BUKTI KORESPONDENSI ARTIKEL JURNAL NASIONAL TERAKREDITASI (SINTA 2)

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

Jurnal : Indonesian Journal of Business and Entrepreneurship (IJBE)

Volume 10 No 3 (2024)

Penulis : Sherly Rosalina Tanoto, Niki Putri Lintang Pertiwi Tahalele

No.	Perihal	Tanggal
1	Bukti konfirmasi submit artikel dan artikel yang di-submit	9 April 2024
2	Bukti email hasil initial review (author statement & form kontrol naskah)	30 April 2024
3	Bukti email balasan atas hasil initial review	2 Mei 2024
4	Bukti email author statement, pembayaran biaya publikasi & form kontrol naskah	7 Mei 2024
5	Bukti email akan diproses review	14 Mei 2024
6	Bukti email hasil review	20 Agustus 2024
7	Bukti email revisi sesuai hasil review	25 Agustus 2024
8	Bukti email akan diproses proofread	26 Agustus 2024
9	Bukti email konfirmasi cetak/publish IJBE September 2024	19 September 2024
10	Bukti email balasan dan revisi terakhir	23 September 2024
11	Bukti email informasi sudah dipublikasi	24 September 2024
12	Bukti email permohonan invoice dan balasannya	11 Desember 2024

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1. Bukti konfirmasi submit artikel dan artikel yang di-submit (9 April 2024)

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[IJBE] Submission Acknowledgement

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PERAN WORK ENGAGEMENT DAN EMOTIONAL INTELLIGENCE TERHADAP HUBUNGAN ANTARA GRIT DAN CREATIVITY PADA PEKERJA DI INDUSTRI EKONOMI KREATIF

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Abstract: The COVID-19 pandemic has had a significant impact on the global creative economy, including in Indonesia. Job losses and a decrease in the Gross Domestic Product (GDP) of this sector have prompted the government to integrate 30 million creative economy participants into the digital ecosystem by 2024. To achieve this goal, the enhancement of human resource quality (HRQ) is key. Grit, encompassing long-term passion and perseverance, has been identified as a factor influencing individual creativity. This study examines the influence of grit on creativity through work engagement and emotional intelligence among workers in the creative economy. Data from 301 creative workers were analyzed using the Partial Least Squares Structural Equation Modeling (PLS-SEM) method. The research findings indicate that grit does not have a direct impact on creativity. Grit indirectly affects creativity through work engagement and emotional intelligence. The contributions of this study provide deeper insights into how workers can enhance their creativity through the development of grit, work engagement, and emotional intelligence. The practical implications suggest that organizations need to prioritize the development of human resources in these aspects to enhance productivity and creativity in the digital era.

Keywords: creative economy industry, creativity, emotional intelligence, grit, work engagement

Abstrak: *Pandemi COVID-19 telah membawa dampak signifikan pada ekonomi kreatif global, termasuk di Indonesia. Penurunan pekerjaan dan Pendapatan Domestik Bruto sektor ini mendorong pemerintah untuk mengintegrasikan 30 juta pelaku ekonomi kreatif ke dalam ekosistem digital pada 2024. Untuk mencapai target ini, peningkatan kualitas sumber daya manusia (SDM) menjadi kunci. Grit, mencakup semangat dan ketekunan jangka panjang, diidentifikasi sebagai faktor yang memengaruhi kreativitas individu. Penelitian ini menguji pengaruh grit terhadap kreativitas melalui work engagement dan emotional intelligence pada pekerja di industri ekonomi kreatif. Data dari 301 pekerja kreatif dianalisis dengan menggunakan metode Partial Least Squares Structural Equation Modeling (PLS-SEM).Hasil penelitian menunjukkan bahwa grit tidak berpengaruh langsung terhadap creativity. Grit memengaruhi creativity secara tidak langsung melalui work engagement dan emotional intelligence. Kontribusi dari penelitian ini dapat digunakan untuk memperdalam pemahaman tentang bagaimana pekerja dapat meningkatkan kreativitas mereka melalui pengembangan grit, work engagement, dan emotional intelligence. Implikasi praktisnya adalah bahwa organisasi perlu memprioritaskan pengembangan sumber daya manusia dalam aspek-aspek tersebut untuk meningkatkan produktivitas dan kreativitas di era digital.*

Kata kunci: *creative economy industry, creativity, emotional intelligence, grit, work engagement*

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PENDAHULUAN

Data dari Outlook Pariwisata dan Ekonomi Kreatif Indonesia 2020/2021 menunjukkan bahwa estimasi pertumbuhan pekerja pada sektor ekonomi kreatif di Indonesia mencapai angka -2,49%. Sementara pertumbuhan Pendapatan Domestik Bruto (PDB) dari sektor ekonomi kreatif ada di angka -2,39% apabila dibandingkan dengan tahun sebelum pandemi. Angka ini didapatkan dari kontribusi 17 subsektor pada industri ekonomi kreatif di Indonesia, dengan fesyen, kerajinan, dan kuliner sebagai subsektor unggulan (17 creative economy subsectors in indonesia that you must know!, n.d.). Penurunan angka tersebut tentunya menimbulkan dampak besar bagi ekonomi secara nasional. Maka dari itu, pemerintah menempatkan harapan besar agar pelaku ekonomi kreatif segera memasuki ekosistem digital. Neil Himam selaku Deputi Bidang Digital dan Produk Ekonomi Kreatif, menyatakan bahwa penguatan produk pada ekonomi kreatif juga harus didukung dengan ekosistem yang baik yaitu sumber daya manusia (SDM) yang kompeten, ketersediaan sumber daya lain, serta sumber daya artifisial (Penguatan ekosistem digital dalam sektor ekonomi kreatif di Indonesia, 2021).

Ida Fauziah, Menteri Ketenagakerjaan mengemukakan bahwa kelemahan dari SDM di Indonesia adalah kemampuan dalam mengimplementasikan ilmu yang mereka miliki (Anam, 2022). Memasuki ekosistem digital menuntut SDM untuk menjadi lebih kreatif, inovatif, serta memiliki daya saing (Umam, 2018). *Future of Jobs Report* menyimpulkan bahwa *creativity* merupakan salah satu dari lima keterampilan yang wajib dimiliki SDM untuk memasuki revolusi industri 4.0, terlebih untuk lima tahun mendatang (*World Economic Forum*, 2020). Data tersebut berlaku secara umum dan secara khusus pada sektor ekonomi kreatif yang tentunya memerlukan kreativitas pekerja dalam mengimplementasikan ilmu yang mereka miliki.

***Creativity* merupakan sebuah pemikiran yang kreatif, keterampilan, serta keahlian dari seorang pekerja yang didasarkan pada kualifikasi serta pengalaman individu itu sendiri (Shafi et al., 2020). *Creativity* dipandang sebagai sebuah sumber Assessing The Influence of Information Technology on Female Entrepreneur Empowerment in Indonesia: The Role of Social and Psychological Capitals**

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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.*

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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

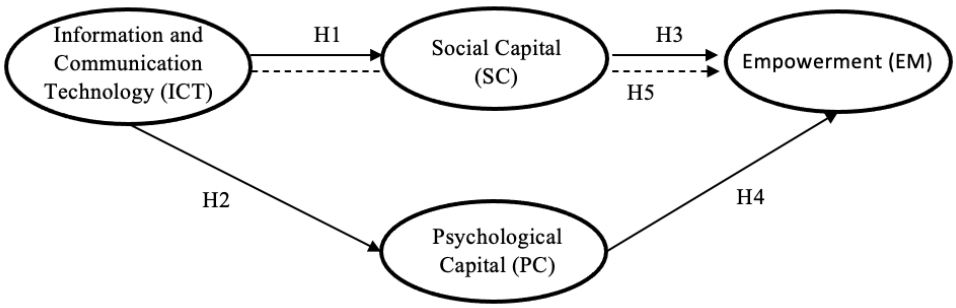


Figure 1. Research Framework

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	

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

Variable	Item	Loading Factor (>0,6)	Average Variance Extracted (AVE)
	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

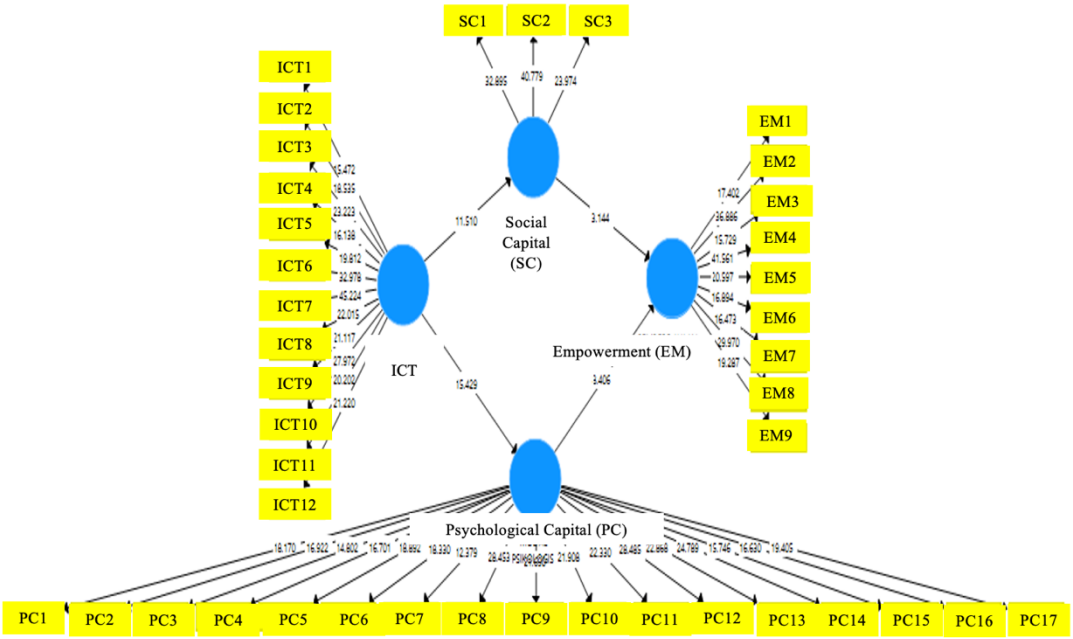
The final stage in testing the outer model is the reliability test. The reliability test for variables measures indicators' capability to measure their latent variables (Hair et al., 2019). There are two methods to test the reliability of variables: by looking at the composite reliability values and 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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Surabaya, 6 Mei 2023

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(Sherly Rosalina Tanoto)

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

Sherly Rosalina Tanoto[*)1] **and Niki Putri Lintang Pertiwi Tahalele** [*)2]

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Abstract: Gender equality is crucial for Indonesia's sustainable development, with women representing nearly half of the population. This study investigates how Information and Communication Technology (ICT), social capital, and psychological factors influence women's entrepreneurship empowerment. Using survey data from 176 female MSME entrepreneurs, structural equation modeling was applied to analyze these relationships. The results reveal significant positive effects of ICT on social and psychological capital. Additionally, social capital is linked to women's entrepreneurship empowerment, while psychological capital enhances empowerment. The findings highlight the importance of adopting ICT and developing social and psychological resources to empower women entrepreneurs in emerging economies like Indonesia. Policy implications include enhancing ICT infrastructure, promoting social networking platforms, and implementing psychological support programs to facilitate women's economic empowerment. This research offers valuable insights for policymakers and practitioners seeking to promote women's economic participation and empowerment in Indonesia.

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

Abstrak: *Kesetaraan gender sangat penting untuk pembangunan berkelanjutan di Indonesia, di mana wanita mencakup hampir separuh dari populasi. Studi ini menyelidiki pengaruh Teknologi Informasi dan Komunikasi (TIK), modal sosial, dan faktor psikologis terhadap pemberdayaan kewirausahaan perempuan. Dengan menggunakan data survei dari 176 pengusaha UMKM perempuan, analisis model persamaan struktural digunakan untuk menganalisis hubungan ini. Hasil penelitian menunjukkan efek positif yang signifikan dari TIK terhadap modal sosial dan psikologis. Selain itu, modal sosial berkaitan positif dengan pemberdayaan kewirausahaan perempuan, sementara modal psikologis memperkuat pemberdayaan tersebut. Temuan ini menekankan pentingnya adopsi TIK dan pengembangan sumber daya sosial serta psikologis untuk memberdayakan pengusaha perempuan di negara-negara berkembang seperti Indonesia. Implikasi kebijakan meliputi peningkatan infrastruktur TIK, promosi platform jaringan sosial, dan implementasi program dukungan psikologis untuk memfasilitasi pemberdayaan ekonomi perempuan. Penelitian ini memberikan wawasan berharga 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.*

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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. 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. 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 (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. 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. (2019), which only examined psychological capital and empowerment in the manufacturing sector.

The research aims to comprehensively examine several key aspects related to women's entrepreneurship empowerment in Indonesia. Firstly, the study seeks to investigate the influence of Information and Communication Technology (ICT) adoption on empowering women entrepreneurs. Secondly, the research aims to delve into the role of social capital in promoting women's entrepreneurship empowerment. Social capital encompasses the networks, relationships, and social connections that contribute to women's access to resources, information, and support within entrepreneurial contexts. Thirdly, the study aims to assess the impact of psychological capital on women's empowerment within the entrepreneurship landscape. Psychological capital refers to the individual's positive psychological resources such as self-efficacy, optimism, resilience, and hope, and the study will explore how these factors influence women's empowerment in entrepreneurship. Additionally, the research aims to analyze the interrelationships between ICT adoption, social capital, and psychological capital in shaping women entrepreneurship empowerment. By understanding these complex dynamics, the study aims to provide insights into the integrated role of these factors in empowering women entrepreneurs. These aims collectively contribute to advancing knowledge on strategies to promote women's economic participation and empowerment in Indonesia's evolving entrepreneurial landscape.

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 data collection process was conducted from July 17 to November 3, 2023, by distributing a questionnaire in the form of a Google Form to female MSME communities in Indonesia. The data used in this research are primary data obtained through the questionnaire distributed to all research subjects. The primary data obtained from respondents and their responses are related to several research variables: empowerment, information technology, social capital, and psychological capital.

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 next paragraph will explain how the research variables are interconnected and serve as the foundation for the formulated hypotheses. It will delve into the relationship between ICT, psychological capital, and social capital, which is hypothesized to impact women's empowerment in entrepreneurship.

A study in Sri Lanka found that Information and Communication Technology (ICT) influences the dimensions of social capital (Nawinna & Venable, 2019). Social capital is an innovation

resource that facilitates knowledge exchange within a team (Mazzucchelli et al., 2019). Computer-mediated communication can bridge the gap between entrepreneurs and bound social capital (Smith et al., 2017). ICT can reduce barriers in social communities, encouraging individuals to display themselves socially (Tidwell & Walther 2002 in Crittenden et al., 2019). In developing country markets, ICT can help women discover new job opportunities, engage in entrepreneurial ventures, and promote individual social development through self-efficacy and enhanced social capital. In conclusion, it can be inferred that ICT has a significant relationship with social capital.
H_1: ICT influences social capital

Information and Communication Technology (ICT) encompasses various technologies with general purposes, such as communication tools like telephones, radios, computer networks (both hardware and software), the internet, and more (Rath et al., 2023; Stanley et al., 2018). This technology has the potential to impact various communication aspects, including behavior and different types of usage, which can be directed by the technology itself (Davidson & Joinson, 2021). Social networking sites, commonly known as social media, offer diverse communication channels with features that complement, promote, activate, and strengthen psychological processes (Brown et al., 2022). Social media serves as an interactive space where technology plays a role in shaping how humans communicate and interact with each other. Hence, it can be implied that ICT affects psychological capital.
H_2: ICT influences psychological capital

Social relationships provide benefits not only in economic contexts but also enrich social capital (Usman, 2018). One of the most striking aspects of empowerment is the change that occurs at the individual level of social relationships (Avelino et al., 2022). Previous research has found that social capital plays a key role in achieving success, especially in women-owned microenterprises. Social capital among women is considered a critical resource for achieving success in the microenterprise sector (Atmadja et al., 2016). Studies also indicate that women-owned microenterprises can have positive impacts, creating both social and economic empowerment for women (Yl-Hameed et al., 2018). Overall, it can be concluded that social capital has a significant relationship with the empowerment process, encompassing critical aspects in achieving success, particularly in the context of women-owned microenterprises.
H_3: Social capital influences empowerment

Previous research has shown that psychological capital has a positive impact on empowerment (Digan et al., 2019). Psychological capital differs from human capital and social capital in that it refers to psychological resources that contribute positively to achieving success. A high level of psychological capital can strengthen the connection between empowerment and income (Digan et al., 2019). In the context of mental and emotional preparedness to face entrepreneurial challenges, especially in developing countries, psychological capital becomes a resource that provides additional strength, particularly for women. Other findings indicate that psychological capital influences employee empowerment through the work environment (Haji et al., 2022). Therefore, it can be concluded that psychological capital is interconnected with empowerment, playing a role in strengthening the link between psychological factors and empowerment.
H_4: Psychological capital influences empowerment

ICT plays a significant role in enhancing social capital by providing essential information (Haghighi et al., 2018). This relationship suggests that ICT enables individuals to access information and connect with others, which are fundamental aspects of social capital

development. Moreover, a recent approach in ICT development focuses on removing time constraints and creating space for communication, thereby facilitating the growth of social networks (Zhao & Li et al., 2021). Social capital, characterized by trust, obligations, expectations, and norms in both personal and professional contexts, is considered an asset that can be nurtured through ICT-enabled interactions (Kim & Shim, 2018). Based on this understanding, it can be hypothesized that ICT has a positive relationship with empowerment through the mediation of social capital. This hypothesis posits that ICT, by enhancing social capital through improved communication, connectivity, and access to information, contributes to the development of social networks, trust, and shared norms among individuals. These social capital resources, in turn, are crucial for fostering empowerment by facilitating access to resources, opportunities, and supportive networks (Zhao & Li et al., 2021). Therefore, this research hypothesis proposes that ICT positively influences empowerment through the intermediary mechanism of social capital, highlighting the importance of ICT-enabled social interactions in promoting empowerment among individuals.
H_5: The relationship between ict and empowerment is mediated by social capital

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.

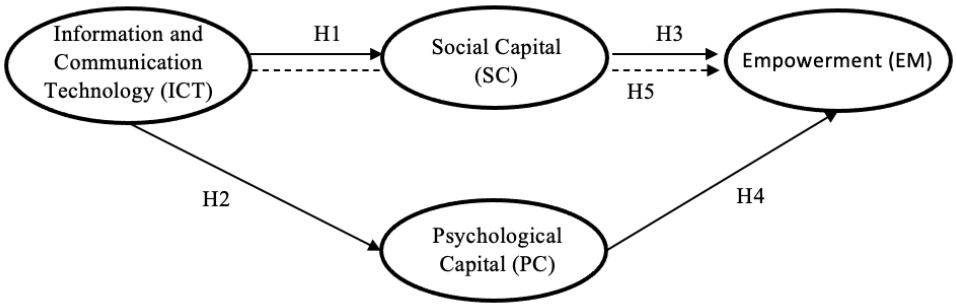


Figure 1. Research Framework

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	

Variable	Item	Loading Factor (>0,6)	Average Variance Extracted (AVE)
	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	
	SC1	0.850	0.726
Social Capital (SC)	SC2	0.886	
	SC3	0.819	
	PC1	0.711	
	PC2	0.720	
	PC3	0.714	
	PC4	0.726	
	PC5	0.706	
	PC6	0.722	
	PC7	0.730	
Psychological Capital (PC)	PC8	0.829	0.567
	PC9	0.782	
	PC10	0.821	
	PC11	0.777	
	PC12	0.814	
	PC13	0.793	
	PC14	0.780	
	PC15	0.707	

Variable	Item	Loading Factor (>0,6)	Average Variance Extracted (AVE)
Empowerment (EM)	PC16	0.722	0.612
	PC17	0.728	
	EM1	0.729	
	EM2	0.846	
	EM3	0.740	
	EM4	0.868	
	EM5	0.782	
	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

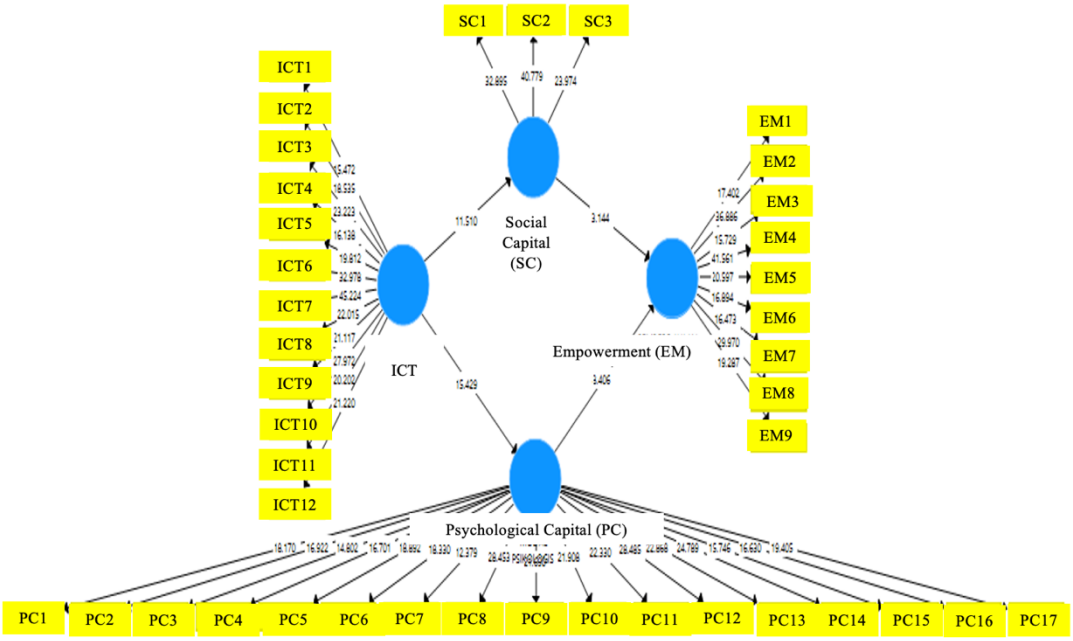
The final stage in testing the outer model is the reliability test. The reliability test for variables measures indicators' capability to measure their latent variables (Hair et al., 2019). There are two methods to test the reliability of variables: by looking at the composite reliability values and 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 & Venable (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 (2019) 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., 2019).

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. (2019) 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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5. Bukti email akan diproses review (14 Mei 2024)

UNIVERSITAS KRISTEN PETRA

Sherly Rosalina Tanoto <sherlytanoto@petra.ac.id>

Hasil Initial Review IJBE

IJBE MB-IPB <ijbe.mb.ipb@gmail.com> Tue, May 14, 2024 at 11:10 AM
To: Sherly Rosalina Tanoto <sherlytanoto@petra.ac.id>

terima kasih bu, selanjutnya kami proses ke review by reviewer

salam

[Quoted text hidden]
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6. Bukti email hasil review (20 Agustus 2024)

UNIVERSITAS KRISTEN PETRA

Sherly Rosalina Tanoto <sherlytanoto@petra.ac.id>

Review Results

IJBE MB-IPB <ijbe.mb.ipb@gmail.com> Tue, Aug 20, 2024 at 9:44 AM
To: Sherly Rosalina Tanoto <sherlytanoto@petra.ac.id>

To. **Sherly Rosalina Tanoto et al.**

We inform you that your article entitled "Assessing The Influence of Information Technology on Female Entrepreneur Empowerment in Indonesia: The Role of Social and Psychological Capitals" written by you have been blindly reviewed with the results as attached in this letter. Please make necessary revisions as requested by the reviewers and send us back the revised edition not later than 25 Agutsus 2024 for the further process before we decide to accept your article for publication.

Thank you.

Note: Please mark the corrections in red, fill out the script control form and please adjust to the writing guide, **Page Maximum is 14 pages**

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BUTIR KONTROL NASKAH

Judul Artikel:

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Jumlah halaman: (12-14 Halaman)

No	Pertanyaan	Ket
1	**Judul makalah cukup ringkas dan dapat melukiskan isi makalah dengan jelas ? (15-25 kata)**	yes/not
	Judul Bahasa Inggris (jika naskah dalam Bahasa Indonesia)	yes/not
2	**Abstrak telah merangkum secara singkat dan jelas tentang :**	
	Background	yes/not
	Purpose	yes/not
	Design/methodology/approach	yes/not
	Findings/Result	yes/not
	Conclusion	yes/not
	Originality/value (State of the art)	yes/not
	Keyword (harus 5 keyword)	yes/not
	Contoh: **ABSTRACT** **Background:** Entrepreneurial activities have a significant role in encouraging poverty alleviation, increasing prosperity, and creating job opportunities. Thus, it is urgent to publish the stories of successful entrepreneurs to spur the growth of new/young/budding ones. **Purpose:** This research aims to reveal the successful business journey of Buntoro (68 years), a self-taught entrepreneur who started his business from scratch. **Design/methodology/approach:** This research describes the success of an entrepreneur who dropped out of fifth grade elementary school using a narrative approach. **Findings/Result:** Buntoro's success story has similarities and differences with Antony Boaging –a businessman from the Philippines who is famous for Boaging's Bread. But, in some ways Buntoro could be said to be superior and more inspiring. **Conclusion:** An entrepreneur must have an entrepreneurial mind-set: highly motivated to succeed, resilient (tough), innovative and adaptive to changing situations. **Originality/value (State of the art):** Buntoro is a sort of entrepreneur who thinks globally and acts locally. He success is rooted in his hometown, then spread out of the region. **Keywords:** entrepreneurship, self-taught, hard work, business journey, autodidact entrepreneur	
3	**Pendahuluan (20%)**	
	Latar belakang (alasan penelitian dilakukan)	Hal ke.... Paragraf ke....
	Status ilmiah dewasa ini/posisi penitian terhadap penelitian sebelumnya/terdahulu	Hal ke.... Paragraf ke....
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	Pembahasan tujuan 1	Hal ke...
	Pembahasan tujuan 2	Hal ke...
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	dst	
6	**Implikasi Manajerial**	Hal ke...
7	**Kesimpulan dan saran (10%)**	
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	Daftar pustaka jurnal 3	Dikutip pada hal ke....
	Daftar pustaka jurnal 4	Dikutip pada hal ke....
	Dst hingga Daftar pustaka jurnal 16	Dikutip pada hal ke....

	Buku/tesis/disertasi/internet (3 Daftar pustaka)	Dikutip pada hal ke....
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	Daftar pustaka Buku/tesis/disertasi/internet 2	Dikutip pada hal ke....
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Penulis

( )

Review Form by Reviewer

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

No	Question	Reviewer's Suggestions	Score 1-5
1	Is the title of the paper concise and can clearly illustrate the contents of the paper?	Approved	5
2	Does the abstract have summarized briefly and clearly:		
	Purpose & scope of research	Please include the problem statement in the abstract introduction and establish a clear link with the research objectives.	4
	The method used	Approved	5
	Summary of results	What is the novelty of this study? Please include.	3
	conclusion	I suggest focusing solely on the implications for policymakers and making them more concise.	4
3	Does the introduction clearly describe:		
	Problems & scope of research	There is too much information in the introduction section; focus specifically on topics related to ICT and women entrepreneurs without expanding too broadly. Narrow down the discussion in the introduction, The research questions and objectives should appear in either the third or fourth paragraph.	3
	Scientific status	Explained and approved	5
	Hypothesis	Move the hypothesis discussion to the last part of the introduction chapter. In the methods section, state the hypothesis points together with the structural model without providing any additional explanation.	5
	approach to problem-solving	Approved	5
	Expected results	Approved	5
4	Has the organization been clearly written so that the research can be repeated?	Display the questionnaire questions as indicator variables along with Table 1. The reader may be unable to understand the meaning of the variables as written. Write a justification, why choose SEM-PLS rather than other statistical tools such as multiple regression or factor analysis?	3
5	Is the data presented in the discussion section processed and written in the form of	Approved, but please adjust the table according to the article format.	3

	tables or drawings, and given information that is easy to understand?	Redraw Figure 2., do not copy paste directly from the software. Make it clear and read-able.	
6	Is the discussion part of the relationship between the research results obtained and the basic concepts and or hypotheses?	In the discussion part, there is a lack of discussion using the Indonesian context. Include the uniqueness of the country context, such as the differences between women entrepreneurs in Indonesia and those in other countries in terms of adopting ICT. Author viewpoints on this matter are welcome. The discussion lacks a clear connection between the research results and the basic concepts or hypotheses, making it difficult to understand the theoretical foundation.	4
7	Is the conclusion includes conformity or disagreement with the results of other studies?	The conclusion does not adequately address how the findings align or conflict with previous studies, missing an opportunity to contextualize the results within existing literature.	4
8	Does the conclusion contain the implications of both theoretical and implementation results?	The conlusion should be completed with the theoretical implications/contributions, not only practical implications.	4
9	Does the conclusion contain the essence of the research?	Appoved	4
10	Is the conclusion written by the author logically and honestly based on the facts obtained?	The conclusion appears to lack a logical and honest reflection of the facts obtained, as it does not fully integrate the data analysis with the overall narrative of the research.	4
11	Is the bibliography written correctly according to the instructions?	Yes	5
12	Does the references indicate:		
	Recency reference library?	Appoved	5
	Primary reference library?	Appoved	5
13	Positive impact of research publications for authors	High chance of a publication with good impact	5
14	Language quality	Good job, but please revise and consistent write in a present tense style.	5

The result of the reviewers' assessment decisions: (give (v) a checklist)

- ☐ Accepted
- ☐ Improvements
- ☐ REJECTED

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

Abstract: Gender equality is crucial for Indonesia's sustainable development, with women representing nearly half of the population. This study investigates how Information and Communication Technology (ICT), social capital, and psychological factors influence women's entrepreneurship empowerment. Using survey data from 176 female MSME entrepreneurs, structural equation modeling was applied to analyze these relationships. The results reveal significant positive effects of ICT on social and psychological capital. Additionally, social capital is linked to women's entrepreneurship empowerment, while psychological capital enhances empowerment. The findings highlight the importance of adopting ICT and developing social and psychological resources to empower women entrepreneurs in emerging economies like Indonesia. Policy implications include enhancing ICT infrastructure, promoting social networking platforms, and implementing psychological support programs to facilitate women's economic empowerment. This research offers valuable insights for policymakers and practitioners seeking to promote women's economic participation and empowerment in Indonesia.

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

Abstrak: *Kesetaraan gender sangat penting untuk pembangunan berkelanjutan di Indonesia, di mana wanita mencakup hampir separuh dari populasi. Studi ini menyelidiki pengaruh Teknologi Informasi dan Komunikasi (TIK), modal sosial, dan faktor psikologis terhadap pemberdayaan kewirausahaan perempuan. Dengan menggunakan data survei dari 176 pengusaha UMKM perempuan, analisis model persamaan struktural digunakan untuk menganalisis hubungan ini. Hasil penelitian menunjukkan efek positif yang signifikan dari TIK terhadap modal sosial dan psikologis. Selain itu, modal sosial berkaitan positif dengan pemberdayaan kewirausahaan perempuan, sementara modal psikologis memperkuat pemberdayaan tersebut. Temuan ini menekankan pentingnya adopsi TIK dan pengembangan sumber daya sosial serta psikologis untuk memberdayakan pengusaha perempuan di negara-negara berkembang seperti Indonesia. Implikasi kebijakan meliputi peningkatan infrastruktur TIK, promosi platform jaringan sosial, dan implementasi program dukungan psikologis untuk memfasilitasi pemberdayaan ekonomi perempuan. Penelitian ini memberikan wawasan berharga 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. 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. 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 (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. 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. (2019), which only examined psychological capital and empowerment in the manufacturing sector.

The research aims to comprehensively examine several key aspects related to women's entrepreneurship empowerment in Indonesia. Firstly, the study seeks to investigate the influence of Information and Communication Technology (ICT) adoption on empowering women entrepreneurs. Secondly, the research aims to delve into the role of social capital in promoting women's entrepreneurship empowerment. Social capital encompasses the networks, relationships, and social connections that contribute to women's access to resources, information, and support within entrepreneurial contexts. Thirdly, the study aims to assess the impact of psychological capital on women's empowerment within the entrepreneurship landscape. Psychological capital refers to the individual's positive psychological resources such as self-efficacy, optimism, resilience, and hope, and the study will explore how these factors influence women's empowerment in entrepreneurship. Additionally, the research aims to analyze the interrelationships between ICT adoption, social capital, and psychological capital in shaping women entrepreneurship empowerment. By understanding these complex dynamics, the study aims to provide insights into the integrated role of these factors in empowering women entrepreneurs. These aims collectively contribute to advancing knowledge on strategies to promote women's economic participation and empowerment in Indonesia's evolving entrepreneurial landscape.

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 data collection process was conducted from July 17 to November 3, 2023, by distributing a questionnaire in the form of a Google Form to female MSME communities in Indonesia. The data used in this research are primary data obtained through the questionnaire distributed to all research subjects. The primary data obtained from respondents and their responses are related to several research variables: empowerment, information technology, social capital, and psychological capital.

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 next paragraph will explain how the research variables are interconnected and serve as the foundation for the formulated hypotheses. It will delve into the relationship between ICT, psychological capital, and social capital, which is hypothesized to impact women's empowerment in entrepreneurship.

A study in Sri Lanka found that Information and Communication Technology (ICT) influences the dimensions of social capital (Nawinna & Venable, 2019). Social capital is an innovation

resource that facilitates knowledge exchange within a team (Mazzucchelli et al., 2019). Computer-mediated communication can bridge the gap between entrepreneurs and bound social capital (Smith et al., 2017). ICT can reduce barriers in social communities, encouraging individuals to display themselves socially (Tidwell & Walther 2002 in Crittenden et al., 2019). In developing country markets, ICT can help women discover new job opportunities, engage in entrepreneurial ventures, and promote individual social development through self-efficacy and enhanced social capital. In conclusion, it can be inferred that ICT has a significant relationship with social capital.
H_1: ICT influences social capital

Information and Communication Technology (ICT) encompasses various technologies with general purposes, such as communication tools like telephones, radios, computer networks (both hardware and software), the internet, and more (Rath et al., 2023; Stanley et al., 2018). This technology has the potential to impact various communication aspects, including behavior and different types of usage, which can be directed by the technology itself (Davidson & Joinson, 2021). Social networking sites, commonly known as social media, offer diverse communication channels with features that complement, promote, activate, and strengthen psychological processes (Brown et al., 2022). Social media serves as an interactive space where technology plays a role in shaping how humans communicate and interact with each other. Hence, it can be implied that ICT affects psychological capital.
H_2: ICT influences psychological capital

Social relationships provide benefits not only in economic contexts but also enrich social capital (Usman, 2018). One of the most striking aspects of empowerment is the change that occurs at the individual level of social relationships (Avelino et al., 2022). Previous research has found that social capital plays a key role in achieving success, especially in women-owned microenterprises. Social capital among women is considered a critical resource for achieving success in the microenterprise sector (Atmadja et al., 2016). Studies also indicate that women-owned microenterprises can have positive impacts, creating both social and economic empowerment for women (Yl-Hameed et al., 2018). Overall, it can be concluded that social capital has a significant relationship with the empowerment process, encompassing critical aspects in achieving success, particularly in the context of women-owned microenterprises.
H_3: Social capital influences empowerment

Previous research has shown that psychological capital has a positive impact on empowerment (Digan et al., 2019). Psychological capital differs from human capital and social capital in that it refers to psychological resources that contribute positively to achieving success. A high level of psychological capital can strengthen the connection between empowerment and income (Digan et al., 2019). In the context of mental and emotional preparedness to face entrepreneurial challenges, especially in developing countries, psychological capital becomes a resource that provides additional strength, particularly for women. Other findings indicate that psychological capital influences employee empowerment through the work environment (Haji et al., 2022). Therefore, it can be concluded that psychological capital is interconnected with empowerment, playing a role in strengthening the link between psychological factors and empowerment.
H_4: Psychological capital influences empowerment

ICT plays a significant role in enhancing social capital by providing essential information (Haghighi et al., 2018). This relationship suggests that ICT enables individuals to access information and connect with others, which are fundamental aspects of social capital

development. Moreover, a recent approach in ICT development focuses on removing time constraints and creating space for communication, thereby facilitating the growth of social networks (Zhao & Li et al., 2021). Social capital, characterized by trust, obligations, expectations, and norms in both personal and professional contexts, is considered an asset that can be nurtured through ICT-enabled interactions (Kim & Shim, 2018). Based on this understanding, it can be hypothesized that ICT has a positive relationship with empowerment through the mediation of social capital. This hypothesis posits that ICT, by enhancing social capital through improved communication, connectivity, and access to information, contributes to the development of social networks, trust, and shared norms among individuals. These social capital resources, in turn, are crucial for fostering empowerment by facilitating access to resources, opportunities, and supportive networks (Zhao & Li et al., 2021). Therefore, this research hypothesis proposes that ICT positively influences empowerment through the intermediary mechanism of social capital, highlighting the importance of ICT-enabled social interactions in promoting empowerment among individuals.
H_5: The relationship between ict and empowerment is mediated by social capital

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.

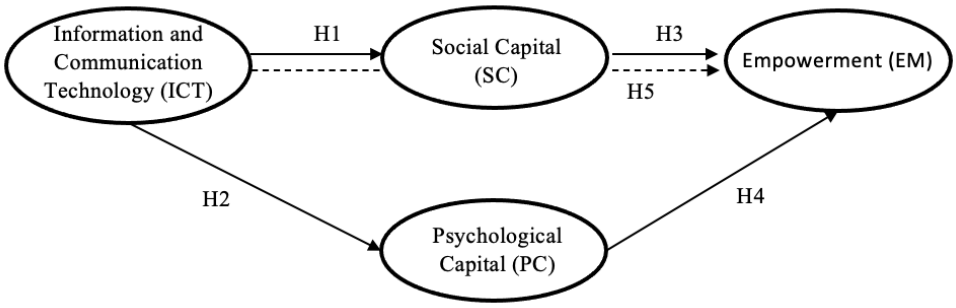


Figure 1. Research Framework

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	

Variable	Item	Loading Factor (>0,6)	Average Variance Extracted (AVE)
	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	
	SC1	0.850	0.726
Social Capital (SC)	SC2	0.886	
	SC3	0.819	
	PC1	0.711	
	PC2	0.720	
	PC3	0.714	
	PC4	0.726	
	PC5	0.706	
	PC6	0.722	
	PC7	0.730	
Psychological Capital (PC)	PC8	0.829	0.567
	PC9	0.782	
	PC10	0.821	
	PC11	0.777	
	PC12	0.814	
	PC13	0.793	
	PC14	0.780	
	PC15	0.707	

Variable	Item	Loading Factor (>0,6)	Average Variance Extracted (AVE)
Empowerment (EM)	PC16	0.722	0.612
	PC17	0.728	
	EM1	0.729	
	EM2	0.846	
	EM3	0.740	
	EM4	0.868	
	EM5	0.782	
	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

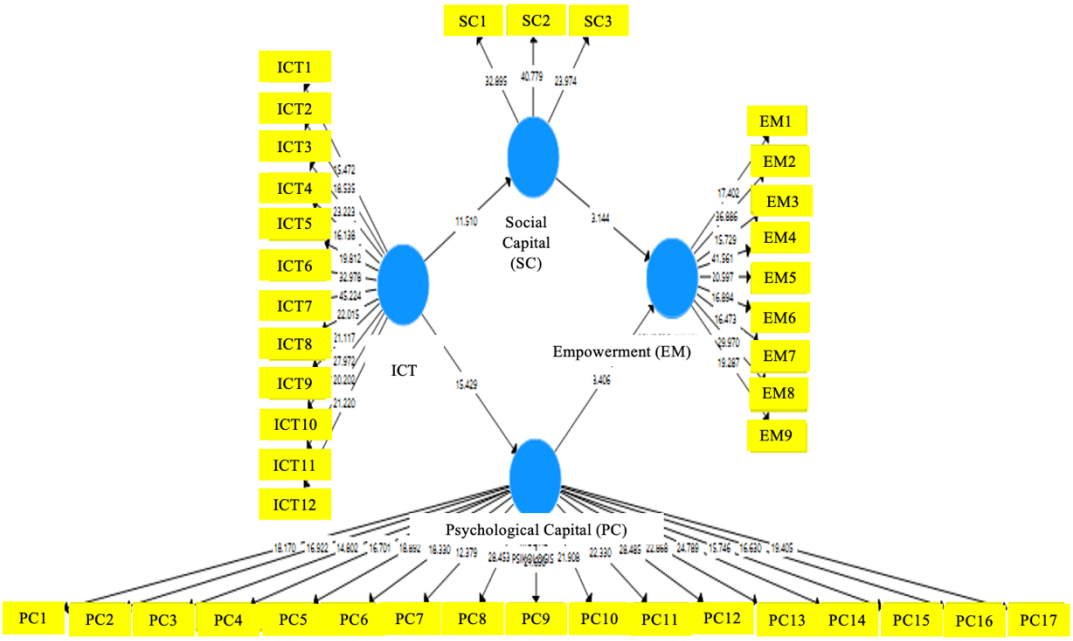
The final stage in testing the outer model is the reliability test. The reliability test for variables measures indicators' capability to measure their latent variables (Hair et al., 2019). There are two methods to test the reliability of variables: by looking at the composite reliability values and 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 & Venable (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 (2019) 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., 2019).

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. (2019) 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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7. Bukti email revisi sesuai hasil review (25 agustus 2024)

UNIVERSITAS KRISTEN PETRA

Sherly Rosalina Tanoto <sherlytanoto@petra.ac.id>

Review Results

Sherly Rosalina Tanoto <sherlytanoto@petra.ac.id> Sun, Aug 25, 2024 at 3:00 PM
To: IJBE MB-IPB <ijbe.mb.ipb@gmail.com>

Dear Editor team,

I hope this message finds you well.

I have completed the revisions for my article titled "Assessing The Influence of Information Technology on Female Entrepreneur Empowerment in Indonesia: The Role of Social and Psychological Capitals," as per the reviewers' feedback. The necessary changes have been marked in red, and I have filled out the script control form as requested. The manuscript has also been adjusted to meet the writing guidelines and the 14-page maximum limit.

Please find the revised version of the article attached for your review.

Thank you for your attention.

Best regards,

[Quoted text hidden]

--
Blessings,
Sherly Rosalina Tanoto

2 attachments

1. Form Kontrol Naskah.doc
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BUTIR KONTROL NASKAH

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

Jumlah halaman: (12-14 Halaman)

No	Pertanyaan	Ket
1	**Judul makalah cukup ringkas dan dapat melukiskan isi makalah dengan jelas ? (15-25 kata)**	yes
	Judul Bahasa Inggris (jika naskah dalam Bahasa Indonesia)	yes
2	**Abstrak telah merangkum secara singkat dan jelas tentang :**	
	Background	yes
	Purpose	yes
	Design/methodology/approach	yes
	Findings/Result	yes
	Conclusion	yes
	Originality/value (State of the art)	yes
	Keyword (harus 5 keyword)	yes
	Contoh: **ABSTRACT** **Background:** Entrepreneurial activities have a significant role in encouraging poverty alleviation, increasing prosperity, and creating job opportunities. Thus, it is urgent to publish the stories of successful entrepreneurs to spur the growth of new/young/budding ones. **Purpose:** This research aims to reveal the successful business journey of Buntoro (68 years), a self-taught entrepreneur who started his business from scratch. **Design/methodology/approach:** This research describes the success of an entrepreneur who dropped out of fifth grade elementary school using a narrative approach. **Findings/Result:** Buntoro's success story has similarities and differences with Antony Boaging –a businessman from the Philippines who is famous for Boaging's Bread. But, in some ways Buntoro could be said to be superior and more inspiring. **Conclusion:** An entrepreneur must have an entrepreneurial mind-set: highly motivated to succeed, resilient (tough), innovative and adaptive to changing situations. **Originality/value (State of the art):** Buntoro is a sort of entrepreneur who thinks globally and acts locally. He success is rooted in his hometown, then spread out of the region. **Keywords:** entrepreneurship, self-taught, hard work, business journey, autodidact entrepreneur	
3	**Pendahuluan (20%)**	
	Latar belakang (alasan penelitian dilakukan)	Hal ke 2 Paragraf ke 1.
	Status ilmiah dewasa ini/posisi penitian terhadap penelitian sebelumnya/terdahulu	Hal ke 3 Paragraf ke 4.
	Cara pendekatan penyelesaian masalah	Hal ke 4. Paragraf ke 1
	Tujuan penelitian	Hal ke 2.

		Paragraf ke 3
4	**Metode (20%)**	
	Lokasi dan waktu penelitian	Hal ke 4 Paragraf ke 1
	Jenis dan sumber data	Hal ke 54 Paragraf ke 2
	Teknik pengambilan data	Hal ke 4. Paragraf ke 3
	Teknik analisis data	Hal ke 5. Paragraf ke 1
	Hipotesis (harus diberikan dasar kenapa hipotesis ini diambil)	Hal ke. 5 Paragraf ke 1
	Kerangka pemikiran yang berupa gambar dan dijelaskan dalam 1 paragraf singkat	Hal ke 5
5	**Hasil (50%)**	
	Pembahasan tujuan 1	Hal ke 5-7
	Pembahasan tujuan 2	Hal ke 7-8
	Pembahasan tujuan 3	Hal ke 8-9
	dst	Hal ke 9
6	**Implikasi Manajerial**	Hal ke 11 Paragraf ke 4
7	**Kesimpulan dan saran (10%)**	
	Kesimpulan (dibuat paragraf (tidak numbering) sesuai jumlah tujuan)	Hal ke 12 Paragraf ke 1
	Saran (berisikan saran untuk instansi bersangkutan dan saran penelitian selanjutnya)	Hal ke 12 Paragraf ke 3
8	Daftar Pustaka (minimal 20 daftar pustaka 80% jurnal + 1 Jurnal JABM/JMA/IJBE*) – harus sesuai dengan penulisan/pedoman dan 5 tahun terakhir	
	*) sesuai jurnal yang di tuju atau dipilih	
	Jurnal (16 daftar pustaka)	
	Daftar pustaka jurnal 1 (Ahmed Z, 2018.)	Dikutip pada hal ke 10, 11, dan 12
	Daftar pustaka jurnal 2 (Ajumobi DO, Kyobe M. 2016.)	Dikutip pada hal ke 2 dan 3
	Daftar pustaka jurnal 3 (Appiah-Otoo I, Song N. 2021)	Dikutip pada hal ke 3

	Daftar pustaka jurnal 4 (Atmadja AS, Su JJ, Sharma P. 2016.)	Dikutip pada hal ke 10
	Daftar pustaka jurnal 5 (Avelino F, Dumitru A, Cipolla C, Kunze I, Wittmayer J. 2022)	Dikutip pada hal ke 10, 11, 12
	Daftar pustaka jurnal 6 (Baluku, MM, Kikooma, JF, Kibanja, GM. (2016).)	Dikutip pada hal ke 3
	Daftar pustaka jurnal 7 (Brown O, Smith LG, Davidson BI, Ellis DA. 2022.)	Dikutip pada hal ke 10
	Daftar pustaka jurnal 8 (Burt RS, Burzynska K. 2017.)	Dikutip pada hal ke 3
	Daftar pustaka jurnal 9 (Crittenden VL, Crittenden WF, Ajjan H. 2019.)	Dikutip pada hal ke 2 dan 4
	Daftar pustaka jurnal 10 (Davidson BI, Joinson AN. 2021.)	Dikutip pada hal ke 10
	Daftar pustaka jurnal 11 (Digan SP, Sahi GK, Mantok S, Patel, PC. 2019.)	Dikutip pada hal ke 2 dan 10
	Daftar pustaka jurnal 12 (Dixit AR, Malik N, Seth M, Sethi D. 2023.)	Dikutip pada hal ke 2 dan 3
	Daftar pustaka jurnal 13 (Hair JF, Black WC, Babin, BJ, Anderson RE. 2019.)	Dikutip pada hal ke 5, 8, dan 9
	Daftar pustaka jurnal 14 (Grözinger AC, Wolff S, Ruf PJ, Moog P. 2022.)	Dikutip pada hal ke 3
	Daftar pustaka jurnal 15 (Haji, L, Valizadeh, N, Karimi, H. 2022.)	Dikutip pada hal ke 3
	Daftar pustaka jurnal 16 (Leahy-Warren P, Nieuwenhuijze M. 2023)	Dikutip pada hal ke 3
	Daftar pustaka jurnal 17 (Kivalya NYI, Caballero-Montes T. 2023.)	Dikutip pada hal ke 2 dan 3
	Daftar pustaka jurnal 18 (Lupșa D, Vîrga D, Maricuțoiu, LP, Rusu A. 2020.)	Dikutip pada hal ke 3
	Daftar pustaka jurnal 19 (Luthans F, Youssef-Morgan CM. 2017.)	Dikutip pada hal ke 3

	Daftar pustaka jurnal 20 (Mazzei MJ. 2018.)	Dikutip pada hal ke 3
	Daftar pustaka jurnal 21 (Mazzucchelli A, Chierici R, Tortora D, Fontana S. (2021))	Dikutip pada hal ke 10
	Daftar pustaka jurnal 22 (Montiel-Campos H. 2019.)	Dikutip pada hal ke 4
	Daftar pustaka jurnal 23 (Moore S, Kawachi I. 2017.)	Dikutip pada hal ke 3
	Daftar pustaka jurnal 24 (Nawinna D, Venable JR. 2019.)	Dikutip pada hal ke 9
	Daftar pustaka jurnal 25 (Ngoa GBN, Song JS. 2021)	Dikutip pada hal ke 11
	Daftar pustaka jurnal 26 (Lorenz T, Beer C, Pütz J, Heinitz K. 2016)	Dikutip pada hal ke 12
	Daftar pustaka jurnal 27 (Omar A, Salessi S, Urteaga AF. 2014.)	Dikutip pada hal ke 4
	Daftar pustaka jurnal 28 (Prabawanti BE, Rusli, MS. 2022.)	Dikutip pada hal ke 3
	Daftar pustaka jurnal 29 (Rockenbauch T, Sakdapolrak, P, Sterly, H. 2019.)	Dikutip pada hal ke 3
	Daftar pustaka jurnal 30 (Sánchez-Fernández R, Jiménez-Castillo D. 2021.)	Dikutip pada hal ke 10 dan 12
	Daftar pustaka jurnal 31 (Senapati AK, Ojha K. 2019.)	Dikutip pada hal ke 3
	Daftar pustaka jurnal 32 (Smith C, Smith JB, Shaw E. 2017.)	Dikutip pada hal ke 10 dan 12
	Daftar pustaka jurnal 33 (Usman M, Ahmad MI. 2018.)	Dikutip pada hal ke 10 dan 12
	Daftar pustaka jurnal 34 (Wei W, Sarker T, Żukiewicz-Sobczak W, Roy R, Alam GM, Rabbany MG, ... & Aziz N. 2021.)	Dikutip pada hal ke 3
	Daftar pustaka jurnal 35 (Yudiastuti, Anni, & Heri Pratikto. 2021.)	Dikutip pada hal ke 10

	Daftar pustaka jurnal 36 (Zhao, J, Li, T. 2021.)	Dikutip pada hal ke 3
	Daftar pustaka jurnal 37 (Zivdar M, Imanipour N, Talebi K, Hosseini SR. 2017.)	Dikutip pada hal ke 3
	Buku/tesis/disertasi/internet	
	Daftar pustaka Buku/tesis/disertasi/internet 1 Central Bureau of Statistics. 2022.	Dikutip pada hal ke 2
	Daftar pustaka Buku/tesis/disertasi/internet 2 Dania R. 2019.	Dikutip pada hal ke 2
	Daftar pustaka Buku/tesis/disertasi/internet 3 Mashabi S. 2020.	Dikutip pada hal ke 2
	Daftar pustaka Buku/tesis/disertasi/internet 4 Ministry of Communication and Information Technology of the Republic of Indonesia. 2022.	Dikutip pada hal ke 2
	Daftar pustaka Buku/tesis/disertasi/internet 5 Ministry of Finance of the Republic of Indonesia. 2023.	Dikutip pada hal ke 2
	Daftar pustaka Buku/tesis/disertasi/internet 6 Ministry of Women's Empowerment and Child Protection of the Republic of Indonesia. 2022.	Dikutip pada hal ke 2
	Daftar pustaka Buku/tesis/disertasi/internet 7 United Nations. 2018.	Dikutip pada hal ke 2
	Daftar pustaka Buku/tesis/disertasi/internet 8 World Health Organization. 2018.	Dikutip pada hal ke 2
	Jurnal IJBE (Prabawanti & Rusli, 2022)	Dikutip pada hal ke 3

Naskah jurnal ini sepenuhnya sudah disetujui/konfirmasi oleh tim penulis lain/pembimbing/instansi objek penelitian.

Surabaya, 25 Agustus 2024
Penulis

(Sherly R. Tanoto)

Assessing The Influence of Informati
Empowerment in Indonesia: The R

Abstract:
Background: Gender equality is crucial for Indonesia's sustainable development, given that women represent nearly half of the population. Despite their significant economic

contributions, Indonesian women face considerable challenges in entrepreneurship, largely due to gender disparities.
Purpose: This study examines how Information and Communication Technology (ICT), social capital, and psychological factors impact women's entrepreneurship empowerment in Indonesia.
Design/Methodology/Approach: Using survey data from 176 female MSME entrepreneurs and structural equation modeling, the study explores the relationships between ICT, social capital, psychological capital, and empowerment.
Findings/Results: ICT enhances both social and psychological capital, which in turn positively impacts women's entrepreneurship empowerment.
Conclusion: Integrating ICT, social capital, and psychological capital provides new insights into women's empowerment in developing economies. Recommendations include improving ICT infrastructure, social networking, and psychological support programs.
Originality/Value (State of the Art): The study offers a novel approach by linking ICT, social capital, and psychological capital to women's empowerment in entrepreneurship, particularly in a developing country context.

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

Abstrak:
Latar Belakang: *Kesetaraan gender sangat penting untuk pembangunan berkelanjutan di Indonesia, mengingat wanita mewakili hampir separuh populasi. Meskipun kontribusi ekonomi mereka signifikan, wanita di Indonesia menghadapi tantangan besar dalam kewirausahaan, sebagian besar karena ketidaksetaraan gender.*
Tujuan: *Penelitian ini mengkaji bagaimana Teknologi Informasi dan Komunikasi (TIK), modal sosial, dan faktor psikologis memengaruhi pemberdayaan kewirausahaan wanita di Indonesia.*
Desain/Metodologi/Pendekatan: *Menggunakan data survei dari 176 wirausaha wanita UMKM dan pemodelan persamaan struktural, penelitian ini mengeksplorasi hubungan antara TIK, modal sosial, modal psikologis, dan pemberdayaan.*
Temuan/Hasil: *TIK meningkatkan baik modal sosial maupun modal psikologis, yang pada gilirannya berdampak positif pada pemberdayaan kewirausahaan wanita.*
Kesimpulan: *Integrasi TIK, modal sosial, dan modal psikologis memberikan wawasan baru tentang pemberdayaan wanita di ekonomi berkembang. Rekomendasi mencakup perbaikan infrastruktur TIK, jejaring sosial, dan program dukungan psikologis.*
Kebaruan/Nilai (State of the Art): *Penelitian ini menawarkan pendekatan baru dengan menghubungkan TIK, modal sosial, dan modal psikologis pada pemberdayaan kewirausahaan wanita, khususnya dalam konteks negara berkembang.*

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 key objectives among the 17 goals is gender equality and the empowerment of women and girls (United Nations, 2018). In Indonesia, gender equality remains a challenge. The Gender

Development Index in 2022 stood at 94.01%, indicating some progress but still reflecting significant gender gaps, particularly in economic opportunities and entrepreneurship (Central Bureau of Statistics, 2022). These disparities are critical, as nearly 50% of Indonesia's population comprises women, and gender inequality can lead to adverse outcomes such as poverty and limited access to education, healthcare, and financial resources (Dixit et al., 2023).

Women are pivotal to the growth of Micro, Small, and Medium Enterprises (MSMEs), which contributed 61% of Indonesia's economy in 2023 (Ministry of Finance, 2023). Despite Indonesia having the highest percentage of women entrepreneurs in Southeast Asia (Ministry of Communication and Information Technology, 2022), they face numerous challenges, particularly in accessing resources and support networks, as reflected in the low Gender Empowerment Index (GEI) (Dania, 2019).

This study seeks to investigate the role of Information and Communication Technology (ICT) in empowering women entrepreneurs in Indonesia. ICT has the potential to transform the socio-economic landscape by providing women with the tools to overcome barriers and enhance their entrepreneurial activities (Ajumobi & Kyobe, 2016). The research will explore how ICT adoption influences women's empowerment in entrepreneurship and how it interacts with other crucial factors such as social capital and psychological capital.

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. (2019), which only examined psychological capital and empowerment in the manufacturing sector.

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). Other research reinforces the argument that ICT benefits low-income countries more (Appiah-Otoo & Song, 2021). Moreover, a recent approach in ICT development focuses on removing time constraints and creating space for communication, thereby facilitating the growth of social networks (Zhao & Li et al., 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 (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). 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. 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). Other findings indicate that psychological capital influences empowerment (Haji et al., 2022).

The research aims to comprehensively examine several key aspects related to women's entrepreneurship empowerment in Indonesia. Firstly, the study seeks to investigate the influence of Information and Communication Technology (ICT) adoption on empowering women entrepreneurs. Secondly, the research aims to delve into the role of social capital in promoting women's entrepreneurship empowerment. Social capital encompasses the networks, relationships, and social connections that contribute to women's access to resources, information, and support within entrepreneurial contexts. Thirdly, the study aims to assess the

impact of psychological capital on women's empowerment within the entrepreneurship landscape. Psychological capital refers to the individual's positive psychological resources such as self-efficacy, optimism, resilience, and hope, and the study will explore how these factors influence women's empowerment in entrepreneurship. Additionally, the research aims to analyze the interrelationships between ICT adoption, social capital, and psychological capital in shaping women entrepreneurship empowerment. By understanding these complex dynamics, the study aims to provide insights into the integrated role of these factors in empowering women entrepreneurs. These aims collectively contribute to advancing knowledge on strategies to promote women's economic participation and empowerment in Indonesia's evolving entrepreneurial landscape.

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 data collection process was conducted from July 17 to November 3, 2023, by distributing a questionnaire in the form of a Google Form to female MSME communities in Indonesia. The data used in this research are primary data obtained through the questionnaire distributed to all research subjects. The primary data obtained from respondents and their responses are related to several research variables: empowerment, information technology, social capital, and psychological capital.

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) 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). In this study, SEM-PLS is preferred over multiple regression and factor analysis due to its ability to handle complex, multivariate relationships and latent variables. Unlike multiple regression, which is limited to examining the direct relationships between a single dependent variable and multiple independent variables, SEM-PLS enables the simultaneous analysis of multiple interrelated dependent and independent variables, making it ideal for evaluating the multifaceted impact of Information and Communication Technology (ICT), social capital, and psychological capital on women's empowerment.

The hypotheses of this study are as follows:
H_1: ICT influences social capital
H_2: ICT influences psychological capital
H_3: Social capital influences empowerment
H_4: Psychological capital influences empowerment
H_5: The relationship between ict and empowerment is mediated by social capital

The research framework, depicted in Figure 1, illustrates these relationships. Solid lines represent direct effects, while dashed lines represent indirect effects.

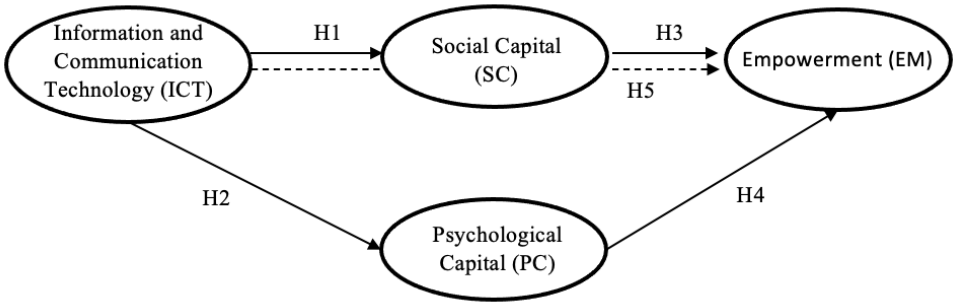


Figure 1. Research Framework

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)	AVE
	ICT1: ICT facilitates clear direct sales	0.785	0.643
	ICT2: Comfortable using ICT for sales	0.791	

Variable	Item	Loading Factor (>0,6)	AVE
Information and Communication Technology (ICT)	ICT3: Capable of applying ICT for sales	0.811	
	ICT4: ICT apps aid direct sales	0.716	
	ICT5: Dependent on ICT for sales	0.747	
	ICT6: ICT integral to daily sales	0.870	
	ICT7: ICT supports direct sales activities	0.888	
	ICT8: ICT for business issue communication	0.785	
	ICT9: ICT communicates with sales staff	0.797	
	ICT10: ICT communicates with sales customers	0.837	
	ICT11: ICT for socializing with sales communities	0.771	
	ICT12: ICT as learning tool for sales	0.811	
Social Capital (SC)	SC1: Identify and solve problems collaboratively	0.850	0.726
	SC2: Share information and learn from team	0.886	
	SC3: Collaborate with stakeholders	0.819	
Psychological Capital (PC)	PC1: Provide sales product information	0.711	
	PC2: Tasks hoped to be completed	0.720	
	PC3: Expectation of work improvement	0.714	
	PC4: Important tasks at work	0.726	
	PC5: Projects for workplace change	0.706	
	PC6: Solve difficult work problems with effort	0.722	
	PC7: Achieve goals despite opposition	0.730	
	PC8: Handle significant work challenges	0.829	
	PC9: Manage unexpected work situations	0.782	0.567
	PC10: Overcome workplace difficulties effectively	0.821	
	PC11: Maintain personal well-being at work	0.777	
	PC12: Overcome work challenges successfully	0.814	
	PC13: Strength to meet work demands	0.793	
	PC14: View projects positively	0.780	
	PC15: Expect success in new projects	0.707	
	PC16: Achieve most work goals	0.722	
	PC17: Simplify minor task difficulties	0.728	

Variable	Item	Loading Factor (>0,6)	AVE
Empowerment (EM)	EM1: Effective in direct sales	0.729	
	EM2: Skilled in direct sales tasks	0.846	
	EM3: Confident in mentoring female salespeople	0.740	
	EM4: Authority in direct sales decisions	0.868	
	EM5: Freedom in managing direct sales	0.782	0.612
	EM6: Inspired by others' sales achievements	0.720	
	EM7: Significant impact in direct sales business	0.735	
	EM8: Influence on other women in sales	0.811	
	EM9: Full control over direct sales outcomes	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

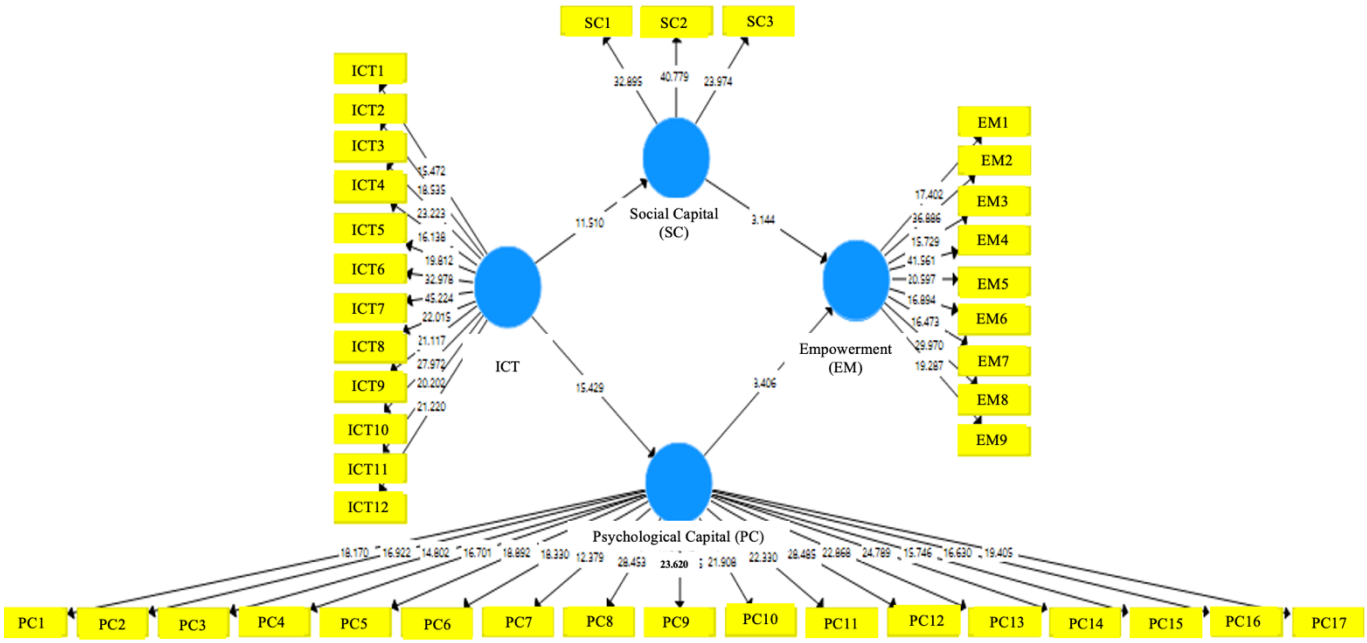
Hypothesis testing was conducted using the bootstrapping method to generate t-statistic values used to test each hypothesis. This study employed a confidence level of 95%, meaning the t-table value is 1.96. If the t-statistic value generated > the t-table value of 1.96 and the p-values < 0.05, then the 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



The study's findings underscore the significant role of Information and Communication Technology (ICT) in influencing social capital, psychological capital, and empowerment among women entrepreneurs in Indonesia. This aligns with the theoretical framework that posits ICT as a critical enabler of social and psychological resources, which are essential for entrepreneurial success.

This study's findings align with Nawinna & Venable's (2019) research, which highlights that ICT significantly impacts social capital dimensions. In the Indonesian context, the role of ICT in overcoming interaction difficulties is particularly significant due to the country's diverse and geographically dispersed population. Unlike in more technologically advanced countries, Indonesian women entrepreneurs face unique challenges such as limited access to reliable internet and varying levels of digital literacy. This contrasts with the more seamless ICT integration observed in developed nations, where entrepreneurs may experience fewer barriers to technology adoption. Despite these challenges, ICT in Indonesia facilitates efficient communication and knowledge sharing, which is crucial for overcoming local constraints and fostering innovation (Mazzucchelli et al., 2019). The development of ICT provides an avenue for Indonesian women entrepreneurs to enhance their social capital and well-being, enabling them to stay connected with peers and customers despite logistical challenges. These technologies also improve their confidence, self-efficacy, and resilience (Yudiastuti et al., 2021).

Furthermore, Smith et al. (2017) found that computer-mediated communication aids in building both bridging and bonding social capital. For Indonesian women entrepreneurs, ICT

offers a platform to connect with a broader network of peers and potential customers, which is particularly valuable in a country with significant regional disparities. This contrasts with experiences in developed countries, where women entrepreneurs may benefit from more robust ICT infrastructure and support systems. Crittenden et al. (2019) emphasized that ICT, including mobile devices and social media, facilitates networking and business promotion. In Indonesia, where traditional business practices are prevalent, the adoption of ICT represents a significant shift towards modern communication methods, bridging the gap between traditional and contemporary practices. This shift is often more pronounced in Indonesia compared to other countries where digital transformation may be more advanced.

The study's results also indicate that ICT influences psychological capital, a finding consistent with Davidson and Joinson's (2021) conclusions. Social media, a prevalent ICT tool in Indonesia, significantly impacts psychological capital by providing multiple communication channels. Indonesian women entrepreneurs, who often have to navigate complex social and economic environments, find that social media enhances their hope, efficacy, resilience, and optimism (Brown et al., 2022; Sánchez-Fernández & Jiménez-Castillo, 2021). For example, social media visibility can boost hope and optimism by showcasing business successes and attracting positive feedback, while also testing resilience in the face of criticism.

The findings support Avelino et al.'s (2022) assertion that social capital influences empowerment. In Indonesia, where social networks play a crucial role in business success, the social capital derived from ICT use can significantly enhance women's economic and social empowerment (Ul Hammed et al., 2018; Usman & Ahmad, 2018). The social relationships formed through ICT provide both economic opportunities and social support, crucial for women entrepreneurs in a developing country context. 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.

This study also corroborates Digan et al.'s (2019) findings on the positive impact of psychological capital on empowerment. In the Indonesian context, where entrepreneurial challenges are often intensified by socio-economic factors, psychological capital helps women entrepreneurs to overcome obstacles and achieve success (Lorenz et al., 2016; Joo et al., 2016). The ability to manage stress, maintain optimism, and adapt to changing circumstances is vital in navigating the unique challenges faced by Indonesian women entrepreneurs.

Moreover, Crittenden et al. (2019) highlight that efficacy positively influences empowerment, which is crucial in the Indonesian context where self-confidence and perseverance are essential for overcoming barriers in a developing economy. Psychological capital equips Indonesian women entrepreneurs with the resilience and determination needed to navigate their complex business environments. Digan et al. (2019) also found that psychological capital equips entrepreneurs to overcome many mental and emotional challenges associated with the entrepreneurial process.

ICT serves as a critical mediator between social capital and women's empowerment, particularly in business sustainability. In Indonesia, where social and economic conditions are rapidly evolving, ICT provides a significant advantage by connecting women to broader networks and opportunities (Ahmed, 2018; Gil et al., 2020). Social media, in particular,

facilitates business growth by enabling Indonesian women entrepreneurs to build social relationships, access new markets, and promote their products effectively (Ngoa & Song, 2021). The integration of ICT into their business practices represents a significant shift towards more sustainable and inclusive entrepreneurial practices.

In this context, social capital—comprising the network of social relationships built by women entrepreneurs—plays a crucial role. Indonesian women entrepreneurs with robust social capital often experience higher levels of empowerment (Avelino et al., 2022). The establishment of social relationships with other entrepreneurs and customers enhances their business competencies and capabilities. In Indonesia, where regional diversity and varying levels of infrastructure can impact business operations, the information and support obtained through these networks are vital. They help women entrepreneurs navigate local challenges and leverage opportunities, thereby controlling and achieving their business goals more effectively. Consequently, social capital is integral to understanding how ICT utilization influences women's empowerment in the Indonesian business landscape, as it facilitates access to critical resources and knowledge essential for entrepreneurial success.

Managerial Implications

The research highlights key managerial implications for empowering women through strategic use of ICT. First, investing in ICT infrastructure and platforms that facilitate networking and collaboration among women entrepreneurs is crucial. Policymakers should focus on developing digital platforms that enable women to connect, share knowledge, and access resources, thereby enhancing their social capital. Second, ICT plays a significant role in shaping the psychological capital of women entrepreneurs. Managers should provide training programs and resources to build positive psychological attributes such as self-efficacy, optimism, and resilience, helping women navigate challenges and pursue their entrepreneurial goals with confidence. Third, recognizing the mediating role of social capital in the ICT-empowerment relationship underscores the need to foster supportive social networks within entrepreneurial ecosystems. Policymakers should facilitate opportunities for women entrepreneurs to build and leverage social capital through networking events, mentorship programs, and community initiatives. Integrating these managerial implications into entrepreneurship support programs can create an environment that empowers women to thrive in the digital economy.

CONCLUSION AND RECOMMENDATIONS

Conclusions

This study provides a nuanced understanding of the interplay between Information and Communication Technology (ICT), social capital, psychological capital, and women's empowerment within the Indonesian entrepreneurial context. Our findings align with and extend existing literature by demonstrating the pivotal role of ICT in enhancing women entrepreneurs' social and psychological resources. This supports the conclusions of Smith et al. (2017) and Crittenden et al. (2019), who highlighted ICT's role in facilitating networking and market access. Additionally, our research corroborates the importance of social capital in mediating the relationship between ICT and empowerment, as discussed by Avelino et al. (2022) and Usman & Ahmad (2018).

Theoretical contributions of this study include advancing the understanding of how ICT influences psychological capital through social media and other digital platforms. Our findings reinforce the theoretical frameworks proposed by Sánchez-Fernández & Jiménez-Castillo (2021) and Digan et al. (2019), which emphasize the dimensions of psychological capital—hope, efficacy, resilience, and optimism—in shaping entrepreneurial outcomes. This integration of ICT into psychological capital development offers new insights into how technological advancements can enhance individual and collective empowerment.

Recommendations

Future research should explore additional variables affecting women's empowerment, such as motivation and family support, to gain a deeper understanding of the empowerment process. Investigating specific business sectors or MSMEs could also reveal new insights into women's entrepreneurship. It is also important to examine ICT adoption's impact on women's empowerment across different cultural and socio-economic contexts. Understanding how ICT-mediated interactions and digital platforms can be leveraged in diverse settings is essential for promoting inclusive development. Future studies should assess targeted interventions and policies to improve women's access to ICT resources and address the digital gender divide, contributing to more effective and gender-responsive strategies.

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Editor team
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http://journal.ipb.ac.id/index.php/ijbe | 0856-9838-450 (WA only)

Accredited
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ASSESSING THE INFLUENCE OF INFORMATION TECHNOLOGY ON FEMALE ENTREPRENEUR EMPOWERMENT IN INDONESIA: THE ROLE OF SOCIAL AND PSYCHOLOGICAL CAPITALS

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Article history:

Received
24 August 2023

Revised
7 November 2023

Accepted
12 February 2024

Available online
31 May 2024

ABSTRACT

Background: Gender equality is crucial for Indonesia's sustainable development, given that women represent nearly half the population. Despite their significant economic contributions, Indonesian women face considerable challenges in entrepreneurship, largely due to gender disparities.
Purpose: This study examines how Information and Communication Technology (ICT), social capital, and psychological factors impact women's entrepreneurship empowerment in Indonesia.
Design/Methodology/Approach: Using survey data from 176 female MSME entrepreneurs and structural equation modeling, the study explores the relationships between ICT, social capital, psychological capital, and empowerment.
Findings/Results: ICT enhances both social and psychological capital, which in turn positively impacts women's entrepreneurship empowerment.
Conclusion: Integrating ICT, social capital, and psychological capital provides new insights into women's empowerment in developing economies. Recommendations include improving ICT infrastructure, social networking, and psychological support programs.
Originality/Value (State of the Art): The study offers a novel approach by linking ICT, social capital, and psychological capital to women's empowerment in entrepreneurship, particularly in a developing country context.

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

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INTRODUCTION

Aligned with the United Nations Sustainable Development Goals agenda for 2030, one of the key objectives among the 17 goals is gender equality and the empowerment of women and girls (United Nations, 2018). In Indonesia, gender equality remains a challenge. The Gender Development Index 2022 stood at 94.01%, indicating progress but still reflecting significant gender gaps, particularly in economic opportunities and entrepreneurship (Central Bureau of Statistics, 2022). These disparities are critical, as nearly 50% of Indonesia's population comprises women and gender inequality can lead to adverse outcomes such as poverty and limited access to education, healthcare, and financial resources (Dixit et al., 2023).

Women are pivotal to the growth of Micro, Small, and Medium Enterprises (MSMEs), which contributed 61% of Indonesia's economy in 2023 (Ministry of Finance, 2023). Despite Indonesia having the highest percentage of women entrepreneurs in Southeast Asia (Ministry of Communication and Information Technology, 2022), they face numerous challenges, particularly in accessing resources and support networks, as reflected in the low Gender Empowerment Index (GEI) (Dania, 2019).

This study seeks to investigate the role of Information and Communication Technology (ICT) in empowering women entrepreneurs in Indonesia. ICT has the potential to transform the socio-economic landscape by providing women with the tools to overcome barriers and enhance their entrepreneurial activities (Ajumobi & Kyobe, 2016). The research will explore how ICT adoption influences women's empowerment in entrepreneurship and how it interacts with other crucial factors such as social capital and psychological capital.

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. (2019), which only examined psychological capital and empowerment in the manufacturing sector.

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). Other research reinforces the argument that ICT benefits low-income countries more (Appiah-Otoo & Song, 2021). Moreover, a recent approach in ICT development focuses on removing time constraints and creating space for communication, thereby facilitating the growth of social networks (Zhao & Li et al., 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 (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). 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. 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). Other findings indicate that psychological capital influences empowerment (Haji et al., 2022).

The research aims to comprehensively examine several key aspects related to women's entrepreneurship empowerment in Indonesia. Firstly, the study seeks to investigate the influence of Information and Communication Technology (ICT) adoption on empowering women entrepreneurs. Secondly, the research aims to delve into the role of social capital in promoting women's entrepreneurship empowerment. Social capital encompasses the networks, relationships, and social connections that contribute to women's access to resources, information, and support within entrepreneurial contexts. Thirdly, the study aims to assess the impact of psychological capital on women's empowerment within the entrepreneurship landscape. Psychological capital refers to the individual's positive psychological resources such as self-efficacy, optimism, resilience, and hope, and the study will explore how these factors influence women's empowerment in entrepreneurship. Additionally, the research aims to analyze the interrelationships between ICT adoption, social capital, and psychological capital in shaping women's entrepreneurship empowerment. By understanding these complex dynamics, the study aims to provide insights into the integrated role of these factors in empowering women entrepreneurs. These aims collectively contribute to advancing knowledge on strategies to promote women's economic participation and empowerment in Indonesia's evolving entrepreneurial landscape.

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 data collection process was conducted from July 17 to November 3, 2023, by distributing a questionnaire in the form of a Google Form to female MSME communities in Indonesia. The data used in this research are primary data obtained through the questionnaire distributed to all research subjects. The primary data obtained from respondents and their responses are related to several research variables: empowerment, information technology, social capital, and psychological capital.

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) 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). In this study, SEM-PLS is preferred over multiple regression and factor analysis due to its ability to handle complex, multivariate relationships and latent variables. Unlike multiple regression, which is limited to examining the direct relationships between a single dependent variable and multiple independent variables, SEM-PLS enables the simultaneous analysis of multiple interrelated dependent and independent variables, making it ideal for evaluating the multifaceted impact of Information and Communication Technology (ICT), social capital, and psychological capital on women's empowerment.

The hypotheses of this study are as follows:
H_1: ICT influences social capital
H_2: ICT influences psychological capital
H_3: Social capital influences empowerment
H_4: Psychological capital influences empowerment
H_5: The relationship between ict and empowerment is mediated by social capital

The research framework, depicted in Figure 1, illustrates these relationships. Solid lines represent direct effects, while dashed lines represent indirect effects.

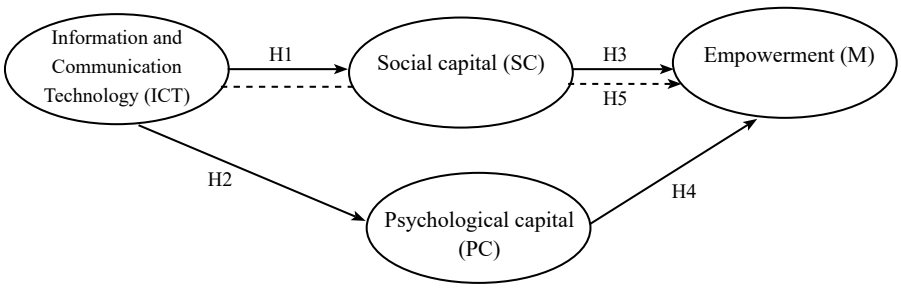

Figure 1. Research framework

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)	AVE
Information and Communication Technology (ICT)	ICT1: ICT facilitates clear direct sales	0.785	0.643
	ICT2: Comfortable using ICT for sales	0.791	
	ICT3: Capable of applying ICT for sales	0.811	
	ICT4: ICT apps aid direct sales	0.716	
	ICT5: Dependent on ICT for sales	0.747	
	ICT6: ICT integral to daily sales	0.870	
	ICT7: ICT supports direct sales activities	0.888	
	ICT8: ICT for business issue communication	0.785	
	ICT9: ICT communicates with sales staff	0.797	
	ICT10: ICT communicates with sales customers	0.837	
	ICT11: ICT for socializing with sales communities	0.771	
	ICT12: ICT as learning tool for sales	0.811	
Social Capital (SC)	SC1: Identify and solve problems collaboratively	0.850	0.726
	SC2: Share information and learn from team	0.886	
	SC3: Collaborate with stakeholders	0.819	
Psychological Capital (PC)	PC1: Provide sales product information	0.711	0.567
	PC2: Tasks hoped to be completed	0.720	
	PC3: Expectation of work improvement	0.714	
	PC4: Important tasks at work	0.726	
	PC5: Projects for workplace change	0.706	
	PC6: Solve difficult work problems with effort	0.722	
	PC7: Achieve goals despite opposition	0.730	
	PC8: Handle significant work challenges	0.829	
	PC9: Manage unexpected work situations	0.782	
	PC10: Overcome workplace difficulties effectively	0.821	
	PC11: Maintain personal well-being at work	0.777	
	PC12: Overcome work challenges successfully	0.814	
	PC13: Strength to meet work demands	0.793	
	PC14: View projects positively	0.780	
	PC15: Expect success in new projects	0.707	
	PC16: Achieve most work goals	0.722	
	PC17: Simplify minor task difficulties	0.728	

Table 1. Convergent Validity Results (continue)

Variable	Item	Loading Factor (>0,6)	AVE
Empowerment (EM)	EM1: Effective in direct sales	0.729	0.612
	EM2: Skilled in direct sales tasks	0.846	
	EM3: Confident in mentoring female salespeople	0.740	
	EM4: Authority in direct sales decisions	0.868	
	EM5: Freedom in managing direct sales	0.782	
	EM6: Inspired by others' sales achievements	0.720	
	EM7: Significant impact in direct sales business	0.735	
	EM8: Influence on other women in sales	0.811	
	EM9: Full control over direct sales outcomes	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.

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.

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.

The study's findings underscore the significant role of Information and Communication Technology (ICT) in influencing social capital, psychological capital, and empowerment among women entrepreneurs in Indonesia. This aligns with the theoretical framework that posits ICT as a critical enabler of social and psychological resources, which are essential for entrepreneurial success.

This study's findings align with Nawinna & Venable's (2019) research, which highlights that ICT significantly impacts social capital dimensions. In the Indonesian context, the role of ICT in overcoming interaction difficulties is particularly significant due to the country's diverse and geographically dispersed population. Unlike in more technologically advanced countries, Indonesian women entrepreneurs face unique challenges such as limited access to reliable internet and varying levels of digital literacy. This contrasts with the more seamless ICT integration observed in developed nations, where entrepreneurs may experience fewer barriers to technology adoption. Despite these challenges, ICT in Indonesia facilitates efficient communication and knowledge sharing, which is crucial for overcoming local constraints and fostering innovation (Mazzucchelli et al., 2019). The development of ICT provides an avenue for Indonesian women entrepreneurs to enhance their social capital and well-being, enabling them to stay connected with peers and customers despite logistical challenges. These technologies also improve their confidence, self-efficacy, and resilience (Yudiastuti et al., 2021).

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

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

Table 4. Hypotheses Test Results

	Hypotheses	Path Coefficient	T-statistic	P-value	Result
H1	ICT -> SC	0.605	11.510	0.000	Accepted
H2	ICT -> PC	0.672	15.429	0.000	Accepted
H3	SC -> EM	0.248	3.144	0.002	Accepted
H4	PC -> EM	0.587	8.406	0.000	Accepted
H5	ICT -> SC -> EM	0.150	2.891	0.004	Accepted

Note: Information and Communication Technology (ICT); Social Capital (SC); Psychological Capital (PC); Empowerment (EM)

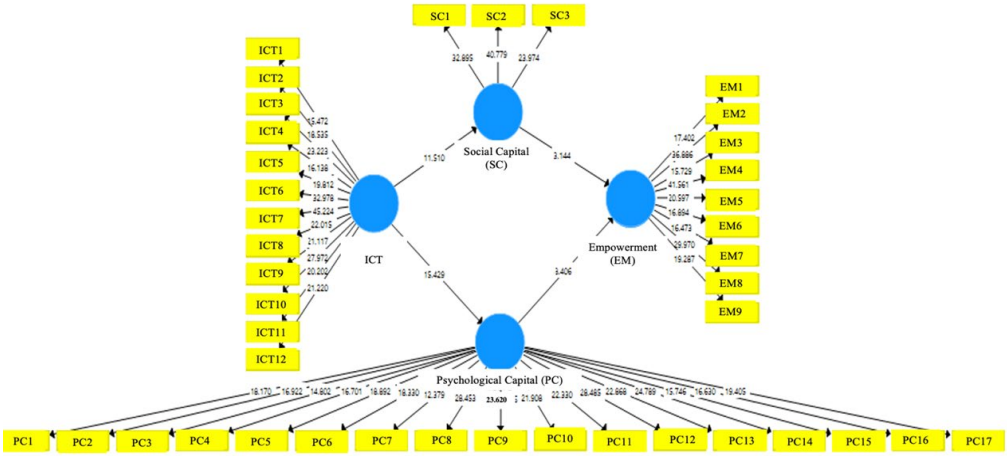

Figure 2. Inner model results

Furthermore, Smith et al. (2017) found that computer-mediated communication aids in building both bridging and bonding social capital. For Indonesian women entrepreneurs, ICT offers a platform to connect with a broader network of peers and potential customers, which is particularly valuable in a country with significant regional disparities. This contrasts with experiences in developed countries, where women entrepreneurs may benefit from more robust ICT infrastructure and support systems. Crittenden et al. (2019) emphasized that ICT, including mobile devices and social media, facilitates networking and business promotion. In Indonesia, where traditional business practices are prevalent, the adoption of ICT represents a significant shift towards modern communication methods, bridging the gap between traditional and contemporary practices. This shift is often more pronounced in Indonesia compared to other countries where digital transformation may be more advanced.

The study's results also indicate that ICT influences psychological capital, a finding consistent with Davidson and Joinson's (2021) conclusions. Social media, a prevalent ICT tool in Indonesia, significantly impacts psychological capital by providing multiple communication channels. Indonesian women entrepreneurs, who often have to navigate complex social and economic environments, find that social media enhances their hope, efficacy, resilience, and optimism (Brown et al., 2022; Sánchez-Fernández &

Jiménez-Castillo, 2021). For example, social media visibility can boost hope and optimism by showcasing business successes and attracting positive feedback, while also testing resilience in the face of criticism.

The findings support Avelino et al.'s (2022) assertion that social capital influences empowerment. In Indonesia, where social networks play a crucial role in business success, the social capital derived from ICT use can significantly enhance women's economic and social empowerment (Ul Hammed et al., 2018; Usman & Ahmad, 2018). The social relationships formed through ICT provide both economic opportunities and social support, crucial for women entrepreneurs in a developing country context. 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.

This study also corroborates Digan et al.'s (2019) findings on the positive impact of psychological capital on empowerment. In the Indonesian context, where entrepreneurial challenges are often intensified by socio-economic factors, psychological capital helps women entrepreneurs to overcome obstacles and achieve success (Lorenz et al., 2016; Joo et al., 2016). The ability to manage stress, maintain optimism, and adapt to changing circumstances is vital in navigating the unique challenges faced by Indonesian women entrepreneurs.

Moreover, Crittenden et al. (2019) highlight that efficacy positively influences empowerment, which is crucial in the Indonesian context where self-confidence and perseverance are essential for overcoming barriers in a developing economy. Psychological capital equips Indonesian women entrepreneurs with the resilience and determination needed to navigate their complex business environments. Digan et al. (2019) also found that psychological capital equips entrepreneurs to overcome many mental and emotional challenges associated with the entrepreneurial process.

ICT serves as a critical mediator between social capital and women's empowerment, particularly in business sustainability. In Indonesia, where social and economic conditions are rapidly evolving, ICT provides a significant advantage by connecting women to broader networks and opportunities (Ahmed, 2018; Gil et al., 2020). Social media, in particular, facilitates business growth by enabling Indonesian women entrepreneurs to build social relationships, access new markets, and promote their products effectively (Ngoa & Song, 2021). The integration of ICT into their business practices represents a significant shift towards more sustainable and inclusive entrepreneurial practices.

In this context, social capital comprising the network of social relationships built by women entrepreneurs plays a crucial role. Indonesian women entrepreneurs with robust social capital often experience higher levels of empowerment (Avelino et al., 2022). The establishment of social relationships with other entrepreneurs and customers enhances their business competencies and capabilities. In Indonesia, where regional diversity and varying levels of infrastructure can impact business operations, the information and support obtained through these networks are vital. They help women entrepreneurs navigate local challenges and leverage opportunities, thereby controlling and achieving their business goals more effectively. Consequently, social capital is integral to understanding how ICT utilization influences women's empowerment in the Indonesian business landscape, as it facilitates access to critical resources and knowledge essential for entrepreneurial success.

Managerial Implications

The research highlights key managerial implications for empowering women through the strategic use of ICT. First, investing in ICT infrastructure and platforms that facilitate networking and collaboration among women entrepreneurs is crucial. Policymakers should focus on developing digital platforms that enable women to connect, share knowledge, and access resources, thereby enhancing their social capital. Second, ICT plays a significant role in shaping the psychological capital of women entrepreneurs. Managers should provide training programs and resources to build positive psychological attributes such as self-efficacy, optimism, and resilience, helping women navigate challenges and pursue their entrepreneurial goals

with confidence. Third, recognizing the mediating role of social capital in the ICT-empowerment relationship underscores the need to foster supportive social networks within entrepreneurial ecosystems. Policymakers should facilitate opportunities for women entrepreneurs to build and leverage social capital through networking events, mentorship programs, and community initiatives. Integrating these managerial implications into entrepreneurship support programs can create an environment that empowers women to thrive in the digital economy.

CONCLUSION AND RECOMMENDATIONS

Conclusions

This study provides a nuanced understanding of the interplay between Information and Communication Technology (ICT), social capital, psychological capital, and women's empowerment within the Indonesian entrepreneurial context. Our findings align with and extend existing literature by demonstrating the pivotal role of ICT in enhancing women entrepreneurs' social and psychological resources. This supports the conclusions of Smith et al. (2017) and Crittenden et al. (2019), who highlighted ICT's role in facilitating networking and market access. Additionally, our research corroborates the importance of social capital in mediating the relationship between ICT and empowerment, as discussed by Avelino et al. (2022) and Usman & Ahmad (2018).

Theoretical contributions of this study include advancing the understanding of how ICT influences psychological capital through social media and other digital platforms. Our findings reinforce the theoretical frameworks proposed by Sánchez-Fernández & Jiménez-Castillo (2021) and Digan et al. (2019), which emphasize the dimensions of psychological capital—hope, efficacy, resilience, and optimism—in shaping entrepreneurial outcomes. This integration of ICT into psychological capital development offers new insights into how technological advancements can enhance individual and collective empowerment.

Recommendations

Future research should explore additional variables affecting women's empowerment, such as motivation and family support, to gain a deeper understanding of the empowerment process. Investigating specific business sectors or MSMEs could also reveal new insights into women's entrepreneurship. It is also important to examine ICT adoption's impact on women's empowerment across different cultural and socio-economic contexts. Understanding how ICT-mediated interactions and digital platforms can be leveraged in diverse settings is essential for promoting inclusive development. Future studies should assess targeted interventions and policies to improve women's access to ICT resources and address the digital gender divide, contributing to more effective and gender-responsive strategies.

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10. Bukti email balasan dan revisi terakhir (23 September 2024)

UNIVERSITAS KRISTEN PETRA

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Additionally, I would like to inform you that I have revised by adding one reference (Esfandabadi et al., 2015), which was not previously included in the reference list.

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Indonesian Journal of Business and Entrepreneurship, Vol. 10 No. 3, September 2024
Permalink/DOI: http://doi.org/10.17358/IJBE.10.3.235

Available online at
http://journal.ipb.ac.id/index.php/ijbe

ASSESSING THE INFLUENCE OF INFORMATION TECHNOLOGY ON FEMALE ENTREPRENEUR EMPOWERMENT IN INDONESIA: THE ROLE OF SOCIAL AND PSYCHOLOGICAL CAPITALS

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Article history:

Received
24 August 2023

Revised
7 November 2023

Accepted
12 February 2024

Available online
31 May 2024

ABSTRACT

Background: Gender equality is crucial for Indonesia's sustainable development, given that women represent nearly half the population. Despite their significant economic contributions, Indonesian women face considerable challenges in entrepreneurship, largely due to gender disparities.
Purpose: This study examines how Information and Communication Technology (ICT), social capital, and psychological factors impact women's entrepreneurship empowerment in Indonesia.
Design/Methodology/Approach: Using survey data from 176 female MSME entrepreneurs and structural equation modeling, the study explores the relationships between ICT, social capital, psychological capital, and empowerment.
Findings/Results: ICT enhances both social and psychological capital, which in turn positively impacts women's entrepreneurship empowerment.
Conclusion: Integrating ICT, social capital, and psychological capital provides new insights into women's empowerment in developing economies. Recommendations include improving ICT infrastructure, social networking, and psychological support programs.
Originality/Value (State of the Art): The study offers a novel approach by linking ICT, social capital, and psychological capital to women's empowerment in entrepreneurship, particularly in a developing country context.

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

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INTRODUCTION

Aligned with the United Nations Sustainable Development Goals agenda for 2030, one of the key objectives among the 17 goals is gender equality and the empowerment of women and girls (United Nations, 2018). In Indonesia, gender equality remains a challenge. The Gender Development Index 2022 stood at 94.01%, indicating progress but still reflecting significant gender gaps, particularly in economic opportunities and entrepreneurship (Central Bureau of Statistics, 2022). These disparities are critical, as nearly 50% of Indonesia's population comprises women and gender inequality can lead to adverse outcomes such as poverty and limited access to education, healthcare, and financial resources (Dixit et al., 2023).

Women are pivotal to the growth of Micro, Small, and Medium Enterprises (MSMEs), which contributed 61% of Indonesia's economy in 2023 (Ministry of Finance, 2023). Despite Indonesia having the highest percentage of women entrepreneurs in Southeast Asia (Ministry of Communication and Information Technology, 2022), they face numerous challenges, particularly in accessing resources and support networks, as reflected in the low Gender Empowerment Index (GEI) (Dania, 2019).

This study seeks to investigate the role of Information and Communication Technology (ICT) in empowering women entrepreneurs in Indonesia. ICT has the potential to transform the socio-economic landscape by providing women with the tools to overcome barriers and enhance their entrepreneurial activities (Ajumobi & Kyobe, 2016). The research will explore how ICT adoption influences women's empowerment in entrepreneurship and how it interacts with other crucial factors such as social capital and psychological capital.

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. (2019), which only examined psychological capital and empowerment in the manufacturing sector.

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). Other research reinforces the argument that ICT benefits low-income countries more (Appiah-Otoo & Song, 2021). Moreover, a recent approach in ICT development focuses on removing time constraints and creating space for communication, thereby facilitating the growth of social networks (Zhao & Li et al., 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 (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). 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. 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). Other findings indicate that psychological capital influences empowerment (Haji et al., 2022).

The research aims to comprehensively examine several key aspects related to women's entrepreneurship empowerment in Indonesia. Firstly, the study seeks to investigate the influence of Information and Communication Technology (ICT) adoption on empowering women entrepreneurs. Secondly, the research aims to delve into the role of social capital in promoting women's entrepreneurship empowerment. Social capital encompasses the networks, relationships, and social connections that contribute to women's access to resources, information, and support within entrepreneurial contexts. Thirdly, the study aims to assess the impact of psychological capital on women's empowerment within the entrepreneurship landscape. Psychological capital refers to the individual's positive psychological resources such as self-efficacy, optimism, resilience, and hope, and the study will explore how these factors influence women's empowerment in entrepreneurship. Additionally, the research aims to analyze the interrelationships between ICT adoption, social capital, and psychological capital in shaping women's entrepreneurship empowerment. By understanding these complex dynamics, the study aims to provide insights into the integrated role of these factors in empowering women entrepreneurs. These aims collectively contribute to advancing knowledge on strategies to promote women's economic participation and empowerment in Indonesia's evolving entrepreneurial landscape.

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 data collection process was conducted from July 17 to November 3, 2023, by distributing a questionnaire in the form of a Google Form to female MSME communities in Indonesia. The data used in this research are primary data obtained through the questionnaire distributed to all research subjects. The primary data obtained from respondents and their responses are related to several research variables: empowerment, information technology, social capital, and psychological capital.

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) 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). In this study, SEM-PLS is preferred over multiple regression and factor analysis due to its ability to handle complex, multivariate relationships and latent variables. Unlike multiple regression, which is limited to examining the direct relationships between a single dependent variable and multiple independent variables, SEM-PLS enables the simultaneous analysis of multiple interrelated dependent and independent variables, making it ideal for evaluating the multifaceted impact of Information and Communication Technology (ICT), social capital, and psychological capital on women's empowerment.

The hypotheses of this study are as follows:
H_1: ICT influences social capital
H_2: ICT influences psychological capital
H_3: Social capital influences empowerment
H_4: Psychological capital influences empowerment
H_5: The relationship between ict and empowerment is mediated by social capital

The research framework, depicted in Figure 1, illustrates these relationships. Solid lines represent direct effects, while dashed lines represent indirect effects.

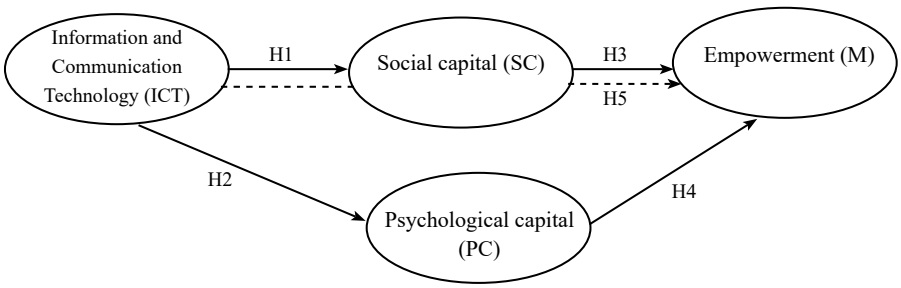

Figure 1. Research framework

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)	AVE
Information and Communication Technology (ICT)	ICT1: ICT facilitates clear direct sales	0.785	0.643
	ICT2: Comfortable using ICT for sales	0.791	
	ICT3: Capable of applying ICT for sales	0.811	
	ICT4: ICT apps aid direct sales	0.716	
	ICT5: Dependent on ICT for sales	0.747	
	ICT6: ICT integral to daily sales	0.870	
	ICT7: ICT supports direct sales activities	0.888	
	ICT8: ICT for business issue communication	0.785	
	ICT9: ICT communicates with sales staff	0.797	
	ICT10: ICT communicates with sales customers	0.837	
	ICT11: ICT for socializing with sales communities	0.771	
	ICT12: ICT as learning tool for sales	0.811	
Social Capital (SC)	SC1: Identify and solve problems collaboratively	0.850	0.726
	SC2: Share information and learn from team	0.886	
	SC3: Collaborate with stakeholders	0.819	
Psychological Capital (PC)	PC1: Provide sales product information	0.711	0.567
	PC2: Tasks hoped to be completed	0.720	
	PC3: Expectation of work improvement	0.714	
	PC4: Important tasks at work	0.726	
	PC5: Projects for workplace change	0.706	
	PC6: Solve difficult work problems with effort	0.722	
	PC7: Achieve goals despite opposition	0.730	
	PC8: Handle significant work challenges	0.829	
	PC9: Manage unexpected work situations	0.782	
	PC10: Overcome workplace difficulties effectively	0.821	
	PC11: Maintain personal well-being at work	0.777	
	PC12: Overcome work challenges successfully	0.814	
	PC13: Strength to meet work demands	0.793	
	PC14: View projects positively	0.780	
	PC15: Expect success in new projects	0.707	
	PC16: Achieve most work goals	0.722	
	PC17: Simplify minor task difficulties	0.728	

Table 1. Convergent Validity Results (continue)

Variable	Item	Loading Factor (>0,6)	AVE
Empowerment (EM)	EM1: Effective in direct sales	0.729	0.612
	EM2: Skilled in direct sales tasks	0.846	
	EM3: Confident in mentoring female salespeople	0.740	
	EM4: Authority in direct sales decisions	0.868	
	EM5: Freedom in managing direct sales	0.782	
	EM6: Inspired by others' sales achievements	0.720	
	EM7: Significant impact in direct sales business	0.735	
	EM8: Influence on other women in sales	0.811	
	EM9: Full control over direct sales outcomes	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.

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.

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.

The study's findings underscore the significant role of Information and Communication Technology (ICT) in influencing social capital, psychological capital, and empowerment among women entrepreneurs in Indonesia. This aligns with the theoretical framework that posits ICT as a critical enabler of social and psychological resources, which are essential for entrepreneurial success.

This study's findings align with Nawinna & Venable's (2019) research, which highlights that ICT significantly impacts social capital dimensions. In the Indonesian context, the role of ICT in overcoming interaction difficulties is particularly significant due to the country's diverse and geographically dispersed population. Unlike in more technologically advanced countries, Indonesian women entrepreneurs face unique challenges such as limited access to reliable internet and varying levels of digital literacy. This contrasts with the more seamless ICT integration observed in developed nations, where entrepreneurs may experience fewer barriers to technology adoption. Despite these challenges, ICT in Indonesia facilitates efficient communication and knowledge sharing, which is crucial for overcoming local constraints and fostering innovation (Mazzucchelli et al., 2019). The development of ICT provides an avenue for Indonesian women entrepreneurs to enhance their social capital and well-being, enabling them to stay connected with peers and customers despite logistical challenges. These technologies also improve their confidence, self-efficacy, and resilience (Yudiastuti et al., 2021).

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

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

Table 4. Hypotheses Test Results

	Hypotheses	Path Coefficient	T-statistic	P-value	Result
H1	ICT -> SC	0.605	11.510	0.000	Accepted
H2	ICT -> PC	0.672	15.429	0.000	Accepted
H3	SC -> EM	0.248	3.144	0.002	Accepted
H4	PC -> EM	0.587	8.406	0.000	Accepted
H5	ICT -> SC -> EM	0.150	2.891	0.004	Accepted

Note: Information and Communication Technology (ICT); Social Capital (SC); Psychological Capital (PC); Empowerment (EM)

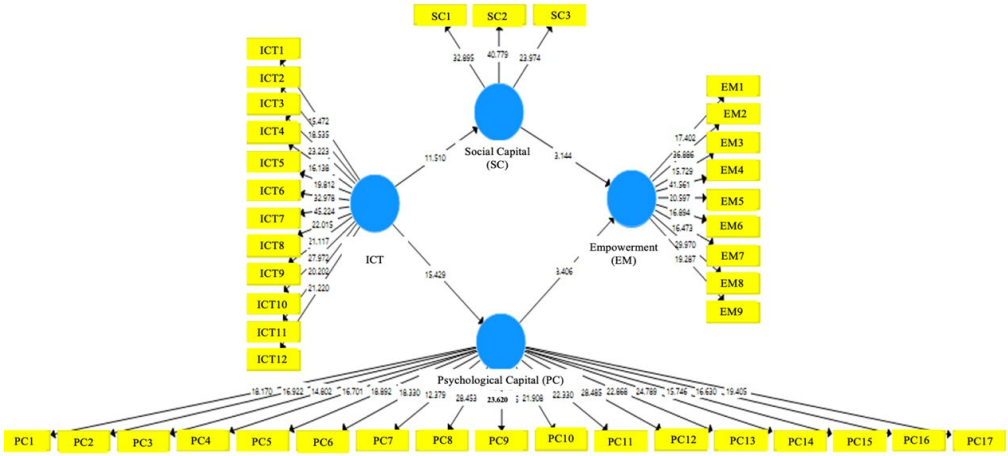

Figure 2. Inner model results

Furthermore, Smith et al. (2017) found that computer-mediated communication aids in building both bridging and bonding social capital. For Indonesian women entrepreneurs, ICT offers a platform to connect with a broader network of peers and potential customers, which is particularly valuable in a country with significant regional disparities. This contrasts with experiences in developed countries, where women entrepreneurs may benefit from more robust ICT infrastructure and support systems. Crittenden et al. (2019) emphasized that ICT, including mobile devices and social media, facilitates networking and business promotion. In Indonesia, where traditional business practices are prevalent, the adoption of ICT represents a significant shift towards modern communication methods, bridging the gap between traditional and contemporary practices. This shift is often more pronounced in Indonesia compared to other countries where digital transformation may be more advanced.

The study's results also indicate that ICT influences psychological capital, a finding consistent with Davidson and Joinson's (2021) conclusions. Social media, a prevalent ICT tool in Indonesia, significantly impacts psychological capital by providing multiple communication channels. Indonesian women entrepreneurs, who often have to navigate complex social and economic environments, find that social media enhances their hope, efficacy, resilience, and optimism (Brown et al., 2022; Sánchez-Fernández &

Jiménez-Castillo, 2021). For example, social media visibility can boost hope and optimism by showcasing business successes and attracting positive feedback, while also testing resilience in the face of criticism.

The findings support Avelino et al.'s (2022) assertion that social capital influences empowerment. In Indonesia, where social networks play a crucial role in business success, the social capital derived from ICT use can significantly enhance women's economic and social empowerment (Ul Hammed et al., 2018; Usman & Ahmad, 2018). The social relationships formed through ICT provide both economic opportunities and social support, crucial for women entrepreneurs in a developing country context. 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.

This study also corroborates Digan et al.'s (2019) findings on the positive impact of psychological capital on empowerment. In the Indonesian context, where entrepreneurial challenges are often intensified by socio-economic factors, psychological capital helps women entrepreneurs to overcome obstacles and achieve success (Lorenz et al., 2016; Joo et al., 2016). The ability to manage stress, maintain optimism, and adapt to changing circumstances is vital in navigating the unique challenges faced by Indonesian women entrepreneurs.

Moreover, Crittenden et al. (2019) highlight that efficacy positively influences empowerment, which is crucial in the Indonesian context where self-confidence and perseverance are essential for overcoming barriers in a developing economy. Psychological capital equips Indonesian women entrepreneurs with the resilience and determination needed to navigate their complex business environments. Digan et al. (2019) also found that psychological capital equips entrepreneurs to overcome many mental and emotional challenges associated with the entrepreneurial process.

ICT serves as a critical mediator between social capital and women's empowerment, particularly in business sustainability. In Indonesia, where social and economic conditions are rapidly evolving, ICT provides a significant advantage by connecting women to broader networks and opportunities (Ahmed, 2018; Gil et al., 2020). Social media, in particular, facilitates business growth by enabling Indonesian women entrepreneurs to build social relationships, access new markets, and promote their products effectively (Ngoa & Song, 2021). The integration of ICT into their business practices represents a significant shift towards more sustainable and inclusive entrepreneurial practices.

In this context, social capital comprising the network of social relationships built by women entrepreneurs plays a crucial role. Indonesian women entrepreneurs with robust social capital often experience higher levels of empowerment (Avelino et al., 2022). The establishment of social relationships with other entrepreneurs and customers enhances their business competencies and capabilities. In Indonesia, where regional diversity and varying levels of infrastructure can impact business operations, the information and support obtained through these networks are vital. They help women entrepreneurs navigate local challenges and leverage opportunities, thereby controlling and achieving their business goals more effectively. Consequently, social capital is integral to understanding how ICT utilization influences women's empowerment in the Indonesian business landscape, as it facilitates access to critical resources and knowledge essential for entrepreneurial success.

Managerial Implications

The research highlights key managerial implications for empowering women through the strategic use of ICT. First, investing in ICT infrastructure and platforms that facilitate networking and collaboration among women entrepreneurs is crucial. Policymakers should focus on developing digital platforms that enable women to connect, share knowledge, and access resources, thereby enhancing their social capital. Second, ICT plays a significant role in shaping the psychological capital of women entrepreneurs. Managers should provide training programs and resources to build positive psychological attributes such as self-efficacy, optimism, and resilience, helping women navigate challenges and pursue their entrepreneurial goals

with confidence. Third, recognizing the mediating role of social capital in the ICT-empowerment relationship underscores the need to foster supportive social networks within entrepreneurial ecosystems. Policymakers should facilitate opportunities for women entrepreneurs to build and leverage social capital through networking events, mentorship programs, and community initiatives. Integrating these managerial implications into entrepreneurship support programs can create an environment that empowers women to thrive in the digital economy.

CONCLUSION AND RECOMMENDATIONS

Conclusions

This study provides a nuanced understanding of the interplay between Information and Communication Technology (ICT), social capital, psychological capital, and women's empowerment within the Indonesian entrepreneurial context. Our findings align with and extend existing literature by demonstrating the pivotal role of ICT in enhancing women entrepreneurs' social and psychological resources. This supports the conclusions of Smith et al. (2017) and Crittenden et al. (2019), who highlighted ICT's role in facilitating networking and market access. Additionally, our research corroborates the importance of social capital in mediating the relationship between ICT and empowerment, as discussed by Avelino et al. (2022) and Usman & Ahmad (2018).

Theoretical contributions of this study include advancing the understanding of how ICT influences psychological capital through social media and other digital platforms. Our findings reinforce the theoretical frameworks proposed by Sánchez-Fernández & Jiménez-Castillo (2021) and Digan et al. (2019), which emphasize the dimensions of psychological capital—hope, efficacy, resilience, and optimism—in shaping entrepreneurial outcomes. This integration of ICT into psychological capital development offers new insights into how technological advancements can enhance individual and collective empowerment.

Recommendations

Future research should explore additional variables affecting women's empowerment, such as motivation and family support, to gain a deeper understanding of the empowerment process. Investigating specific business sectors or MSMEs could also reveal new insights into women's entrepreneurship. It is also important to examine ICT adoption's impact on women's empowerment across different cultural and socio-economic contexts. Understanding how ICT-mediated interactions and digital platforms can be leveraged in diverse settings is essential for promoting inclusive development. Future studies should assess targeted interventions and policies to improve women's access to ICT resources and address the digital gender divide, contributing to more effective and gender-responsive strategies.

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Permalink/DOI: http://doi.org/10.17358/IJBE.10.3.581

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ASSESSING THE INFLUENCE OF INFORMATION TECHNOLOGY ON FEMALE ENTREPRENEUR EMPOWERMENT IN INDONESIA: THE ROLE OF SOCIAL AND PSYCHOLOGICAL CAPITALS

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Article history:

Received
9 April 2024

Revised
14 May 2024

Accepted
26 August 2024

Available online
30 September 2024

ABSTRACT

Background: Gender equality is crucial for Indonesia's sustainable development, given that women represent nearly half the population. Despite their significant economic contributions, Indonesian women face considerable challenges in entrepreneurship, largely due to gender disparities.
Purpose: This study examines how Information and Communication Technology (ICT), social capital, and psychological factors impact women's entrepreneurship empowerment in Indonesia.
Design/Methodology/Approach: Using survey data from 176 female MSME entrepreneurs and structural equation modeling, the study explores the relationships between ICT, social capital, psychological capital, and empowerment.
Findings/Results: ICT enhances both social and psychological capital, which in turn positively impacts women's entrepreneurship empowerment.
Conclusion: Integrating ICT, social capital, and psychological capital provides new insights into women's empowerment in developing economies. Recommendations include improving ICT infrastructure, social networking, and psychological support programs.
Originality/Value (State of the Art): The study offers a novel approach by linking ICT, social capital, and psychological capital to women's empowerment in entrepreneurship, particularly in a developing country context.

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

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INTRODUCTION

Aligned with the United Nations Sustainable Development Goals agenda for 2030, one of the key objectives among the 17 goals is gender equality and the empowerment of women and girls (United Nations, 2018). In Indonesia, gender equality remains a challenge. The Gender Development Index 2022 stood at 94.01%, indicating progress but still reflecting significant gender gaps, particularly in economic opportunities and entrepreneurship (Central Bureau of Statistics, 2022). These disparities are critical, as nearly 50% of Indonesia's population comprises women and gender inequality can lead to adverse outcomes such as poverty and limited access to education, healthcare, and financial resources (Dixit et al. 2023).

Women are pivotal to the growth of Micro, Small, and Medium Enterprises (MSMEs), which contributed 61% of Indonesia's economy in 2023 (Ministry of Finance, 2023). Despite Indonesia having the highest percentage of women entrepreneurs in Southeast Asia (Ministry of Communication and Information Technology, 2022), they face numerous challenges, particularly in accessing resources and support networks, as reflected in the low Gender Empowerment Index (GEI) (Dania, 2019).

This study seeks to investigate the role of Information and Communication Technology (ICT) in empowering women entrepreneurs in Indonesia. ICT has the potential to transform the socio-economic landscape by providing women with the tools to overcome barriers and enhance their entrepreneurial activities (Ajumobi & Kyobe, 2016). The research will explore how ICT adoption influences women's empowerment in entrepreneurship and how it interacts with other crucial factors such as social capital and psychological capital.

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. (2019), which only examined psychological capital and empowerment in the manufacturing sector.

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). Other research reinforces the argument that ICT benefits low-income countries more (Appiah-Otoo & Song, 2021). Moreover, a recent approach in ICT development focuses on removing time constraints and creating space for communication, thereby facilitating the growth of social networks (Zhao & Li et al. 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 (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). 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. 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). Other findings indicate that psychological capital influences empowerment (Haji et al. 2022).

The research aims to comprehensively examine several key aspects related to women's entrepreneurship empowerment in Indonesia. Firstly, the study seeks to investigate the influence of Information and Communication Technology (ICT) adoption on empowering women entrepreneurs. Secondly, the research aims to delve into the role of social capital in promoting women's entrepreneurship empowerment. Social capital encompasses the networks, relationships, and social connections that contribute to women's access to resources, information, and support within entrepreneurial contexts. Thirdly, the study aims to assess the impact of psychological capital on women's empowerment within the entrepreneurship landscape. Psychological capital refers to the individual's positive psychological resources such as self-efficacy, optimism, resilience, and hope, and the study will explore how these factors influence women's empowerment in entrepreneurship. Additionally, the research aims to analyze the interrelationships between ICT adoption, social capital, and psychological capital in shaping women's entrepreneurship empowerment. By understanding these complex dynamics, the study aims to provide insights into the integrated role of these factors in empowering women entrepreneurs. These aims collectively contribute to advancing knowledge on strategies to promote women's economic participation and empowerment in Indonesia's evolving entrepreneurial landscape.

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 data collection process was conducted from July 17 to November 3, 2023, by distributing a questionnaire in the form of a Google Form to female MSME communities in Indonesia. The data used in this research are primary data obtained through the questionnaire distributed to all research subjects. The primary data obtained from respondents and their responses are related to several research variables: empowerment, information technology, social capital, and psychological capital.

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) 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). In this study, SEM-PLS is preferred over multiple regression and factor analysis due to its ability to handle complex, multivariate relationships and latent variables. Unlike multiple regression, which is limited to examining the direct relationships between a single dependent variable and multiple independent variables, SEM-PLS enables the simultaneous analysis of multiple interrelated dependent and independent variables, making it ideal for evaluating the multifaceted impact of Information and Communication Technology (ICT), social capital, and psychological capital on women's empowerment.

The hypotheses of this study are as follows:
H_1: ICT influences social capital
H_2: ICT influences psychological capital
H_3: Social capital influences empowerment
H_4: Psychological capital influences empowerment
H_5: The relationship between ict and empowerment is mediated by social capital

The research framework, depicted in Figure 1, illustrates these relationships. Solid lines represent direct effects, while dashed lines represent indirect effects.

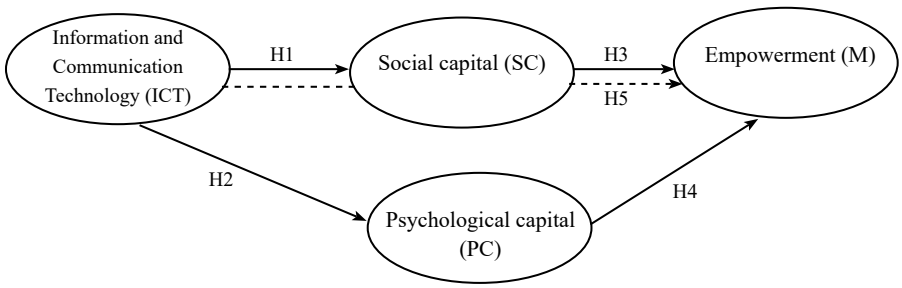

Figure 1. Research framework

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)	AVE
Information and Communication Technology (ICT)	ICT1: ICT facilitates clear direct sales	0.785	0.643
	ICT2: Comfortable using ICT for sales	0.791	
	ICT3: Capable of applying ICT for sales	0.811	
	ICT4: ICT apps aid direct sales	0.716	
	ICT5: Dependent on ICT for sales	0.747	
	ICT6: ICT integral to daily sales	0.870	
	ICT7: ICT supports direct sales activities	0.888	
	ICT8: ICT for business issue communication	0.785	
	ICT9: ICT communicates with sales staff	0.797	
	ICT10: ICT communicates with sales customers	0.837	
	ICT11: ICT for socializing with sales communities	0.771	
	ICT12: ICT as learning tool for sales	0.811	
Social Capital (SC)	SC1: Identify and solve problems collaboratively	0.850	0.726
	SC2: Share information and learn from team	0.886	
	SC3: Collaborate with stakeholders	0.819	
Psychological Capital (PC)	PC1: Provide sales product information	0.711	0.567
	PC2: Tasks hoped to be completed	0.720	
	PC3: Expectation of work improvement	0.714	
	PC4: Important tasks at work	0.726	
	PC5: Projects for workplace change	0.706	
	PC6: Solve difficult work problems with effort	0.722	
	PC7: Achieve goals despite opposition	0.730	
	PC8: Handle significant work challenges	0.829	
	PC9: Manage unexpected work situations	0.782	
	PC10: Overcome workplace difficulties effectively	0.821	
	PC11: Maintain personal well-being at work	0.777	
	PC12: Overcome work challenges successfully	0.814	
	PC13: Strength to meet work demands	0.793	
	PC14: View projects positively	0.780	
	PC15: Expect success in new projects	0.707	
	PC16: Achieve most work goals	0.722	
	PC17: Simplify minor task difficulties	0.728	

Table 1. Convergent Validity Results (continue)

Variable	Item	Loading Factor (>0,6)	AVE
Empowerment (EM)	EM1: Effective in direct sales	0.729	0.612
	EM2: Skilled in direct sales tasks	0.846	
	EM3: Confident in mentoring female salespeople	0.740	
	EM4: Authority in direct sales decisions	0.868	
	EM5: Freedom in managing direct sales	0.782	
	EM6: Inspired by others' sales achievements	0.720	
	EM7: Significant impact in direct sales business	0.735	
	EM8: Influence on other women in sales	0.811	
	EM9: Full control over direct sales outcomes	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.

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.

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.

The study's findings underscore the significant role of Information and Communication Technology (ICT) in influencing social capital, psychological capital, and empowerment among women entrepreneurs in Indonesia. This aligns with the theoretical framework that posits ICT as a critical enabler of social and psychological resources, which are essential for entrepreneurial success.

This study's findings align with Nawinna & Venable's (2019) research, which highlights that ICT significantly impacts social capital dimensions. In the Indonesian context, the role of ICT in overcoming interaction difficulties is particularly significant due to the country's diverse and geographically dispersed population. Unlike in more technologically advanced countries, Indonesian women entrepreneurs face unique challenges such as limited access to reliable internet and varying levels of digital literacy. This contrasts with the more seamless ICT integration observed in developed nations, where entrepreneurs may experience fewer barriers to technology adoption. Despite these challenges, ICT in Indonesia facilitates efficient communication and knowledge sharing, which is crucial for overcoming local constraints and fostering innovation (Mazzucchelli et al. 2019). The development of ICT provides an avenue for Indonesian women entrepreneurs to enhance their social capital and well-being, enabling them to stay connected with peers and customers despite logistical challenges. These technologies also improve their confidence, self-efficacy, and resilience (Yudiastuti et al. 2021).

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

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

Table 4. Hypotheses Test Results

	Hypotheses	Path Coefficient	T-statistic	P-value	Result
H1	ICT → SC	0.605	11.510	0.000	Accepted
H2	ICT → PC	0.672	15.429	0.000	Accepted
H3	SC → EM	0.248	3.144	0.002	Accepted
H4	PC → EM	0.587	8.406	0.000	Accepted
H5	ICT → SC → EM	0.150	2.891	0.004	Accepted

Note: Information and Communication Technology (ICT); Social Capital (SC); Psychological Capital (PC); Empowerment (EM)

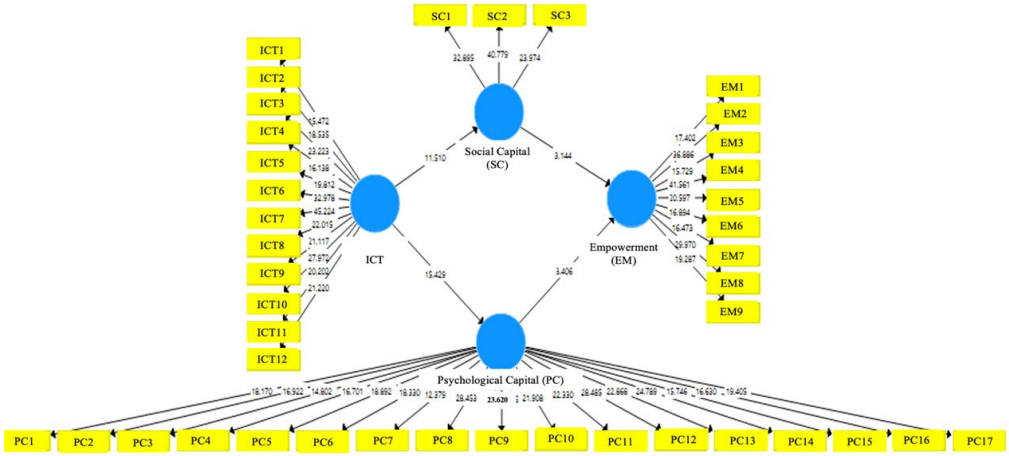

Figure 2. Inner model results

Furthermore, Smith et al. (2017) found that computer-mediated communication aids in building both bridging and bonding social capital. For Indonesian women entrepreneurs, ICT offers a platform to connect with a broader network of peers and potential customers, which is particularly valuable in a country with significant regional disparities. This contrasts with experiences in developed countries, where women entrepreneurs may benefit from more robust ICT infrastructure and support systems. Crittenden et al. (2019) emphasized that ICT, including mobile devices and social media, facilitates networking and business promotion. In Indonesia, where traditional business practices are prevalent, the adoption of ICT represents a significant shift towards modern communication methods, bridging the gap between traditional and contemporary practices. This shift is often more pronounced in Indonesia compared to other countries where digital transformation may be more advanced.

The study's results also indicate that ICT influences psychological capital, a finding consistent with Davidson and Joinson's (2021) conclusions. Social media, a prevalent ICT tool in Indonesia, significantly impacts psychological capital by providing multiple communication channels. Indonesian women entrepreneurs, who often have to navigate complex social and economic environments, find that social media enhances their hope, efficacy, resilience, and optimism (Brown et al. 2022; Sánchez-Fernández &

Jiménez-Castillo, 2021). For example, social media visibility can boost hope and optimism by showcasing business successes and attracting positive feedback, while also testing resilience in the face of criticism.

The findings support Avelino et al.'s (2022) assertion that social capital influences empowerment. In Indonesia, where social networks play a crucial role in business success, the social capital derived from ICT use can significantly enhance women's economic and social empowerment (Ul Hammed et al. 2018; Usman & Ahmad, 2018). The social relationships formed through ICT provide both economic opportunities and social support, crucial for women entrepreneurs in a developing country context. 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.

This study also corroborates Digan et al.'s (2019) findings on the positive impact of psychological capital on empowerment. In the Indonesian context, where entrepreneurial challenges are often intensified by socio-economic factors, psychological capital helps women entrepreneurs to overcome obstacles and achieve success (Lorenz et al. 2016; Joo et al. 2016). The ability to manage stress, maintain optimism, and adapt to changing circumstances is vital in navigating the unique challenges faced by Indonesian women entrepreneurs.

Moreover, Crittenden et al. (2019) highlight that efficacy positively influences empowerment, which is crucial in the Indonesian context where self-confidence and perseverance are essential for overcoming barriers in a developing economy. Psychological capital equips Indonesian women entrepreneurs with the resilience and determination needed to navigate their complex business environments. Digan et al. (2019) also found that psychological capital equips entrepreneurs to overcome many mental and emotional challenges associated with the entrepreneurial process.

ICT serves as a critical mediator between social capital and women's empowerment, particularly in business sustainability. In Indonesia, where social and economic conditions are rapidly evolving, ICT provides a significant advantage by connecting women to broader networks and opportunities (Ahmed, 2018; Gil et al. 2020). Social media, in particular, facilitates business growth by enabling Indonesian women entrepreneurs to build social relationships, access new markets, and promote their products effectively (Ngoa & Song, 2021). The integration of ICT into their business practices represents a significant shift towards more sustainable and inclusive entrepreneurial practices.

In this context, social capital comprising the network of social relationships built by women entrepreneurs plays a crucial role. Indonesian women entrepreneurs with robust social capital often experience higher levels of empowerment (Avelino et al. 2022). The establishment of social relationships with other entrepreneurs and customers enhances their business competencies and capabilities. In Indonesia, where regional diversity and varying levels of infrastructure can impact business operations, the information and support obtained through these networks are vital. They help women entrepreneurs navigate local challenges and leverage opportunities, thereby controlling and achieving their business goals more effectively. Consequently, social capital is integral to understanding how ICT utilization influences women's empowerment in the Indonesian business landscape, as it facilitates access to critical resources and knowledge essential for entrepreneurial success.

Managerial Implications

The research highlights key managerial implications for empowering women through the strategic use of ICT. First, investing in ICT infrastructure and platforms that facilitate networking and collaboration among women entrepreneurs is crucial. Policymakers should focus on developing digital platforms that enable women to connect, share knowledge, and access resources, thereby enhancing their social capital. Second, ICT plays a significant role in shaping the psychological capital of women entrepreneurs. Managers should provide training programs and resources to build positive psychological attributes such as self-efficacy, optimism, and resilience, helping women navigate challenges and pursue their entrepreneurial goals

with confidence. Third, recognizing the mediating role of social capital in the ICT-empowerment relationship underscores the need to foster supportive social networks within entrepreneurial ecosystems. Policymakers should facilitate opportunities for women entrepreneurs to build and leverage social capital through networking events, mentorship programs, and community initiatives. Integrating these managerial implications into entrepreneurship support programs can create an environment that empowers women to thrive in the digital economy.

CONCLUSION AND RECOMMENDATIONS

Conclusions

This study provides a nuanced understanding of the interplay between Information and Communication Technology (ICT), social capital, psychological capital, and women's empowerment within the Indonesian entrepreneurial context. Our findings align with and extend existing literature by demonstrating the pivotal role of ICT in enhancing women entrepreneurs' social and psychological resources. This supports the conclusions of Smith et al. (2017) and Crittenden et al. (2019), who highlighted ICT's role in facilitating networking and market access. Additionally, our research corroborates the importance of social capital in mediating the relationship between ICT and empowerment, as discussed by Avelino et al. (2022) and Usman & Ahmad (2018).

Theoretical contributions of this study include advancing the understanding of how ICT influences psychological capital through social media and other digital platforms. Our findings reinforce the theoretical frameworks proposed by Sánchez-Fernández & Jiménez-Castillo (2021) and Digan et al. (2019), which emphasize the dimensions of psychological capital hope, efficacy, resilience, and optimism in shaping entrepreneurial outcomes. This integration of ICT into psychological capital development offers new insights into how technological advancements can enhance individual and collective empowerment.

Recommendations

Future research should explore additional variables affecting women's empowerment, such as motivation and family support, to gain a deeper understanding of the empowerment process. Investigating specific business sectors or MSMEs could also reveal new insights into women's entrepreneurship. It is also important to examine ICT adoption's impact on women's empowerment across different cultural and socio-economic contexts. Understanding how ICT-mediated interactions and digital platforms can be leveraged in diverse settings is essential for promoting inclusive development. Future studies should assess targeted interventions and policies to improve women's access to ICT resources and address the digital gender divide, contributing to more effective and gender-responsive strategies.

FUNDING STATEMENT: This research did not receive any specific grant from funding agencies in the public, commercial, or not - for - profit sectors.

CONFLICTS OF INTEREST: The author declares no conflict of interest.

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