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Technology Adoption Among Women in Cambodia's SMEs: Influencing Factors, Benefits, and Coping Strategies

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ABSTRACT

Technology adoption is crucial for enhancing efficiency and competitiveness, especially for women in Cambodia's small and medium-sized enterprises (SMEs). Despite SMEs being recognized as key drivers of economic growth, women entrepreneurs face significant challenges, including limited digital awareness, weak technology support, and restricted access to resources. This study explores the factors influencing technology adoption, benefits, and coping strategies. Data were collected from 121 women entrepreneurs in Cambodia's SMEs using a self-administered survey. Descriptive and inferential statistical analyses, including correlation analysis, were employed to assess the relationships between adoption factors, benefits, and coping strategies. The study identified six key factors influencing technology adoption: operational optimization, client and business relationships, market expansion, information accessibility, cost considerations, and adoption. It also found four key benefits of technology adoption: improved information management, enhanced communication, increased operational efficiency, and a strengthened business reputation. Common strategies to overcome adoption barriers included human-centred approaches, such as workforce training and leadership engagement, and operational strategies, like reducing internet costs and improving connectivity. Results showed a strong positive relationship between adoption factors and perceived benefits ($r = 0.7779$, $p < 0.0001$) and a moderate correlation with coping strategies ($r = 0.5642$, $p < 0.0001$), confirming that as adoption factors improve, the benefits and coping strategies also strengthen. This study fills a critical research gap by focusing on the underexplored experiences, providing actionable insights for policymakers and business leaders. It emphasizes the need for policy support, infrastructure improvements, and training programs to foster a technology-driven business environment.

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1. INTRODUCTION

This article explores technology adoption among women in Cambodia's small and medium-sized enterprises (SMEs), a critical economic growth and social integration sector. SMEs represent 99% of businesses in Cambodia, contribute 58% to the nation's Growth Domestic Product (GDP), and provide 70% of employment. Notably, approximately 60% of these businesses, including shops, traders, and vendors, are operated by women (General Department of SME & Handicraft, Ministry of Industry, Technology Science and Innovation (MISTI) [1]. Despite their significance, many SMEs function informally, with only 3.4% of enterprises registered with the Ministry of Commerce and the majority being micro-enterprises [2]. SMEs contribute 14% to the country's annual sales, highlighting their vital economic role [3].

Historically, women in Cambodia played a significant role in the SME sector, particularly in the aftermath of the Khmer Rouge era, when economic pressures pushed many women into entrepreneurship [4]. Initially, many women operated informal, home-based businesses requiring minimal capital, relying on traditional skills like weaving and food production [5]. Over time, with the expansion of microfinance institutions and NGOs, women gained greater access to resources and capital, enabling them to take on leadership roles within SMEs [5]. In addition, technological advancements such as mobile banking, e-commerce platforms, and digital marketing tools have opened new avenues for women, allowing them to expand their markets and improve their business operations [6].

Despite these opportunities, women entrepreneurs in Cambodia's SMEs face significant challenges in adopting technology. These include limited digital literacy, lack of technological infrastructure, and gender-specific barriers such as cultural norms and stereotypes [7]. While existing research has explored technology adoption in larger enterprises or focused on generalized adoption models, limited attention has been given to women entrepreneurs in developing countries, particularly Cambodia [8]. This gap in the literature makes it difficult to develop targeted policies or initiatives that address the unique challenges women entrepreneurs face in Cambodia's SME sector.

This study addresses this gap by identifying the factors influencing technology adoption among women in Cambodia's SMEs. It seeks to understand the benefits of technology adoption to women entrepreneurs and the strategies they employ to overcome barriers to adoption. The research will also explore the relationship between these factors and the perceived benefits and coping strategies.

The findings of this study on technology adoption among women entrepreneurs in Cambodia's SMEs can be understood through the lens of several well-established theoretical models. These frameworks provide valuable insights into the factors influencing technology adoption and help contextualize the challenges and coping strategies identified in the research.

Technology Acceptance Model (TAM)

The Technology Acceptance Model (TAM) developed by Davis [9] highlights the role of Perceived Usefulness (PU) and Perceived Ease of Use (PEOU) as the primary

drivers of technology adoption. In the context of women entrepreneurs in Cambodia, the findings of this study align with TAM, as the key drivers of adoption—such as business efficiency, client demands, and market expansion—reflect the perceived usefulness of technology. The participants in the study also emphasized the importance of ease of use, particularly concerning digital literacy and infrastructure challenges, which directly correlate with the PEOU construct in TAM. Thus, the model helps explain how women entrepreneurs are more likely to adopt technology when they perceive it to help enhance business operations and easy to use within their technological and organizational constraints [9], [10].

Technology-Organization-Environment (TOE) Framework

The TOE framework [11] provides a comprehensive understanding of technology adoption by considering three contexts: technological, organizational, and environmental. The study's findings regarding barriers such as inadequate internet infrastructure, financial constraints, and limited access to training align with the technological and organizational contexts in the TOE framework [12]. Women entrepreneurs' responses to these barriers, such as engaging in digital upskilling and resource-sharing, can be interpreted through the organizational context, where internal resources and readiness influence adoption. Moreover, environmental factors such as government policies and regulatory engagement were identified as key coping strategies. These external influences underscore the relevance of the TOE framework in understanding the multifaceted factors that shape technology adoption in Cambodia's SME sector [13].

Diffusion of Innovations (DOI) Theory

Diffusion of Innovations (DOI) theory posits that the adoption rate is influenced by relative advantage, compatibility, complexity, trialability, and observability [14]. The study's findings highlight that perceived business benefits, such as operational efficiency and market access, correlate with the relative advantage of technology, while alignment with local practices and cultural context touches on the compatibility factor. The challenges identified—such as digital literacy and infrastructure limitations—relate to the complexity aspect of technology adoption [15]. The study also highlights that women entrepreneurs' ability to trial and observe technology (e.g., through peer networks or leadership involvement) plays a key role in overcoming barriers, which resonates with DOI's trialability and observability components.

Unified Theory of Acceptance and Use of Technology (UTAUT)

Venkatesh [10] introduced the Unified Theory of Acceptance and Use of Technology (UTAUT), which incorporates performance expectancy, effort expectancy, social influence, and facilitating conditions. In the context of Cambodian SMEs, the findings support the notion that performance expectancy, which relates to the perceived impact of technology on business outcomes, drives adoption [9]. Women entrepreneurs in the study cited market expansion, sales growth, and customer satisfaction as critical

benefits of technology, consistent with the performance expectancy component. Effort expectancy, reflecting ease of use and digital literacy, also emerged as a barrier, particularly for women with limited technological expertise [15]. Additionally, social influence was significant, with many women entrepreneurs seeking advice from peers and family members, reinforcing the importance of community and social support in the adoption process. Finally, the study emphasized the need for facilitating conditions, such as improved infrastructure and financial resources, which are central to enabling technology adoption [10].

By integrating TAM, TOE, DOI, and UTAUT, this study provides a comprehensive view of the technology adoption process among women entrepreneurs in Cambodia's SMEs. These frameworks allow a deeper understanding of the interaction between individual, organizational, and environmental factors influencing technology adoption decisions. The findings suggest that while individual factors like perceived usefulness and ease of use are crucial, external factors such as access to capital, social influence, and infrastructural support are equally significant in shaping the adoption process [9], [10], [15]. Moreover, coping strategies like digital upskilling and resource-sharing demonstrate how women entrepreneurs adapt to barriers by leveraging available resources and support systems.

This framework will inform the analysis of how these factors influence technology adoption among women entrepreneurs in Cambodia. By employing a self-administered survey with 121 women entrepreneurs, the study will use descriptive and inferential statistical techniques to assess relationships between technology adoption factors, perceived benefits, and coping strategies.

The study provides valuable insights for policymakers, development organizations, and business leaders by addressing the technological barriers and opportunities specific to women in SMEs. It underscores the importance of creating supportive infrastructure, offering digital literacy programs, and implementing regulatory reforms to facilitate technology adoption and empowerment for women in Cambodia's SME sector. The findings are expected to inform future policies and initiatives to promote digital transformation and foster greater innovation within Cambodia's SME economy.

1.1. Statement of the problem

Technology adoption is crucial for the growth and competitiveness of small and medium-sized enterprises (SMEs), particularly for women entrepreneurs in Cambodia. However, there is a lack of empirical research on the factors influencing technology adoption among Cambodian women in SMEs. This gap limits understanding of the benefits they derive from digital tools and their strategies to overcome adoption barriers. A better understanding of the barriers and decision-making factors for women entrepreneurs is essential for designing effective policies and programs. Previous studies suggest that perceived advantages and business opportunities are key drivers for technology adoption among women entrepreneurs in Cambodia [6], [16]. Thus, this study aims to address these gaps by exploring the key determinants of technology adoption and the coping strategies

women entrepreneurs use to promote inclusive digital transformation and economic empowerment in Cambodia's SME sector.

1.2. Research objectives

This study aims to analyze the complexities of technology adoption among women entrepreneurs in Cambodia's SMEs by investigating theoretical and practical dimensions. Specifically, the study seeks to Identify key factors influencing technology adoption among women entrepreneurs in Cambodia's SMEs. Examine the benefits of technology adoption in enhancing business performance and market reach. Analyze the challenges that hinder women entrepreneurs from adopting digital tools and platforms. Explore coping strategies used by women-led SMEs to overcome technology adoption barriers. Assess the relationship between influencing factors, benefits, and coping strategies in shaping technology adoption outcomes. By addressing these objectives, the study will provide actionable insights for policymakers, business leaders, and development organizations to enhance digital transformation efforts, improve access to digital resources, and strengthen support mechanisms for women entrepreneurs in Cambodia's SME sector.

1.3. Operational Definitions

The following terms are operationally defined according to how they are used in the study.

Small and Medium-Sized Enterprises (SMEs): SMEs in the context of Cambodia are classified as small enterprises (10–50 employees or $50,000–$250,000 in capital) and medium enterprises (51–100 employees or $250,000–$500,000 in capital) [1], [17].

Technology and *Its Types*: Technology in SMEs includes Information Technology (IT) (e.g., software, hardware) and Communication Technology (CT) (e.g., email, social media) to enhance business operations [18]. These include *Basic Technology* essential tools widely used in SMEs, such as standard computing resources and basic lab equipment. *Job-related technology* refers to tools directly supporting employees' tasks, including data analysis software and industry-specific equipment [18], and *Advanced Technology* refers to cutting-edge innovations like AI and automation that enhance business capabilities [18], [19].

Technology Adoption refers to SMEs' process of evaluating, integrating, and utilizing new technologies to enhance business performance. This includes acquiring new tools, training employees, and restructuring workflows [20].

Factors Influencing Technology Adoption refers to the decision to adopt technology in Cambodian SMEs is shaped by several factors, including *Operational Efficiency*, specifically in streamlining processes and enhancing management, *Market Growth*, which is about using technology to access new markets, *Information Management* for improving data accessibility and organization, *Cost Considerations* which is about balancing investment costs and long-term benefits, and *Challenges* covering infrastructure limitations, skill gaps, and cultural barriers [19].

Benefits of Technology Adoption: Technology adoption offers several advantages for women in SMEs, including *Communication Benefits*, which include improved internal

and external communication [9]. *Operational Benefits* relate to increased efficiency, automation, and workflow optimization [21]. *Reputation Benefits* are about enhanced credibility and market standing [22]. *Short-term benefits* concern immediate efficiency gains, cost savings, and productivity boosts, and *Long-Term Benefits* refer to sustained innovation, competitive advantage, and scalability [23].

Strategies to Cope with Barriers to Technology Adoption: Women in SMEs employ various strategies to overcome adoption barriers, specifically *Human-Centered Strategies* referring to training programs to improve digital literacy, fostering an innovation culture, and increasing employee involvement, *Operational Strategies* referring to optimizing workflows, seeking cost-effective technology solutions, and securing external funding [24].

1.4. Literature Review

Empirical studies further inform this research by identifying key factors influencing technology adoption in SMEs. For example, studies by Smes and Nay [25] in Cambodia revealed that perceived usefulness, ease of use, cost, and self-efficacy were crucial in adopting Internet banking and electronic services. Similarly, studies by Penh [16] found that industry-specific factors, entrepreneurial goals, and access to finance were significant determinants of technology adoption in Cambodia's tourism sector. These findings align with other studies by AlGhamdi et al. [26], which identified social influence, digital literacy, and trust in technology as pivotal factors in Saudi Arabia.

The benefits of technology adoption have also been well-documented. Another study found that Bahraini women entrepreneurs using e-commerce achieved improved efficiency, while other studies by Ansari et al. [27] and Kurnia et al. [28] observed similar outcomes in Indonesia, where technology adoption led to increased market access and customer satisfaction. Additionally, studies by Zamani [29] demonstrated that women who adopted ICT experienced higher innovation and creativity in their products and services [30].

However, despite these benefits, barriers to technology adoption persist. Gender inequality, digital illiteracy, and financial constraints remain significant obstacles. Other studies, such as Orser [13] or Scholarworks and Smith [31], note that women entrepreneurs often face a digital divide, limiting their access to technology and essential training resources. Financial barriers are also a major challenge, as women-led SMEs frequently struggle to secure financing for technology adoption [32]. Cultural factors further complicate adoption, with women often underrepresented in tech fields and societal stereotypes exacerbating these challenges [33].

Previous research suggests various strategies to overcome these challenges, including financial incentives such as subsidies or microfinance [34]. Additionally, mentorship programs and access to peer networks can help women navigate barriers related to knowledge and cultural stereotypes [26], [32]. Shifting cultural norms through role models and peer support is crucial, challenging gender biases and fostering more inclusive technology adoption environments [28].

Finally, the Technology Acceptance Model (TAM) provides a valuable framework for understanding the factors influencing technology adoption. Research by Venkatesh et al. [10] highlights the role of both internal factors (e.g., digital literacy) and external factors (e.g., social influence) in shaping technology adoption decisions. This aligns with studies like Ansari et al. [27] and Kurnia et al. [28], emphasizing the importance of perceived benefits and ease of use in driving technology adoption.

This review underscores the complex interplay of factors, benefits, barriers, and strategies that shape technology adoption among women entrepreneurs in Cambodian SMEs. It highlights the importance of addressing financial constraints, digital literacy, and cultural barriers while promoting financial support, training, and mentorship strategies. By integrating insights from TAM, TOE, DOI, and UTAUT, this study builds on previous research to comprehensively understand technology adoption in this context.

2. METHOD

2.1. Research Design

Quantitative research designed to examine the factors influencing technology adoption among women working in Cambodia's SMEs. A survey questionnaire was used as the primary data collection tool, enabling the systematic measurement of relationships between key variables such as benefits, barriers, and strategies related to technology adoption.

The quantitative approach was chosen for its ability to provide empirical evidence, allowing for objective analysis of patterns and trends in technology adoption. Using statistical methods, the study identifies key determinants influencing technology adoption and assesses their impact on business operations. The findings aim to inform policymaking and strategic interventions to support women in SMEs in effectively integrating technology into their businesses.

2.2. Type and Source of Data

Quantitative data was primarily gathered to examine influencing factors, benefits, and coping strategies related to technology adoption among women working in Cambodia's SMEs. The data source was women employed in SMEs across various sectors in Cambodia.

The data were collected through a structured survey questionnaire as the main data collection tool. According to Creswell [35], a survey is "a structured questionnaire, typically with a range of statements or questions stemming from assurance about the topic of research, and which is presented to a sample of people, generally a larger sample from a survey to determine their attitudes, behaviours, perceptions, opinions, or other responses and to describe the population that the sample represents."

This method was chosen for its ability to systematically capture respondents' attitudes, behaviours, and perceptions regarding technology adoption. The structured survey facilitated the collection of quantitative information from a broad and diverse group of women in SMEs, enabling the analysis of relationships among key variables and supporting statistically significant conclusions [35].

2.3. Sample Size and Sampling Method

The target population for this research consists of Cambodian women currently employed by, owning, or managing SMEs in Cambodia, irrespective of the line of trade or the position they hold within the SME. This group was selected in light of women's noteworthy role and contribution to Cambodia's SME sector, which employs over 70% of the labour force and makes up more than 90% of all businesses [2].

Utilizing a sampling method that is not probabilistic helps to access this population, specifically, a convenience sample based on participants' accessibility and availability. In convenience sampling, the focus is on ease of access and availability of participants, not on obtaining a comprehensive list of the target population [36]. This method was chosen due to the population's large, dispersed, and potentially hard-to-reach nature, combined with the limited resources available for the study.

The quantitative survey's sample size has been determined using the Cochran-based formula proposed by Raosoft [37], which considers the confidence level, margin of error, response distribution, and population size.

A total sample of 121 respondents was considered for a total target population of 459,738, with a 95% confidence level, a 9% margin of error, and a 50% response distribution. The Ministry of Industry, Science, Technology and Innovation estimates 753,670 SMEs in Cambodia [38]. This figure is supported by data and the Cambodia Women Entrepreneurs Association Venkatesh et al. [10] report that states 61 per cent of all businesses are owned by women; thus, 459,738, which is 61% of 753,670 [1], [38].

2.4. Data Gathering Procedure

The researcher collected data through an online survey. Google Forms was used as the platform for distributing the questionnaires. The researcher utilized her personal networks to distribute the Google Forms link to potential respondents. Once the responses were collected, they were exported to Excel for initial organization and then transferred to SPSS for statistical analysis.

In SPSS, various statistical treatments were performed, including the computation of mean and standard deviations to summarize the data. The Pearson Correlation Coefficient was used to examine the relationships between different variables. The findings from the SPSS analysis were then discussed, summarizing the results thematically to identify key patterns and insights. These main findings formed the basis for inferring implications and making recommendations.

2.5. Statistical Tool

Descriptive and inferential statistics were used to analyze the data. Descriptive statistics (means, standard deviations, frequencies, and percentages) were used to summarize respondents' demographic profiles, technology adoption behaviours, and perceived benefits and barriers. This helped identify trends and patterns in the data.

Inferential statistics, specifically Pearson's correlation analysis, examined relationships between key factors influencing technology adoption, such as perceived benefits, barriers, and coping strategies. Pearson's correlation coefficient measured the

strength and direction of these associations, providing empirical evidence for the study's hypotheses.

2.6. Reliability Analysis

2.6.1. Factors Affecting Technology Adoption for Women Working in Cambodia's SMEs

The reliability analysis of the 14 items measuring Technology Adoption for Women working in Cambodia's SMEs is presented in Table 1. The questions were based on a five-point Likert scale where 1 = strongly disagree, and 5 = strongly agree. The results demonstrate that Cronbach's alpha coefficient for this scale was 0.883, indicating a high degree of internal consistency among the items. This indicated that the scale was reliable and the items measured the same construct, so all of the 14 items were retained in the scale to capture the advantages of technology adoption for women in SMEs in Cambodia and to be used for further investigation.

Table 1. Cronbach's Alpha Test on 14 Items Covering Factors Influencing Technology Adoption Among Women Working in Cambodia's SMEs

Variable	Cronbach's Alpha Coefficient	No. of Items	Reliability
Factors Influencing Technology Adoption	0.883	14	Excellent

2.6.2. Benefits of Technology Adoption Among Women Working in Cambodia's SMEs

Table 2 below shows an internal reliability analysis of the 16 items that measured the benefits of technology adoption for women working in Cambodia's SMEs. The surveys used a five-point Likert scale, with 1 indicating "strongly disagree" and five denoting "strongly agree." The results indicated that the scale's Cronbach's alpha coefficient was 0.898, suggesting high consistency among the items. This means the items measured the same construct, and the scale was reliable. It can be concluded that the scale was suitable for further analysis and that the 16 items well captured the benefits of technology adoption for women in SMEs in Cambodia.

Table 2. Cronbach's Alpha Test on 16 Items on Benefits of Technology Adoption Among Women Working in Cambodia's SMEs

Variable	Cronbach's Alpha Coefficient	No. of Items	Reliability
Benefits of Technology Adoption	0.898	16	Excellent

2.6.3. Strategies to Cope with Barriers to Technology Adoption for Women Working in Cambodia's SMEs

Table 3 below shows an internal reliability analysis of the seven items that measured the strategies to cope with the barriers to technology adoption for women working in Cambodia's SMEs. The items were based on a five-point Likert scale, ranging from 1 (strongly disagree) to 5 (strongly agree). The results showed that the Cronbach's alpha coefficient for the scale was 0.839, which indicates a very high level of internal consistency among the items. This means the items measured the same construct, and the scale was reliable. It can be concluded that the scale was suitable for further analysis and

that the seven items well captured the benefits of technology adoption for women in SMEs in Cambodia.

Table 3. Cronbach's Alpha Test on 7 Items on Strategies to Cope with Barriers to Technology Adoption for Women Working in Cambodia's SMEs

Variable	Cronbach's Alpha Coefficient	No. of Items	Reliability
Strategies to Cope with Barriers to Technology Adoption	0.839	7	Excellent

3. RESULTS AND DISCUSSION

3.1. Factors Influencing Technology Adoption

The findings from the survey reveal that various factors influence technology adoption among women working in Cambodia's SMEs. As shown in Table 4, all factors received mean scores above 3.50, indicating that respondents generally agree on their influence in driving technology adoption. The weighted average of 3.74 (SD = 0.82) further reinforces the overall positive perception of these influencing factors.

Table 4. Factors Influencing Technology Adoption Among Women Working in Cambodia's SMEs

Factors	Mean	Description	SD
1. Client Requirement	3.84	Agree	0.86
2. Cost Cutting	3.91	Agree	0.86
3. Enhancing Client Services	4.07	Agree	0.75
4. Sales Growth / Increase	4.06	Agree	0.83
5. Boosting Internal Efficiency	4.04	Agree	0.80
6. Making Smoother Business Control	4.12	Agree	0.85
7. Strengthening Connections with commercial partners	4.07	Agree	0.78
8. Promoting connection with business partners	4.07	Agree	0.81
9. Organizing Extensive Information	4.03	Agree	0.75
10. Establishing New Markets	4.06	Agree	0.84
11. Easing Customer Switch	3.69	Agree	0.89
12. Availability of different products with similar functions	3.73	Agree	0.91
13. Customer Access to reliable, relevant, and accurate information	3.80	Agree	0.82
14. Access to Information on time	3.93	Agree	0.81
General Weighted Average	3.74	Agree	0.82

Among the highest-rated factors, "Making Smoother Business Control" (M = 4.12, SD = 0.85) was the most significant driver. This suggests that women in SMEs adopt technology primarily to enhance operational oversight and management efficiency. This aligns with prior research indicating that technological tools enable businesses to streamline processes and optimize workflow management [39].

Other strongly agreed-upon factors include "Enhancing Client Services" (M = 4.07, SD = 0.75), "Strengthening Connections with Commercial Partners" (M = 4.07, SD = 0.78), and "Promoting Connection with Business Partners" (M = 4.07, SD = 0.81). These results emphasize that technology adoption is driven by internal efficiency and the need to maintain and strengthen external business relationships. This finding supports the

argument that digital platforms and communication tools facilitate stronger collaboration and networking among SMEs [40].

Financial considerations also play a crucial role, as evidenced by "Cost Cutting" (M = 3.91, SD = 0.86) and "Sales Growth / Increase" (M = 4.06, SD = 0.83) ranking among the influential factors. These findings are consistent with previous studies highlighting that SMEs adopt technology to reduce operational costs and improve profitability [41].

Additionally, "Access to Information on Time" (M = 3.93, SD = 0.81) and "Customer Access to Reliable, Relevant, and Accurate Information" (M = 3.80, SD = 0.82) suggest that the need for timely and accurate business intelligence influences technology adoption. This aligns with the information systems literature, emphasizing how digital tools provide SMEs with real-time market insights and customer data, enabling better decision-making [42].

Despite the generally high ratings, the lowest-rated factors include "Easing Customer Switch" (M = 3.69, SD = 0.89) and "Availability of Different Products with Similar Functions" (M = 3.73, SD = 0.91). While still agreed upon, these factors may indicate that women in SMEs do not view technology adoption as a primary tool for customer retention or product differentiation.

These findings suggest that operational efficiency, customer engagement, financial benefits, and access to business information largely drive technology adoption among women in Cambodia's SMEs. Policymakers and SME support programs should focus on providing training and resources that enhance digital business management and client interaction tools. Additionally, efforts should be made to improve technology affordability and accessibility to encourage further adoption among women-led SMEs.

3.2. Perceived Benefits of Technology Adoption

The survey findings indicate that women working in Cambodia's SMEs perceive multiple benefits from technology adoption, as reflected in Table 5. With a general weighted average of 3.95 (SD = 0.87), respondents generally agree that technology provides significant advantages in business operations. These benefits align with existing literature highlighting how digital transformation enhances SMEs' productivity, efficiency, and market competitiveness [40].

Among the highest-rated benefits, "Enhanced Knowledge and Information Management" (M = 4.12, SD = 0.85) emerged as the most significant, suggesting that technology adoption facilitates improved access to, organization, and utilization of business information. This finding supports previous research emphasizing the role of digital tools in strengthening decision-making processes and fostering innovation within SMEs [43].

Additionally, "Improved Company's Online Reputation" (M = 4.10, SD = 0.81) and "Third Party Payments Made Easier" (M = 4.07, SD = 0.82) were highly rated, reinforcing the importance of technology in enhancing business credibility and financial transactions. Digital platforms allow SMEs to establish customer trust and streamline financial operations, ultimately contributing to business growth [44].

Table 5. Benefits of Technology Adoption Among Women Working in Cambodia's SMEs

Benefits	Mean	Description	SD
1. Enhanced Information for Market	4.00	Agree	0.88
2. Enhanced Rapid Information Flow	4.05	Agree	0.82
3. Product Gain in Operation	4.04	Agree	0.83
4. Lower Operation Cost	3.64	Agree	0.99
5. Enhanced Knowledge and Information Management	4.12	Agree	0.85
6. Enhanced / Learning About Fresh Communication Ideas	4.02	Agree	0.87
7. Strengthened Connections with other Business Associations	4.04	Agree	0.79
8. Fulfillment of Government Requirements (Firm Registration, Tax Filing, etc.)	3.98	Agree	0.83
9. Third-Party Payments Made-Easier	4.07	Agree	0.82
10. Improved Company's Online Reputation	4.10	Agree	0.81
11. Lower Communication Cost	3.77	Agree	1.01
12. Increased Level of Consumer Satisfaction	3.99	Agree	0.83
13. Tracking of Competitor's Performance	3.89	Agree	0.85
14. Reduced Travel Time for Sales Staff	3.89	Agree	0.95
15. Enhanced Return On Investment	3.79	Agree	0.93
16. Salespeople Spend Less Time Travelling	3.92	Agree	0.98
General Weighted Average	3.95	Agree	0.87

The findings also highlight efficiency-related benefits, such as "Enhanced Rapid Information Flow" (M = 4.05, SD = 0.82) and "Strengthened Connections with Other Business Associations" (M = 4.04, SD = 0.79). These results suggest that digital adoption facilitates faster communication and stronger business networks, enabling women entrepreneurs to engage in broader commercial activities and strategic partnerships [40].

From a financial perspective, "Lower Operation Cost" (M = 3.64, SD = 0.99) and "Lower Communication Cost" (M = 3.77, SD = 1.01) were rated relatively lower compared to other benefits. While respondents still agreed on their advantages, the higher standard deviations indicate varying experiences in cost savings. This may suggest that while technology can reduce operational expenses, the initial investment or ongoing maintenance costs might pose challenges for some SMEs [9].

Moreover, "Salespeople Spend Less Time Traveling" (M = 3.92, SD = 0.98) and "Reduced Travel Time for Sales Staff" (M = 3.89, SD = 0.95) highlight the role of technology in improving logistical efficiency. The ability to conduct virtual transactions and online sales reduces the necessity for physical travel, which can save both time and resources [39].

The results underscore the importance of technology adoption in improving information management, business networking, financial transactions, and operational efficiency for women working in Cambodia's SMEs. Given these benefits, policymakers and business support organizations should focus on expanding digital literacy programs, enhancing access to affordable digital tools, and providing financial incentives for technology adoption. SMEs should also be encouraged to leverage digital platforms to strengthen their online presence and improve customer engagement, ultimately leading to greater business sustainability.

3.3. Strategies to Cope with the Barriers of Technology Adoption

The survey results in Table 6 highlight the strategies employed by women working in Cambodia's SMEs to overcome barriers related to technology adoption. With a general weighted average of 3.94 (SD = 0.83), respondents generally agree that various coping mechanisms are essential in addressing barriers to digital adoption. These findings align with prior research emphasizing the role of organizational strategies, policy support, and capacity-building initiatives in fostering SME digital transformation [40].

Table 6. Strategies to Cope with the Barriers of Technology Adoption Among Women Working in Cambodia's SMEs

	Strategies	Mean	Description	SD
1.	Reducing the Internet Connect Costs	3.59	Agree	1.03
2.	Boosting the Speed of Internet Connectivity	3.98	Agree	0.82
3.	Utilizing Alternative Synergy Sources	3.81	Agree	0.86
4.	Creating a Regulatory Framework for Enabling Technology	3.93	Agree	0.80
5.	Sharing Technological Resources	4.03	Agree	0.79
6.	Human Capital Advancement such as Owner, Manager, and Employee Training	4.12	Agree	0.76
7.	Strong Leadership and engagement of Top Management in the Informational System processes of the Company	4.13	Agree	0.76
General Weighted Average		3.94	Agree	0.83

Among the highest-rated strategies, "Strong Leadership & Engagement of Top Management in the Information System Processes of the Company" (M = 4.13, SD = 0.76) and "Human Capital Advancement through Owner, Manager, and Employee Training" (M = 4.12, SD = 0.76) were the most significant. This underscores the importance of leadership commitment and continuous learning in driving successful technology adoption. Prior studies have shown that SMEs with proactive leadership and structured digital training programs are better equipped to navigate technological changes [44].

Additionally, "Sharing Technological Resources" (M = 4.03, SD = 0.79) and "Creating a Regulatory Framework for Enabling Technology" (M = 3.93, SD = 0.80) were identified as key coping strategies. This suggests that collaborative approaches and supportive regulatory policies are crucial in mitigating adoption challenges. Shared resources, such as pooled IT infrastructure or industry-wide digital initiatives, can lower costs and enhance SMEs' access to technology. Meanwhile, well-defined regulations can provide SMEs with a structured pathway for compliance, ensuring smoother integration of digital tools. From an infrastructure standpoint, "Boosting the Speed of Internet Connectivity" (M = 3.98, SD = 0.82) was a notable strategy, reflecting the critical role of reliable Internet access in enabling digital transformation. High-speed connectivity enhances SMEs' ability to adopt cloud-based solutions, e-commerce, and digital payment systems, improving operational efficiency [45].

However, despite being an agreed-upon strategy, "Reducing Internet Connection Costs" (M = 3.59, SD = 1.03) received the lowest rating. The higher standard deviation suggests varied perceptions and experiences regarding the affordability of Internet services

among SMEs. While cost reduction is desirable, businesses may find alternative solutions, such as leveraging government subsidies or investing in cost-effective digital tools, to be more practical [46].

The findings suggest that effective leadership, workforce training, resource-sharing, and supportive regulations are key strategies for overcoming technology adoption barriers among women in Cambodia's SMEs. Policymakers should focus on strengthening digital infrastructure, ensuring affordable internet access, and promoting training programs tailored for SMEs. Additionally, business associations and technology providers should facilitate resource-sharing initiatives to enhance access to digital tools at lower costs. By adopting these strategies, SMEs can navigate technological challenges more effectively, ensuring sustainable digital transformation.

3.4. Factors Influencing, Benefits, and Strategies of Technology Adoption Among Women Working in Cambodia's SMEs

3.4.1. Relationship Between Factors Influencing Technology Adoption and the Benefits of Technology Adoption

Null Hypothesis 1: There is no significant positive relationship between factors affecting technology adoption and the benefits of technology adoption for women working in Cambodia's SMEs.

Null Hypothesis 1 (H_{01}) posited that there is no significant positive relationship between factors affecting technology adoption and the benefits of technology adoption for women working in Cambodia's SMEs. However, as shown in Table 7, Pearson's correlation analysis revealed a strong positive relationship ($r = 0.7779$, $p < .0001$) between the two variables. The null hypothesis is rejected since the p-value is less than .05, indicating a statistically significant association.

Table 7. Relationship Between Factors Influencing Technology Adoption For Women Working In SMEs In Cambodia and Benefits of Technology Adoption.

Variables	*R*	P-Value	Level of Correlation
Factors in Technology Adoption – Benefits of Technology Adoption	0.7779	< .0001	Strong positive
N	121		

* The result is significant at $p < .05$.

This result suggests that as the factors influencing technology adoption—such as client requirements, cost reduction, efficiency improvements, and market expansion—become more favourable, the perceived benefits of adopting technology also increase. This finding is consistent with previous research, highlighting that businesses that proactively integrate digital technologies experience enhanced efficiency, cost savings, and improved market access [40], [44].

The strong correlation also reinforces the Technology-Organization-Environment (TOE) framework, which posits that technological adoption is shaped by multiple

interdependent factors, including perceived benefits [41]. Studies have shown that when SMEs recognize clear advantages—such as improved customer service, streamlined operations, and competitive positioning—they are more likely to embrace digital transformation [47].

Given this significant relationship, policymakers and business leaders should focus on creating an enabling environment that enhances key adoption factors, such as reducing costs, improving internet infrastructure, and providing access to training. SMEs should also be encouraged to view technology as a necessity and a strategic asset directly contributing to business success. Future research could further explore moderating factors, such as firm size, industry type, or digital literacy, to refine strategies for promoting digital adoption among women entrepreneurs in Cambodia.

3.4.2. Relationship Between Factors Influencing Technology Adoption and Strategies to Cope with Barriers

Null Hypothesis 2: There is no significant relationship between factors affecting technology adoption and strategies for women working in Cambodia's SMEs to cope with barriers to technology adoption.

Null Hypothesis 2 (H_{02}) posited that there is no significant relationship between factors affecting technology adoption and strategies to cope with barriers for women working in Cambodia's SMEs. However, as shown in Table 8, Pearson's correlation analysis revealed a moderate positive relationship ($r = 0.5642$, $p < .0001$) between the two variables. Since the p-value is less than .05, the null hypothesis is rejected, indicating a statistically significant relationship.

Table 8. Relationship Between Factors Affecting Technology Adoption for Women Working in SMEs and Strategies to Cope with Barriers to Technology Adoption

Variables	*r*	P-Value	Level of Correlation
Factors in TA – Strategies to Resolve Barriers in TA	0.5642	< .0001	moderate positive
N	121		

* The result is significant at $p < .05$.

This finding suggests that as key factors influencing technology adoption—such as client requirements, cost reduction, and efficiency improvements—become more favourable, the likelihood of implementing effective coping strategies increases. This aligns with existing research emphasizing that SMEs that actively adopt technology also tend to implement proactive strategies, such as enhancing internet speed, investing in human capital, and sharing technological resources, to address adoption barriers [47].

The Technology-Organization-Environment (TOE) framework [41] supports this relationship by suggesting that organizational readiness and external influences shape a firm's ability to implement technology-related strategies [11]. SMEs that recognize the importance of technology adoption often take structured measures, such as top management engagement and regulatory support, to overcome challenges related to costs, infrastructure, and digital skills.

Given the moderate positive correlation, policymakers, SME owners, and stakeholders should focus on strengthening support mechanisms for women entrepreneurs in Cambodia. Strategies such as government subsidies for technology adoption, training programs for digital skills, and improved internet infrastructure could further enhance the effectiveness of coping strategies. Future research could explore additional variables, such as firm size, industry sector, or digital literacy levels, to refine the understanding of how SMEs navigate technology adoption challenges.

4. CONCLUSION

This study provides valuable insights into the factors influencing technology adoption among women entrepreneurs in Cambodia's SMEs. The findings emphasize the importance of business efficiency, client demands, sales growth, and market expansion in driving adoption. Women entrepreneurs benefit from improved operational efficiency, market access, cost reduction, and customer satisfaction. However, challenges such as limited digital literacy, inadequate infrastructure, and financial constraints remain significant barriers. Coping strategies like digital upskilling, resource-sharing, regulatory engagement, and leadership involvement are essential in overcoming these challenges.

The research implications suggest that targeted policies to improve digital literacy and infrastructure could foster greater adoption of technology among women entrepreneurs in Cambodia. Additionally, addressing financial constraints through microfinance and other support mechanisms is critical to enhancing technology integration in SMEs.

This study is limited by its focus on Cambodian SMEs, and future research could explore the broader application of these findings in other regions or industries. Further studies could also investigate the impact of specific technologies on business performance in diverse contexts. Overall, this research contributes to the growing knowledge of technology adoption and provides practical recommendations for policymakers and entrepreneurs to enhance technology integration in the SME sector.

4.1 Research Implications

Findings emphasize the need for targeted policy and institutional support to accelerate digital transformation in Cambodia's women-led SMEs. To address technological disparities and maximize benefits, government agencies, private sector partners, and business associations should take the following steps:

4.1.1 Policy Support

a. Implement subsidies and tax incentives for SMEs investing in digital tools.
b. Expand and enforce digital inclusion policies, ensuring affordable and reliable internet access, especially in rural areas.
c. Strengthen data protection laws and cybersecurity regulations to safeguard SME digital operations.

4.1.2 Capacity-Building Initiatives

a. Launch nationwide digital literacy programs, incorporating financial technology (FinTech) and e-commerce training for women entrepreneurs.
b. Integrate technology management and digital marketing courses into vocational and higher education programs.
c. Facilitate mentorship programs and peer learning networks to promote best practices in SME digital adoption.

4.1.3 Business Collaboration and Financial Support

a. Promote public-private partnerships (PPPs) to co-develop SME-friendly digital solutions.
b. Strengthen microfinance and SME loan schemes with preferential interest rates for tech investments.
c. Encourage SME participation in technology-sharing consortiums to reduce individual costs of digital adoption.

4.2 Research Boundaries and Limitations

While this study provides critical insights into technology adoption among Cambodian women entrepreneurs, several limitations must be acknowledged:

a. **Sample and Scope**: The study focuses solely on women-led SMEs in Cambodia, limiting the applicability of findings to male entrepreneurs, larger enterprises, or SMEs in different economic contexts.
b. **Time Frame**: The research primarily captures short-term adoption trends and does not assess impacts on long-term business performance.
c. **Causal Relationships**: While statistical analysis reveals significant correlations, the study does not establish causation between adoption factors, benefits, and coping strategies.
d. **Technological Scope**: The study focuses on general digital adoption without distinguishing between traditional digital tools (e.g., e-commerce platforms) and emerging technologies (e.g., AI and Blockchain).

4.3 Directions for Future Research

To build upon these findings, future studies should:

a. Conduct longitudinal research to examine the long-term impact of technology adoption on SME growth, profitability, and sustainability.
b. Explore sector-specific adoption challenges, comparing agriculture, manufacturing, and services industries.
c. Investigate gender-based differences in digital adoption strategies by comparing male- and female-led SMEs.
d. Analyze the effectiveness of policy interventions in supporting SME digitalization, evaluating subsidy utilization, digital literacy outcomes, and business performance improvements.

e. Examine the adoption of advanced technologies (e.g., artificial intelligence, Blockchain, and cloud computing) and their potential in SME competitiveness.

4.4 Contribution to the General Public

This study contributes to the broader discourse on inclusive economic development, digital transformation, and gender equity in entrepreneurship. Highlighting women-led SMEs' challenges and opportunities provides actionable insights for policymakers, business leaders, educators, and development organizations aiming to enhance digital adoption and economic resilience.

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ETHICAL APPROVAL

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