and uneven digital skills (World Bank, 2022; UNCTAD, 2025). Gendered socio-cultural norms, affordability constraints, and institutional gaps further shape how digital technologies are adopted and sustained, highlighting the need for context-specific evidence on WOSBs' digital engagement.

To address these gaps, this study conducts a systematic review of the literature on the adoption of digital technologies among women-owned small businesses. Peer-reviewed articles indexed in the Scopus database between 1987 and 2023 were analyzed using the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) guidelines. This approach enables the identification of global and regional adoption patterns, as well as the key growth drivers and barriers shaping WOSBs' use of digital technologies.

The adoption of digital technologies is frequently explained by the Technology Acceptance Model (TAM), which posits perceived usefulness and perceived ease of use as primary determinants of technology adoption (Davis, 1989). In the context of WOSBs, TAM suggests that digital tools are more likely to be adopted when they are perceived as beneficial and easy to use. However, existing evidence indicates that individual perceptions alone do not fully explain adoption outcomes. Broader systemic factors, including infrastructure limitations, affordability challenges, financial exclusion, and socio-cultural norms, play a critical role in shaping adoption decisions, particularly in resource-constrained environments (Qureshi, 2023; Khoo et al., 2024 UNCTAD, 2025). This underscores the need to extend TAM by incorporating contextual and gender-sensitive perspectives.

This review makes a distinct contribution to the literature by focusing explicitly on women-owned small businesses, an area where systematic and comparative evidence remains limited (Sharabati et al., 2024, Marino-Romero & Folgado-Fernández, 2024). Specifically, this study offers a novel contribution by systematically integrating gender, contextual conditions, and technology adoption theory to compare digital adoption patterns between developed and developing economies, with a focused examination of Tanzania. (Sharabati et al., 2024; Marino-Romero & Folgado-Fernández, 2024). Unlike many prior studies that examine SMEs broadly or emphasize technological determinants in isolation, this review situates digital adoption within broader socio-economic and gendered contexts. By integrating technology adoption theory with gender

and development perspectives, and by contrasting developed and developing economies with a specific focus on Tanzania, the study offers a more holistic and contextually grounded understanding of WOSBs' digital technology adoption.

Therefore, the objective of this study is to review and analyse how women-owned small businesses adopt digital technologies across different contexts. Specifically, the study examines global and regional adoption patterns, identifies key factors that enable or constrain the adoption of sustainable digital technologies, and explores the interaction between socio-cultural conditions and technology adoption processes. The following research questions guide the study: 1. How do women-owned small businesses (WOSBs) adopt digital technologies across global, regional, and Tanzanian contexts? 2. What factors enable or constrain sustainable digital technology adoption among WOSBs? 3. How do socio-cultural and systemic conditions interact with the Technology Acceptance Model (TAM) in shaping digital adoption among WOSBs?

## METHODOLOGY

This study employed a systematic review to examine how women-owned small businesses (WOSBs) adopt digital technologies. The review was guided by the following research question: How do women-owned small companies adopt digital technologies, and what factors influence adoption outcomes in developed and developing economies? A systematic review was chosen because previous studies on digital transformation and women entrepreneurship are scattered across different fields. This approach enables the collection, comparison, and summarisation of findings from many studies in a clear and organised way. The study followed the PRISMA guidelines (Moher et al., 2009) to ensure transparency, consistency, and reliability throughout the review process.

### Research Design

The study was based on a positivist philosophy**,** which posits that knowledge can be gained by examining facts in a structured manner. A systematic review design was employed because it enables the consolidation of results from multiple studies, the identification of key trends, and the highlighting of areas where further research is still required (Zupic & Čater, 2015). This design was suitable because the goal was to see overall patterns in adoption, growth factors, and barriers facing WOSBs.

**Data Source and Search Strategy**

The Scopus database was chosen as the sole data source. Scopus was selected because it covers a broader range of peer-reviewed journals in business, entrepreneurship, and social sciences, including studies from both developed and developing countries. Compared to Web of Science, Scopus includes more journals from regions such as Sub-Saharan Africa, making it suitable for this study (Falagas et al., 2008).

The literature search was carried out on 3 April 2024 using the following search terms applied to article titles:

TITLE ("digital technology" OR "women entrepreneur" OR "small business")
AND (LIMIT-TO (LANGUAGE, "English"))
AND (LIMIT-TO (SRCTYPE, "j"))
AND (LIMIT-TO (DOCTYPE, "ar"))

Only peer-reviewed journal articles written in English were included to ensure quality and consistency. The initial search identified 121 articles, which were then screened to check if they met the study's requirements. Restricting the review to a single comprehensive database reduced duplication, ensured consistency in indexing standards, and strengthened the methodological rigor of the evaluation.

**Screening and Eligibility Criteria**

The selection of articles followed the PRISMA process, including identification, screening, eligibility, and inclusion stages. Following the PRISMA guidelines, the review process proceeded through four structured stages. During the identification stage, 121 records were retrieved from the Scopus database. In the screening stage, titles and abstracts were reviewed to assess relevance. The eligibility stage involved a full-text assessment based on predefined inclusion criteria. Finally, 117 articles met all requirements and were included in the systematic review. Articles were included if they: were peer-reviewed journal articles, written in English, published between 1987 and 2023, and focused specifically on women-owned small businesses and examined digital technology adoption, use, and or impact on growth. After applying these criteria, 117 articles were included in the final analysis, while four articles were excluded.

**Data Extraction and Analysis**

Relevant information was carefully extracted from each selected article. This included the year of publication, journal name, authors, citation

counts, types of digital technologies discussed, areas of application, adoption factors, barriers, and reported business outcomes.

The studies were also grouped by whether they focused on developed or developing economies, with particular attention to Sub-Saharan Africa and Tanzania.

The data were analysed using thematic analysis, which involved grouping similar findings into key themes. This helped to identify common patterns in digital adoption, as well as factors that support or limit adoption among WOSBs. The analysis focused mainly on the content of the studies rather than on citation counts, enabling a deeper understanding of the findings.

**Reliability and Validity**

To ensure reliability, the same search strategy and selection criteria were used throughout the review process. All steps were clearly documented so that other researchers can repeat the study if needed.

The use of peer-reviewed articles from Scopus helped ensure that the data were of good academic quality (Falagas et al., 2008). Following PRISMA guidelines also helped reduce bias and improve transparency, making the results more trustworthy.

**Methodological Contribution**

This study focuses specifically on women-owned small businesses rather than grouping them under general SMEs. By doing so, it addresses a key gap in existing research. The systematic approach used in this review provides a clear basis for comparing digital adoption across different economic contexts and for drawing conclusions that are useful for policy and practice.

## RESULTS

The results are presented directly aligned with the study's research questions. These findings directly address Research Question 1 by illustrating how adoption patterns differ across global, regional, and Tanzanian contexts. First, the findings examine how women-owned small businesses adopt digital technologies across international, regional, and Tanzanian contexts (RQ1). Second, the analysis identifies the key factors that enable or constrain the adoption of sustainable digital technologies among WOSBs (RQ2). Finally, the results explore how systemic and

socio-cultural conditions interact with the Technology Acceptance Model (TAM) in shaping adoption outcomes (RQ3). The reviewed studies show that women-owned small businesses (WOSBs) are adopting digital technologies across different regions; however, the level and types of adoption vary significantly between developed and developing economies. These differences reflect variations in digital infrastructure, financial capacity, and access to skills and support systems.

In developed economies, women entrepreneurs tend to use more advanced digital technologies, including e-commerce platforms, customer relationship management (CRM) systems, cloud computing, and financial technologies. These tools are often integrated into structured business models and aligned with broader strategic objectives such as market expansion, efficiency improvement, and innovation (Marino-Romero & Folgado-Fernández, 2024; Vial, 2019; OECD, 2024).

In contrast, in developing economies, digital adoption among WOSBs is focused mainly on simple, affordable, and widely accessible technologies. Mobile money platforms, particularly M-Pesa, and social media applications such as WhatsApp, Facebook, and Instagram are the most commonly used tools. These technologies are mainly applied for communication, marketing, and basic financial transactions. Adoption rarely extends to more advanced systems such as dedicated business websites, online sales platforms, or enterprise-level digital applications (Qureshi, 2023; Qalati et al., 2022; Octafia et al., 2025).

The adoption patterns of digital technologies among WOSBs identified in the reviewed studies are summarized in Table 1, which highlights the types of digital tools used and their main functionalities across different contexts. To synthesize these variations, the reviewed studies were categorized according to the types of digital technologies adopted and their primary business applications.

**Table 1:**
*Adoption Patterns of Digital Technologies Among WOSBs*

| Digital Technology | Features | Functionality/Application |
|---|---|---|
| Industry-Specific Digitalization | Digital Auditing, Taxation Digitalization | Enables automation and efficiency in specific sectors, such as finance and government services. (Verbiuska, 2023) |
| Internet of Things (IoT) | IoT for Monitoring IoT Security | Facilitates real-time monitoring and enhances security through interconnected devices and data exchange. (Ikram, 2022) |
| Digital Entrepreneurship and Innovation | Crowdfunding, Startups, Digital Platforms | Supports new business creation, funding options, and scaling opportunities through digital platforms. (Haryati, 2022) |
| Cybersecurity and Data Management | Data Security, Big Data | Protects data integrity and privacy, manages large data sets for insights, and prevents cyber threats (Aithalathini, 2023) |
| Social media and Communication Tools | Facebook, WhatsApp, YouTube | Enhances connectivity, communication, and marketing reach across global platforms. (Ukpere, 2014) |
| E-Commerce and Digital Solutions | Online Stores, digital Payments, CRM Systems | Enable online sales, secure digital payments, and customer relationship management for business growth. (Smeshko, 2022; Guimaras, 2022; Mishra, 2022) |
| Digital Infrastructure and Technologies | 5G, Cloud, AI, Blockchain, IoT, Tech Parks | Provide foundational support for advanced digital services and innovation through robust networks. (Parkinson, 2023; Kelly, 2023) |

Source: created by authors (information extracted from Scopus database)

The information presented in Table 1 shows that WOSBs make use of both basic and advanced digital technologies. Social media platforms and e-commerce solutions are widely adopted because they offer affordable entry points for communication, marketing, and sales. At the same time, more advanced technologies such as cloud computing, artificial intelligence (AI), blockchain, and the Internet of Things (IoT) are increasingly recognized for their potential to improve efficiency, data management, and innovation. However, the use of these advanced technologies is largely concentrated in developed economies, where supportive infrastructure and technical capabilities are more readily available.

**Growth Factors Supporting Digital Technology Adoption by WOSBs**

The reviewed studies consistently show that several enabling factors play a crucial role in supporting the adoption of digital technologies by WOSBs. These factors influence whether women entrepreneurs can access digital tools, develop the required capabilities, and translate digital adoption into business growth. Table 2 summarizes the main growth factors identified in the literature and compares how these factors operate in developed and developing economies, as well as their impact on opportunity and capability development.

**Table 2:**
*The Growth Factors Enabling the Adoption of Digital Technologies for Women-Owned Small Businesses in Developed and Developing Countries*

| Growth Factor | Developed Countries | Developing Countries | Impact on Opportunity | Impact on Capability |
|---|---|---|---|---|
| Access to Digital Infrastructure | High-speed internet, 5G, cloud computing, and advanced digital networks (Rastvortseva, 2024) | Mobile connectivity, expanding internet access, and affordable technology (West, 2015) | Broader market reach access to online platforms | Enables efficient operations and remote management |
| Digital Literacy and Skills Training | Specialized training in advanced tools like data analytics CRM systems (UNCTAD, 2022) | Focus on basic digital skills, social media marketing, and mobile technology (Mishra, 2022) | Opens doors to complex digital strategies and innovation | Enhances ability to adopt and use digital tools |
| Access to Digital | Crowdfunding, online loans, and investment (Wesemann, 2021) | Microfinance, mobile money (e.g., M-Pesa), digital banking (Modiba, 2024) | Expands funding sources and reduces reliance on banks | Increases financial management skills and independence |
| E-Commerce and Online Marketplaces | Established e-commerce platforms and reliable logistics for international reach (Omoush, 2024) | Regional online marketplaces, social media commerce, and mobile payments (Nawar, 2024) | Access to national and international customer bases | Develops skills in online sales and customer service |
| Social media and Digital Marketing | Targeted ads, content marketing, and data-driven insights on multiple platforms (Ukpere, 2014) | Social media promotion and customer engagement via platforms like Facebook and WhatsApp (Lawal, 2022) | Creates affordable marketing and customer engagement channels | Build brand management and customer engagement skills |

| Growth Factor | Developed Countries | Developing Countries | Impact on Opportunity | Impact on Capability |
|---|---|---|---|---|
| Supportive Ecosystems and Networks | Incubators, accelerators, mentorship programs, and women-focused business networks (Avnimelech, 2023) | Informal networks, NGO-led training, and local women's organizations (Souleyman, 2024). | Access mentorship, resources, and growth guidance | Develops networking, business skills, and peer support |
| Government Policies and Support Programs | Grants, incentives, and subsidies for technology adoption (OECD, 2017) | Financial inclusion initiatives, affordable internet, empowerment programs (Ozili, 2023) | Increases accessibility to financial and digital resources | Improves ability to compete and innovation through support |
| Trust and Security in Digital Transactions | Established cybersecurity measures and strong regulatory protections (Wickramatillake, 2023) | Secure mobile payment platforms, initiatives to improve cybersecurity (Osabutey, 2024) | Builds customer trust in digital transactions | Enhances capability to handle secure online payments |

*Source: created by authors*

The evidence summarized in Table 2 indicates that access to reliable digital infrastructure is a foundation requirement for adoption. In developed economies, high-speed internet, cloud computing, and advanced digital networks enable women entrepreneurs to engage in online transactions, manage operations remotely, and access global markets. In developing economies, expanding mobile connectivity and affordable internet access provide basic entry points into digital participation, particularly through mobile-based platforms.

Digital literacy and skills training also emerge as essential drivers of growth. In developed countries, training often focuses on advanced tools such as data analytics and customer relationship management systems, enabling more complex digital strategies. In developing contexts, emphasis is placed on basic digital skills, including social media marketing and mobile technology, to enhance women entrepreneurs' ability to adopt and apply digital tools effectively.

Access to digital finance plays a key role in enabling technology adoption. Crowdfunding, online loans, and investment platforms in developed economies expand funding opportunities beyond traditional banking systems. In developing economies, mobile money services, microfinance, and digital banking platforms such as M-Pesa support financial inclusion and enable women entrepreneurs to invest in digital tools and business operations gradually.

The availability of e-commerce platforms and online marketplaces further supports business growth by extending market reach beyond local boundaries. Established platforms and logistics systems in developed economies facilitate international trade, while regional marketplaces and social media commerce dominate in developing countries. These platforms help women entrepreneurs develop skills in online sales, customer service, and digital transactions.

Social media and digital marketing tools are widely used across both contexts, though their sophistication differs. In developed economies, data-driven advertising and content marketing strategies are common, while in developing economies, platforms such as WhatsApp and Facebook provide affordable channels for promotion and customer engagement. These tools enhance brand visibility and strengthen customer relationships.

Supportive ecosystems and networks, including incubators, accelerators, mentorship programs, and women-focused organizations, also contribute

significantly to adoption. In developing economies, informal networks, non-governmental organizations, and community-based initiatives play an important role in building confidence, skills, and peer support.

Finally, government policies and trust in digital systems influence adoption decisions. Grants, incentives, and regulatory support in developed countries encourage technology uptake, while financial inclusion initiatives and empowerment programs in developing countries improve access to digital resources. Trust in secure digital transactions, supported by cybersecurity measures and regulatory protections, further strengthens women entrepreneurs' willingness to adopt and sustain digital technologies.

Overall, the findings show that digital adoption among WOSBs depends not only on access to technology but also on the broader enabling ecosystem. Infrastructure, skills, finance, networks, policy support, and trust collectively shape women entrepreneurs' ability to adopt digital technologies and translate them into meaningful business growth.

**Regional Disparities in Digital Technology Adoption**

The reviewed studies highlight a clear digital divide between developed and developing countries, with Tanzania providing an illustrative example of both progress and persistent challenges. In developed economies, women entrepreneurs generally operate within advanced digital ecosystems characterized by widespread internet access, high smartphone penetration, and strong engagement with online business platforms (Vial, 2019; OECD, 2024). These conditions support the use of sophisticated digital tools and facilitate deeper integration of technology into business operations.

In contrast, developing economies exhibit lower internet penetration and more limited engagement with online business practices, despite moderate smartphone usage (Qureshi, 2023; UNCTAD, 2025). Digital adoption in these contexts tends to focus on basic applications rather than advanced online platforms.

Tanzania illustrates a mixed picture. Mobile phone usage among women entrepreneurs is nearly universal, enabling communications with customers and access to mobile money services (World Bank, 2022; UNCTAD, 2025). However, relatively low levels of internet access and limited participation in online business activities continue to restrict progression towards more advanced digital platforms. These regional disparities are summarized in Figure 1.

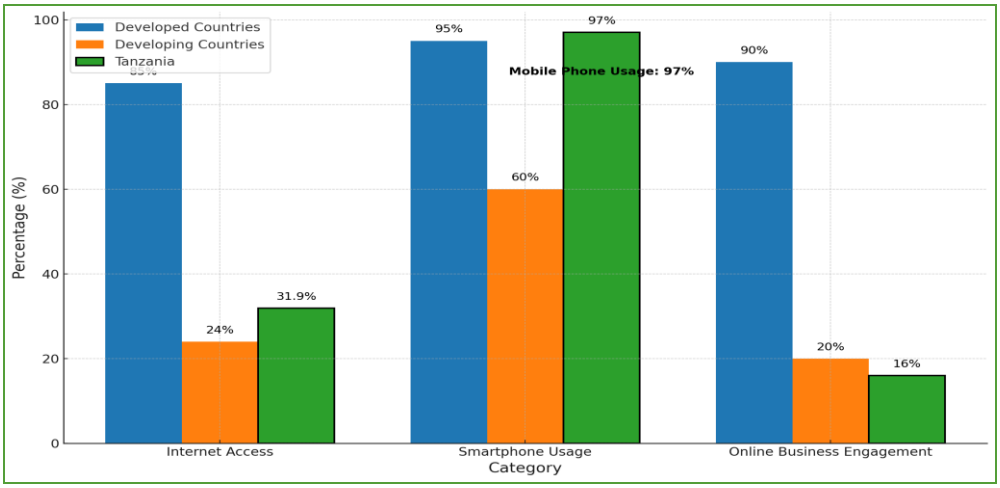


**Figure 1:** *Regional Disparities in Digital Technology Adoption Among WOSBs*

As illustrated in Figure 1, internet access is highest in developed economies (86%), while in developing countries it is 24%, and in Tanzania it is 31.9%. Smartphone usage is widespread across all regions, reaching 95% in developed economies and 97% in Tanzania, but significantly lower at 60% in developing economies overall. When it comes to online business engagement, 90% of WOSBs in developed countries participate actively, compared to only 20% in developing countries and 16% in Tanzania (World Bank, 2023).

These findings demonstrate that although smartphone penetration is high, particularly in Tanzania, access to reliable internet and translating digital connectivity into online business engagement remain significant challenges.

This disparity underscores the importance of addressing infrastructure, affordability, and digital literacy to empower women entrepreneurs in developing contexts to transition from basic connectivity to full digital integration.

**Barriers to Sustainable Adoption of Digital Technologies Among Women-Owned Small Businesses**

Although digital technologies offer tremendous opportunities for the growth of women-owned small businesses (WOSBs), the analysis reveals that several barriers continue to hinder their sustainable adoption. These barriers are interconnected, meaning that solving one without addressing the others rarely leads to long-term success. A significant challenge lies in inadequate digital infrastructure. Many developing countries continue to face poor

internet penetration, unreliable electricity, and high costs of broadband services. In Tanzania, for example, mobile phones have helped women entrepreneurs connect with clients and utilize mobile money services; however, the absence of stable and affordable internet prevents them from adopting advanced solutions, such as e-commerce and cloud systems. As Qureshi (2023) explains, without strong infrastructure, digital adoption becomes fragmented and unsustainable.

Affordability is another critical barrier. Women entrepreneurs often struggle with recurring costs, including internet bundles, software subscriptions, and device maintenance. Adoption in such cases becomes fragile; it is possible when resources are available, but easily disrupted when finances are tight. UNCTAD (2020) similarly notes that affordability is not only about initial access but also about sustaining consistent usage over time. The analysis suggests that unless affordability is addressed, adoption will remain shallow and short-lived.

Digital literacy gaps further complicate the sustainable use of resources. Many WOSBs lack the skills and confidence to operate advanced systems such as online stores, customer relationship management tools, or data analytics platforms. Training programs exist, but they are often short-term or project-based, which means women cannot build long-term capacity. According to Marino-Romero and Folgado-Fernández (2024**)**, skills are a decisive factor: entrepreneurs with stronger digital literacy tend to sustain adoption, while those without abandon digital tools after initial trials. This aligns with the evidence that skills development must be continuous rather than one-off.

Financial exclusion is also a significant obstacle. Women entrepreneurs face systemic barriers to accessing credit and investment due to gender bias and limited collateral. While mobile money and microfinance have made a difference, they are often too small to support scaling into advanced digital systems. OECD (2021) emphasises that women-owned firms remain underrepresented in formal financing structures, which limits their ability to expand their digital capabilities. The perspective is critical, as it creates what can be described as a "low equilibrium trap"; adoption remains basic because women cannot afford to grow or sustain it.

Trust and security concerns present another layer of challenge. Fear of cybercrime, fraud, and data misuse discourages many women from fully embracing digital transactions. OECD (2024) stresses that without trust in the

system, access alone cannot guarantee sustainable use. The study finds this particularly important: even when tools are available, adoption cannot last if entrepreneurs feel unsafe.

Sociocultural norms further constrain women's engagement with digital tools. In some communities, women have limited decision-making power or face resistance from family members when they attempt to expand their businesses digitally. Khoo et al. (2024) note that cultural attitudes often intersect with economic barriers, reinforcing women's exclusion from technology. The findings suggest that adoption is not only a technical or financial issue but also a profoundly social one.

Finally, weak policy and institutional support reduce the chances of sustained digital integration. Many government programs remain fragmented or donor-driven, with little long-term continuity. Policies may recognize the importance of women's digital inclusion, but implementation often falls short. As the World Bank (2023) highlights, sustainable adoption requires not just individual effort but supportive ecosystems that combine infrastructure, training, finance, and policy. The findings suggest that without this ecosystem, women-owned businesses are left to adopt piecemeal solutions that cannot be sustained.

In conclusion, barriers to sustainable adoption are multi-dimensional. Infrastructure and affordability restrict entry, literacy and finance limit scaling, and trust, gender norms, and policy weaknesses undermine long-term sustainability. In developed economies, barriers tend to revolve around advanced issues such as cybersecurity, high innovation costs, and competition. In developing economies, however, barriers are more structural and foundational. Addressing these challenges requires a systemic approach that integrates reliable infrastructure, affordable access, continuous digital literacy programs, financial empowerment, trust-building mechanisms, and gender-inclusive policies. Only then can digital adoption by WOSBs move from basic use to sustainable integration.

## DISCUSSION OF FINDINGS

This study provides several significant findings with implications for theory, practice, policy, and future research on women-owned small businesses (WOSBs) and digital technology adoption. This confirms that technology adoption among WOSBs cannot be fully explained by individual perceptions alone, as the original TAM framework proposed.

Theoretically, the results extend the Technology Acceptance Model (TAM) by demonstrating that digital adoption is influenced not only by perceptions of usefulness and ease of use but also by broader systemic and socio-cultural conditions. Infrastructure, access to finance, cultural expectations, and trust in digital systems strongly shape how women entrepreneurs engage with technology. By centring WOSBs, this review introduces a gender-sensitive perspective that has often been overlooked in digital adoption research, filling a critical gap in the literature, especially in Sub-Saharan Africa, where systematic evidence remains scarce.

These findings have important implications for practice, policy formulation, and future research on inclusive digital transformation among women-owned small businesses. From a practical standpoint, the findings highlight the importance for women entrepreneurs to move beyond entry-level tools such as mobile money and social media toward more advanced digital systems, particularly in Tanzania. While these platforms provide affordable entry points, long-term competitiveness requires adopting more advanced systems such as e-commerce platforms, customer relationship management, and digital finance solutions. To sustain use, continuous investment in digital literacy, mentorship, and networking is essential for building confidence, capabilities, and resilience.

At the policy level, governments and institutions need to prioritise the provision of affordable internet access, reliable electricity, and inclusive financial services. Policies should be long-term, gender-responsive, and supportive of women entrepreneurs rather than fragmented or donor-driven. In addition, stronger cybersecurity frameworks are necessary to build trust in digital transactions. Establishing supportive ecosystems through incubators, accelerators, and women-focused mentorship programs can further encourage sustainable adoption.

The review also identifies important directions for future research. More studies are needed in underrepresented regions such as Sub-Saharan Africa, where mobile phone penetration has not translated into advanced digital adoption. Scholars should explore how emerging technologies, including artificial intelligence, blockchain, and the Internet of Things, can be adapted to women-owned businesses in resource-constrained settings. Longitudinal studies would provide deeper insights into how digital adoption affects resilience, sustainability, and long-term growth of WOSBs.

Finally, this study contributes to knowledge in three critical ways. First, it places WOSBs at the center of analysis, offering a gender-aware perspective that enriches research on entrepreneurship and digital transformation. Second, it advances methodology by moving beyond citation-based bibliometrics and applying thematic coding, generating deeper insights into adoption patterns, enablers, and barriers. Third, it extends TAM by demonstrating that systemic and socio-cultural conditions play a decisive role in shaping adoption outcomes. Collectively, these contributions strengthen theoretical understanding and provide practical strategies for inclusive digital transformation.

## CONCLUSION AND RECOMMENDATIONS

This systematic review of 117 peer-reviewed articles (1987–2023) examined how women-owned small businesses (WOSBs) adopt digital technologies across global contexts, with Tanzania as a central case example, highlighting Sub-Saharan Africa. The findings reveal a persistent digital divide: WOSBs in developed economies increasingly integrate advanced systems such as e-commerce, customer relationship management, and cloud computing, while those in developing contexts primarily rely on mobile money and social media with slow and uneven progression toward advanced digital systems. Barriers such as limited infrastructure, affordability challenges, weak policy frameworks, financial exclusion, and socio-cultural constraints continue to restrict sustainable adoption.

By extending the Technology Acceptance Model (TAM), this study demonstrates that digital adoption is influenced not only by perceived usefulness and ease of use but also by systemic and socio-cultural factors. This gender-sensitive and context-based perspective makes a significant contribution to the literature by highlighting structural enablers and constraints that shape adoption. Overall, the study underscores the importance of moving beyond entry-level digital tools toward more advanced systems that enhance the growth, competitiveness, and resilience of WOSBs.
To achieve this, WOSBs should gradually expand from basic tools such as mobile money and social media to more advanced platforms, including e-commerce and customer relationship management systems. Continuous investment in digital literacy, mentorship, and participation in women-focused networks will strengthen confidence, competitiveness, and long-term sustainability.

Governments, meanwhile, should prioritize affordable internet, stable electricity, and inclusive financing mechanisms tailored to WOSBs. In the

long term, gender-responsive policies are needed to reduce barriers, while stronger cybersecurity measures will build trust. Supportive programs such as incubators, accelerators, and mentorship schemes can provide the ecosystems required for sustained digital adoption.

Development partners should align interventions with structural barriers by lowering technology costs, supporting long-term and practical training in areas such as e-commerce and digital finance, and strengthening women-led networks and cooperatives. These efforts will enhance resilience, market access, and competitiveness, ensuring that digital adoption translates into sustainable business growth.

Finally, further research is needed in underrepresented regions such as Sub-Saharan Africa, where high mobile phone penetration has not translated into advanced digital adoption. Future studies should explore how emerging technologies, including artificial intelligence, blockchain, and the Internet of Things, can be adapted to women-owned businesses in resource-constrained contexts. Longitudinal research would also provide valuable insights into how digital adoption influences business resilience, sustainability, and long-term growth for WOSBs.

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