

The contribution of technology competencies and usage in promoting inclusive business of women-owned enterprises in Uganda

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Abstract

Purpose – The purpose of this study is to establish whether technology usage mediates the relationship between technology competencies and inclusive business.

Design/methodology/approach – The study employed an explanatory design and a quantitative approach to gather data from 186 women entrepreneurs operating in Luwero District, Uganda. Data were gathered using a self-administered questionnaire, and analysis was supported by the Statistical Package for Social Sciences (SPSS) and SmartPLS.

Findings – Study results indicate that technology usage fully mediates the relationship between technology competencies and inclusive business among women-owned SMEs. This indicates that technology competencies alone, without usage, don't promote inclusive business. Therefore, women entrepreneurs must possess both soft and technical skills to effectively utilise technology in their businesses, thereby enabling their businesses to employ marginalised people, making their products accessible and affordable, as well as increasing business profitability.

Originality/value – The study provides initial empirical evidence on the mediating role of technology usage in the relationship between technology competencies and inclusive business, using evidence from Uganda, where the government is still struggling to ensure that people at the grassroots are equally involved in productive activities as a conduit for attaining social and economic transformation. Theoretically, the study confirms the applicability of the Technology Acceptance Model in explaining the study phenomenon.

Keywords Inclusive business, Technology competencies, Technology usage, Women entrepreneurs, Uganda

Paper type Research article

1. Introduction

Inclusive businesses are acknowledged by scholars and policymakers as a feasible vehicle for integrating people at the base of the pyramid into productive economic activities ([Likoko and](#)

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Kini, 2017; Chamberlain and Anseeuw, 2019). Schoneveld (2020) noted that inclusive businesses involve marginalised people in the value chain by offering solutions to unaddressed problems. This suggests that in their operations, inclusive businesses prioritise the engagement of the poor people in varied business activities. As a result, these businesses provide the low-income populations with the goods and services they need to achieve business profitability, while conserving the environment and benefiting the general community (Prahalad, 2008; Horvey *et al.*, 2023; Alekhina and Ganelli, 2023).

The relevance of inclusive business has prompted developed and developing nations to support entrepreneurs to unlock their ability to involve marginalised populations in the value chain of their businesses. For Uganda in particular, the government initiated and implemented the Uganda Women Entrepreneurship Programme (UWEP) in 2019 by training and providing women entrepreneurs with capital and market for their products as a means of supporting their families and community members (Ministry of Gender, Labour and Social Development, 2019). Currently, the government of Uganda, through the Ministry of Gender, Labour and Social Development, is implementing the Parish Development Model as a vehicle for empowering people at the grassroots to engage in productive activities in order to “transform subsistence households into the money economy, as well as eradicating poverty and vulnerability in Uganda” (Ministry of Gender, Labour and Social Development, 2021, p. 4).

Despite the above-captioned interventions, a significant number of women-owned businesses remain unprofitable, with limited potential to support the disadvantaged population. Specifically, Copley *et al.* (2021) found that women-owned businesses in Uganda generate profits that are less than 30% of those of male-owned firms. Moreover, most women entrepreneurs are operating their businesses as sole proprietorship ventures in which they either work alone or being supported by family members (Kimuli *et al.*, 2021). This shows that women-owned enterprises have limited capacity to create employment opportunities for people at the bottom of the pyramid. Moreover, only 44% of women entrepreneurs in Uganda can use technologies such as smartphones in their businesses, compared to 62% of men (Uganda Bureau of Statistics, 2021). This constrains their potential to comprehensively integrate digital technologies that would enable their businesses to scale up with the goal of achieving inclusivity. It also further prevents them from enjoying economies of scale, making their products less affordable to people from varied backgrounds and income levels as well as providing them employment. This explains the persistence of high poverty, inequality and unemployment levels in most sub-Saharan African countries, including Uganda (Horvey *et al.*, 2023). As a result, developing nations are likely to lag behind in achieving sustainable development goals 1, 5, 8 and 10, which focus on reducing poverty, promoting gender equality, creating decent work and economic growth for all and reducing inequalities.

Review of existing literature shows that inclusive business scholars have tended to focus on corporate social responsibility (Maret, 2025), Artificial Intelligence (Aryan *et al.*, 2025) and social entrepreneurship (Thomas and Lukose, 2024) as predictors of inclusive business. In addition, most scholars have concentrated on the conceptualisation and development of the inclusive business model (Likoko and Kini, 2017; Schoneveld, 2020; Kelly *et al.*, 2015; Kaminski *et al.*, 2020) and measuring business inclusivity (Wach, 2012). It is also important to note that most of the above-captioned studies are literature review-based (see Kaminski *et al.*, 2020; Schoneveld, 2020) with few or no empirical studies. Moreover, scholars have concentrated on unpacking inclusive businesses with less focus on measuring their growth potential in impacting a significant number of marginalised people who are the majority in developing nations like Uganda. As such, technology competencies and usage that are likely to promote inclusive business growth seem to have received less attention in existing literature. Yet Zahra *et al.* (2023) argued that businesses are currently operating in the digital era, which has changed the way businesses operate to the extent of providing opportunities for operating outside the geographical boundaries of their nations as a conduit for inclusive business.

Against this background, this study investigates how technology competencies and usage promote inclusive business of women-owned enterprises in Uganda. The remainder of the article covers the literature review, methodology, results and discussion, culminating in a summary and conclusions that have clear implications for women entrepreneurs, practitioners and policymakers.

2. Theoretical foundation and literature review

2.1 Theoretical foundation

The Technology Acceptance Model (TAM) developed by [Davis \(1989\)](#) was adopted to establish the contribution of technology competencies and usage on inclusive business of women-owned enterprises in Uganda ([Davis, 1989](#); [Davis et al., 2024](#)). This theoretical framework is applied to explain the acceptance of technologies by different stakeholders, including women entrepreneurs ([Ma et al., 2025](#)). The model is mainly anchored on perceived ease of use and perceived usefulness of the technology as its main postulations ([Musa et al., 2024](#)). In particular, [Mogaji et al. \(2024\)](#) argue that TAM presents technology competencies as a vital ingredient that boosts the perceived ease of use of the technology. As such, women entrepreneurs with the skills and knowledge are more likely to deploy varied technologies such as smartphones and computers to support inclusive business engagements. Moreover, technology that is considered to be beneficial is used in business operations to significantly reduce costs, improve efficiency and scale the market by businesses aiming at achieving inclusiveness ([Ozili, 2025](#)). Overall, TAM asserts that technological competencies indirectly influence inclusive business outcomes by shaping women entrepreneurs' perceptions of the functionality and usefulness of digital technology. This affects behavioural intentions and actual technology usage, acting as the direct mechanism via which inclusive corporate objectives are realised. Possessing abilities alone is insufficient unless they facilitate the sustained application of technology. TAM supports the study's claim that technology usage is the primary behavioural link between technological competencies and inclusive business in women-owned enterprises in Uganda.

2.2 Inclusive business

A review of extant literature presents different concepts that have been used by scholars to directly or indirectly mean inclusive business. These include inclusive growth ([Horvey et al., 2023](#); [Hazmi et al., 2022](#); [Alekhina and Ganelli, 2023](#)), inclusive economic growth ([Lestari and Rahmawati, 2021](#)) and inclusive entrepreneurship ([Bakker and McMullen, 2023](#); [Pilková et al., 2016](#)). Inclusivity generally entails "both the pace and distribution of economic growth," [Anand and Chhikara \(2013, p. 1\)](#). In the business context, an inclusive business is one that intentionally involves marginalised people in the value chain by offering solutions to pending issues that face them ([Schoneveld, 2020](#)). [United Nations Development Program \(2010\)](#) looks at inclusive business as a model that integrates the poor at the various stages of the value chain such as customers, employees, producers and business developers.

[The Asian Development Bank \(2020\)](#) adds that it is a commercially viable venture that provides access to goods and services as well as employment opportunities for people at the base of the pyramid. For the [SNV and WBCSD \(2011\)](#), an inclusive business entails a firm that builds a mutually beneficial relationship with the community to cater to the needs of marginalised people while balancing the economic, environmental and social aspects. From the above views, we perceive an inclusive business as a viable commercial undertaking that makes goods and services accessible to the population while employing them for the benefit of the environment and the community it self.

2.3 Technology competencies

From our observation and experience, technology competencies evolve over time, necessitating technology users, such as entrepreneurs, to possess an up-to-date set of competencies to

effectively apply diverse technologies relevant to their businesses. [Khoo et al. \(2024\)](#) noted that technology competence is not just about knowing the newest devices and software on the market but also being able to use them in a creative, constructive and collaborative way. Technology competencies encompass knowledge and abilities linked to digital content creation, safety, problem-solving, communication and teamwork, and information and data literacy ([Carretero et al., 2017](#)). [Bachmann et al. \(2024, p. 2\)](#), on the other hand, conceptualised technology competencies as “one’s knowledge, skills, abilities, and other characteristics that enable the efficient accomplishment of job-related tasks by employing digital means in a secure manner for information and data handling, communication and collaboration, as well as problem-solving.”

[Drydakis \(2022\)](#) adds that technology competencies involve the ability of the business owners to apply technology in communication, networking, customer relationship management, payments, social media, managing inventory, accounting and finance, team and time management and project management. While [Ala-Mutka \(2011\)](#) and [Ferrari et al. \(2012\)](#) viewed competencies in terms of knowledge, skills, attitudes and the confident, critical, and creative use of ICTs to achieve business objectives. Therefore, we view technology competencies as the technical and soft skills and knowledge that entrepreneurs need to effectively and efficiently deploy digital technologies in the operations of their businesses while benefiting people at the grassroots.

2.4 Digital technology usage

Technology and digital technologies have been used interchangeably in literature and unpacked in various ways by scholars. In particular, [Welter et al. \(2017\)](#) present technology as the digital objects, platforms and infrastructure. These elements entail the programmes, services and tools that are used by businesses to link up with different stakeholders ([Kallinikos et al., 2013](#)). [Matarazzo et al. \(2021\)](#) add that digital technology encompasses different technologies like the Internet, artificial intelligence, virtual reality and 3D printing. [Vial \(2021\)](#) further looks at digital technology as the integration of information, communication, computing and connecting devices. As such, technology consists of the intrinsic technologies, which include social media and search engine optimisation, while extrinsic technologies revolve around the platforms that permit business operators to effectively and efficiently relate with customers while meeting or exceeding their needs.

In their study of digital technologies in micro and small enterprise, [Kimuli et al. \(2021\)](#) allude to these technologies as the “electronic instruments, programs, resources and devices that are used to store and process data to achieve business goals and objectives.” Overall, technologies broadly include: social media platforms, crowdfunding systems, websites, financial management systems, Artificial Intelligence (AI) and Machine Learning, Cloud Computing, Big Data and Analytics, Internet of Things (IoT), Blockchain, Robotics and Automation, Virtual and Augmented Reality, 5G and Wireless Technologies that entrepreneurs deploy in operating their businesses [Kimuli et al. \(2021\)](#), [Rayna et al. \(2015\)](#). Against that background, this study views digital technology as the electronic instruments, systems, and equipment used by entrepreneurs for the generation, storage and processing of business-related information to better serve customers while benefiting people at the grassroots.

In the context of this study, the focus is on digital technology usage and it is important to note that applying these technologies enables entrepreneurs to realise an improvement in business processes while meeting customer needs ([Li et al., 2022](#)). Usage of digital technologies also permits enterprises to share relevant information with different external partners on a continuous and real-time basis ([Kopalle et al., 2020](#)). Moreover, at the operational level, application of digital technologies makes businesses more flexible with the capacity to respond to market and structure changes ([Frank et al., 2019](#)), improves efficiency and effectiveness in production with potential to increase business profitability, performance and competitiveness ([Verhoef et al., 2021](#)). Despite the relevance of digital technologies, it is

not clear whether their usage and application can translate into inclusive business growth, something that this study intends to interrogate.

2.5 Technology competencies and inclusive business

A review of the literature shows that technology competencies can foster inclusive business. In particular, [Hosman and Vergine \(2015\)](#) revealed that technology competencies can be utilised by entrepreneurs to create products and services that expressly meet the needs of low-income or marginalised communities. This fosters business expansion while advancing social development objectives, including poverty alleviation and gender equality. As a result, technology skills and knowledge generally reduce inequalities and improve access to vital services such as healthcare and education. In addition, [Inshakova and Inshakova \(2022\)](#) documented that digital competencies permit entrepreneurs to undergo personalised learning that allows for tailored educational experiences that cater to their entrepreneurial needs and achievement of the desired goals and objectives.

Further review of literature shows that entrepreneurial competencies in terms of using information technology contribute to business success through increased sales, market share and profitability, which are vital for inclusive business ([Marei et al., 2023](#)). On the contrary, [Lakhwani et al. \(2020\)](#) indicated that technology competencies conceptualised as IT knowledge management have a significant negative impact on organisational productivity. This means that possession of technology skills and knowledge that are not applied in the business may not benefit the entrepreneurs, society and conservation of the environment. Relatedly, [Orser et al. \(2019\)](#) reported that expectancy factors in terms of knowledge, perceived ease of use and perceived usefulness that occur at the startup phase of the business constrain the women entrepreneurs' potential to carry on successful businesses. Based on the foregoing discussion, we observe that studies that have directly examined the contribution of technology competencies and inclusive business are very scarce. Therefore, we hypothesise that:

H1. Technology competencies are significantly associated with inclusive business.

2.6 Technology usage and inclusive business growth

The usage of technology is noted to enable the people at the grassroots to engage in productive economic activities and access valuable services as a means of achieving inclusive business. In particular, [Munyegera and Matsumoto \(2018\)](#) reported that the adoption of information and communication technology enables rural households who are engaged in farming to access short-term loans from mobile providers. Using these loans permits the farmers to transform from subsistence to commercial farming, which creates employment opportunities for people in the community. This is also supported by [Jouanjean \(2019\)](#), who indicated that digital technologies have the capacity to diminish trade and transaction costs, encompassing expenses associated with deal identification and negotiation, compliance verification with standards and the swift and effective delivery of products across borders. As a result of the reduced cost of doing business, the profitability of businesses operated by the marginalised reduces significantly for increased growth. [Kimuli et al. \(2021\)](#) add that the usage of mobile money, mobile banking and social media attracts customers for improved sales and overall inclusive business.

Further review of literature shows that technology usage, especially mobile phones, enables entrepreneurs to borrow and make savings on a regular basis ([Jack and Suri, 2014](#)). As a result of increased borrowing and saving, the entrepreneurs' propensity to invest doubles, which results in the production of more goods and services, the creation of more employment opportunities for the underserved and an overall reduction in income inequality. Moreover, [Barnett et al. \(2019\)](#) noted that the usage of digital technologies, especially cell phones, Internet use, cloud computing, e-commerce platforms and social media, enables the marginalised to start, operate, and scale their businesses easily. In particular, Crowdfunding platforms enable low-income entrepreneurs to secure funds from a wider audience without

relying on conventional financing techniques, hence fostering innovation and business growth (Eldridge *et al.*, 2021). Despite the contribution of technology usage in fostering inclusivity, it is important to note that studies that have interrogated how technology Usage empowers women-owned businesses to attain inclusive business using evidence from a developing nation are scarce. As a result, we hypothesise that:

H2. Technology usage is significantly related to Inclusive business.

2.7 Technology competencies and usage

This study hypothesises that technology competencies in terms of knowledge and skills facilitate the usage of any technology in the business context. This is in line with Yerdelen-Damar *et al.* (2017), who documented that technology competencies and experience of teachers change their attitude towards technology and eventually find themselves using it based on their study in Turkey. Likewise, when women entrepreneurs are equipped with more skills and knowledge, it becomes easy to identify areas in their businesses where technologies are relevant. Relatedly, Drydakis (2022) revealed that training entrepreneurs in business apps such as communication, networking, social media, customer relationship management, payment, accounting and finance, team and time management, taxation payment and inventory management apps unlocks their potential to fully integrate these applications into the functionality of their businesses. Moreover, the author adds that technology competencies acquired through training positively impact the users' attitude towards the technology in order to foster their usage.

Tsou and Chen (2023) also reported that technology usage is positively and significantly associated with firm performance. This shows that technology usage increases the businesses' sales, market share and profitability, which are core in achieving inclusive business. Similarly, Abima *et al.* (2021) reported a significant positive relationship between digital literacy and the attitude of women towards the use of digital technologies in Uganda. As a result, women entrepreneurs who are knowledgeable and skilled, find it easy to apply digital technologies in their business to achieve inclusive growth. On the contrary, in their study of technology competencies and experience in the UK, Goodman-Deane *et al.* (2020) reported that technology competencies decline with age, and many aspects also decline with decreasing social grade. This means that people from lower classes may not find it easy to get business technologies and fully integrate them with the goal of scaling their operations to realise inclusive business. From the above discussion, it is important to note that technology usage has been extensively investigated in general terms and in relation to firm performance and attitude that may not imply inclusive business. In bridging the above-captioned knowledge gap, we hypothesise that:

H3. Technology usage is significantly related to Inclusive business.

2.8 The mediating role of technology usage

A review of existing literature presents evidence for the mediating effect of technology usage in the relationship between different predictor and outcome variables. In particular, Zhang *et al.* (2021) reported on the mediating role of the use of technology in the relationship between learners' engagement and teaching pedagogy. This shows that technology provides a conduit through which learners are engaged during the learning process. In another study, Munderia and Singh (2024) documented the mediating effect of positive smartphone usage in the relationship between meaning in life and well-being of the learners. Despite the above-captioned limited studies, it is important to note that scholars who have tested the mediating effect of technology usage have based their findings on education as the study context (see Zhang *et al.*, 2021; Munderia and Singh, 2021) while focusing on students who are not practicing entrepreneurs. This presents a need for the current study to investigate how

technology usage can mediate the relationship between technology competence and inclusive business using evidence from Ugandan women entrepreneurs. Therefore, we hypothesise that:

H4. Technology usage significantly mediates the relationship between technology competencies and Inclusive business.

2.9 Hypothesised model

Based on the technology acceptance model and the review of existing literature, four hypotheses have been developed as presented on [Figure 1](#). Three hypotheses illustrate the direct relationships between the study variables and the fourth hypothesis tests the mediating effect of technology usage in the association between technology competencies and inclusive business.

3. Methodology

3.1 Research design

The study employed an explanatory research design ([Thomas and Lawal, 2020](#)). This design effectively addresses the fundamental research aspects of how and why ([Asad et al., 2019](#)). The explanatory design identifies the specific determinants of the inclusive business of women-owned enterprises ([Bentouhami et al., 2021](#)). It assists the researcher in understanding the causes and reasons as well as providing evidence either supporting or refuting an interpretation or prediction of the study phenomenon ([Toyon, 2021](#)). Additionally, it facilitates the use of a quantitative approach, which is essential for better explaining how technology competencies and usage contribute to the inclusive business of women-owned enterprises in Uganda ([Sardana et al., 2023](#)).

3.2 Study sample

The study sample comprised 205 women-owned enterprises operating in Luwero District, Uganda. The district is situated in the central region of Uganda, and it was selected since most women in this context are highly affected by domestic violence, poverty, unemployment and limited access to essential services like health and education ([Uganda Bureau of Statistics, 2024](#)). Respondents for this study were mobilised in liaison with Luwero district officials, particularly the office of the district commercial division – a section that is responsible for the commercial and entrepreneurial activities undertaken within the district. Officials from the district provided a list of women entrepreneurs that was used to reach out to the respondents and participants. Using this list, women entrepreneurs were contacted, and only those using technology in their businesses

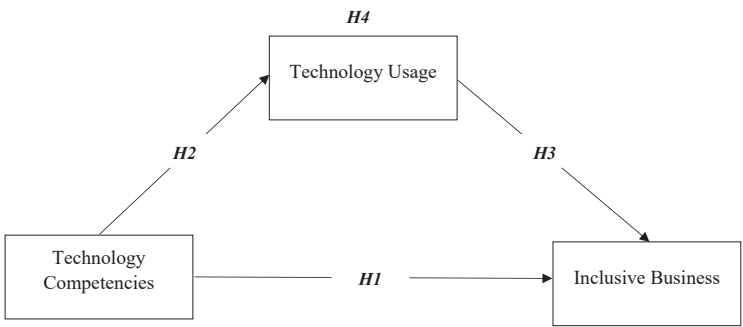


Figure 1. Hypothesised model. Source: Created by authors

were involved in the data collection exercise. The retained women entrepreneurs were selected using simple random sampling, thereby ensuring that each eligible participant had an equal and independent probability of being included in the sample.

Out of the 205 questionnaires administered, 186 valid responses were retained after data collection and cleaning, yielding a response rate of 90.7%, which was sufficient to address the study’s hypotheses. As such, the respondents’ and the business characteristics are presented in Tables 1 and 2 based on 186 responses. According to the study results presented in Table 1, women entrepreneurs were mostly in the age bracket of 30–39 (37%). The majority of the respondents have a certificate (38%) with experience of 2–5 years (48%) in business operations. This suggests that most women entrepreneurs who participated in the study are of adult age and have basic knowledge that can facilitate their understanding of the application of technologies in the operations of their businesses to foster inclusivity in business.

Table 1. Characteristics of women entrepreneurs

Background information	Frequency	Percentage
<i>Age Group</i>		
18–29	29	16%
30–39	68	37%
40–49	51	27%
50–59	38	20%
<i>Highest level of education</i>		
No education	16	9%
PLE	45	24%
Certificate	70	38%
Diploma	38	20%
Bachelor’s degree	17	9%
<i>Business Experience</i>		
Less than 2 years	28	15%
2–5 years	90	48%
6–10 years	47	25%
above 10 years	21	11%
Source(s): Created by authors		

Table 2. Business characteristics

	Frequency	Valid percentage
<i>Legal form of business</i>		
Sole proprietorship	55	30%
Partnership	102	55%
Limited liability	29	15%
<i>Business age</i>		
Less than 5 years	123	66%
5–10 years	49	26%
above 10 years	14	8%
<i>Business size</i>		
Less than 5 workers	118	63%
Between 5 and 49 workers	68	37%
Source(s): Created by authors		

For business characteristics, study results in Table 2 show that most of the women entrepreneurs who participated in the study are operating partnership businesses (55%), followed by sole proprietorship (30%) and limited liability (16%). This implies that women find it easy to pool their resources together and invest jointly, which is a critical tool for inclusive business, as women also get the opportunity to share knowledge on the latest technological trends in business. The majority of the businesses have been in operation for a period of less than 5 years (66%) and mostly employ Less than 5 workers (63%). This means that most businesses owned and operated by women entrepreneurs are micro with survival and growth challenges that can be solved by integrating digital technologies into their operations in order to enable entrepreneurs to register growth levels as their male counterparts.

3.3 Measurement and operationalisation of variables

In this study, we measured and operationalised inclusive business in terms of the creation of employment opportunities, product accessibility, profitability, involving marginalised people and conserving the environment (ADB, 2020; SNV and WBCSD, 2011). Items used include *our business has improved access to different products for low-income people; our business has increased the number of people employed; the profitability of the business has greatly improved; the number of marginalised groups involved in the business has increased and we are undertaking activities that positively impact the natural environment*. Technology competencies were operationalised in terms of technical and soft skills (Freiman et al., 2016). Items under technology competencies include *'I can identify consumers of my products using technology, I can satisfy the needs of my customers using technology, I effectively interact with consumers using technology and I effectively negotiate with consumers via digital technologies such as social media*. For technology usage, nine items adapted from Peltier et al. (2012) were adopted. These include: *we use technology to service customers more effectively; we apply technology in marketing our products; we adopt technology in managing inventory more effectively and we apply technology in setting prices more effectively*.

3.4 Data collection instrument, validity and reliability

After reviewing the literature, we developed a questionnaire that was used to gather data from the women entrepreneurs operating in Luwero district, Uganda. Before administering the questionnaire, experts were consulted to establish its content validity (Shi et al., 2012). Specifically, five experts in the field of entrepreneurship reviewed the questionnaire items and provided their assessments. A two-point scale: relevant (1) and irrelevant (2) was used for item evaluation. In addition to the ratings, the experts provided qualitative comments aimed at improving item clarity. Following the expert review, the Content Validity Index (CVI) was computed, and the CVI values for all study variables exceeded the recommended threshold of 0.70, indicating that the instrument was valid (Polit and Beck, 2006). For the reliability of the data collection instrument, Cronbach's alpha was computed and the results indicate that all the constructs recorded alpha coefficients that were above the recommended threshold of 0.70, showing acceptable internal consistency.

As such, the improved self-administered questionnaire was used to gather data from the women entrepreneurs. Items in the instrument were anchored on a five-point Likert scale ranging from strongly disagree (1) to strongly agree (5). The scale was adopted to understand the extent to which the respondents agreed or disagreed with the items presented to them during the data collection exercise (Russo et al., 2021). In addition, the scale helps to measure the respondents' perceptions and attitudes to inform the study phenomenon (Kusmaryono et al., 2022). Furthermore, it provides detailed information necessary for decision-making and promotes accuracy in terms of reliability and validity (Tanujaya et al., 2022). In total, the questionnaire had five sections with section A capturing the respondents' characteristics, Section B, gathering data on firm characteristics, sections

3.5 Common method bias

This study was susceptible to common method bias because data were collected from the same respondents (women entrepreneurs) using a single questionnaire (Podsakoff *et al.*, 2024). Consequently, potential biases included response bias, social desirability bias and consistency motives. These concerns were mitigated by ensuring respondent anonymity, enhancing the clarity of the measurement scales and eliminating ambiguity through the use of simple, clearly worded and pre-tested questionnaire items (Podsakoff *et al.*, 2003).

3.6 Data analysis

Data were collected, organised, modified, coded, captured and analysed using SmartPLS structural equation modelling (SEM). Before analysis, the data were cleaned using Statistical Package for Social Sciences (SPSS), as per Field's (2009) guidelines. Absence of data, which accounted for less than 5% of the dataset, was found by rigorous assessments of cases, variables and values. Linear interpolation was then used to close these gaps, reducing statistical power and mistakes in the results. Linear interpolation was employed to address the deficiencies in the cross-sectional survey data, where the number of missing values was minimal (Blu *et al.*, 2004). This method was selected because the variables were evaluated on ordinal scales, there were few missing observations and the underlying constructs were believed to vary linearly over brief intervals (Zhang *et al.*, 2021). The approach maintained a constant sample size and ensured that the results aligned with subsequent parametric analyses. To correct discrepancies, incorrect item inputs were cross-referenced and assigned number codes during the data entry process. The improved data set was analysed using SmartPLS (Hair *et al.*, 2025). Given the study's sample size of 186 women-owned enterprises, SmartPLS was deemed the most suitable analytical instrument.

In addition, SmartPLS, typically preferred for smaller samples, is also effective and robust for larger samples, providing advantages such as model flexibility, resilience in managing complex relationships and the capability to analyse both reflective and formative constructs proficiently (Hair *et al.*, 2025). Moreover, its appropriateness for exploratory research and capacity to handle nonnormal data distribution render it a suitable option for a sample size of 186 (Hair *et al.*, 2025). The study included both the measurement (outer) and structural (inner) models, consistent with Henseler *et al.*'s (2014) proposal, facilitating a thorough interpretation of PLS-SEM results. The structural model investigated the relationships between explanatory and criterion latent variables, whereas the measurement model analysed the associations between indicators and their respective latent variables, maintaining reliability and validity as delineated by Hair *et al.* (2025).

4. Study findings

4.1 Measurement model

In this study, SmartPLS was used to create measurement models for all variables in this study, and the results validated that the assessments for convergent and discriminant validity indicated that all manifest variables were appropriately associated with their respective latent constructs. Study results for CR and AVE were found to be above the established standards of 0.7 and 0.5, respectively, as advised by Bagozzi and Yi (1988). Reliability and validity results are presented in Tables 3 and 4. This shows that the survey questions consistently and reliably measured the targeted concepts with steadfastness. In addition, the normality of the data is demonstrated by the bell-shaped histograms as indicated in Figures 2–5.

Table 3. Construct reliability and validity

Variables	Cronbach's alpha	Composite reliability	Average variance extracted (AVE)
Inclusive Business	0.850	0.894	0.628
Technology Competencies	0.941	0.949	0.608
Technology Usage	0.860	0.894	0.551

Source(s): Created by authors

Table 4. Discriminant validity

Variables	Firm age	Firm size	IBG	TC	TU
Firm age					
Firm size	0.131***				
IB	0.042***	0.035***			
TC	0.048***	0.031***	0.582***		
TU	0.031***	0.063***	0.772***	0.651***	

Note(s): *** $p < 0.0001$

Key: IB – Inclusive Business; TC – Technology Competencies; TU – Technology Usage

Source(s): Created by authors

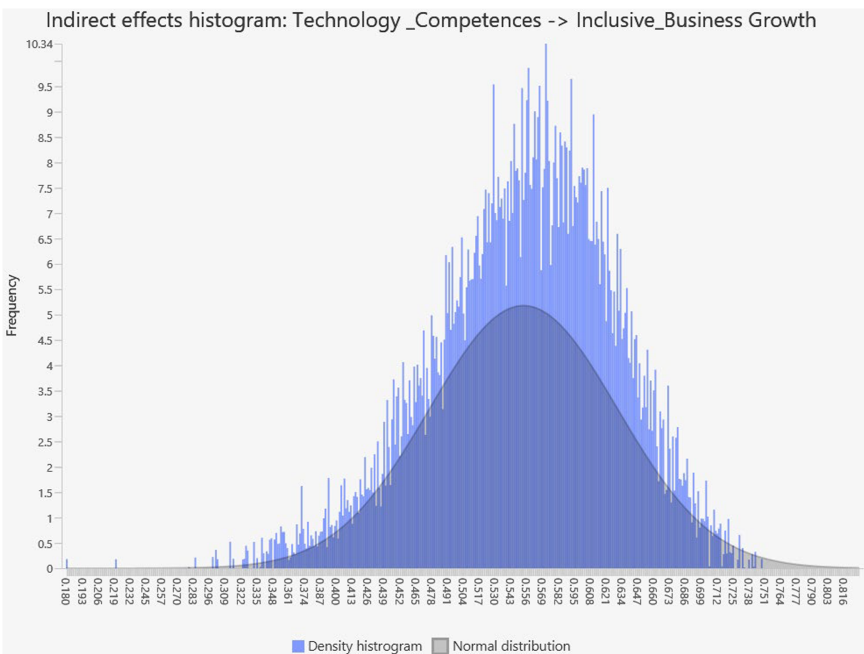


Figure 2. Significant indirect effect of technology competencies on inclusive business. **Source:** Created by authors

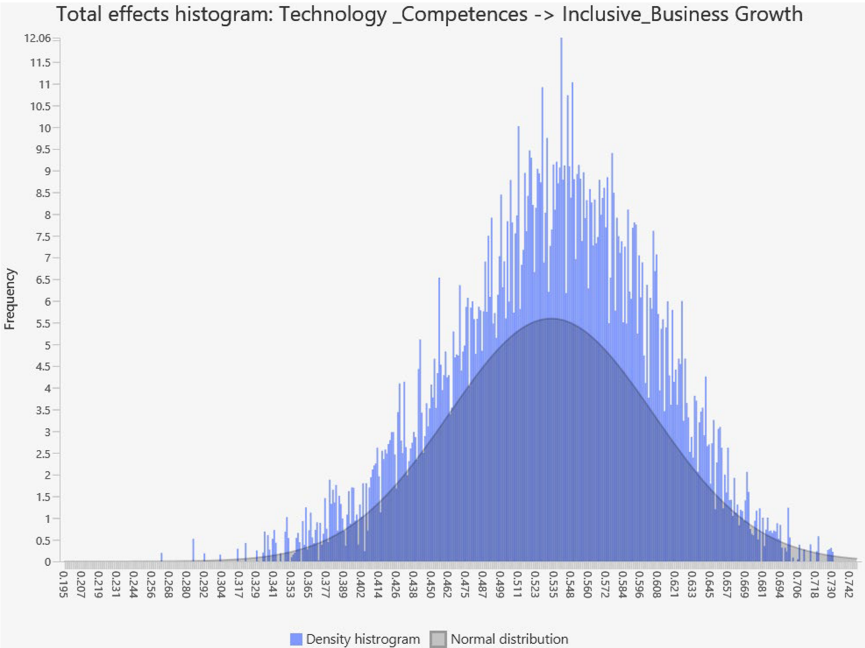


Figure 3. Significant total effect of technology competencies on inclusive business. **Source:** Created by authors

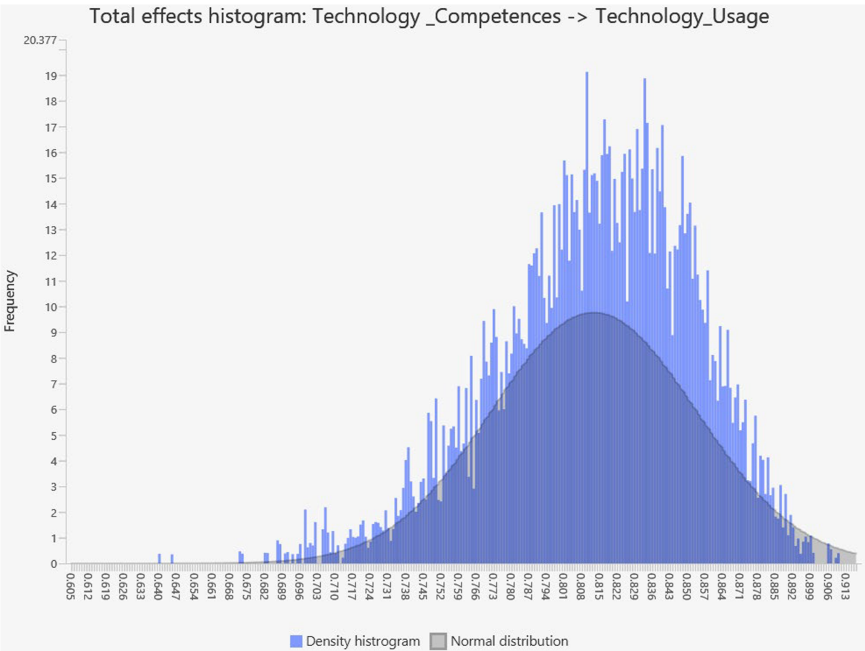


Figure 4. Significant total effect of technology competencies on technology usage. **Source:** Created by authors

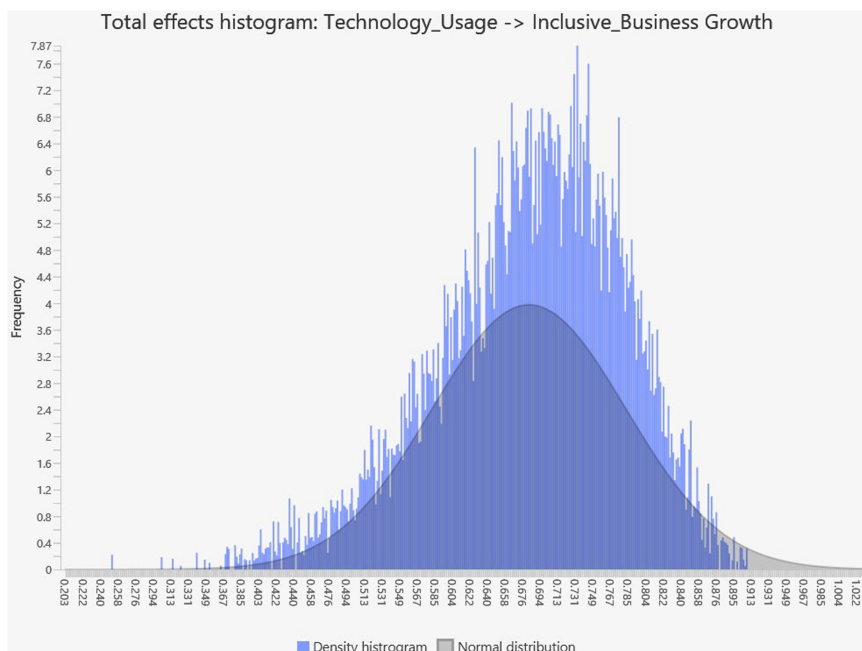


Figure 5. Significant total effect of technology usage on inclusive business. **Source:** Created by authors

4.2 Study results

The purpose of this study is to establish whether technology usage mediates the relationship between technology competencies and the inclusive business of women-owned enterprises. As such, study results for both direct and indirect hypotheses are presented in Table 5 and Figure 6. To start with, technology competencies are positively and significantly associated with technology usage ($\beta = 0.815$; $t = 19.927$; $p = 0.000$). As indicated in Figure 6, technology competencies explain 66.3% of the variance in technology usage. Thus, H2 of the study, which states that technology competencies are significantly related with technology usage, is confirmed. Study results also indicate that technology usage is positively and significantly related to inclusive business ($\beta = 0.699$; $t = 6.966$; $p = 0.000$). As such, Figure 5 shows that technology usage explains 45.1% of the variation in inclusive business.

Table 5. Results of indirect and direct hypotheses testing

Hypothesised path	Path Coeff	Mean	SD	T Stat	p values
FA → IB	0.003	0.005	0.042	0.083	0.934
FS → IB	0.009	0.008	0.044	0.208	0.835
TC → IB	-0.034	-0.019	0.100	0.340	0.734
TC → TU	0.815	0.813	0.041	19.927	0.000
TU → IBG	0.699	0.683	0.100	6.966	0.000
TC → TU → IBG	0.569	0.553	0.077	7.388	0.000

Note(s): Key: Path Coeff – path coefficients; SD – standard deviation; T stat – T statistics; FA – Firm age; FS – firm size; SS – soft skills; TS – technical skills; TU – technology usage; IB – inclusive business

Source(s): Created by authors

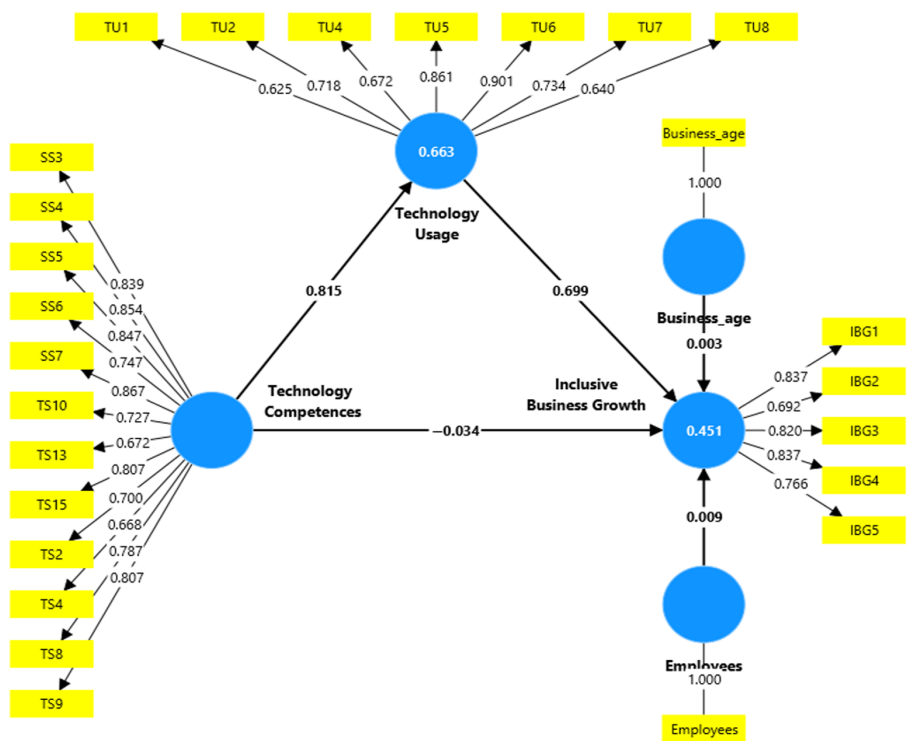


Figure 6. PLS-SEM algorithms with significant direct and indirect effects. Source: Created by authors

This confirms H3 of the study, stating that technology usage is significantly related to inclusive business.

The findings from this study further show that technology usage fully mediates the relationship between technology competencies and inclusive business ($\beta = 0.569$; $t = 7.388$; $p = 0.000$). The mediating test results show that variations in technology competencies affect variations in technology usage, which subsequently and wholly cause changes in business inclusivity. However, our results show that technology competencies alone are not enough to directly cause a change in inclusive business unless they go through technology usage. Therefore, H4, which tested for the mediating effect of technology usage, was supported and confirmed. However, H1, which tested for the association between technology competencies and inclusive business, was not supported ($\beta = -0.034$; $t = 0.340$; $p = 0.734$). This shows that technology competencies are an insignificant predictor of inclusive business. Practically speaking, having soft and technical skills only without using the technology does not matter in fostering inclusive business.

5. Discussion

5.1 Technology competencies and inclusive business growth

The results of this study indicate that technology competencies are negatively and insignificantly associated with inclusive business and as such, H1 was not supported. This indicates that the mere possession of technological competencies by women entrepreneurs does not directly translate into inclusive businesses. Consequently, such competencies alone are insufficient to foster employment creation and improve access to products and services for

a significant proportion of the grassroots population. Study results are in agreement with [Lakhwani et al. \(2020\)](#), who documented that technology competencies have a negative impact on organisational productivity. This means that possession of technology skills and knowledge that are not applied in the business may not benefit the entrepreneurs, society and conservation of the environment.

Study findings are also supported by [Orser et al. \(2019\)](#), who reported that expectancy factors in terms of knowledge, perceived ease of use, and perceived usefulness that occur at the startup phase of the business constrain the women entrepreneurs' potential to carry on successful businesses. Our results, however, disagree with [Hosman and Vergine \(2015\)](#), who revealed that technology competencies can be utilised by entrepreneurs to create products and services that expressly meet the needs of low-income or marginalised communities. This fosters business expansion while advancing social development objectives, including poverty alleviation and gender equality. As a result, technology skills and knowledge generally reduce inequalities and improve access to vital services such as healthcare and education.

5.2 Technology competencies and usage

The findings of this study indicate that technology competencies are positively and significantly associated with technology usage, and thus [H2](#) was confirmed. This indicates that changes in the skills and knowledge possessed by the women entrepreneurs translate into more usage of technology to support business operations. Our results are indeed true in that for any technology, such as social media, mobile phones, mobile money and digital cameras, it is a requirement for entrepreneurs to possess the required skills. As a result, when women entrepreneurs have the potential to identify consumers of their products using technology, they can satisfy the needs of their customers using technology, can effectively interact with consumers using technology and effectively negotiate with consumers via digital technologies such as social media.

Our results are in agreement with [Kimuli et al. \(2021\)](#), who indicated that the usage of mobile money, mobile banking, and social media attracts customers for improved sales and overall inclusive business. In addition, technology usage, especially mobile phones, enables entrepreneurs to borrow and make savings on a regular basis ([Jack and Suri, 2014](#)). This strengthens the entrepreneurs' propensity to invest doubles, which results in the production of more goods and services, creation of more employment opportunities for the underserved, and an overall reduction in income inequality. Moreover, [Barnett et al. \(2019\)](#) noted that the usage of digital technologies, especially cell phones, Internet use, cloud computing, e-commerce platforms and social media, enables the marginalised to start, operate and scale their businesses easily.

5.3 Technology usage and inclusive business

Our results indicate that technology usage is positively and significantly associated with inclusive business and hence supports [H3](#). This shows that positive changes in technology usage are associated with positive improvement in the ability of the business to make its products accessible and affordable, while supporting people at the grassroots. In particular, technology usage facilitates effective customer service, marketing business products, making products more accessible and setting prices more effectively as vital aspects of business inclusivity. This is supported by [Tsou and Chen \(2023\)](#), who reported that technology usage is positively and significantly associated with firm performance. This shows that technology usage increases the businesses' sales, market share and profitability, which are core in achieving inclusive business. Similarly, [Abima et al. \(2021\)](#) revealed a significant positive relationship between digital literacy and the attitude of women towards the use of digital technologies in Uganda. As a result, women entrepreneurs who are knowledgeable and skilled find it easy to apply digital technologies in their business to achieve inclusive growth. Study results, however, disagree with [Goodman-Deane et al. \(2020\)](#), who documented that technology competencies decline with age, and many aspects also decline with decreasing social grade.

5.4 *The mediating role of technology usage*

The results from this study indicated that technology usage significantly and fully mediates the relationship between technology competencies and inclusive business of women-owned enterprises in Uganda. This shows that technology competencies alone may not result in the realisation of business inclusivity. However, when it comes to technology usage, it becomes relevant in promoting inclusive business. It can, therefore, be concluded that technology usage provides a conduit through which technology competencies matter in fostering inclusive business in Uganda. Based on our findings, this study makes a significant contribution to the existing body of knowledge on inclusive growth in general and inclusive business in particular by reporting the mediating effect of technology usage. This is because existing studies, such as [Zhang *et al.* \(2021\)](#), [Munderia and Singh \(2024\)](#) have mainly focused on students with less focus on entrepreneurs, especially women who need to engage in productive activities as a conduit for socio-economic transformation in Uganda.

5.5 *Summary and conclusion*

The aim of this study was to establish whether technology usage mediates the relationship between technology competencies and inclusive business. This was realised through a questionnaire survey of 186 women entrepreneurs operating in Luwero district, Uganda. Our results indicate that technology usage fully mediates the relationship between technology competencies and inclusive business among women-owned SMEs. This suggests that in order for technology competencies to continue their relevance in promoting inclusive business in Uganda, they must be integrated with technology usage, as they do not directly foster business inclusivity.

5.6 *Implications*

This study offers a number of insights to scholars, decision-makers and society. The study contributes to extant literature by presenting the initial empirical evidence on the mediating role of technology usage in the relationship between technology competencies and inclusive business of women-owned enterprises in Uganda. As such, technology usage fully mediates the above-captioned relationship. Therefore, policymakers, especially the Uganda Communication Commission, in collaboration with telecommunication companies such as mobile telephone network (MTN) and Airtel, should strengthen Internet connectivity in the rural context of Uganda so that entrepreneurs can easily use different digital technologies as a conduit for inclusive businesses. Specifically, women entrepreneurs will be able to utilise smartphones and social media to foster productivity, profitability and creating employment opportunities for the marginalised people in Uganda.

For digital technology service providers, especially MTN and Airtel, in the Ugandan context, they should develop and implement promotional approaches that are intended to enable women entrepreneurs to access technologies. This can be achieved through subsidising the cost of a smartphone for women in business, since ownership of a smartphone is the driver for the usage of digital technology, as laptops and computers may be bulky and more cumbersome to learn for most women entrepreneurs. In addition, telecom companies should carry out sensitisation campaigns to popularise the use of smartphones in business for business inclusivity. On the other hand, women entrepreneurs should be equipped with the technical and soft skills that are needed to use digital technologies in their businesses. Specifically, the training should enable the entrepreneurs to understand how to operate their smartphones and share important applications that are relevant for their businesses. Moreover, women entrepreneurs need training in information sharing, communicating with business stakeholders, creating content about their businesses that can be shared online, safety issues and solving business problems using digital technologies.

5.7 Limitations and suggestions for future research

Like any other study, our study has some limitations that scholars can address in future research. Technology competencies and technology usage explain up to 45.1% of the variance in inclusive business of women-owned enterprises. This suggests that there is a need for further studies to explore other antecedents of inclusive business in Uganda. In addition, we adopted a quantitative approach, and perhaps a purely qualitative approach could provide a comprehensive understanding of inclusive business. Future research may adopt a mixed-methods approach to validate our findings.

The study further focused on Luwero District as the study context; as a result, future studies could be conducted in other regions of the country and beyond to enhance the generalisability of the findings. Moreover, women entrepreneurs who were not using digital technologies were excluded from the study. Therefore, future scholars should consider including both users and non-users of digital technologies to examine intentions towards adoption and actual usage in fostering inclusive business growth. Despite the aforementioned limitation, this study offers initial empirical evidence on the mediating role of technology usage in the relationship between technology competencies and inclusive business.

References

- Abima, B., Engotoit, B., Kituyi, G.M., Kyeyune, R. and Koyola, M. (2021), "Relevant local content, social influence, digital literacy, and attitude toward the use of digital technologies by women in Uganda", *Gender, Technology and Development*, Vol. 25 No. 1, pp. 87-111, doi: [10.1080/09718524.2020.1830337](https://doi.org/10.1080/09718524.2020.1830337).
- Ala-Mutka, K. (2011), *Mapping Digital Competence: Towards a Conceptual Understanding*, Institute for Prospective Technological Studies, Luxembourg.
- Alekhina, V. and Ganelli, G. (2023), "Determinants of inclusive growth in ASEAN", *Journal of the Asia Pacific Economy*, Vol. 28 No. 3, pp. 1196-1228, doi: [10.1080/13547860.2021.1981044](https://doi.org/10.1080/13547860.2021.1981044).
- Anand, S. and Chhikara, K.S. (2013), "A theoretical and quantitative analysis of financial inclusion and economic growth", *Management and Labour Studies*, Vol. 38 No. 1-2, pp. 103-133.
- Aryan, A., Chawngsangpuii, R., Prakash, R. and Biswas, S. (2025), "Artificial intelligence in sustainable entrepreneurship: implications for inclusive business and regional cohesion", in *AI Strategies for Social Entrepreneurship and Sustainable Economic Development*, IGI Global Scientific Publishing, pp. 69-86.
- Asad, M.M., Hassan, R.B., Sherwani, F., Abbas, Z., Shahbaz, M.S. and Soomro, Q.M. (2019), "Identification of effective safety risk mitigating factors for well control drilling operation: an explanatory research approach", *Journal of Engineering, Design and Technology*, Vol. 17 No. 1, pp. 218-229, doi: [10.1108/jedt-04-2018-0068](https://doi.org/10.1108/jedt-04-2018-0068).
- Asian Development Bank [ADB] (2020), "Inclusive business", available at: <https://www.adb.org/themes/social-development/inclusive-business> (accessed 9 March 2019).
- Bachmann, N., Rose, R., Maul, V. and Hölzle, K. (2024), "What makes for future entrepreneurs? The role of digital competencies for entrepreneurial intention", *Journal of Business Research*, Vol. 174, 114481, doi: [10.1016/j.jbusres.2023.114481](https://doi.org/10.1016/j.jbusres.2023.114481).
- Bagozzi, R.P. and Yi, Y. (1988), "On the evaluation of structural equation models", *Journal of the Academy of Marketing Science*, Vol. 16 No. 1, pp. 74-94.
- Bakker, R.M. and McMullen, J.S. (2023), "Inclusive entrepreneurship: a call for a shared theoretical conversation about unconventional entrepreneurs", *Journal of Business Venturing*, Vol. 38 No. 1, 106268, Growth, W. I. I. Inclusive Growth Revisited: Measurement and Determinants, doi: [10.1016/j.jbusvent.2022.106268](https://doi.org/10.1016/j.jbusvent.2022.106268).
- Barnett, W.A., Hu, M. and Wang, X. (2019), "Does the utilization of information communication technology promote entrepreneurship: evidence from rural China", *Technological Forecasting and Social Change*, Vol. 141, pp. 12-21, doi: [10.1016/j.techfore.2019.01.007](https://doi.org/10.1016/j.techfore.2019.01.007).

- Bentouhami, H., Casas, L. and Weyler, J. (2021), "Reporting of 'Theoretical Design' in explanatory research: a critical appraisal of research on early life exposure to antibiotics and the occurrence of asthma", *Clinical Epidemiology*, Vol. 13, pp. 755-767, doi: [10.2147/clep.s318287](https://doi.org/10.2147/clep.s318287).
- Blu, T., Thévenaz, P. and Unser, M. (2004), "Linear interpolation revitalized", *IEEE Transactions on Image Processing*, Vol. 13 No. 5, pp. 710-719, doi: [10.1109/tip.2004.826093](https://doi.org/10.1109/tip.2004.826093).
- Chamberlain, W. and Anseeuw, W. (2019), "Inclusive businesses in agriculture: defining the concept and its complex and evolving partnership structures in the field", *Land Use Policy*, Vol. 83, pp. 308-322, doi: [10.1016/j.landusepol.2019.02.008](https://doi.org/10.1016/j.landusepol.2019.02.008).
- Copley, A., Gokalp, B. and Kirkwood, D. (2021), *Unlocking the Potential of Women Entrepreneurs in Uganda*, World Bank, Washington, D.C.
- Davis, F.D. (1989), "Technology acceptance model: TAM", *Al-Suqri, MN, Al-Aufi, AS: Information Seeking Behavior and Technology Adoption*, Vol. 205 No. 219, p. 5.
- Davis, F.D., Granić, A. and Marangunić, N. (2024), *The Technology Acceptance Model: 30 Years of TAM*, Springer International Publishing AG, Switzerland.
- Drydakakis, N. (2022), "Improving entrepreneurs' digital skills and firms' digital competencies through business apps training: a study of small firms", *Sustainability*, Vol. 14 No. 8, p. 4417, doi: [10.3390/su14084417](https://doi.org/10.3390/su14084417).
- Eldridge, D., Nisar, T.M. and Torchia, M. (2021), "What impact does equity crowdfunding have on SME innovation and growth? An empirical study", *Small Business Economics*, Vol. 56 No. 1, pp. 105-120, doi: [10.1007/s11187-019-00210-4](https://doi.org/10.1007/s11187-019-00210-4).
- Ferrari, A., Punie, Y. and Redecker, C. (2012), "Understanding digital competence in the 21st century: an analysis of current frameworks", *21st Century Learning for 21st Century Skills: 7th European Conference of Technology Enhanced Learning, EC-TEL 2012, Saarbrücken, Germany, September 18-21, 2012. Proceedings*, Springer Berlin Heidelberg, Vol. 7, pp. 79-92, doi: [10.1007/978-3-642-33263-0_7](https://doi.org/10.1007/978-3-642-33263-0_7).
- Frank, A.G., Mendes, G.H., Ayala, N.F. and Ghezzi, A. (2019), "Servitization and Industry 4.0 convergence in the digital transformation of product firms: a business model innovation perspective", *Technological Forecasting and Social Change*, Vol. 141, pp. 341-351.
- Freiman, V., Godin, J., Larose, F., Léger, M., Chiasson, M., Volkanova, V. and Goulet, M.J. (2016), "Towards the life-long continuum of digital competences: exploring combination of soft-skills and digital skills development", *Proceedings of the EDULEARN 2016 International Conference*, pp. 4-7.
- Goodman-Deane, J., Bradley, M. and Clarkson, P.J. (2020), "Digital technology competence and experience in the UK population: who can do what", *Ergonomics and Human Factors*, Vol. 2020, pp. 1-8.
- Hair, J.F., Babin, B.J., Ringle, C.M., Sarstedt, M. and Becker, J.M. (2025), *Covariance-based Structural Equation Modeling (CB-SEM): A SmartPLS 4 Software Tutorial*.
- Hazmi, D.M., Karimi, S. and Muharja, F. (2022), "Measuring and determinants of inclusive growth: evidence from Indonesia", *Optimum: Jurnal Ekonomi Dan Pembangunan*, Vol. 12 No. 2, pp. 135-154, doi: [10.12928/optimum.v12i2.5984](https://doi.org/10.12928/optimum.v12i2.5984).
- Horvey, S.S., Osei, D.B. and Alagidede, I.P. (2023), "Insurance penetration and inclusive growth in Sub-Saharan Africa: evidence from panel linear and nonlinear analysis", *International Economic Journal*, Vol. 37 No. 4, pp. 618-645, doi: [10.1080/10168737.2023.2251027](https://doi.org/10.1080/10168737.2023.2251027).
- Hosman, L. and Vergine, D. (2015), "Designing technology for inclusive growth", *The Global Information Technology Report*, Vol. 93, pp. 95-99.
- Inshakova, A. and Inshakova, E. (2022), "New technology for inclusive and sustainable growth", *Technological Support, Standards and Commercial Turnover, Smart Innovation, Systems and Technologies*, Vol. 288, p. XXIII-339.
- Jack, W. and Suri, T. (2014), "Risk sharing and transactions costs: evidence from Kenya's mobile money revolution", *The American Economic Review*, Vol. 104 No. 1, pp. 183-223, doi: [10.1257/aer.104.1.183](https://doi.org/10.1257/aer.104.1.183).

- Jouanjean, M.A. (2019), *Digital Opportunities for Trade in the Agriculture and Food Sectors*, *OECD Food, Agriculture and Fisheries Papers*, No. 122, OECD Publishing, Paris. doi: [10.1787/91c40e07-en](https://doi.org/10.1787/91c40e07-en).
- Kallinikos, J., Aaltonen, A. and Marton, A. (2013), "The ambivalent ontology of digital artifacts¹", *MIS Quarterly*, Vol. 37 No. 2, pp. 357-370.
- Kaminski, A.M., Kruijssen, F., Cole, S.M., Beveridge, M.C., Dawson, C., Mohan, C.V., Suri, S., Karim, M., Chen, O.L., Phillips, M.J., Downing, W., Weirowski, F., Genschick, S., Tran, N., Rogers, W. and Little, D.C. (2020), "A review of inclusive business models and their application in aquaculture development", *Reviews in Aquaculture*, Vol. 12 No. 3, pp. 1881-1902, doi: [10.1111/raq.12415](https://doi.org/10.1111/raq.12415).
- Kelly, S., Vergara, N. and Bammann, H. (2015), *Inclusive Business Models*, Rome: Food and Agriculture Organization of the United Nations, Rome.
- Khoo, C., Yang, E.C.L., Tan, R.Y.Y., Alonso-Vazquez, M., Ricaurte-Quijano, C., Pécot, M. and Barahona-Canales, D. (2024), "Opportunities and challenges of digital competencies for women tourism entrepreneurs in Latin America: a gendered perspective", *Journal of Sustainable Tourism*, Vol. 32 No. 3, pp. 519-539, doi: [10.1080/09669582.2023.2189622](https://doi.org/10.1080/09669582.2023.2189622).
- Kimuli, S.N.L., Sendawula, K. and Nagujja, S. (2021), "Digital technologies in micro and small enterprise: evidence from Uganda's informal sector during the COVID-19 pandemic", *World Journal of Science, Technology and Sustainable Development*, Vol. 18 No. 2, pp. 93-108, doi: [10.1108/wjtsd-02-2021-0017](https://doi.org/10.1108/wjtsd-02-2021-0017).
- Kopalle, P.K., Kumar, V. and Subramaniam, M. (2020), "How legacy firms can embrace the digital ecosystem via digital customer orientation", *Journal of the Academy of Marketing Science*, Vol. 48 No. 1, pp. 114-131.
- Kusmaryono, I., Wijayanti, D. and Maharani, H.R. (2022), "Number of response options, reliability, validity, and potential bias in the use of the likert scale education and social science research: a literature review", *International Journal of Educational Methodology*, Vol. 8 No. 4, pp. 625-637, doi: [10.12973/ijem.8.4.625](https://doi.org/10.12973/ijem.8.4.625).
- Lakhwani, M., Dastane, O., Satar, N.S.M. and Johari, Z. (2020), "The impact of technology adoption on organizational productivity", *The Journal of Industrial Distribution and Business*, Vol. 11 No. 4, pp. 7-18, doi: [10.13106/jidb.2020.vol11.no4.7](https://doi.org/10.13106/jidb.2020.vol11.no4.7).
- Lestari, C.D. and Rahmawati, F. (2021), "Measuring the impact of technology, politics, and human resources on inclusive economic growth in Indonesia", *EcceS: Economics Social and Development Studies*, Vol. 8 No. 1, pp. 65-85, doi: [10.24252/ecc.v8i1.20427](https://doi.org/10.24252/ecc.v8i1.20427).
- Li, L., Tong, Y., Wei, L. and Yang, S. (2022), "Digital technology-enabled dynamic capabilities and their impacts on firm performance: evidence from the COVID-19 pandemic", *Information and Management*, Vol. 59 No. 8, 103689.
- Likoko, E. and Kini, J. (2017), "Inclusive business—a business approach to development", *Current Opinion in Environmental Sustainability*, Vol. 24, pp. 84-88, doi: [10.1016/j.cosust.2017.03.001](https://doi.org/10.1016/j.cosust.2017.03.001).
- Ma, J., Wang, P., Li, B., Wang, T., Pang, X.S. and Wang, D. (2025), "Exploring user adoption of ChatGPT: a technology acceptance model perspective", *International Journal of Human-Computer Interaction*, Vol. 41 No. 2, pp. 1431-1445, doi: [10.1080/10447318.2024.2314358](https://doi.org/10.1080/10447318.2024.2314358).
- Marei, A., Abou-Moghli, A., Shehadeh, M., Salhab, H. and Othman, M. (2023), "Entrepreneurial competence and information technology capability as indicators of business success", *Uncertain Supply Chain Management*, Vol. 11 No. 1, pp. 339-350, doi: [10.5267/j.uscm.2022.9.008](https://doi.org/10.5267/j.uscm.2022.9.008).
- Maret, S. (2025), "The role of CSR in promoting disability empowerment: an inclusive business perspective in Surakarta's BUMN", *Proceedings of the International Conference on Multidisciplinary Studies (ICoMSi 2024)*, Springer Nature, Vol. 926, p. 263.
- Matarazzo, M., Penco, L., Profumo, G. and Quaglia, R. (2021), "Digital transformation and customer value creation in Made in Italy SMEs: a dynamic capabilities perspective", *Journal of Business Research*, Vol. 123, pp. 642-656.
- Ministry of Gender, Labour and Social Development (2019), *Uganda Women Entrepreneurship Programme(UWEP)- Programme Document*, Kampala, available at: https://en.unesco.org/creativity/sites/creativity/files/qpr/uganda_women_entrepreneurship_programme.pdf

- Ministry of Gender, Labour and Social Development (2021), *Simplified Guide on The Parish Development Model (PDM)*, Kampala, Uganda, available at: <https://www.kamuli.go.ug/sites/files/The%20Parish%20Development%20Model%20-%20Revised%20Simplified%20Guide-April%202022.pdf>
- Mogaji, E., Viglia, G., Srivastava, P. and Dwivedi, Y.K. (2024), "Is it the end of the technology acceptance model in the era of generative artificial intelligence?", *International Journal of Contemporary Hospitality Management*, Vol. 36 No. 10, pp. 3324-3339, doi: [10.1108/ijchm-08-2023-1271](https://doi.org/10.1108/ijchm-08-2023-1271).
- Munderia, R. and Singh, R. (2021, July), "The mediating effect of smartphone addiction on the relationship between social skills and psychological well-being", In *International Conference on Human-Computer Interaction*, pp. 363-370, Springer International Publishing, Cham.
- Munyegera, G.K. and Matsumoto, T. (2018), "ICT for financial access: mobile money and the financial behavior of rural households in Uganda", *Review of Development Economics*, Vol. 22 No. 1, pp. 45-66, doi: [10.1111/rode.12327](https://doi.org/10.1111/rode.12327).
- Musa, H.G., Fatmawati, I., Nuryakin, N. and Suyanto, M. (2024), "Marketing research trends using technology acceptance model (TAM): a comprehensive review of researches (2002-2022)", *Cogent Business and Management*, Vol. 11 No. 1, 2329375, doi: [10.1080/23311975.2024.2329375](https://doi.org/10.1080/23311975.2024.2329375).
- Orser, B., Riding, A. and Li, Y. (2019), "Technology adoption and gender-inclusive entrepreneurship education and training", *International Journal of Gender and Entrepreneurship*, Vol. 11 No. 3, pp. 273-298, doi: [10.1108/ijge-02-2019-0026](https://doi.org/10.1108/ijge-02-2019-0026).
- Ozili, P.K. (2025), "Technology impact model: a transition from the technology acceptance model", *AI & Society*, Vol. 40 No. 2, pp. 1-3, doi: [10.1007/s00146-024-01896-1](https://doi.org/10.1007/s00146-024-01896-1).
- Peltier, J.W., Zhao, Y. and Schibrowsky, J.A. (2012), "Technology adoption by small businesses: an exploratory study of the interrelationships of owner and environmental factors", *International Small Business Journal*, Vol. 30 No. 4, pp. 406-431.
- Pilková, A., Jančovičová, Z. and Kovačičová, Z. (2016), "Inclusive entrepreneurship in Visegrad4 countries", *Procedia-Social and Behavioral Sciences*, Vol. 220, pp. 312-320, doi: [10.1016/j.sbspro.2016.05.504](https://doi.org/10.1016/j.sbspro.2016.05.504).
- Podsakoff, P.M., MacKenzie, S.B., Lee, J.Y. and Podsakoff, N.P. (2003), "Common method biases in behavioral research: a critical review of the literature and recommended remedies", *Journal of Applied Psychology*, Vol. 88 No. 5, pp. 879-903, doi: [10.1037/0021-9010.88.5.879](https://doi.org/10.1037/0021-9010.88.5.879).
- Podsakoff, P.M., Podsakoff, N.P., Williams, L.J., Huang, C. and Yang, J. (2024), "Common method bias: It's bad, it's complex, it's widespread, and it's not easy to fix", *Annual Review of Organizational Psychology and Organizational Behavior*, Vol. 11 No. 1, pp. 17-61, doi: [10.1146/annurev-orgpsych-110721-040030](https://doi.org/10.1146/annurev-orgpsych-110721-040030).
- Polit, D.F. and Beck, C.T. (2006), "The content validity index: are you sure you know what's being reported? Critique and recommendations", *Research in Nursing and Health*, Vol. 29 No. 5, pp. 489-497, doi: [10.1002/nur.20147](https://doi.org/10.1002/nur.20147).
- Prahalad, C.K. (2008), "The fortune at the bottom of the pyramid: eradicating poverty through profits", *McKinsey briefing notes series*, Vol. 36 No. 3, pp. 52-74.
- Rayna, T., Striukova, L. and Darlington, J. (2015), "Co-creation and user innovation: the role of online 3D printing platforms", *Journal of Engineering and Technology Management*, Vol. 37, pp. 90-102.
- Russo, G.M., Tomei, P.A., Serra, B. and Mello, S. (2021), "Differences in the use of 5-or 7-point likert scale: an application in food safety culture", *Organizational Cultures*, Vol. 21 No. 2, pp. 1-17, doi: [10.18848/2327-8013/cgp/v21i02/1-17](https://doi.org/10.18848/2327-8013/cgp/v21i02/1-17).
- Sardana, N., Shekoohi, S., Cornett, E.M. and Kaye, A.D. (2023), "Qualitative and quantitative research methods", in *Substance Use and Addiction Research*, Academic Press, pp. 65-69.
- Schoneveld, G.C. (2020), "Sustainable business models for inclusive growth: towards a conceptual foundation of inclusive business", *Journal of Cleaner Production*, Vol. 277, 124062, doi: [10.1016/j.jclepro.2020.124062](https://doi.org/10.1016/j.jclepro.2020.124062).

- Shi, J., Mo, X. and Sun, Z. (2012), "Content validity index in scale development", *Zhong nan da xue xue bao. Yi xue ban= Journal of Central South University. Medical sciences*, Vol. 37 No. 2, pp. 152-155, doi: [10.3969/j.issn.1672-7347.2012.02.007](https://doi.org/10.3969/j.issn.1672-7347.2012.02.007).
- SNV, the World Business Council for Sustainable Development (WBCSD) (2011), *Inclusive Business: Creating Value in Latin America*, SNV and WBCSD.
- Tanujaya, B., Prahmana, R.C.I. and Mumu, J. (2022), "Likert scale in social sciences research: problems and difficulties", *FWU Journal of Social Sciences*, Vol. 16 No. 4, pp. 89-101.
- Thomas, O.O. and Lawal, O.R. (2020), "Exploratory research design in management sciences: an X-ray of literature", *Annals of the University Dunarea de Jos of Galati: Fascicle: I, Economics and Applied Informatics*, Vol. 26 No. 2, pp. 79-84, doi: [10.35219/eai15840409109](https://doi.org/10.35219/eai15840409109).
- Thomas, R. and Lukose, P.J. (2024), "Social entrepreneurship for empowerment and inclusive business model among Meghalaya rubber farmers", *Journal of Entrepreneurship and Innovation in Emerging Economies*, Vol. 10 No. 1, pp. 51-65, doi: [10.1177/23939575231213813](https://doi.org/10.1177/23939575231213813).
- Toyon, M.A.S. (2021), "Explanatory sequential design of mixed methods research: phases and challenges", *International Journal of Research in Business and Social Science*, Vol. 10 No. 5, pp. 253-260, doi: [10.20525/ijrbs.v10i5.1262](https://doi.org/10.20525/ijrbs.v10i5.1262).
- Tsou, H.T. and Chen, J.S. (2023), "How does digital technology usage benefit firm performance? Digital transformation strategy and organisational innovation as mediators", *Technology Analysis and Strategic Management*, Vol. 35 No. 9, pp. 1114-1127, doi: [10.1080/09537325.2021.1991575](https://doi.org/10.1080/09537325.2021.1991575).
- Uganda Bureau of Statistics (2021), *Statistical Abstract*, Kampala, available at: https://www.ubos.org/wpcontent/uploads/publications/01_20222021_Statistical_Abstract.pdf
- Uganda Bureau of Statistics (2024), *The National Population and Housing Census 2024 – Final Report - Volume 1 (Main)*, Kampala, available at: <https://www.ubos.org/wp-content/uploads/2024/12/National-Population-and-Housing-Census-2024-Final-Report-Volume-1-Main.pdf>
- United National Development Program [UNDP] (2010), *Brokering Inclusive Business Models*, UNDP, New York.
- Verhoef, P.C., Broekhuizen, T., Bart, Y., Bhattacharya, A., Dong, J.Q., Fabian, N. and Haenlein, M. (2021), "Digital transformation: A multidisciplinary reflection and research agenda", *Journal of Business Research*, Vol. 122, pp. 889-901.
- Vial, G. (2021), "Understanding digital transformation: a review and a research agenda", *Managing Digital Transformation*, pp. 13-66.
- Wach, E. (2012), "Measuring the 'inclusivity' of inclusive business", *IDS Practice Papers*, Vol. 2012 No. 9, pp. 01-30, doi: [10.1111/j.2040-0225.2012.00009_2.x](https://doi.org/10.1111/j.2040-0225.2012.00009_2.x).
- Welter, F., Baker, T., Audretsch, D.B. and Gartner, W.B. (2017), "Everyday entrepreneurship—a call for entrepreneurship research to embrace entrepreneurial diversity", *Entrepreneurship Theory and Practice*, Vol. 41, pp. 311-321.
- Yerdelen-Damar, S., Boz, Y. and Aydın-Günbatır, S. (2017), "Mediated effects of technology competencies and experiences on relations among attitudes towards technology use, technology ownership, and self-efficacy about technological pedagogical content knowledge", *Journal of Science Education and Technology*, Vol. 26 No. 4, pp. 394-405, doi: [10.1007/s10956-017-9687-z](https://doi.org/10.1007/s10956-017-9687-z).
- Zahra, S.A., Liu, W. and Si, S. (2023), "How digital technology promotes entrepreneurship in ecosystems", *Technovation*, Vol. 119, 102457, doi: [10.1016/j.technovation.2022.102457](https://doi.org/10.1016/j.technovation.2022.102457).
- Zhang, N., Canini, K., Silva, S. and Gupta, M. (2021), "Fast linear interpolation", *ACM Journal on Emerging Technologies in Computing Systems*, Vol. 17 No. 2, pp. 1-15, doi: [10.1145/3423184](https://doi.org/10.1145/3423184).

Further reading

- Bokonda, P.L., Ouazzani-Touhami, K. and Souissi, N. (2019), "Open data kit: mobile data collection framework for developing countries", *International Journal of Innovative Technology and Exploring Engineering*, Vol. 8 No. 12, pp. 4749-4754.

- Easton, K.L., McComish, J.F. and Greenberg, R. (2000), "Avoiding common pitfalls in qualitative data collection and transcription", *Qualitative Health Research*, Vol. 10 No. 5, pp. 703-707, doi: [10.1177/104973200129118651](https://doi.org/10.1177/104973200129118651).
- Janssen, M., Weerakkody, V., Ismagilova, E., Sivarajah, U. and Irani, Z. (2020), "A framework for analysing blockchain technology adoption: integrating institutional, market and technical factors", *International Journal of Information Management*, Vol. 50, pp. 302-309, doi: [10.1016/j.ijinfomgt.2019.08.012](https://doi.org/10.1016/j.ijinfomgt.2019.08.012).
- Leech, N.L., Dellinger, A.B., Brannagan, K.B. and Tanaka, H. (2010), "Evaluating mixed research studies: a mixed methods approach", *Journal of Mixed Methods Research*, Vol. 4 No. 1, pp. 17-31, doi: [10.1177/1558689809345262](https://doi.org/10.1177/1558689809345262).

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