Female Entrepreneur Empowerment

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Assessing the Influence of Information Technology on Female Entrepreneur Empowerment in Indonesia: The Role of Social and Psychological Capitals

Abstract: This research investigates the influence of Information and Communication Technology (ICT), social capital, and psychological capital on women entrepreneurship empowerment in Indonesia, addressing a significant research gap in the existing literature. Drawing on survey data from 176 female MSME entrepreneurs, the study employs structural equation modeling to analyze the relationships between the variables. Results indicate significant positive effects of ICT on both social and psychological capital. Moreover, social capital positively correlates with women's entrepreneurship empowerment, while psychological capital also plays a crucial role in enhancing empowerment. The findings underscore the importance of ICT adoption and the cultivation of social and psychological resources for empowering women entrepreneurs in emerging economies like Indonesia. Policy implications suggest fostering ICT infrastructure, promoting social networking platforms, and providing psychological support programs to facilitate women's economic empowerment in Indonesia. This study contributes to a better understanding of the mechanisms driving women's entrepreneurship empowerment. It provides actionable insights for policymakers and practitioners striving to support women's economic participation and empowerment in Indonesia.

Keywords: empowerment, information and communication technology, psychological capital, social capital, women entrepreneurs.

Abstrak: *Penelitian ini menyelidiki pengaruh Teknologi Informasi dan Komunikasi (TIK), modal sosial, dan modal psikologis terhadap pemberdayaan kewirausahaan perempuan di Indonesia, mengatasi kesenjangan penelitian yang signifikan dalam literatur yang ada. Dengan menggunakan data survei dari 176 pengusaha UMKM perempuan, penelitian ini menggunakan pemodelan persamaan struktural untuk menganalisis hubungan antar variabel. Hasil menunjukkan efek positif signifikan dari TIK terhadap modal sosial dan psikologis. Selain itu, modal sosial menunjukkan hubungan positif dengan pemberdayaan kewirausahaan perempuan, sementara modal psikologis juga memainkan peran penting dalam meningkatkan pemberdayaan. Temuan ini menegaskan pentingnya adopsi TIK dan pengembangan sumber daya sosial dan psikologis untuk memberdayakan pengusaha perempuan di negara-negara berkembang seperti Indonesia. Implikasi kebijakan menyarankan untuk mempromosikan infrastruktur TIK, memperkenalkan platform jejaring sosial, dan menyediakan program dukungan psikologis untuk memfasilitasi pemberdayaan ekonomi perempuan di Indonesia. Studi ini berkontribusi pada pemahaman yang lebih baik tentang mekanisme yang mendorong pemberdayaan kewirausahaan perempuan dan memberikan wawasan yang dapat diimplementasikan bagi pembuat kebijakan dan praktisi yang berupaya mendukung partisipasi ekonomi dan pemberdayaan perempuan di Indonesia.*

Kata kunci: *modal psikologis, modal sosial, pemberdayaan, pengusaha perempuan, teknologi informasi dan komunikasi.*

INTRODUCTION

Aligned with the United Nations Sustainable Development Goals agenda for 2030, one of the objectives among the 17 Sustainable Development Goals is gender equality and the empowerment of women and girls (United Nations, 2018). Indonesia is considered to have relatively low gender equality. Based on data from the Central Bureau of Statistics (2022), the Gender Development Index in 2022 stood at 94.01%, indicating a relatively high level of gender development or low gender gaps, mainly concerning economic opportunities and entrepreneurship, positioning Indonesia at 68 out of 153 countries (World Economic Forum, 2020). Gender equality is crucial for fostering sustainable social, political, and economic growth, especially considering that nearly 50% of Indonesia's population comprises women. Gender inequality leads to negative impacts such as poverty and unequal access to education, healthcare services, and financial resources (Dixit et al., 2023).

Women are believed to be the main pillars of Micro, Small, and Medium Enterprises (MSME) business growth. MSMEs contributed 61% of the economy in 2023 (Ministry of Finance, 2023). In a Google survey conducted in 2020, Indonesia had the highest percentage in Southeast Asia for women's participation in entrepreneurship (Ministry of Communication and Information Technology, 2022). However, women entrepreneurs face various challenges, as reflected in the Gender Empowerment Index, the GEI. Women's economic and political roles are categorized as low, with education and entrepreneurship development being crucial points in achieving equality. Economic disparities are attributed to the high gender gap in the labor market (Dania, 2019).

According to the Ministry of Women's Empowerment and Child Protection (2021), the pandemic has exacerbated Indonesia's economic vulnerabilities and child protection, potentially threatening progress towards the Sustainable Development Goals. Women are at the forefront of efforts to prevent COVID-19. Yet, during the COVID-19 pandemic, women faced various challenges, such as becoming the breadwinners of the family, loss of livelihoods, and experiencing violence. Throughout 2022, Indonesia recorded a high number of cases of violence against women, reaching 25,050 cases. Based on DataIndonesia.id, this marked an increase of 15.2% from the previous year (Ministry of Women's Empowerment and Child Protection, 2022).

Women have significant roles in families and communities. They serve as teachers for children during remote learning and as health protocol officers during the pandemic. Empowerment is the key to addressing gender equality, and it is recognized as a crucial issue worldwide (World Health Organization, 2018). Data from the Central Bureau of Statistics – Ministry of Women's Empowerment and Child Protection of the Republic of Indonesia (2022) shows that the informal sector, especially in rural areas, is dominated by women. Women aged 15 and above who work, with a percentage of 47.81%, are in the economic sector consisting of small-scale units producing and distributing goods and services to create job opportunities in urban areas, with 77.8% located in rural areas. The development of MSMEs is synonymous with the advancement of women in Indonesia. The role and contribution of MSMEs to the national economy reached 61.99%, with 57% managed by women. On the other hand, the role of women in the economic sector as entrepreneurs is considered to have a significant influence in Indonesia (Mashabi, 2020).

Empowerment through women's entrepreneurship holds significant value. First, women's empowerment in entrepreneurship focuses on economic barriers, such as limited resources or interventions to reduce resource constraints with microloans (Kivalya & Caballero-

Montes, 2023). Second, political or social support is available for women entrepreneurs. Empowerment is recognized as a process that facilitates individuals with less power to identify problems, make decisions, and take action to gain control over their lives (Leahy-Warren & Nieuwenhuijze, 2023). Empowering women has shown results in reducing poverty (Wei et al., 2021), and it is also evident that self-employed individuals in micro areas significantly contribute to women's empowerment (Senapati & Ojha, 2019). Women's empowerment means allowing women to live socially and financially independently. Women's empowerment is a multidimensional concept encompassing various aspects such as involvement in education, freedom to make decisions, participation in the workforce, wages, and politics (Kivalya & Caballero-Montes, 2023).

Empowerment can be influenced by Information and Communication Technology (ICT). By utilizing ICT, women in developing countries can transform their social, political, and economic lives by reshaping processes that lead to opportunities for growth and development that have the potential to contribute to socio-economic development (Ajumobi & Kyobe, 2016).

The ASEAN Investment Report (2022) states that Indonesia has the highest number of MSMEs in the ASEAN region. Indonesia's MSME Gross Domestic Product (GDP) can contribute up to 60.3%, 97% in employment, and 14.4% to national exports. One of Indonesia's government efforts to boost national MSMEs is through digitalization strategies. Indonesia's target is to have 30 million MSMEs go digital by 2024. One example of digital activities is the Digital Talent Scholarship Program, which aims to increase gender inclusivity, especially for women in the Information and Communication Technology (ICT) sector (Ministry of Communication and Information Technology, 2021). This development is much needed by women and is expected to foster an ecosystem involving stakeholders from both profit and non-profit sectors. ICT plays a significant role in realizing the microfinance industry. Communication devices that represent ICT to realize the microfinance industry include software applications and various related services used explicitly in the microfinance sector, consisting of mobile phones, mobile banking applications, emails, manage software (such as form-filling software), bank websites, and other internet-based services (Ali et al., 2021). ICT is widely used in financial management, marketing management, and human resources departments (Njihia, 2019). Countries with lower incomes are better positioned to enjoy the benefits of ICT utilization and investment (Albiman & Sulong, 2017; Vu et al., 2020). Other research reinforces the argument that ICT benefits low-income countries more (Appiah-Otoo & Song, 2021).

In addition to ICT, social capital is also needed to facilitate women's empowerment. Social capital refers to the opportunities or benefits individuals gain due to their position and relationships within social structures (Burt & Burzynska, 2017). When social capital has a strong foundation, it significantly influences intellectual capital and provides positive value for empowerment (Maryam, 2017; Prabawanti & Rusli, 2022). At the macro level, it refers to opportunities for individuals to engage in social activities (Moore & Kawachi, 2017), while at the micro level, in the context of MSMEs, it involves acquiring knowledge and resources through social relationships between business unit leaders, government institutions, financial institutions, and political leaders.

In developing countries, social capital has an impact that balances limited financial, human, natural, or physical capital resources (Rockenbauch et al., 2019). Indeed, social capital through benchmarking may improve women's empowerment in entrepreneurship (Dixit et al., 2023). Social capital has three main components: resources embedded in social structures, direct opportunities or spaces linked to resources, and actions to mobilize resources for predetermined purposes. The Fiscal Policy Agency of the Ministry of Finance

of the Republic of Indonesia (2021) stated that the characteristics of the population in Indonesia form the foundation of social capital. Entrepreneurs are vital instruments because they connect innovation and the search for opportunities to ensure competitive advantages (Mazzei, 2018). On the other hand, preparing women entrepreneurs with the mental and emotional capabilities to address challenges related to entrepreneurship in the context of developing countries is also essential (Zivdar et al., 2017). This requires psychological capital.

Psychological capital is a personal resource with a positive value that can lead to individual and organizational success (Lupșa et al., 2020). Psychological capital has several positive qualities, such as creativity and proactivity (Pease & Cunningham, 2016). Both provide evidence that self-efficacy, hope, resilience, and optimism meet the inclusion criteria (Luthans & Youssef-Morgan, 2017). Entrepreneurs with high psychological capital will believe in their abilities, knowledge, and skills and channel them into creative actions to overcome challenges in their business (Baluku et al., 2016). Psychological capital can help business owners improve entrepreneurial performance (Grözinger et al., 2022; Esfandabadi et al., 2015).

This research attempts to address the research directions proposed by Crittenden et al. (2019) that research on ICT and women's empowerment in other developing countries is needed, especially those involving micro-women entrepreneurs engaged in direct selling. Crittenden et al. (2019) also suggested using other mediating variables beyond self-efficacy; therefore, this study employs psychological capital, assuming that entrepreneurs skilled in ICT will have better psychological capital, which can serve as a bridge to enhance empowerment. Furthermore, this research also expands on the study by Digan et al. (2018), which only examined psychological capital and empowerment in the manufacturing sector.

METHODS

The research design employed in this study is quantitative research using a survey method. The population used for this research consists of female MSME entrepreneurs residing in Indonesia. The technique used for sampling in this study employs non-probability sampling. The sampling criteria for this research are as follows: female gender, minimum age of 17 years, ownership and operation of a business for at least one year, and business location in Indonesia. During the data collection phase, we received 193 responses from our research participants. However, upon review, we found that 17 of these responses did not meet the sampling criteria outlined for this study. Specifically, six respondents were not female entrepreneurs, and eleven respondents had not been operating their businesses for at least one year. Consequently, we were able to analyze data from a total of 176 respondents who met the specified criteria and could be included in our study.

The questionnaire used to measure Information and Communication Technology (ICT) was adapted from Crittenden et al. (2019), yielding a Cronbach's alpha of 0.79. An example item from this questionnaire is: "I feel that the interactions occurring in the application of ICT help me in direct sales clearly and understandably." The questionnaire utilized to assess psychological capital was drawn from the theory of Omar et al. (2014), comprising 16 items and exhibiting a Cronbach's alpha of 0.90. A sample item from this questionnaire reads: "When faced with difficulties in my work, I can overcome them."

For the measurement of social capital, the questionnaire adopted in the study was based on Montiel-Campos et al. (2019), with a Cronbach's alpha of 0.82. An exemplar item from this questionnaire is: "I collaborate with customers, suppliers, and others to develop solutions." The empowerment questionnaire adopted in the study was derived from Crittenden et al.

(2019) and demonstrated a reliability of 0.70. An illustrative item from this questionnaire is: "I have the freedom to make decisions about how I run my direct sales business." The survey in this study employs a Likert scale consisting of five ranges: strongly disagree, disagree, neutral, agree, and strongly agree.

Data analysis will be conducted using Structural Equation Modeling (SEM) techniques with the Partial Least Square (PLS) method through the SmartPLS version 4.0 program. This involves two primary analyses: the measurement model (outer model) and the structural model (inner model).

The research framework can be seen in Figure 1. In this conceptual framework, five hypotheses examine the relationship between ICT and empowerment, mediated by social capital. Solid lines represent direct effects, while dashed lines represent indirect effects. Drawing from the illustration of the conceptual framework and the contextual backdrop provided earlier, the hypothesis formulated in this study can be summarized as follows:
H1: ICT influences social capital
H2: ICT influences psychological capital
H3: Social capital influences empowerment
H4: Psychological capital influences empowerment
H5: The relationship between ICT and Empowerment is mediated by Social Capital

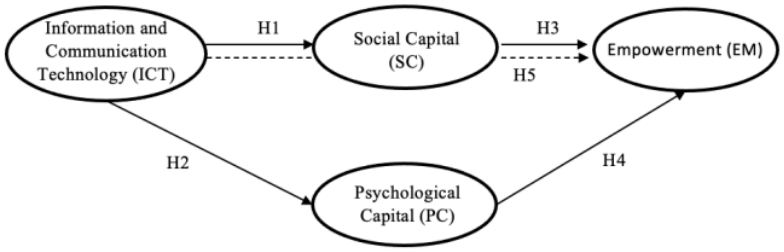

Figure 1. Research Framework

THE RESULTS

In the measurement model test, two types of validity tests will be carried out: convergent validity and discriminant validity. Table 1 displays the results of the convergent validity test, indicating that all indicators are valid and can be utilized for further analysis in this study. An indicator is considered valid if it achieves a loading value >0.70. However, a loading factor >0.70 requirement is often not met. Thus, the loading factor values of 0.4–0.7 must still be considered (Hair et al., 2019). Moreover, it is noted that each variable in this study has an Average Variance Extracted (AVE) value greater than 0.5. Consequently, it can be stated that all variables in this study are valid and suitable for use in the next testing phase.

Table 1. Convergent Validity Results

Variable	Item	Loading Factor (>0,6)	Average Variance Extracted (AVE)
Information and Communication Technology (ICT)	ICT1	0.785	0.643
	ICT2	0.791	
	ICT3	0.811	
	ICT4	0.716	
	ICT5	0.747	
	ICT6	0.870	
	ICT7	0.888	
	ICT8	0.785	
	ICT9	0.797	
	ICT10	0.837	
	ICT11	0.771	
	ICT12	0.811	
Social Capital (SC)	SC1	0.850	0.726
	SC2	0.886	
	SC3	0.819	
Psychological Capital (PC)	PC1	0.711	0.567
	PC2	0.720	
	PC3	0.714	
	PC4	0.726	
	PC5	0.706	
	PC6	0.722	
	PC7	0.730	
	PC8	0.829	
	PC9	0.782	
	PC10	0.821	
	PC11	0.777	
	PC12	0.814	
	PC13	0.793	
	PC14	0.780	

Variable	Item	Loading Factor (>0,6)	Average Variance Extracted (AVE)
	PC15	0.707	
	PC16	0.722	
	PC17	0.728	
Empowerment (EM)	EM1	0.729	
	EM2	0.846	
	EM3	0.740	
	EM4	0.868	
	EM5	0.782	0.612
	EM6	0.720	
	EM7	0.735	
	EM8	0.811	
	EM9	0.796	

The results of the discriminant validity test show that each indicator is valid because it has a higher cross-loading value than other constructs, indicating that the measurement items in this study are valid. The results of the discriminant validity test can be seen in Table 2.

Table 2. Discriminant Validity Results

Item	Cross Loading Values			
	ICT	SC	PC	EM
ICT1	0.785	0.471	0.491	0.492
ICT2	0.791	0.521	0.443	0.417
ICT3	0.811	0.488	0.571	0.443
ICT4	0.716	0.451	0.444	0.470
ICT5	0.747	0.358	0.482	0.424
ICT6	0.870	0.527	0.582	0.519
ICT7	0.888	0.566	0.592	0.520
ICT8	0.785	0.428	0.562	0.436
ICT9	0.797	0.410	0.463	0.374
ICT10	0.837	0.567	0.622	0.583
ICT11	0.771	0.454	0.555	0.433
ICT12	0.811	0.531	0.605	0.499
SC1	0.508	0.850	0.622	0.585
SC2	0.558	0.886	0.636	0.581
SC3	0.476	0.819	0.526	0.515
PC1	0.393	0.401	0.711	0.485

PC2	0.579	0.523	0.720	0.520
PC3	0.544	0.509	0.714	0.544
PC4	0.369	0.454	0.726	0.494
PC5	0.556	0.515	0.706	0.486
PC6	0.483	0.570	0.722	0.617
PC7	0.489	0.574	0.730	0.583
PC8	0.556	0.587	0.829	0.626
PC9	0.512	0.532	0.782	0.575
PC10	0.476	0.532	0.821	0.585
PC11	0.505	0.531	0.777	0.597
PC12	0.494	0.511	0.814	0.603
PC13	0.565	0.529	0.793	0.604
PC14	0.565	0.575	0.780	0.673
PC15	0.482	0.596	0.707	0.550
PC16	0.505	0.514	0.722	0.607
PC17	0.466	0.469	0.728	0.531
EM1	0.450	0.461	0.477	0.729
EM2	0.505	0.615	0.688	0.846
EM3	0.435	0.412	0.532	0.740
EM4	0.532	0.600	0.687	0.868
EM5	0.438	0.539	0.680	0.782
EM6	0.393	0.501	0.502	0.720
EM7	0.417	0.474	0.492	0.735
EM8	0.461	0.509	0.607	0.811
EM9	0.488	0.492	0.623	0.796

The final stage in testing the outer model is the reliability test. The reliability test for variables measures indicators' capability to measure their latent variables (Hair et al., 2019). There are two methods to test the reliability of variables: by looking at the composite reliability values and Cronbach's Alpha. Generally, reliability below 0.60 is considered weak, while a range around 0.70 is acceptable, and above 0.80 is good (Hair et al., 2019). Table 3 shows each variable's composite reliability, and Cronbach's Alpha values are > 0.70. Therefore, they are acceptable, and this research can be considered reliable.

Table 3. Reliability Test Results

Variable	*Composite Reliability*	*Cronbach's Alpha*
Information and Communication Technology (ICT)	0.956	0.949
Social Capital (SC)	0.888	0.811
Psychological Capital (PC)	0.957	0.952
Empowerment (EM)	0.934	0.920

Hypothesis testing was conducted using the bootstrapping method to generate t-statistic values used to test each hypothesis. This study employed a confidence level of 95%, meaning the t-table value is 1.96. If the t-statistic value generated > the t-table value of 1.96

and the p-values < 0.05, then the hypothesis is accepted; conversely, if the t-statistic value is < 1.96 and the p-values are > 0.05, then the hypothesis is rejected (Hair et al., 2019). The results of hypothesis testing from this study can be seen in Table 4. Figure 2 shows the results of the inner model test.

Table 4. Hypotheses Test Results

	Hypotheses	*Path Coefficient*	T-statistic	P-value	Result
H_1	ICT -> SC	0.605	11.510	0.000	Accepted
H_2	ICT -> PC	0.672	15.429	0.000	Accepted
H_3	SC -> EM	0.248	3.144	0.002	Accepted
H_4	PC -> EM	0.587	8.406	0.000	Accepted
H_5	ICT -> SC -> EM	0.150	2.891	0.004	Accepted

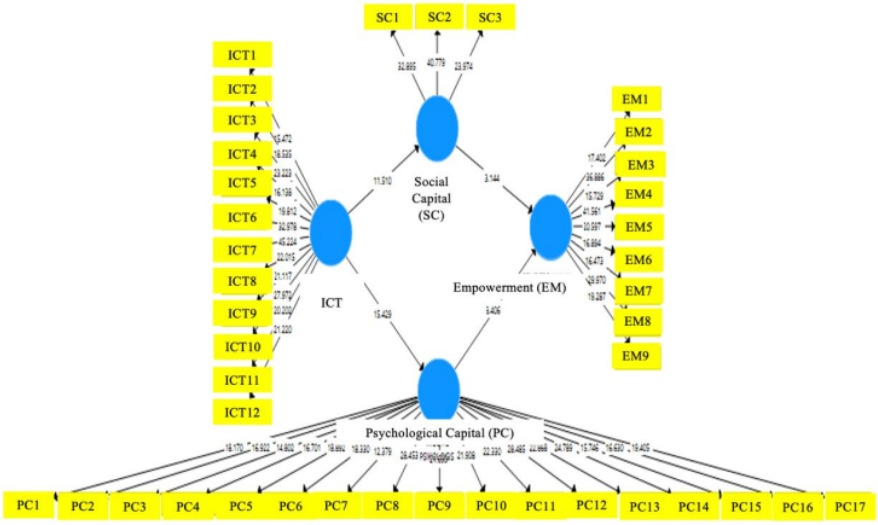

Figure 2. Inner Model Results

This study's findings align with research conducted by Nawinna et al. (2019), which found that ICT influences the dimensions of social capital. The development of ICT facilitates and provides efficient ways to overcome interaction difficulties caused by the separation between technology and social life. Mazzucchelli et al. (2019) stated that social capital is one of the sources of innovation utilized as a facility to provide knowledge within a team. Thus, using ICT can support women entrepreneurs in providing the latest knowledge to their team members. ICT can also enhance individual social capital, positively impacting well-being (Lee et al., 2018).

Additionally, Smith et al. (2017) found that computer-mediated communication with social capital literature can be a cause of building bridges between entrepreneurs and bonding social capital. ICT can assist women entrepreneurs in finding new job opportunities, participating in entrepreneurial opportunities, and promoting individual social development through self-efficacy and increased social capital (Crittenden et al., 2019). Crittenden et al. (2019) found that women entrepreneurs who utilize mobile devices and information and

communication technology in their businesses will socially connect with peer groups of women entrepreneurs, share and learn from other entrepreneurs, and communicate with customers to introduce and sell products. The ease of ICT use positively impacts the development of social capital for women entrepreneurs. The use of ICT helps women entrepreneurs develop social capital not only in their entrepreneurship but also in their daily lives. The easier the utilization of ICT to support sales business, the more ICT applications become part of women entrepreneurs' daily activities.

The results of this study indicate that ICT influences psychological capital. Davidson and Joinson (2021) concluded that technology can potentially impact communication, thus influencing users' interaction behavior. One application of ICT is social media, which is considered rich in communication channels encompassing various features to complement, promote, activate, and strengthen psychological processes (Brown et al., 2022). Psychological processes facilitated through ICT have several positive values that can enhance accessibility and flexibility in enhancing novelty and attractiveness (Fonseca et al., 2021).

Using social media as a communication and marketing tool influences the development of an individual's psychological capital (Sánchez-Fernández & Jiménez-Castillo, 2021), including women entrepreneurs. Psychological capital has four dimensions: hope, efficacy, resilience, and optimism (Omar et al., 2014). The hope of women entrepreneurs will grow when they see their business on social media, followed by many people. The efficacy and optimism of women entrepreneurs will also develop when they receive many positive responses from social media users to their business social media accounts. The resilience of women entrepreneurs will also be tested when receiving less favorable responses. Therefore, using ICT, mainly through social media, influences the psychological capital of women entrepreneurs.

The findings of this study are consistent with the research conducted by Avelino et al. (2022), which stated that social capital influences empowerment. Ul Hammed et al. (2018) also found that social capital among women can empower them socially and economically. The social relationships built by women entrepreneurs can be empowered as a form of capital advantage, and the benefits obtained are both economic and social (Usman & Ahmad, 2018). Atmadja et al. (2016) found that social capital is an answer to the success of micro-women-owned enterprises and is considered to have a positive value for developing women-owned enterprises. Crittenden et al. (2019) found that social capital has the highest influence on the empowerment variable, particularly in goal internalization. Goal internalization focuses on the direct sales organization's goals and achievements within the organization.

The results of this study support Digan et al.'s (2018) assertion that psychological capital positively influences empowerment. High values in psychological capital can strengthen the relationships within empowerment. Psychological capital is an extra strength for women entrepreneurs when facing challenges in entrepreneurship. Lorenz et al. (2016) and Joo et al. (2016) also found that psychological capital influences employee empowerment. In preparing mentally and emotionally to anticipate challenges in entrepreneurship, especially in developing countries, psychological capital provides resources to provide extra strength for women (Digan et al., 2018).

Crittenden et al. (2019) also found that the positive impact of efficacy possessed by women entrepreneurs on empowerment reaffirms the notion that self-confidence is crucial in achieving success. Women entrepreneurs who make plans, persevere, and continue to strive until their work is done will continuously strengthen their skills and work ethic. These

actions will have positive impacts both economically and socially. Digan et al. (2018) also found that psychological capital equips entrepreneurs to overcome many mental and emotional challenges associated with the entrepreneurial process.

Social capital can mediate between ICT and women's empowerment in various contexts, such as business sustainability. Using ICT implemented in social capital provides a contextual factor that can explain various forms of impact on business sustainability (Ahmed, 2018). ICT, especially among women, serves as a community or society connector to promote women's empowerment opportunities (Gil et al., 2020). In this context, ICT is considered a tool that can improve women's social and economic conditions, especially in developing countries (Ngoa & Song, 2021).

One significant form of ICT utilization is through social media as a communication and marketing tool. In this study, most respondents use social media to run and develop their businesses. The role of social media as a bridge for women entrepreneurs allows them to build social relationships in business and personal contexts (Crittenden et al., 2019). Through social media, women entrepreneurs can socially connect with fellow entrepreneurs and customers and communicate to introduce and sell their products. The ease of ICT use, especially social media, positively impacts the social development of women entrepreneurs (Smith et al., 2017).

In this context, social capital, consisting of social relationships built by women entrepreneurs, becomes crucial. Women entrepreneurs with high social capital tend to have higher levels of empowerment (Avelino et al., 2022). The social relationships established, both with fellow entrepreneurs and customers, enhance the competencies and abilities of women entrepreneurs in managing their businesses. Information obtained from these social relationships helps women entrepreneurs control and achieve their business goals. Thus, social capital plays a vital role in the relationship between ICT utilization and women's empowerment in a business context.

Managerial Implications

The research findings suggest several critical managerial implications for fostering women's empowerment through strategic utilization of ICT. Firstly, recognizing the significant impact of ICT on social capital underscores the importance of investing in ICT infrastructure and platforms that facilitate networking and collaboration among women entrepreneurs. Policymakers should prioritize the development of digital platforms that enable women entrepreneurs to connect, share knowledge, and access resources, thereby enhancing their social capital. By leveraging ICT to strengthen social networks, policymakers can create a supportive ecosystem that promotes collaboration, innovation, and collective problem-solving among women entrepreneurs, ultimately contributing to their empowerment.

Secondly, the research highlights the role of ICT in shaping the psychological capital of women entrepreneurs, emphasizing the need for managerial interventions to enhance their psychological well-being and resilience. Policymakers and practitioners can support women entrepreneurs by providing training programs and resources that cultivate positive psychological attributes such as self-efficacy, optimism, and resilience. By equipping women entrepreneurs with the psychological resources needed to navigate challenges and setbacks, managers can foster a culture of resilience and perseverance, empowering women to overcome obstacles and pursue their entrepreneurial aspirations with confidence and determination.

Furthermore, understanding the mediating role of social capital in the relationship between ICT and women's empowerment underscores the importance of fostering supportive social networks within entrepreneurial ecosystems. Policymakers and practitioners should facilitate opportunities for women entrepreneurs to build and leverage social capital through networking events, mentorship programs, and community-based initiatives. By nurturing a culture of collaboration and mutual support, policymakers can enhance women entrepreneurs' access to resources, opportunities, and support networks, amplifying their capacity to achieve empowerment and success in their entrepreneurial endeavors. Integrating these managerial implications into entrepreneurship support programs can create an enabling environment that empowers women to thrive and succeed in the digital economy.

CONCLUSION AND RECOMMENDATIONS

Conclusions

In conclusion, our study delves into the complex relationship between Information and Communication Technology (ICT), social capital, psychological capital, and women's empowerment within the entrepreneurial landscape. We have uncovered significant insights illuminating the multifaceted nature of women's empowerment processes in the digital age. Our findings underscore the pivotal role of ICT in shaping women entrepreneurs' social and psychological resources, facilitating enhanced connectivity, access to information, and collaborative opportunities, thereby bolstering their empowerment trajectories. Moreover, our research highlights the mediating role of social capital in the link between ICT adoption and women's empowerment. By leveraging ICT-mediated social interactions, women entrepreneurs harness their social networks to access crucial resources, support networks, and avenues for learning and growth. These insights emphasize the importance of fostering inclusive digital ecosystems that empower women to utilize ICT fully for socio-economic advancement and personal development. Our study contributes valuable insights to academia and practice, advocating for recognizing ICT's transformative potential in amplifying women's voices, expanding their agency, and fostering gender-inclusive entrepreneurial environments globally.

Recommendations

For future research endeavors, exploring additional variables that may influence women's empowerment beyond the scope of the current study is recommended. Variables such as motivation, family support, and others could provide valuable insights into the complexities of women's empowerment processes. Furthermore, focusing on specific business sectors or MSMEs in subsequent research could yield novel findings about women's entrepreneurship empowerment.

Additionally, it is advised to examine the intricacies of ICT adoption and its impact on women's empowerment, particularly within different cultural and socio-economic settings. Understanding how ICT-mediated social interactions and digital platforms can be leveraged to empower women entrepreneurs across diverse contexts is crucial for fostering inclusive and sustainable development. Moreover, future studies could explore the effectiveness of targeted interventions and policy initiatives to enhance women's access to ICT resources and bridge the digital gender divide. By addressing these research gaps, scholars and policymakers can contribute to creating gender-responsive strategies that promote women's empowerment and economic inclusion on a broader scale.

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