

Bridging the Digital Technology Gender Gap: Challenges Faced by Women Entrepreneurs in Mashonaland West Zimbabwe

Journal of Asian and African Studies

1–26

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DOI: 10.1177/00219096251369519

journals.sagepub.com/home/jas

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Abstract

The digital technology gap presents significant challenges for women entrepreneurs in Mashonaland West, Zimbabwe. The study adopted interpretivism philosophy. Twenty-five women entrepreneur leaders with more expertise and knowledge of women entrepreneurship in the context of the study made up the study participants. Purposive sampling was chosen for qualitative data in this study. Qualitative data were analysed

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using thematic approach and the data were presented in themes. All the phases of the study, namely, data collection, data analysis, data presentation, conclusions and recommendations, were conducted with ethical considerations in mind. In the context of Mashonaland West, women entrepreneurs consistently report limited access to technology training, which further widens the gap in digital competencies necessary for modern business operations. Lack of infrastructure, security and trust, and customary and statutory laws discriminate against females, as norms restrict females from having their own properties, such as digital technology tools. Moreover, it was indicated that financial inclusion is critical for empowering women entrepreneurs to limit their capacity to invest in digital technologies. If the discovered challenges are not addressed, the digital gender gap will remain, and the entrepreneurial activities of women will remain compromised. The originality of the study is underscored by the lack of extensive studies specific to the Zimbabwean context, where socio-political and economic intricacies significantly influence women's entrepreneurial endeavours. While many studies have focused on broader regions, this specific local study fills a notable void in the existing literature.

Keywords

Challenges, digital technology, gender, women entrepreneurs, Zimbabwe

Introduction

Globally, women are taking increased control of their careers by launching their own ventures (Gimenez-Jimenez et al., 2022). The fastest growing segment of entrepreneurship worldwide is women entrepreneurs and has received the attention of many academics in recent years. Women industrialists are mostly involved in micro, small and medium scale enterprises (MSMEs) which contribute more than 97% of all enterprises, 60% of the nation's gross domestic product (GDP) and 94% of the total share of the employment (Roseline et al., 2020). The spectrum of women in entrepreneurship often ranges from home-based businesses (HBB) to micro, small and medium enterprises (MSMEs). Women businesspersons make a significant contribution to entrepreneurial activity and economic development in terms of creating new jobs and increasing the GDP (Subedi and Gautam, 2024), with positive impacts on reducing poverty and social exclusion (Murzacheva et al., 2020). It then becomes important to understand how women businesses perform well and what are the factors responsible for good performance of an enterprise has been an area of interest to both practitioners and researchers in the last few years (Zeb and Ihsan, 2020), and it has been found that among other factors, the entrepreneurial traits, innovation and digitalisation are some of the key factors which have an impact on the entrepreneurial performance. Women entrepreneurship in Western countries is influenced by a myriad of factors, ranging from socio-cultural to economic and technological. Government policies and initiatives play a pivotal role in shaping the environment for women's entrepreneurship in Western countries (Bullough et al., 2022). The Global Entrepreneurship Monitor (GEM) 2023 report shows that access to education, cultural attitudes towards gender roles, the availability of support networks and access to financing influence women's participation in entrepreneurship. The rise of digitalisation has reshaped the entrepreneurial landscape, offering both opportunities and challenges for women entrepreneurs in Western countries (Orrensalo et al., 2024). Digital technologies, including Internet connectivity, e-commerce platforms and digital marketing tools, have revolutionised how women businesses operate, interact with customers and access global markets (Mashapure et al., 2023; Varadarajan et al., 2022).

In African countries, women's entrepreneurship is a vital component of economic development and social progress. Despite facing numerous challenges, women across the continent have demonstrated resilience and ingenuity in establishing and running businesses. However, their

entrepreneurial endeavours are often hindered by various factors, including socio-cultural norms, limited access to resources and institutional barriers. Digitalisation, marked by the widespread adoption of digital technologies and online platforms, has the potential to revolutionise the entrepreneurial landscape in African countries (Abate, 2023). As digital infrastructure expands and Internet connectivity improves, women entrepreneurs are presented with new opportunities to overcome traditional constraints and access global markets. While digitalisation offers opportunities for women entrepreneurs, digital literacy rates among women in Africa vary. According to the International Telecommunication Union (ITU) (2023), only around 32% of women in sub-Saharan Africa use the Internet, highlighting the digital gender gap that persists across the continent.

In recent years, the landscape of entrepreneurship in Africa has been undergoing significant transformation, with women playing an increasingly prominent role in driving economic growth and innovation. Some of the factors influencing women's entrepreneurship in African countries are access to finance, support networks and digital literacy (Andriamahery and Qamruzzaman, 2022). Government policies and programmes also play a crucial role in supporting women's entrepreneurship and promoting digital inclusion. Initiatives such as the National Gender Policy in Rwanda and the Digital Skills Training Programme in Ghana aim to address gender disparities and empower women entrepreneurs through targeted interventions (Dabić et al., 2022). Nigeria, with its vibrant economy and large population, presents a diverse landscape for female entrepreneurship (Woldesenbet Beta et al., 2024). Despite significant entrepreneurial activity, women face challenges such as limited access to finance, cultural biases and infrastructure gaps. However, initiatives like Women's Entrepreneurship Day and the Nigerian Women's Trust Fund aim to support and empower women entrepreneurs. Kenya has emerged as a hub for innovation and entrepreneurship, particularly in the technology sector (Lugasi and Odhiambo, 2022). Women entrepreneurs in Kenya have leveraged digital platforms and mobile technology to overcome traditional barriers and access markets both locally and internationally. Organisations like the Kenya Women Microfinance Bank and the Kenya Women Entrepreneurship Programme provide financial support and capacity-building programmes for women entrepreneurs (Juma, 2023). South Africa boasts of a diverse and dynamic entrepreneurial ecosystem, but women entrepreneurs still face challenges related to access to finance, skills development and market access. Digitalisation has the potential to address some of these challenges, with initiatives like the South African Women in ICT Forum working to promote digital literacy and entrepreneurship among women (Irene, 2019). However, women entrepreneurs in African countries continue to face numerous challenges that hinder their full participation and success in the entrepreneurial ecosystem. Understanding the factors influencing women's entrepreneurship, including the impact of digitalisation, is crucial for fostering an enabling environment that supports the growth and sustainability of women-led businesses across the continent.

In Zimbabwe, entrepreneurship has been recognised as a vital driver of economic growth and development, particularly in the face of challenges such as high unemployment rates, economic instability and limited formal job opportunities (Mahuni et al., 2025). Women entrepreneurs play a crucial role in the country's economy, contributing to job creation, poverty alleviation and sustainable development. However, like in many other countries, women entrepreneurs in Zimbabwe face unique challenges and barriers that hinder their full participation and success in the entrepreneurial landscape. Observations show that Zimbabwean women have been involved in various entrepreneurial activities, including small-scale agriculture, informal trading and artisanal crafts. Despite their significant contributions to the economy, women entrepreneurs often encounter obstacles such as limited access to finance, markets, information and support networks. Cultural norms and gender stereotypes may also constrain women's ability to pursue entrepreneurship, as traditional gender roles may prioritise women's domestic responsibilities over economic pursuits. In recent

years, there has been increasing recognition of the importance of promoting women's entrepreneurship and gender equality in Zimbabwe. The government, in collaboration with non-governmental organisations (NGOs), international organisations and the private sector, has launched various initiatives and programmes aimed at supporting women entrepreneurs and fostering an enabling environment for their success (Derera et al., 2020). These initiatives include capacity-building programmes, access to finance schemes, business development services and policy reforms aimed at promoting gender equality and women's empowerment. At the same time, Zimbabwe has experienced significant advancements in digital technologies and telecommunications infrastructure, which have the potential to transform the entrepreneurial landscape (Moyo and Tengeh, 2021). Digital platforms and e-commerce channels offer women entrepreneurs the ability to reach broader markets, connect with customers and grow their businesses beyond traditional boundaries. However, despite the potential benefits of digitalisation, Zimbabwe, like many other countries, faces challenges related to the digital gender divide. Disparities in Internet access, digital literacy and technology adoption between men and women may exacerbate existing inequalities and limit women's ability to leverage digital tools for entrepreneurial success. In addition, gender biases and stereotypes in the tech sector may hinder women's participation in digital entrepreneurship and innovation. Against this backdrop, the study seeks to explore the barriers to digital adoption among women entrepreneurs in Zimbabwe, examining the socio-economic, cultural and technological factors that hinder their participation in the digital economy. By identifying key challenges and opportunities, the research aims to provide insights that can inform policy interventions, promote digital inclusion and empower women entrepreneurs to fully harness the benefits of digital transformation.

Literature review

Theory guiding the study

According to the Theory of Planned Behaviour (TPB), three categories of factors – behavioural, normative and control beliefs – influence the way people act. While normative views are those regarding the normative expectations of others, behavioural beliefs are those concerning the anticipated outcomes of an individual's actions. Beliefs regarding the existence of elements that could either facilitate or impede the performance of the behaviour are known as control beliefs. Together, normative beliefs offer a subjective standard or perceived social pressure, behavioural beliefs establish a negative or positive attitude towards the behaviour and control beliefs generate a sense of behavioural control or self-efficacy. The influence of attitude towards behaviour and subjective norm is moderated by perception of behavioural control. In general, a person's desire to act on a problem should be stronger the more positive their attitude and subjective norm are, the more control they believe they have over the situation. Finally, if women have enough real control over their behaviour, they should follow through on their objectives when the opportunity arises. Consequently, it is considered that the direct antecedent of behaviour is intention. Perceived behavioural control can serve as a substitute for actual control and aid in predicting the behaviour in issue if it is accurate (Ajzen and Kruglanski, 2019).

Behavioural beliefs. Based on the theory, attitudes are informed by beliefs needed to engage in the behaviour (Ajzen, 1991). It is defined women's positive or negative feelings connected in engaging in a particular action. For instance, if women think that adopting digital technology will result in primarily positive results, they will have positive attitude towards digital technology adoption. Several past studies had found significant direct relationship between attitude and Internet

purchasing (Chetioui et al., 2021). Ly and Ly (2022) found that attitude is significantly related to Internet banking intention.

Normative beliefs. Normative belief is the perceived social pressure to engage or not to engage in a behaviour. It is assumed that subjective norm is determined by the total set of accessible normative belief concerning the expectations of important referents (Ajzen, 1991).

Control beliefs. The term 'control beliefs' describes how people think they can carry out a specific activity. The whole set of accessible control beliefs, that is, beliefs regarding the existence of elements that could help or hinder the completion of the behaviour, determines control belief. To the degree that it reflects the idea that behaviour may be predicted by purpose and perceived behavioural control. Past studies have found inconsistent findings as regards to the relationship of perceived behaviour control and intention (Hagger et al., 2022). On most occasions, perceived behaviour control is not a significant predictor of intention or behaviour.

Challenges faced by women entrepreneurs in the process of adopting digital technology for women entrepreneurship enhancement

Previous studies claim that digital adoption have made significant contribution in entrepreneurship landscape. However, even if different research found positive influences, women entrepreneurs face many impediments which to a greater extent restrain them from digitalising their entrepreneurial activities. Researchers have used the term barriers or impediments in their research papers and have classified obstacles to ICT integration in a variety of ways. These obstacles were divided into material and non-material categories by Octaberlina and Muslimin (2020). The material barriers include the concrete barriers area, inadequate ICT infrastructure, including computers and software copies. Non-material barriers include entrepreneurs lack of ICT expertise, time constraints and ignorance of the connection between ICT and education. These obstacles were separated into intrinsic and extrinsic barriers in several investigations. According to Cutri et al. (2020), extrinsic barriers also known as first-order barriers are mentioned as time, access, support, training and resources. Steinke et al. (2021) and Hendricks and Mwapwele (2024) established that to increase adoption of ICTs in less developed countries, a focus must be placed on meeting the needs and addressing the limitations of the end user by demonstrating the advantages to adopting a given ICT innovation. Literature shows that women entrepreneurs are affected by some of the challenges discussed in the next section.

Missing of supporting institutions. A lack of supporting institutions creates additional challenges for entrepreneurs (Amini Sedeh et al., 2022), especially in developing countries. Aryal et al. (2020) highlight there is lack of institutions like business incubators, digital training and women-focused innovation hubs that specifically support women in digital entrepreneurship. Existing institutions may not work in a coordinated way to provide integrated support services such as funding and market access. Many institutions fail to reach grassroots women entrepreneurs, especially in rural areas, due to poor communication strategies or urban-centric operations. Few collaborations exist between governments, NGOs and the private sector promote inclusive digital transformation for women-led enterprises. Murugesan and Sudarsanam (2020) corroborate the same relationship especially in rural areas. However, to do this, organisations should encourage upscaling and out-scaling of technologies through national and local institutional frameworks, policies and investments at the micro, meso (industry) and macro (system) levels. According to Kaur et al. (2019),

policymakers in poor countries ought to investigate technology in order to optimise their reach and expand the advantages to a wider population, hence enhancing food security.

Lack of appropriate incentives. Carmela Annosi et al. (2020) state that the implementation of digital projects must be executed by firms and individuals who have the appropriate incentives to work with groups. Also, Khanna and Sharma (2021) claim that the adoption rates are often low due to behavioural factors and that those factors can be solved by appropriate incentives. Another issue is related to the fact that, within complex supply chains, the sustainable development of digital technology can be limited by a perception of diverse incentives by different players, since benefits and costs do not always accrue in an equitable manner (Carmela Annosi et al., 2020). Relationships and incentives may therefore play a crucial role in the adoption. According to their research, Reficco et al. (2018) offer remedies including contract design and sourcing channels to establish reciprocal advantages and generate that ‘shared value’ that forms the cornerstone of sustainable growth.

Lack of user involvement, family involvement and community involvement in digital technology adoption by women entrepreneurs. Our review has highlighted three barriers related to the lack of involvement, at three different levels: (1) the lack of user involvement, or even the user resistance, related to a lack of an entrepreneurial mind-set of entrepreneurs, which impacts on the demand growth rate, limiting the diffusion of knowledge related to the innovation and enhancing the adoption and diffusion costs for sustainable entrepreneurs (Gruenhagen and Parker, 2020); (2) partner involvement and commitment, meant as their propensity to adopt or to bear costs and risk of the new technologies (Wang et al., 2023); (3) the involvement of community, which seems to play a relevant role, especially when searching for solutions to ensure the needs of the poorest classes of people, such as access to technologies, education and knowledge (Powell et al., 2010). Community involvement, but of a different type – integrated resource management communities – is also at the core of the study by Sanders and Masri (2016), focussing on the energy–water agriculture nexus.

High cost of digital technology equipment. Access seems also to be a challenge to the sustainable development of digital technology due to the high costs of equipment, maintenance and connectivity (Carmela Annosi et al., 2020). Many regions and firms cannot afford to improve their infrastructure, as most of the time they lack financial resources to do so. Entrepreneurs indeed complain about the fact that they do not have access to a better broadband connection or access overall, as confirmed by Pant and Odame (2017) in their study of Canadian farms. In addition, in supply chains the infrastructure seems to work as a critical bridge between small and big data and therefore needs to rely on access (Coble et al., 2018). Rotz et al. (2019) conquered by suggesting that there is a need to improve the infrastructure; decision-makers must consider the acquiring, installing and maintaining costs. According to the statistic given by the Human Resources Development Fund (2019), around 98.5% of the businesses in Malaysia are MSMEs. Half of them claimed that funding is the main issue for digitalisation due to high costs (Calderon-Monge and Ribeiro-Soriano, 2024). Digitalisation requires a high network connection to perform economic activity. However, the broadband are low speed yet highly priced and connectivity issues might still occur (Seah, 2021). This reduces the likelihood of the owners spending for the technologies to be digitalised.

Language barrier. Languages within a country can differ a lot, because countries may use a main common language while also having many local languages. For example, in Zambia, the development information is accessed in eight languages (Gille and Lepawsky, 2022). It requires a lot of effort to translate knowledge and informative knowledge to serve every local group. When different groups of entrepreneurs cannot access the information in their language, this can result in a lack

of usage of ICT by these groups. Literature shows that 80% of software and online content are in English. This is a serious barrier for countries where English is not the first language, like India and Pakistan. Since standard software is designed in English, availability of software in the local language and curricula are hampering the successful implementation of ICT (Alivi, 2022). Outdated curricula and the medium of instruction are stumbling blocks to adopting ICT in education in developing nations like Nigeria (Adeoye et al., 2023). The medium of instruction and outdated curricula remain the main hurdles in the integration of ICT in public schools of Pakistan (Rafeeq and Mustafa, 2021).

Unavailability of electricity and unstable Internet. For the effective use of ICT tools in classrooms, access to electricity and the Internet is crucial. Most of the rural schools of Kenya are deprived of electricity and Internet. The same situation prevails in most of the developing countries of the world (Ogundana et al., 2021). In a recent study carried out by Ntorukiri et al. (2022) in Kenya, the provision of electricity and Internet is a key challenge in implementing ICT in schools. However, Akter and Bagchi (2021) stated that in some slum areas of India, schools were provided electricity with solar panels where electricity was not available. Most of the rural schools of Bangladesh are deprived of electricity and Internet access (Parvin and Alam, 2022). In the age of technology, it is imperative for teachers to use ICT in their teaching practice; however, due to power failure and slow Internet connection in Pakistan, teachers face problems in using ICT effectively in their classes. This situation is alarming in rural areas of Pakistan, as most of the public schools of rural areas are deficient in the provision of electricity and Internet (Raza et al., 2020).

Lack of business models that supports digital technology adoption. Carmela Annosi et al. (2020) highlight that the successful sustainable development of digital technology in agri-food sector is partially dependent on the business models that providers adopt, especially for the successful adoption and diffusion. If those are not designed to embrace such innovations (Mazzucato et al., 2020), both financial investments and in the development of skills will not take place. Gericke and Torbjörns-son (2022) agreed that most reforms in schools fail because of flawed implementation. According to Ziegele and van Vught (2020) the second impetus has been standardisation by modelling schools on factories with the expectation of uniformity of outcome. The difficulty associated with facilitating change in people's values, attitudes and behaviour is grossly underplayed and often ignored.

Lack of digital technology knowledge. Limited knowledge and skills for using ICT by entrepreneurs contribute to the challenges or in delayed development (Murugesan and Sudarsanam, 2020). Mendes et al. (2024) in their survey found this to be a major issue, especially with respect to the lack of knowledgeable, trained and skilled workers capable of operating digital technologies and systems. In this direction, to face the lack of informative platforms, Pliakoura et al. (2020) suggest entrepreneurs to share their knowledge through videos. Still related to knowledge and competencies, the work by AlMindeel and Martins (2021) recalls the role of competence and knowledge related to advisors, consultants and services, proposing a scale for its measurement. Knowledge, training and capacity of advisors and consultants are of crucial relevance and shall be considered to make sure that technologies are correctly delivered, and their benefits are transmitted to entrepreneurs and entrepreneurs and could be enhanced by designing trainings and initiatives (Umar et al., 2019). While dealing with ICT tools, teachers face technical problems that prevent them from using ICT. Hence, timely assurance of technical support may help teachers in saving time and smooth delivery of lessons in classes. Technical barriers include Internet connection failure and malfunctioning of ICT tools. Many respondents in various studies conducted by different researchers showed their concerns about technical faults and lack of technical support. Teachers argued that

fear of breaking down of ICT tool during a lesson might discourage them from using ICT in their teaching practice. In some Western countries, schools are provided with technical support to help teachers in using ICT effectively (Essuman et al., 2022).

Demographic or socio-economic variables. Age seems to be an important aspect in the adoption of technology. In fact, there is an agreement that demographic or socio-economic variables such as age significantly helped to explain differences between the adopters and non-adopters (Al-Ghaith et al., 2010). Ribeiro et al. (2024) found that the individuals who tended to use the Internet early in Australia were young males, with high level of income and education. Chatterjee et al. (2022) also confirmed that the economic status for individuals influences their ability to own and then use a technology. Moreover, Alipour et al. (2020) showed that demographic attributes play an important role in predicting adoption and that economic status (income) is highly correlated to initial adoption.

Digital data complexity. When digital technologies are successfully adopted within a company, a great amount of data is generated. This big data can be used by policymakers and decision makers to make punctual and efficient decisions. Big data propose a holistic to cope with the complexities related to entrepreneurial (e.g. farmer's and consumer's needs, efficiency, predictive analytics, supply chain integration). According to Faruk et al. (2022), while the adoption of big data analytics could potentially bare huge opportunities and benefits, the applicability to agriculture is still debated, due to the complex structure of this technology which can be hard to implement without a support from institutions and services and a strong initiative. Hamman and Dziebowski (2024) underline that data can be very complex to be managed due to structure, as confirmed by Gerek and Aydin (2025) that analyse the need to coordinate the efforts of diverse stakeholders to provide relevant data gathered from heterogeneous sources. In this light, Shepherd et al. (2020) suggest that data governance should be designed to enable an equal share of the benefits of digital agriculture.

Lack of accessibility to digital technology. Inadequate amount of ICT resources creates this type of barrier if these resources are not available in time to users (teachers and students). In a study carried out by Joshi et al. (2021), respondents complained about the inaccessibility of computers due to several periods (classes) in a row and could not work on computers as they were shared by other teachers or they were in use by other teachers. Poor organisation of ICT resources, inappropriate software, non-maintenance of ICT resources are some factors of inaccessibility to these resources. No access to Internet and scarcity of pedagogical software were impediments in the use of ICT in Saudi schools (Alam et al., 2024). About one-third of the European schools do not have access to Internet. However, accessibility to ICT resources does not mean that it is being applicable successfully but quality of hardware, inappropriate software and access to ICT tools by all users are some other barriers hampering the effective implementation of ICT in schools.

Problem of technology growing old/obsolescence. Research by Lischer-Katz (2022) showed that digitising the oral history collections faces problems of technological obsolescence as new versions of hardware and software are regularly adopted. Allmendinger (2021) sees it as ironic that while we should be celebrating the benefits brought about by digital technology, we are instead faced with threats of innovation, longevity and accessibility. Developing nations will have to put measures in place to ensure that digital information is accessible despite changes in technology over the years. McIlwaine and Ouda (2020) also note that the character of the IT industry is that it does not support long-term access as the dynamic market forces work against standardisation. Research into the

technology use of entrepreneurs in Bangladesh argued that neither education nor income is a real barrier in the use of digital technologies, but that being modern (i.e. having children or being young) is very important (Sharmelly et al., 2022). This means that when entrepreneurs have children or are from a younger generation, they are more likely to use digital technology within their businesses, because this ‘modern generation’ uses it more often and thus faces less barriers in its usage.

Lack of cyber security or privacy risk. This is defined as a potential loss due to fraud or a hacker compromising the security of an online bank user. Phishing is a new crime skill by which phishers attempt to fraudulently acquire sensitive information, such as usernames, passwords and credit card details, by masquerading as a trustworthy entity in an electronic communication. A phishing attack takes place when a user receives a fraudulent email (often referred to as a spoof email) representing a trusted source that leads them to an equally fraudulent website that is used to collect personal information (Bera et al., 2023). Both fraud and hacker intrusion not only lead to users’ monetary loss, but also violate users’ privacy, a major concern of many Internet users. Many consumers believe that they are vulnerable to identity theft while using online banking services. This was supported by Mafube and Keakopa (2019) who stated that the increasing creation of electronic records in Botswana government Departments has raised challenges of preservation of digital heritage materials for archivists and librarians. Ambira (2016) agreed that the importance of conducting oral history interviews at the BNARS cannot be overemphasised, though the suitability of digital audio recording equipment for long-term preservation of oral history recordings is still yet to be established. Kugara and Mokgoatšana (2022) advise that the new technology should be approached with vigilance with respect to oral history archives until its usefulness for long-term preservation has been assessed. Therefore, as an archival institution with the mandate of preserving information for longer periods, adopting digital technologies may not be an easy option for developing countries. Digital preservation is also an expensive undertaking as Robertson (2023) argue that preservation of digital information is unquestionably expensive and requires highly skilled staff and equipment.

Lack of software capabilities. Most of the functionality of industrial augmented reality (IAR) systems is related to the software. One focus area of research is the tracking technology (Masood and Egger, 2020). When placing digital content in the real world, reliable tracking of the physical world is essential to provide a coherent user experience, but hard to achieve. In some countries, projects focus on training for the implementation and sustainability of ICT-based interventions in education. Some see pre-service training as essential, such as the revised national policy on education in Botswana and the aims of SchoolNet Namibia, while others consider in-service training the appropriate response. Some hope that ‘cascade’ models will work, like in the Ministry of Education in Gambia (Kipsoi et al., 2012). Some claim that it has already done so, as in the case of Ghana (Adomako et al., 2022). To maintain the intervention, others continue to rely on volunteers of all ages. Although training objectives differ, the majority are predicated on training plans that cover the various skills through workshops. The amount of time spent on training is more important than the results, such as skill mastery, technological comfort or expertise incorporating Internet use into the curriculum. In a concentrated period with groups at different levels of skill, training often includes basic computer literacy, introduction to the fundamentals of email, search engines, website creation and the integration of technology in the classroom. ICTs have undoubtedly increased the expectations placed on an already overburdened industry while also providing chances to help with present challenges.

Empirical review: the digital and technology gender gap

The gender gap exists in digital technology adoption, access and capacity building among women entrepreneurs in Zimbabwe. This disparity not only limits the potential for individual business growth but also hinders overall economic development of the country. Addressing these issues through targeted training programmes and increased access to technology could empower women and foster a more inclusive entrepreneurial landscape. The disparities in digital skills, education, access to digital infrastructure and the adequacy of institutional and policy support structures targeting female entrepreneurs.

Access to digital infrastructure. Recent data from the Postal and Telecommunication Regulatory Authority of Zimbabwe (POTRAZ) and ZIMSTAT (2022a) indicate persistent gender disparities in access to digital technology infrastructure. Although national Internet penetration stands at approximately 61%, only 38% in rural women report having consistent access to Internet services compared to 59% of men. Surveys reveal that women are 30% less likely to own a smartphone or laptop necessary for digital entrepreneurship, especially in Mashonaland west and other rural provinces.

Education and digital skills. The digital divide is strongly linked to the education gap which is digital literacy levels, STEM education enrolment and entrepreneurship training gaps. According to ZIMSTAT's Labour Force Survey (2022b), only 27% of women in the informal sector have received any form of ICT training compared to 42% of men. Female enrolment in tertiary ICT and engineering programmes remains below 25%, limiting long-term capacity for digital entrepreneurship. Also, most of digital entrepreneurship training programmes are urban-focused, excluding rural women due to cost, accessibility and cultural barriers.

Institutional and policy support. Zimbabwe has several frameworks in place to support women and ICT development, but gaps in implementation and targeting persist. National ICT policy (2020–2025) and National Development Strategy (NDS1) commit to increasing ICT penetration; however, gender-specific targets are underfunded and underreported. SME support scheme such as Zimbabwean Microfinance Women bank, Empower bank and microfinance rarely integrate digital business incubation or ICT focused grants for female entrepreneurs. Less than 10% of total SME development funding was earmarked for ICT training and digitalisation projects targeting women.

The data confirm a persistent gender gap in digital access and skill development in Zimbabwe. Bridging this divide requires targeted funding for women's digital education, inclusive ICT policy design and implementation, and partnerships between government, NGOs and tech companies to deliver rural digital hubs. Table 1 summarises key indicators of the digital and technological gender gap in Zimbabwe, especially as it affects women entrepreneurs.

Regional disaggregation of the gender gap. The regional dimension of the digital and technological gender gap (Table 2), particularly between rural and urban areas, as women in rural settings often face, multiple layers of exclusion. Factors such as limited digital infrastructure, lower educational attainment, socio-cultural barriers and poor access to financial services exacerbate gendered disparities in rural areas compared to urban centres. A comprehensive gender analysis therefore requires a spatial lens that captures how geographic location interacts with gender to shape access to digital technology, training opportunities and institutional support for women entrepreneurs.

Table 1. Key indicators of the digital and telecommunication gender gap among women entrepreneurs in Zimbabwe.

Indicator	Women	Men	Source
Internet access in rural areas	30%	59%	UN Women (2023)
Smartphone ownership (national average)	49%	72%	POTRAZ ZIMSTAT (2022a)
ICT training participation (informal sector)	27%	42%	ZIMSTAT (2022b)
Female enrolment in ICT/STEM tertiary education	24%	76%	Ministry of Higher and Tertiary Education, Innovation, Science and Technology Development (2024)
Access to POS/online payment platforms	34%	60%	Empower Bank report (2022)
Participation in government digital training	18%	35%	Ministry of Women Affairs (2023)
Access to entrepreneurship funding (digital tech)	Less than 10% of applicants	Majority of ICT-based loans go to men	Zimbabwean Women Microfinance Bank (2023)
Digital awareness (e-commerce platforms)	41%	65%	UNDP Digital Readiness Assessment (2023)

Source: Authors' conception (2025).

Table 2. Regional disaggregation of the gender gap.

Indicator	Urban women	Rural women	Urban men	Rural men	Source
Internet access	71%	38%	85%	59%	POTRAZ, UN Women (2023)
Smartphone ownership	68%	35%	79%	58%	ZIMSTAT (2022a)
ICT training	44%	18%	58%	27%	Ministry of ICT & Innovation (2023)
Use of online business (e.g. WhatsApp)	56%	24%	67%	38%	Digital Inclusion Report (2023)
Access to POS/e-payment tools	48%	17%	61%	29%	RBZ report (2022)
Awareness of digital business platforms	59%	27%	70%	41%	UNDP Digital Readiness Assessment Report (2023)

Source: Author's conception (2025).

Regional focus: digital and technological gender gaps in Mashonaland west province, Zimbabwe. Mashonaland west, with districts such as Chinhoyi, Kariba and Magunje, represents a predominantly agro-based province with a growing informal entrepreneurial sector (Table 3). Despite the provincial government's push for ICT hubs in towns like Chinhoyi, the rural–urban divide in digital adoption remains stark. Many women entrepreneurs operate in informal settings, often without access to digital tools or training.

Table 3. Summary of digital and technological gender gaps in Mashonaland west province, Zimbabwe.

Indicator	Women entrepreneurs (urban)	Women entrepreneurs (rural)	Remarks
Access to reliable internet	63%	21%	Rural areas suffer from poor mobile network and electricity.
Ownership smartphones/laptops	67%	36%	Device cost and income levels affect ownership.
Awareness of digital marketing tools (e.g. WhatsApp business, Facebook marketplace)	58%	22%	Limited digital literacy in rural zones.
Access to ICT training or digital skills programmes	41%	14%	Urban women benefit more from NGO-led workshops.
Use of mobile money/digital payment systems.	72%	39%	Mobile network and agent coverage is better in towns.
Knowledge of online business platforms	46%	19%	Internet cost and language barriers hinder uptake.
Institutional support (grants, innovation hubs)	Available but underutilised	Limited to non-existent	Many programmes are urban-based and lack rural outreach.

Source: Authors' conception (2025).

Methodology

This study adopted interpretivist philosophy, which emphasises the subjective understanding of human experiences. Interpretivism enables researchers to go beyond empirical, objective data by incorporating participants' subjective views, emotions, values and opinions, elements that are not directly observable or quantifiable (Saunders and Thornhill, 2009). According to Forsey (2012), qualitative research is appropriate for exploring and describing participants lived experiences in depth. Mashapure et al. (2021) also highlight that interpretive approaches allow researchers to gain a holistic understanding of the phenomenon under study, especially within its cultural and social context. In this regard, qualitative research was selected to uncover complex and often overlooked issues that influence women entrepreneurs, going beyond conventional motivation theories and stereotypes. A cross-sectional survey design was employed to collect data at a specific point in time, allowing the researchers to examine a wide range of variables. The study population consisted of women entrepreneurs in Mashonaland west province, Zimbabwe. Participants were selected based on their leadership experience and deep knowledge of women entrepreneurship within the local context. Data collection continued until theoretical saturation was reached, aligning with the guidance of Saunders et al. (2018) and Lowe et al. (2018), who argue that saturation marks the point at which further data collection yields no new insights relevant to the research questions. The study employed purposive sampling, a technique where participants are intentionally selected based on their ability to provide rich, relevant and diverse information about the topic. This was operationalised through the key informant approach, where knowledgeable individuals served as entry points

to identify other informed participants. These participants were thoughtful, observant community members with firsthand knowledge and experience relevant to the study. Purposive sampling, as described by Cresswell and Plano Clark (2011), involves identifying individuals or groups who are especially knowledgeable about the phenomenon of interest. Accessibility, willingness to participate and effective communication were also considered critical attributes of the selected participants. Data were gathered using semi-structured interviews guided by an interview protocol consisting of two core themes: (1) challenges hindering the adoption of digital technology by women entrepreneurs and (2) strategies to improve digital adoption. Informed consent was obtained from each participant through signed agreement forms. The interviews provided opportunities to explore, probe and clarify issues of interest in greater depth. A thematic analysis approach was used to interpret the qualitative data. This involved identifying recurring patterns and organising them into themes that captured the essence of participants' perspectives. The study adhered to ethical standards throughout all stages data collection, analysis, interpretation and presentation. Permission to conduct research in rural areas was sought from traditional leaders. Ethical principles such as informed consent, voluntary participation, confidentiality, anonymity and respect for participants' privacy were strictly observed. Respondents were informed of the academic purpose of the study, and data were reported faithfully and used solely for scholarly purposes.

Findings and discussion

Women businesspersons highlighted various challenges hindering the adoption of digital technology. Unless and until these challenges are addressed, women will not enjoy benefits of digitalisation. The gap between technology and gender will continue existing.

Lack of infrastructure

Another element that may influence the adoption of digital technology is a lack of infrastructure. Digital technology requires the environment to be set up properly (Makarova and Makarova, 2018). The use of digital technology is negatively impacted by Zimbabwe's existing harsh economic realities. The necessary tools to run an online business and sell it online are not available to female entrepreneurs (Anzak et al., 2023). Massive load shedding makes it difficult to operate modern devices, such as laptops and mobile phones, because some of them depend on a steady supply of mobile phones, because some of them depend on a steady supply of electricity. Mobile phones need to be recharged because their power sources are limited. For women entrepreneurs in Mashonaland province, especially those located in the rural areas, there is a lack of infrastructure such as charging points for Point of Sale (POS) machines and mobile phones; thus, the use of digital technology such as e-commerce is reduced. The procedure of even acquiring a POS machine or a KWENGA from the banks is so tiresome that most women entrepreneurs leave it in the process.

Security and trust

Women entrepreneurs fear jeopardising their businesses, meaning to say they cannot trust digital technologies such as online banking and mobile payments methods, for example, Ecocash and One Money, to process their funds and make sure they are secure. Recently, a lot of cybercrimes have been reported in Zimbabwe, where funds have been stolen from individual bank accounts, and this tends to have an adverse effect on how financial institutions' security is viewed by women entrepreneurs, and this reduces their trust in using digital technology like electronic payment systems in their business. The regular changes of legislation concerning the financial sector are

also a challenge to the women entrepreneurs to trust the system. These findings concur with Hendricks and Mwapwele (2024) and Maqsoom et al. (2023), who stated the barriers to digital technology adoption in developing countries.

Lack of knowledge and digital literacy

The successful adoption of digital technology in entrepreneurship is closely tied to the entrepreneur's understanding and appreciation of digital tools. Women entrepreneurs are often hesitant to adopt such technologies due to limited exposure, lack of awareness and low digital literacy. Computer literacy is a critical enabler for engaging with digital platforms, and its absence significantly impedes uptake. Several studies and reports point to systemic educational inequalities that hinder women's capacity to engage with digital innovation. Women have traditionally been denied equal educational opportunities, particularly in many African communities, where gender-based educational exclusion remains prevalent. This educational marginalisation not only limits women's ability to secure formal employment and stable income but also restricts their access to information, which is essential for understanding and participating in digital technology ecosystems. This lack of access to critical information due to illiteracy creates a ripple effect: women are often unaware of their rights and excluded from decision-making processes, including those related to technological innovation. As a result, many cannot utilise digital tools such as mobile devices to access essential services like digital banking and insurance, which are becoming increasingly integrated and self-service (Maziriri et al., 2024a, 2024b). The correlation between education and technology adoption is evident women with lower levels of education are less likely to understand or use digital tools effectively. This knowledge gap reinforces a digital divide that continues to disadvantage women entrepreneurs in the digital economy.

Lack of identity documents

Findings from the study concluded that females venture into small and low-earning activities like informal vending, creating stalls and other unregistered activities as they have limited access to national identity documents. Without national identity documents, it is very difficult for females to register digital tools like a mobile phone subscriber identity module (SIM) card, which is a prerequisite to access digital technology products. This is further exacerbated by the fact that banks still have daunting processes which are a hurdle to digital financial inclusiveness. Females in the informal trading have little income, and hence they are unable to sustain accounts offered by financial services providers, hence not being able to secure digital technology tools.

Discriminatory customary laws

According to Gaddis et al. (2022), customary and statutory laws in many developing countries still discriminate against females as norms restrict females from having their own properties, such as digital technology tools. These discriminatory tendencies also take away the right for females to get involved in deciding on family expenditure and household purchases. As such, this limits females in budgeting for Internet costs, yet digital financial services like Internet banking are largely accessed through the Internet. Women in Mashonaland west province state that one of the challenges faced by womenpreneurs, which in turn is one of the impediments to digital technology adoption, is gender-based violence. Women further state that in such patriarchal societies where females greatly depend on males for financial support and financial decision-making, they suffer in silence because of the fear of losing their marriages. This is supported by the Global Partnership

for Financial Inclusion (2020), which states that financial exclusion is exacerbated by cultural norms which give men power and authority over their wives once they have paid lobola for them. This problem is characterised especially in African cultures. This has traditionally made banking services a privilege for the males, as females were relegated to home-based care duties. Even with the increased numbers in mobile phone penetration, females still have very low figures in terms of accessing digital banking services or digital insurance services. Females are still behind in getting the gadgets, like mobile phones that access digital technology services, because they do not have sufficient income to allow them (Global Partnership for Financial Inclusion, 2020).

Social and cultural factors

A significant number of women are now going to school and pursuing different ICT-related careers but still face huge inequalities in the world of work. The challenges include their simultaneous obligations to their households (Mashapure et al., 2021; Maziriri et al., 2024a, 2024b) with the social structure, including the family being the main cause of inequalities. The gender division of labour in the family leaves the women with only a few hours daily for engaging in work outside the household. Women highlighted that they face cultural pressures and stereotypes that discourage them from developing the skills needed to develop and adopt digital technology. Gender stereotypes are created within families with ICT careers being given a gender label. Preconceived ideas of how women and men use technology remain unchanged with technology being viewed as a ‘boys’ toy’. These stereotypes have influenced women choices over time, reducing their confidence and interest in ICT and turning them away from ICT as an occupation (Mashapure et al., 2022, 2023; Maziriri et al., 2024a, 2024b).

Lack of role models or mentors

Another issue affecting women in ICT is the dearth of female mentors and role models in professional settings. Interview results indicate that women will not embrace digital technology unless they are encouraged to take on strategic responsibilities by role models. Few women hold CEO roles because many women are constrained in the workplace due to the lack of female mentors. Fewer females will desire to use digital technology if there are not enough well-known younger female role models in the ICT sector. Participants emphasised that a variety of barriers, including bias, stereotyping, discrimination and a lack of opportunity, cause them to lose motivation to succeed in their line of work. As a result, role models may help women entrepreneurs by offering invaluable mentoring services to ICT women in the beginning and later stages of their careers. They can also significantly improve the sector’s overall work culture. More tech-savvy role models are needed since they can help women advance and make it simpler for them to do so (Suseno and Abbott, 2021). Nowadays, mentoring is a great way to help women enter the workforce because mentors can share their knowledge and provide participants advice on how to grow their professions.

Adoption cost

In addition, another significant factor in an organisational context is the cost of using digital technology. The higher cost of digital technology will result in lower usage of technology in the organisation, particularly in small to medium enterprises by women entrepreneurs. Women entrepreneurs in Mashonaland west emphasised lack of funding as a major barrier for them to adopt technologies. That is why adoption cost is another major factor in women-led businesses digital technology usage and an essential consideration in the decision-making process for developing countries.

More specifically, manufacturing women-led businesses related adoption cost impact on firm performance is still not identified by the scholars.

Needed initiatives

According to Powell and Chang (2016), expanding women's access to ICT jobs would not only advance economic opportunities for women, their families and communities, but would help address the shortage of skilled workers for these jobs and grow the digital economy. Education level is not a barrier to reaching leadership positions in ICT-related careers. What is needed are nationwide initiatives to improve training, education and guidance for women so that they can be better prepared and trained to take up jobs that build ICT skills (Al-Alawi, 2016). This is supported by findings from the participants who elaborated that

If targeted training and skills development is provided, it can reduce barriers women face in entry into management and give businesses a competitive advantage by expanding the pool of job candidates and ensuring women are part of the talent pipeline.

Goldberg et al. (2024) also reaffirm this notion that advocating for training provides more opportunities for career progression by boosting the competence levels of individuals and the organisation.

Implications on policy and practice

Regional disparities highlight the urgent need for tailored interventions that address both gender and geographic inequalities. Such initiatives could foster inclusive economic growth and empower under-represented communities (Mutanda et al., 2025). By focusing on local needs and leveraging unique strengths, government and supporting structures can create a more equitable society for all. Policies should prioritise rural infrastructure investment, decentralised digital skills training and improved access to affordable Internet and digital financial services for women entrepreneurs in remote areas. Joudyian et al. (2021) complement on that collaboration between government, the private sector and community organisations will be essential to ensure these policies are effectively implemented. This holistic approach can not only uplift individual lives but also stimulate broader economic resilience and social cohesion across diverse regions. The findings from Mashonaland west underscore the intersectional nature of digital exclusion, shaped by gender, geography and socio-economic status. Bridging this gap requires targeted rural digital literacy programmes for women, subsidised Internet and device access in remote areas, inclusive policy design that decentralises innovation hubs and ensures gender-responsive funding mechanisms and partnerships with NGOs, churches and community centres to embed ICT training in local development structures (Canpolat et al., 2022; Lavanya and Mamilla, 2024). Such collaborative efforts can empower women and marginalised communities, fostering a more equitable digital landscape. By prioritising inclusivity in technology access, government can facilitate greater participation and innovation, ultimately driving sustainable development in these regions (Goel and Vishnoi, 2022). Such collaborative efforts can empower women and marginalised communities, fostering a more equitable digital landscape. Mthombeni et al. (2025) emphasised that by prioritising inclusivity in technology access, we can facilitate greater participation and innovation, ultimately driving sustainable development in these regions. This approach not only enhances individual capabilities but also strengthens community resilience and cohesion. As women gain digital skills and confidence, they are more

likely to lead initiatives that address local challenges, paving the way for transformative change (Mutanda et al., 2025).

Theoretical implications

The study shows that the TPB that human behaviour is guided by three kinds of considerations. Behavioural beliefs show that women entrepreneurs' attitudes are informed by beliefs needed to engage in digital technology. A woman will hold a favourable attitude towards digital technology if she believes that the performance of digital technology will lead to mostly positive outcomes. Several past studies had found a significant direct relationship between attitude and Internet purchasing (Chetioui et al., 2021). Ly and Ly (2022) found that attitude is significantly related to Internet banking intention. The theory informs that the normative belief is the perceived social pressure to engage or not to engage in a behaviour. It is assumed that the subjective norm is determined by the total set of accessible normative beliefs concerning the expectations of important referents. Control beliefs refer to women's perceptions of their ability to perform a given behaviour. Control belief is determined by the total set of accessible control beliefs, that is, beliefs about the presence of factors that may facilitate or impede performance of the behaviour. Past studies have found inconsistent findings as regards to the relationship of perceived behaviour control and intention.

Practical implications

Policymakers can use the findings to develop gender-sensitive digital adoption policies. In practice, most women-owned businesses are still at an early stage of adopting advanced digital technologies. It is challenging for women to make decisions on what digital technologies they should adopt, how to adopt them and to understand how it might affect digital technology adoption and performance. Therefore, policymakers need to provide guidance on digital technology adoption in practice. This can help women in business understand the potential impact of digital technologies on business operations and management and support women entrepreneurs developing appropriate business strategies at different digitalisation levels. The Ministry of Information Communication and Technology (ICT) and courier service can design products and services tailored to the needs of women entrepreneurs. These services will help in closing the gender gap as well as working with women entrepreneurs in mentorship so that they do not shun away technology. It will help them get exposed to tailor-made products, for example, women in baking can be exposed to machines that make the baking process easy. This will boost their entrepreneurial ventures, as they can easily balance house chores and business. More so, these digital platforms can enhance accessibility and affordability for marginalised groups.

Social implications

Closing the digital gender gap can lead to greater social equity. The government must educate organisations that deal with society to educate their members that gender should not be an obstacle or criterion for digital technology adoption even in an industry that is traditionally considered male-dominated. Therefore, it is necessary to encourage the participation of women entrepreneurs and those in technical professions, overcoming educational and professional barriers and stereotypes, but also ensuring lifelong digital learning to prevent the exclusion of women from the labour market. Empowering women with digital technology can contribute to community-developed and improved livelihoods. In practice, most women-owned businesses are still at an early stage of

adopting advanced digital technologies. It is challenging for women to make decisions on what digital technologies they should adopt, how to adopt them and to understand how it might affect digital technology adoption and performance. This study provides guidance on digital technology adoption in practice. It can help women in business understand the potential impact of digital technologies on business operations and management and support women entrepreneurs in developing appropriate business strategies at different digitalisation levels. Promoting social capital linkages is an important way of promoting entrepreneurship digitalisation. The success of entrepreneurship digitalisation by women entrepreneurs depends on household, husband and community emotional support. Social capital refers to community or society linkages, standards of reciprocity, common help and honesty or dependability. Traditional leaders can take advantage of male gatherings and meetings, encouraging male figures to continuously support businesses without the interference of women (Mukodzo et al., 2025).

Industrial implications

Enhancing women's digital technology can foster industrial growth by increasing entrepreneurial activities. Digital technologies have been identified as transformative tools that significantly empower female entrepreneurs, enabling them to compete more effectively in the market and drive economic development. Digital technology reduces barriers to entry for women in entrepreneurship. Research has shown that digital tools can connect female entrepreneurs with broader networks, resources and markets, ultimately lowering the threshold required to start and sustain a business. This democratisation of access enables women to utilise digital platforms for marketing, sales and operational management, thereby improving their business viability. For instance, Salamzadeh et al. (2024) emphasise that while cultural norms and infrastructure disparities pose challenges, the adoption of digital technologies can effectively level the playing field for women entrepreneurs and facilitate their entry into various industries. By supporting women in overcoming these barriers, industrial growth can be accelerated by tapping into a previously underutilised talent pool. Moreover, the role of digital marketing and e-commerce platforms is critical in enhancing entrepreneurial activities among women. Studies reveal a high correlation between digital marketing strategies and enhanced business performance among women entrepreneurs. This digital shift not only augments women's market reach but also fosters innovation through feedback and interaction with consumers, reinforcing their industrial contributions. Digital technology companies can leverage insights to develop inclusive digital products for women entrepreneurs. The intersection of technology and women's entrepreneurship illustrates how digital tools can enhance both social and economic outcomes for women across diverse sectors. Research shows that access to digital technology significantly improves women's entrepreneurial capabilities by bridging gaps in market access and resources. For instance, elucidate how technology can transform women's socio-economic conditions, particularly in regions grappling with gender discrimination such as Afghanistan.

Economic implications

Greater financial inclusion leads to increased economic participation of women, boosting GDP. Adequate funding will promote women entrepreneurs purchasing digital technology, thereby promoting entrepreneurship and digitalisation. These can be like the Zimbabwean Women Bank. Although there is a need for allowing women businesspersons to get capital at reasonable interest charges, for instance, by decreasing the charges charged by banks and microfinance organisations

or generating exceptional money, which can be retrieved or opened to women businesspersons without too much bureaucracy. The government must make sure that these banks have sufficient income to cater to all women in business. Also, the government can avail special grants or awards from the government. The government can offer women entrepreneurs special grants, resources, business centres and enterprise rewards to motivate women entrepreneurs to adopt digital technology. Encouraging financial literacy and digital financial solutions can drive economic resilience in Zimbabwe by closing the digital gender gap. The presence of women in computer programming jobs can help overcome gender bias which may lurk in the design of a particular technology. Moreover, women's entrepreneurship must be supported by removing barriers to women's access to self-employment, as well as by improving access to and quality of social protection measures. In addition, it is important to strengthen the participation of women with disabilities in the digital technology adoption by implementing the United Nations Convention on the Rights of Persons with Disabilities (UNCRPD).

Conclusion

Addressing the gender gap in digital technology promotes equal opportunities. African traditional leaders must take part in encouraging and warring patriarchal systems, thereby educating and encouraging male figures not to interfere in women's businesses for the promotion of digital technology adoption by women entrepreneurs. This will promote the attainability of SDG 5, which promotes gender equality in areas where women were put aside. Digital technology enhances entrepreneurship, creating employment opportunities. The integration of digital technology into women's entrepreneurship is pivotal for offering decent work and stimulating economic growth. Digital technologies serve as tools for innovation and empower emerging enterprises to create new employment opportunities across diverse sectors. Digital platforms facilitate asset sharing, knowledge exchange and collaborative innovations essential for addressing unemployment and generating income. The intersection of digital technology and entrepreneurship forms a formidable force in enhancing job creation and supporting sustainable economic development, which is stated in SDG 8. As both established and nascent enterprises adapt to a rapidly evolving digital landscape, the prospect of decent work and economic growth is likely to expand.

Acknowledgements

The researchers express unwavering gratitude to the respondents who provided responses during the surveys. Their invaluable efforts cannot be ignored.

Author contributions

All authors contributed equally, read and approved the final manuscript.

Declaration of conflicting interests

The authors declared no potential conflicts of interest with respect to the research, authorship and/or publication of this article.

Funding

The authors received no financial support for the research, authorship and/or publication of this article.

Ethics approval and consent to participate

This study has been approved and cleared for ethical adherence. Researchers first obtained consent from participants before collecting data.


Ethical clearance statement

This study has been approved by Chinhoyi University of Technology (CUT), Research and Innovation Committee – Research Ethics with the approval number + Annex 19 Form GRSD 17 SEBS 14/2023 on 28/02/2023. If you have any questions related to ethical compliance of the study, you may contact them at researchandgraduatestudies@cut.ac.zw.

Disclaimer

The views and opinions expressed in this article are those of the authors and do not necessarily reflect the official policy or position of any affiliated agency of the authors.

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