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How Women Entrepreneurs Adopt Digital Technology for Business Development?

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ABSTRACT

Digital transformation has encouraged businesses to digitize, including those owned by women. In practice, women entrepreneurs are often perceived as lacking digital competency. Gender stereotypes create inequality, with women entrepreneurs often perceived as lacking digital literacy. Studies on traditional entrepreneurship even explain how women entrepreneurs are often perceived as less competent, thus limiting access to capital, networks, and markets. This study aims to explore technology adoption by women entrepreneurs to develop their businesses. The research was conducted qualitatively using in-depth interviews (IDI) as data collection methods. Multiple case studies were applied, involving women entrepreneurs from various business backgrounds. Data analysis was conducted thematically and identified three main themes: motivational drivers of technology adoption, digital capability, and social-gendered challenges. Motivational drivers of technology adoption discuss why women entrepreneurs adopt technology. Meanwhile, digital competency relates to how women entrepreneurs learn digital technology. Furthermore, social-gendered challenges address the impact of society, family, and social relations on their businesses.

Keywords: Women Entrepreneurs, Technology Adoption, Digital Competency, Gender.

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Introduction

Information technology has impacted business operational changes, leading companies to embark on digital transformation. This change is driven by the presence of social media, marketplaces, fintech, and various other digital platforms that have become integral to businesses. Entrepreneurs are adapting their operations through technology adoption (Swati & Dua, 2024). Digital tools encourage experimentation and innovation, allowing entrepreneurs to test new products, adjust pricing strategies, and promote them efficiently (Windarsari, 2025). However, in its implementation, digital transformation faces several obstacles, such as time, space, and physical infrastructure (Abdullah et al., 2025). Businesses that are able to adapt are the ones who can undertake digital transformation.

Digital transformation in business presents a unique challenge for women entrepreneurs, who are often stereotyped as businesspeople whose abilities are questionable. Yet, women entrepreneurs are now playing a crucial role in economic development. A World Bank Group (2024) press release stated

that women's participation in economic development also impacts the well-being of families and communities. Women entrepreneurs often experience several obstacles in running a business such as gender stereotypes, limited access to funding, and social and cultural norms (Ahmed et al., 2025). UN Women in its paper (2024) emphasized that digital transformation can be a catalyst for women's economic empowerment if access and capabilities are adequate. Therefore, with the advent of digital technology, women entrepreneurs should receive special attention regarding how they can adapt their businesses to technological developments. In reality, stereotypes about women entrepreneurs still hinder easy access to capital, networks, infrastructure, digital tools, and exacerbated by social and cultural perspectives (Mashapure et al., 2025).

Despite the limitations imposed by gender stereotypes, digital inclusion for women entrepreneurs can serve as a pathway to economic empowerment and improved livelihoods (Sowmya & Pai, 2024). In fact, the digital revolution promises to democratize entrepreneurship by lowering barriers to entry and enabling more flexible business models (Clarissa & Marvianta, 2025; Ughetto et al., 2020). Digital platforms reduce traditional barriers related to physical infrastructure, initial capital requirements, and geographic constraints (Sun et al., 2024). Digital platforms also enable women entrepreneurs to reach more customers (Abed, 2021) beyond their geographic location, accessing national and even global markets (Singh, 2025; Sun et al., 2024; Verma et al., 2024) This expanded reach is crucial for women who may face mobility constraints or cultural restrictions in participating in physical markets (Khoo et al., 2024; Ukpere et al., 2014). Similarly, a study of women tourism entrepreneurs shows that digital platforms can connect service providers with international customers (Khoo et al., 2024). The existence of digital platforms offers many opportunities for women to success in business.

Digital platforms offer crucial flexibility, enabling women to manage work and family commitments more effectively (Abdullah et al., 2025). Women can start businesses with minimal initial investment, operate at more flexible hours and locations, allowing them to accommodate family responsibilities while running their businesses (Abdullah et al., 2025; Swati & Dua, 2024). This flexibility is crucial given that women entrepreneurs often face greater family responsibilities and societal expectations regarding caregiving roles (Khoo et al., 2024). Therefore, these platforms enable business management, market access, and the overcoming of cultural barriers (Ukpere et al., 2014). Digital platforms increase economic participation, foster self-confidence, enhance skills, and facilitate access to broader markets, contributing to business growth and national development. It can be argued that women entrepreneurs achieve financial independence and societal recognition, breaking down barriers associated with limited market access and socio-cultural restrictions (Verma et al., 2024).

The literature on women's entrepreneurship has grown rapidly in recent decades, documenting the various challenges women face in establishing and running businesses. Traditional research has focused largely on barriers such as limited access to information, finance, and networks. However, the gender perspective in digital entrepreneurship research remains relatively unexplored, despite the rapid growth of digital technology in the entrepreneurial ecosystem (Ughetto et al., 2020). Several studies have examined quantitative research models focusing on technology adoption and digital literacy among women entrepreneurs (Aiswarya & Sangeetha, 2025), digitalization on women's empowerment (Abdelwahed et al., 2024; Akpuokwe et al., 2024), and digital financial literacy (Asandimitra et al., 2024). Meanwhile, studies exploring how women entrepreneurs implement digital technology are still lacking. Therefore, studies are needed that aim to further explore: Why do women choose to utilize digital technology in their business development? How does the process of adapting and learning to technology occur? How do social norms and gender roles influence technology use?

Based on the explanation above, this study aims to understand in-depth the experiences, motivations, strategies, and social dynamics of women entrepreneurs in utilizing digital technology for business development. This study explores why and how women entrepreneurs use technology for business development in the context of a developing country. This research integrates digital entrepreneurship and gender perspectives through a qualitative, experience-based approach (multiple

case studies), resulting in a deeper contextual understanding than survey studies. Thus, this study can offer a theoretical framework that is more sensitive to gender dynamics in digital transformation in businesses, especially for women entrepreneurs.

Literature Review

With the development of the digital world, businesses begin to transform into digital by adopting digital technologies in their business processes (Farahani, 2024). Digital transformation is fundamentally changing the business landscape, creating what some scholars describe as a "digital realm" where traditional constraints of time, space, and physical infrastructure are significantly reduced (Abdullah et al., 2025). The widespread adoption of internet connectivity, mobile technology, and digital platforms has transformed the way businesses operate, market products, and reach customers (Swati & Dua, 2024). For women entrepreneurs, this transformation represents a potential equalizer, offering tools and platforms that can compensate for traditional disadvantages in access to physical infrastructure, formal networks, and capital (Sun et al., 2024).

Digital Literacy and Competencies

Developing comprehensive digital competencies is crucial for successful digital entrepreneurship. These competencies encompass not only basic digital literacy but also more advanced skills in digital marketing, content creation, data analysis, and platform-specific capabilities (Khoo et al., 2024). Successful women entrepreneurs demonstrate the ability to strategically integrate multiple digital platforms, utilizing each platform according to its intended purpose. Digital platforms facilitate community building and learning among women entrepreneurs (Verma et al., 2024). Women entrepreneurs are increasingly leveraging e-commerce to overcome traditional barriers such as limited capital and technological skills gaps (Singh, 2025). The growth of the e-commerce sector has lowered business barriers and provided new market access opportunities (Swati & Dua, 2024). Furthermore, digital payment systems have been specifically identified as a driver of financial transactions and business operations (Ukpere et al., 2014).

Despite the opportunities created by digital technology, a significant digital literacy gap limits women's ability to fully utilize these tools. Limited use of digital technology for business, feeling awkward and sometimes needing to adapt to new platforms or features are examples of digital literacy challenges (Trisninawati & Sartika, 2024). For example, the ability to use social media effectively for business purposes remains a challenge for women entrepreneurs, who must possess skills in online sales and customer engagement (Akpuokwe et al., 2024). Security and trust issues also pose challenges for women entrepreneurs adopting digital technology (Mashapure et al., 2025). Women entrepreneurs face the risk of fraud and exploitation in the digital environment (James et al., 2025).

Training is needed to address digital literacy issues (Husna et al., 2025). Women with good digital literacy will be competitive, as digital technology can be a powerful tool for women's empowerment in facing business challenges (Salamzadeh et al., 2024). The ability to run a business remotely, set flexible working hours, and integrate business activities with family life are significant advantages of digital entrepreneurship (Swati & Dua, 2024). Furthermore, the ability to use digital platforms also offers benefits for women entrepreneurs, such as accessing online educational content, participating in virtual training programs, and learning from global best practices without geographical or temporal limitations (Sun et al., 2024).

Gender and Entrepreneurship

Women entrepreneurs face numerous challenges in running their businesses. Lack of access to technological tools, infrastructure, and training are key challenges for women entrepreneurs (Khoo et al., 2024; Mashapure et al., 2025). Gupta (2025), who studied women entrepreneurs in rural areas, also found that women entrepreneurs face challenges due to poor digital infrastructure, which limits their

ability to effectively participate in digital commerce. This infrastructure gap creates and perpetuates the gap between women entrepreneurs in urban and rural areas, with urban women benefiting from better access to technology, funding, and business support.

Despite the potential to reduce capital requirements for digital technologies, women still face challenges in accessing financial resources for business development and technology adoption (Mashapure et al., 2025; Singh, 2025; Swati & Dua, 2024). Inadequate financial inclusion limits women's ability to invest in digital technologies and develop their digital competencies (Mashapure et al., 2025). These challenges include access not only to initial capital but also to working capital for business operations, investment in technology and training, and resources for business expansion (Gupta, 2025; Swati & Dua, 2024). Gender bias in the financial system and lending practices continues to disadvantage women entrepreneurs, even in the context of digital businesses (Singh, 2025; Verma et al., 2024).

Women entrepreneurs continue to face gender stereotypes, gender-based expectations, and market restrictions (Clarissa & Marvianta, 2025; James et al., 2025). A study of marginalized women entrepreneurs in Nigeria found that digitalization can perpetuate gender discrimination online, exposing women to new forms of bias and harassment (James et al., 2025). Societal biases about women's roles, capabilities, and appropriate business sectors continue to limit women's entrepreneurial activities and choices (Singh, 2025).

Concerns about work-life balance remain a challenge associated with digital business operations. Expectations of constant availability and responsiveness in digital environments can sometimes exacerbate rather than reduce work-family conflict (Khoo et al., 2024). Digital platforms can facilitate the creation of support communities where women entrepreneurs can share experiences, seek advice, and build solidarity (Sun et al., 2024; Verma et al., 2024). Despite the potential for networking, research by Swati & Dua (2024) indicates that women entrepreneurs' participation in online forums and digital communities for knowledge exchange remains low. Networking is important for women entrepreneurs to run their business (Chatterjee et al., 2020).

Method

This research design is exploratory qualitative, with the aim of in-depth analysis of the perspectives and experiences of women entrepreneurs in using digital technology in their businesses. This exploratory study aims to answer the questions of why women entrepreneurs adopt digital technology, how the adoption process works, and the social and environmental impacts.

Profile of Respondents

The unit of analysis used in this study is the individual. The target population is female entrepreneurs in various business sectors (multiple case study). The focus is on business owners who understand overall business operations. The informants' business sectors can vary, not necessarily based on digital businesses, as the purpose of this study is to examine how female entrepreneurs use digital technology for their businesses. The informants' age limit is not specifically stated but rather focuses on the productive age group. This study used snowball sampling to gain data access from informants. Table 1 shows the profile of the respondents in this study.

Table 1. Profile of Respondents

No.	Code	Industry	Business Starting Year	Family Background
1	NBL	Digital Marketing	2025	Non-Business
2	ISN	Digital Content	2025	Non-Business
3	NSA	Education	2018	Non-Business
4	FTM	Food & Beverage	1999*	Business
5	FTR	Food & Beverage	2024	Business
6	GFN	Fashion	2025	Non-Business

No.	Code	Industry	Business Starting Year	Family Background
7	ALF	Fashion	2025	Business
8	ABP	Digital Marketing	2026	Business
9	KNS	Health Care	2026	Business
10	RFN	Food & Beverage	2015	Business

Note: *2nd Generation; Source: Author (2026)

The respondents in this study were women entrepreneurs running businesses in various industries, both digital and non-digital. Furthermore, they had family backgrounds that could be categorized as business and non-business.

Data Collection

The data collection technique used in-depth interviews (IDIs) conducted directly. The interviews were conducted by the researcher, and the results were recorded and transcribed by the researcher. This was useful for accurately mapping the interview results. In accordance with the data collection technique, the instrument in this study is interview guidelines where the interview process is conducted with semi-structured interviews.

This means that this study uses initial interview guidelines that can still be developed during the interview. Some of the research questions that will be used include: 1) Why choose a particular platform (Instagram, marketplace, WhatsApp, etc.) 2) What motivates you to continue using the technology? 3) How did you learn to use digital technology? 4) How did you adapt to platform features or changes? How do you manage customers through digital media?

Data Analysis

The data analysis method used thematic analysis. This method was used to identify patterns in respondents' answers according to themes. Referring to Braun & Clarke (2006), several systematic stages were carried out (see Table 2).

Table 2. Data Analysis

STAGE 1	**Familiarizing Data** The researcher reads the interview transcripts repeatedly to understand the overall content of the data. Initial notes and reflections are written in the margins of the document or research notebook.
STAGE 2	**Generating İnitial Code** The researcher marks sections of text relevant to the research objectives and assigns short codes that represent their meaning. All generated codes are collected in a table to facilitate grouping. Codes with similar meanings are grouped into themes.
STAGE 3	**Searching The Themes** This process is done by creating a table or using index cards/sticky notes to visualize the relationships between codes.
STAGE 4	**Reviewing The Themes** The researcher reviews the themes to ensure that they accurately represent the data, there is no overlap between themes, and each theme is supported by data quotations.
STAGE 5	**Defining And Naming Themes** The researcher defines the essence of each theme and assigns a clear name that reflects the meaning of the data.

STAGE 6	**Producing The Report** The established themes are presented in the form of a descriptive narrative, including direct quotes from informants as empirical evidence.

To validate the qualitative testing, this study employed sources and theory triangulation. Triangulation was used by analyzing the existing findings using various theoretical perspectives. This study provides descriptions and quotes from individual cases (Cresswell, 2010) to support the findings.

Results

Technology implementation is an integral part of today's business development. Women entrepreneurs utilize technology for their business operations. They adopt technology for both digital and non-digital businesses. Digital platforms used include social media, editing software, financial applications, and various digital devices.

Table 3. Themes and Sub-Themes

Themes	Sub-Themes	Explanation
Motivational Drivers	Market demand Business growth Expanding market reach	Technology adoption in business is driven by individual reasons, one of which is market needs. Entrepreneurs see a market demand that they can tap into for their business. Personal motivation is also present because technology provides opportunities to expand market share and increase sales.
Digital Capability	Formal/Informal learning Self-learning Peer mentoring Trial-and-error strategy	Digital literacy and skills are essential for adopting technology in business. Therefore, individuals must learn to enhance their digital capabilities. This learning can be achieved through formal education, such as school, or informally through free courses. Peer mentoring can also be a means of learning about digitalization. Furthermore, self-study can also be a means of improving digital skills. Through this learning, individuals can apply a trial-and-error strategy.
Social and Gendered Challenges	Family support Community validation Gender stereotype	Environmental perspectives influence how digital technology is adopted in business. Support begins with immediate family, community, and established gender stereotypes. The environment examines how female entrepreneurs leverage digital skills to develop their businesses. Gender stereotypes are also crucial to recognizing that female entrepreneurs are not undervalued in terms of their digital capabilities. Trust in their digital capabilities is crucial for business development.

Source: Author (2026)

For non-digital businesses, digital transformation is carried out through the application of digital marketing. Respondents use digital marketing to promote and sell their products. Furthermore, businesses platform such as e-commerce are also a way for some of these women entrepreneurs to engage in online business. In addition, digital platforms help overcome financial barriers (Tripathi & Trivedi, 2025). For digitally-based businesses, technology is implemented across all business lines. Digital products are their mainstay for offering to consumers. Product promotion and marketing utilize digital platforms,

leveraging social media. Work is typically hybrid and tends toward online work. In these businesses, digital devices are a crucial component. These devices include hardware such as laptops, smartphones, and cameras, as well as software such as photo and video editing applications.

The research findings identified several themes that can be mapped out: motivational drivers of technology adoption, digital capability, and social-gendered challenges (see Table 3). Motivational drivers refer to the reasons for adopting technology for a business. Digital capability is how an individual is able to adopt that technology. Social and gendered challenges concern how the surrounding community, including family and colleagues, respond to the business.

Motivational Drivers of Technology Adoption

The motivation for using technology is driven by a more welcoming market for businesses that are already digitally available, such as F&B businesses that emphasize their online presence. Furthermore, other businesses are increasingly using e-commerce to sell their products, particularly fashion, citing the ease and efficiency of online sales compared to offline sales. Meanwhile, digital-based businesses are primarily motivated by trends and market demand. These businesses place greater emphasis on creativity and ease of access. For example, digital content businesses emphasize market demand for tourism content. Other businesses, however, are more focused on market needs. The respondent who is digital business actor stated:

"... I see many MSMEs now just selling but their marketing is lacking, whereas since Covid yesterday, people have started selling on Gojek, Grab, Shopee Food, basically they have started selling online. Their online sales are just basic, they do not have posters, they do not have an attractive portal either, so I saw, oh there is an opportunity, I can design, I can take photos, why do not I sell my services? ..." (NBL).

Business owners possess knowledge of technology and social media adoption through experience and education (Alhakimi & Albashiri, 2023). This experiential knowledge motivates them to embrace technology and identify business opportunities in digital marketing. Technology plays a crucial role in enabling women to feel comfortable and explore their potential (Galhotra & Muskan, 2020). Therefore, technology provides opportunities for women to establish businesses.

Digital technology also helps women entrepreneurs expand their markets (Windarsari, 2025). Various digital tools and platforms are useful for gaining broader market access, increasing financial independence, and elevating social status (Verma et al., 2024). Women entrepreneurs use various digital platforms to network with the aim of connecting with consumers, suppliers and business partners (McAdam et al., 2020; Mokhtar et al., 2024). One of the digital platforms used is social media. Social media plays a crucial role, enabling female entrepreneurs to reach a wider market share through easy-to-use, and economical platforms (Rahayu et al., 2023). Some respondents collaborate with digital platforms such as e-commerce to sell their products.

Several women entrepreneurs feel that the existence of digital technologies, such as social media and e-commerce, provides them with opportunities to run their businesses. Flexibility in time and location is a key consideration for them. This is reflected in the statement of respondent: *"... because the flexibility of time is greater than that of office workers who have to work 9 to 5, while as entrepreneurs we do not have to be in the office but we do not have to be tied to a work contract ..."* (ISN).

Another opinion from respondent NBL is: *"... [digital business] flexible work, can be done anywhere ..."* (NBL). Respondents' digital activities ranged from online sales, content production, digital marketing, data analysis, digital transactions, and financial reporting. These activities were carried out solely by entrepreneurs, while some were carried out in collaboration with other parties. The results of this study explain that digital technology facilitates work-life balance. Flexibility of working hours after family commitments has become a positive thing thanks to digital technology (Fardous et al., 2024).

However, Khoo et al. (2024) stated that work-life balance becomes an issue because it allows for 24/7 work. For this reason, women entrepreneurs need to manage their time in a balanced way, including time for work and family (Dwityas et al., 2025). Balancing work and family time is the initial

capital for female entrepreneurs to become empowered and gain support from their families and communities.

Digital Capability

The use of digital technology requires competence to use it correctly and effectively. Women entrepreneurs are required to be able to adapt technology to current developments in their businesses. Women are also starting to open up to running digital businesses, even if they do not have a digital background. Digital literacy gaps are a challenge for entrepreneurs who develop their businesses through digitalization (Irene et al., 2025; Verma et al., 2024). Education plays a key role in digital literacy, as it provides people with the skills necessary to identify opportunities, develop digital tools, and make decisions efectively (Rahayu et al., 2023). Women entrepreneurs who have good digital skills also have better entrepreneurial skills because technology helps them run their businesses (Sarker et al., 2025). Meanwhile, women entrepreneurs who are weak in technological skills cannot survive in the market, especially for those who run online businesses (Priya & Bose, 2021).

Women entrepreneurs are making various efforts to survive the pressures of digital business. Their digital businesses require a high level of technology adoption, requiring them to be competent in using various digital tools like Canva, Adobe Photoshop, and others. The respondent explained: *"... I learned to use Figma, initially using Figma, then learning to make websites... I looked for tutorials on TikTok using Figma, and then I found out that people also use Figma to design... marcomm [marketing and communication – community in University] also to [learn] brainstorm ideas ... "* (NBL).

Independent or autodidactic learning can be done through various platforms. Besides that, women entrepreneurs can adopt technology through learning and collaboration. They have the opportunity to learn digitally from informal peer groups, online communities, and training workshops (Windarsari, 2025). These activities are part of improving their digital competency. The respondent stated: *"... I learned that during my internship yesterday, like asking for help from [a friend] at the agency to edit ..."* (FTM).

Women entrepreneurs learn about digitalization through various activities. The existence of a community of fellow women entrepreneurs also plays a crucial role in learning the skills needed to run a business (Sorgner & Krieger-Boden, 2017). In addition to learning, some young entrepreneurs collaborate with other parties, either as business partners or employees. Business partners serve as digitally savvy partners to assist them with their business processes. This provides a shortcut to digitizing their business processes. However, this situation naturally makes them dependent on others for digital management. The respondent explained: *"The tech person has a friend who is the founder... he handles the website, makes applications, makes online simulations, and so on."* (NSA).

Other women entrepreneurs have other considerations that they manage their digital media themselves, while they prefer to outsource advertising and content creation. They argue that the involvement of others is more impactful than creating content themselves. According to the respondent: *"... My [business] is not really well-known yet, it is just an online platform, because Shopee Food actually introduces me to customers. So, a lot of my customers come from online platforms... endorsements further promote my name. ..."* (FTR).

These results indicate that technology adoption can be achieved by women entrepreneurs through self-learning activities or through the involvement of others for assistance. In some cases, some women entrepreneurs whose businesses are not digital-based prefer to manage their digital media themselves. This is because their digital needs are not a core part of their business.

Social-Gendered Challenges

Women entrepreneurs often experience different perceptions than male entrepreneurs. Their ability to run a business is often underestimated in some areas. Besides, technology helps women entrepreneurs overcome various business challenges, such as discrimination. Through technology, women

entrepreneurs gain the opportunity to expand their market share (James et al., 2025). In the digital business, digital competence is still sometimes questioned. This is reflected in how they gain client trust for their content projects. The respondent explained: *"There is still a chance, it is just lacking... The trust is probably different, right? So the trust between a man's skills and a woman's skills is probably different, right? That's why they seem to be having less discussion ..."* (ISN).

However, some entrepreneurs feel that personal branding can be crucial for marketing their digital products. This also demonstrates their undeniable digital skills. Others believe that partnering with a male partner makes it easier to gain client trust. Gender stereotypes persist in this regard, as evidenced by how some women receive different views than their male counterparts when pitching their digital products. This is supported by the statement of the respondent: *"Actually, both are fine, but I do not know why, if it's digital, the taste of men is better than the taste of women in digital?"* (ISN).

Therefore, networks and support systems are crucial for women to gain greater confidence in their digital abilities. This can change the patriarchal mindset where men are seen as having better digital skills (Gunasegaran, 2025). Social challenges are not a major factor in running their businesses. Some feel that the pressures of their environment and their single social status make running a business easier. Negative experiences while using the internet does weaken women entrepreneurs in managing online platforms (Windarsari, 2025).

Married women entrepreneurs feel that family support is crucial for harmonizing their lives and achieving work-life balance. Women are traditionally seen as having the role of homemaker (Hazudin et al., 2021). The respondent stated: *"So, let's face it, none of us are truly superwomen, but we can create the support system."* (NSA). Women's ability to manage digital businesses to grow their businesses has opened up opportunities for women's perspectives. Women who demonstrate their abilities, particularly in digital technology, can change gender stereotypes, so the society will be more open to women's abilities. Women's success is evidence that they possess the same capabilities as men.

Discussion

Technological developments encourage women entrepreneurs to adopt digitalization for their business. Digitalization is implemented in both digitally-based businesses and conventional businesses requiring digital integration. This research yields insights classified into three themes: motivational drivers of technology adoption, digital capability, and social-gendered challenges. In adopting technology, the role of women entrepreneurs can be identified by their reasons for adoption, their methods of adoption, and their social and gender influences.

These findings suggest that women entrepreneurs adopt technology because they see market opportunities in their businesses. Through digitalization, their businesses can reach a wider market and even generate efficiency. This finding aligns with the Diffusion of Innovations (DOI) theory (Rogers, 2003; Rogers & Shoemaker, 1983), particularly the concept of relative advantage, where innovations are more likely to be adopted when users perceive them to be superior to previous methods. For many women entrepreneurs, digital tools such as e-commerce, digital payments, and social media can reduce mobility barriers and create new revenue opportunities.

Previous studies have also reported that women-owned businesses often adopt technology to improve market access and operational performance. In addition, flexibility of time and location is a consideration for women entrepreneurs in adopting technology (Tripathi & Trivedi, 2025). With digitalization, they no longer need to consider business location and can work from anywhere. Furthermore, digital businesses also provide the freedom to organize their work hours and balance work with other work or activities. This expands the logic of mainstream entrepreneurship by demonstrating that motivation is not solely driven by profit, but also related to autonomy and work-life integration.

The challenges faced by women entrepreneurs in adopting technology are limited digital competency, access to digital devices, and family support (Kambiri, 2025; Khoo et al., 2024). Digital competency is defined as the ability of women entrepreneurs to understand, learn, experiment with, and

effectively use digital technology. Digital literacy can be a way to overcome the barriers due to gender bias experienced by women entrepreneurs (Sowmya & Pai, 2025). While motivation can spark interest, adoption often depends on whether entrepreneurs possess the necessary digital literacy, confidence, and adaptive learning skills. Technological complexity is a consideration in technology adoption, with ease of use increasing adoption (Rogers, 2003).

Access to technology helps women entrepreneurs run their businesses. Therefore, digital training is essential (Sarker et al., 2025). Digital platforms help women master entrepreneurial skills through peer-to-peer learning. Platforms facilitate women's access to mentors and role models (Sorgner & Krieger-Boden, 2017). Digital literacy can also be a solution to the gender bias that exists among women entrepreneurs, where they can be recognized for their ability to manage their businesses because they have good digital literacy.

Women entrepreneurs adopt technology through both formal and informal learning. Some of them pursue formal education, such as college or courses, that teach them about digitalization. Formal and informal education serve as support systems that can increase adoption (Utami et al., 2025). Strengthening digital literacy can eliminate gender bias and stereotypes in digital aspects (Sun et al., 2024). Furthermore, they also learn independently through social media and various other learning platforms. Some decide to collaborate with men for digital management. This collaboration with men involves task sharing and business partnerships.

Technological competence is also assessed through gender perspectives. The results of this study indicate that gender stereotypes persist when it comes to digital. This is more prevalent in digital-based businesses. The support and role of family, colleagues, and the community are crucial for women entrepreneurs in running their businesses and adopting technology. A social environment that understands them and provides a support system is crucial for them to survive in this business. Support from male colleagues alleviates doubts about their competence among women entrepreneurs.

Therefore, this support can minimize gender stereotypes among women entrepreneurs, especially regarding their technology adoption. In line with study of Ninsiima et al. (2026) that women are hampered in adopting technology because male partners control access to finances and devices. Therefore, partner and family support can encourage women's technology adoption (Nursanti et al., 2024). Digital technology can encourage empowerment for women entrepreneurs with support from ecosystems, infrastructure, and institutions (Fareh & Idrissi, 2025).

Conclusion

Technology adoption by women entrepreneurs can be examined from three perspectives: driving motivation, digital capability, and social-gendered challenges. Women entrepreneurs adopt digital technology because of the business opportunities, market expansion, and efficiency gains. Furthermore, they adopt digital technology because it offers flexibility in location and time. This is a key consideration in running their businesses.

For both digital and conventional businesses, women entrepreneurs are adopting technology to manage their businesses. Technology adoption is carried out for product development, digital marketing, and financial management. To support technology adoption, women entrepreneurs undertake both formal and informal learning. Gender stereotypes in technology adoption stem from the perception that women's digital skills are inferior to men's. This view is more directed at digital-based businesses. However, a support system from colleagues and family is crucial in encouraging women entrepreneurs to run their businesses.

Overall, the findings suggest that technology adoption among women entrepreneurs is not gender-neutral. It is shaped by the interaction of aspirations, abilities, and social context, where each element can either enhance or constrain the others. Therefore, this study contributes to the literature by demonstrating that combining a technology adoption perspective with a gender-sensitive lens provides a more comprehensive understanding of entrepreneurial behavior.

Recommendations

Future studies could expand on the role of women entrepreneurs focused on start-ups. The existence of women entrepreneurs who directly manage start-ups is quite interesting to study, as they must fully master digital skills. Meanwhile, gender stereotypes regarding women's digital capabilities remain widespread.

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