

The Role of Government Strategy in Encouraging Women's Empowerment in the Digital Era

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ABSTRACT

The rise of digital technology has created new opportunities for women's empowerment, yet structural and cultural barriers continue to hinder their full participation. This study aims to analyze government strategies in promoting women's empowerment in the digital era through policies, digital literacy training, and cross-sector collaboration. A descriptive qualitative literature review method was employed, drawing from journals, reports, and policy documents. Findings reveal that community-based digital training, technological access, and regulatory support are effective in enhancing women's roles in the digital economy. Nevertheless, challenges such as the digital divide, gender stereotypes, and limited financial access remain significant obstacles. The study concludes that inclusive policies and sustained programs are crucial to enabling women to thrive in the digital transformation. It is recommended that the government expand training programs and strengthen partnerships with the private sector to build a gender-equal digital ecosystem.

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Introduction

The era of digitalization has brought fundamental changes in various aspects of social, economic, and political life around the world. This increasingly massive digital revolution has opened up various new opportunities as well as challenges in efforts to empower women who are still facing gender gaps in various dimensions of life. In Indonesia, despite the rapid advancement of digital technology, inequality in access to and use of technology between men and women is still a significant problem. Data from the Ministry of Women's Empowerment and Child Protection in 2022 shows that women's digital literacy levels are still 15.3% lower than men's, especially in rural and eastern areas. This increasingly massive digital revolution has opened up various new opportunities as well as challenges in efforts to empower women who are still facing gender gaps in various dimensions of life. In Indonesia, despite the rapid advancement of digital technology, inequality in access to and use of technology between men and women is still a significant problem. Data from the

Ministry of Women's Empowerment and Child Protection in 2022 shows that women's digital literacy levels are still 15.3% lower than men's, especially in rural areas and eastern Indonesia. This is an indicator that digital transformation is not yet fully inclusive and gender-fair. Women's empowerment in the digital context is not just limited to access to technology, but also includes the ability to leverage it to improve the quality of life, participation in the digital economy, as well as involvement in decision-making. According to a study by (World Economic Forum, 2023), countries with a low gender digital divide have more inclusive and sustainable economic growth. Women's empowerment in the digital ecosystem is not only a moral imperative but also an economic imperative as it can result in global Gross Domestic Product (GDP) growth of up to 12 trillion dollars if the economic participation gap between men and women can be eliminated (McKinsey Global Institute, 2021). In recent years, governments around the world have realized the importance of integrating gender perspectives in digital transformation policies and programs. In Indonesia, the government has launched several strategic initiatives such as the "Digital Women" program by the Ministry of Communication and Information Technology which aims to improve women's digital skills, especially in the MSME sector. However, the effectiveness of these programs still requires a comprehensive evaluation because their implementation is still sporadic and poorly coordinated (Guntoro et al., 2024).

The challenges in women's empowerment in the digital era are increasingly complex with the emergence of various issues such as online gender-based violence, wage gaps in the digital economy, and low representation of women in the technology and innovation sectors. (Adkiras et al., 2021) found that 68% of women in Indonesia have experienced online harassment in some form, but only 23% reported such incidents due to various structural and cultural barriers. On the other hand, the gap in women's representation in the STEM (Science, Technology, Engineering, Mathematics) field is also still significant where women only represent 35% of the total workers in the technology sector in Indonesia. Women's empowerment in the digital age requires a holistic and multi-sectoral approach that involves not only the government but also the private sector, academia, and civil society. Study by (Widiastuti et al., 2024) underscores the importance of the Penta-Helix partnership (government, business, academia, society, and media) in building a gender-inclusive digital ecosystem. The government as a policy holder has a strategic role in creating an enabling environment through gender-responsive regulations, inclusive education and training programs, and equitable infrastructure investment. Although there are various initiatives from governments in various countries to encourage women's empowerment in the digital age, there has been no comprehensive systematic study of the effectiveness of these strategies, especially in the context of developing countries such as Indonesia. Systematic study by (Sey, 2021) identifies that most digital policies in Southeast Asia are still gender-blind and do not explicitly accommodate the specific needs of women. This reflects the need

for a more in-depth study of the government's various strategies in encouraging women's empowerment in the digital era.

The urgency of this research is increasing with the COVID-19 pandemic which has accelerated the adoption of digital technology in various aspects of life. This acceleration of digitalization has the potential to widen the digital gender gap if it is not balanced with inclusive and equitable policies. With the emergence of the pandemic, the digital gender gap has widened the digital gender gap by 33% in developing countries due to various factors such as increased care work, limited access to digital training, and sociocultural barriers. In this context, an integrated and evidence-based government strategy is crucial in ensuring that digital transformation does not leave women behind. The government's strategy in empowering women in the digital era can be analyzed from various dimensions such as regulatory frameworks, capacity building programs, economic incentives, and partnership models with various stakeholders. (Amalia et al., 2024) highlighting the importance of a rights-based approach in digital policy that includes the right to privacy, digital security, and freedom of expression for women. On the other hand, the aspect of equal access to digital infrastructure and devices is also a fundamental prerequisite for women's empowerment. The gap in smartphone ownership between men and women in Indonesia still reaches 16%, much higher than the global average of 7%. Recent literature indicates the existence of various models and good practices in women's empowerment strategies in the digital era in various countries. For example, the "Digital Skills for Girls" initiative in Rwanda that integrates a digital literacy curriculum in secondary education has succeeded in increasing women's participation in STEM education by up to 45%. In India, the "Internet Saathi" program that trains rural women as agents of digital change has reached more than 30 million women in rural areas. However, the transferability of these models in the Indonesian context still requires an in-depth analysis given the socio-cultural peculiarities and existing infrastructure.

Although various literature has discussed women's empowerment in the digital age, there is still a knowledge gap regarding the effectiveness of various government strategies in specific contexts. (Wahyudi & Elanda, 2023) underlined the importance of developing measurable indicators to evaluate the impact of digital policies on women's empowerment that include the dimensions of access, skills, digital security, and economic and political participation. In addition, studies on the synergy between digital policies and women's empowerment policies, which are often fragmented, are also limited. Given the complexity and urgency of this issue, a systematic study of the role of government strategies in encouraging women's empowerment in the digital era is highly relevant. Systematic reviews can provide a comprehensive analysis of the various approaches that have been implemented, identify best practices, and formulate evidence-based recommendations for more effective policy development. This research can also make a significant contribution in enriching the literature on the intersection between gender, technology, and public policy that is still relatively limited, especially in the context of Indonesia and other developing

countries. Based on the background that has been described, this study aims to: (1) identify and analyze various government strategies in encouraging women's empowerment in the digital era based on empirical evidence from national and international literature; (2) evaluate the effectiveness of these strategies in different contexts by taking into account social, economic, and cultural factors; (3) identify best practices and lessons learned from various women's empowerment initiatives through digital technology; and (4) formulate a comprehensive conceptual framework for the development of more effective government strategies in encouraging women's empowerment in the digital era that is appropriate to the Indonesian context. Through this systematic study, it is hoped that concrete recommendations can be produced for the development of more gender-responsive policies in digital transformation so that they can contribute to the achievement of gender equality which is one of the goals of sustainable development.

Method

This study adopts the systematic literature review (SLR) method by following the PRISMA (Preferred Reporting Items for Systematic Reviews and Meta-Analyses) protocol to analyze the role of government strategies in encouraging women's empowerment in the digital era. The SLR method was chosen because it allows researchers to identify, evaluate, and interpret all relevant research related to specific research questions in a systematic, transparent, and structured manner. The use of the PRISMA protocol provides a rigorous and standardized framework for reporting systematic reviews, thereby improving the quality and reliability of research results. The research process begins with the formulation of research questions using the PICO (Population, Intervention, Comparison, Outcome) framework. In the context of this study, the population in question is women in various social, economic, and geographical contexts; The interventions studied are various government strategies and policies related to digital empowerment; comparisons are made between different types of interventions or strategies; And the outcomes analyzed are the level of women's empowerment in the digital era which is measured through various indicators such as digital literacy, digital economy participation, and representation in the technology sector. With this PICO framework, the research question is formulated as follows: "How effective are various government strategies and policies in encouraging women's empowerment in the digital era based on empirical evidence from existing studies?"

The literature search strategy is comprehensively designed to identify all relevant studies from various electronic databases. Searches were conducted on several leading academic databases that include Scopus, Web of Science, EBSCO, ProQuest, Science Direct, and the Directory of Open Access Journals (DOAJ) for international literature. To enrich the local perspective, this research also includes national databases such as Garuda (Garba Reference Digital), Indonesian Publication Index (IPI), and institutional repositories from various universities in Indonesia. In addition, the Google Scholar database is also used to capture grey literature that may not be indexed in formal academic databases. The search

string is developed taking into account various synonyms and related terms to improve the sensitivity of the search. Keyword combinations used include: ("women's empowerment" OR "gender equality" OR "gender inclusion" OR "women" OR "gender") AND ("digital" OR "information technology" OR "ICT" OR "internet" OR "social media" OR "digital economy") AND ("government policy" OR "strategy" OR "regulation" OR "program" OR "initiative" OR "intervention"). The search was conducted in Indonesian and English to ensure comprehensive coverage. These search strings are then customized according to the features and characteristics of each database.

To ensure that the literature analyzed reflects recent developments, the publication period is limited to the time range of 2020 to 2025. This time constraint takes into account the dynamics of digital technology developments and government policies that are changing very quickly, so the focus on the latest literature is expected to provide a more relevant picture of current conditions. In addition, these restrictions also allow analysis of the impact of the COVID-19 pandemic which has significantly accelerated the adoption of digital technology. Inclusion and exclusion criteria are clearly defined to select relevant literature. Inclusion criteria include: (1) publication in Indonesian or English; (2) studies published between 2020-2025; (3) studies that explicitly discuss government strategies or policies related to women's empowerment in the digital era; (4) studies that provide empirical data or program evaluation; and (5) studies conducted in Indonesia or other developing countries with relatively similar socio-economic contexts. Meanwhile, exclusion criteria include: (1) studies that do not go through the peer-review process; (2) conference papers or abstracts without full text; (3) studies that focus only on technological aspects without discussing the gender dimension; and (4) studies that do not specifically analyze the role of government. The literature selection process is carried out in four stages according to the PRISMA flowchart. The first stage is identification, in which all publications identified through database searches as well as additional literature obtained through manual searches and snowballing methods are recorded. In the second stage, namely screening, all identified titles and abstracts of publications are checked based on inclusion and exclusion criteria, with irrelevant publications immediately removed. The third stage is eligibility, where the full text of publications that pass the screening stage is accessed and evaluated in depth against the inclusion and exclusion criteria. In the last stage, namely inclusion, publications that pass all previous stages are included in the qualitative synthesis.

To reduce bias in the literature selection process, two independent researchers conducted separate screening and data extraction. In the event of disagreement, a third researcher is involved to reach a consensus. All inclusion and exclusion decisions are documented in detail to ensure the transparency of the research process. In addition, the screening and eligibility process is managed using Mendeley's reference management software to facilitate systematic recording and reduce the risk of human error. The study quality assessment was carried out using the 2018 version of the Mixed Methods Appraisal Tool (MMAT) which allows evaluation of the quality of the study with various

methodological designs including qualitative, quantitative, and mixed methods. The MMAT was chosen because of its flexibility in accommodating the different types of studies that are expected to appear in this review. Each study was assessed based on five criteria that matched its research design, with a score of "Yes", "No", or "Unclear" for each criterion. Very low-quality studies (MMAT score $\leq 20\%$) were excluded from the analysis to ensure the credibility of the findings. Data extraction was carried out using a specially designed data extraction form that included bibliographic information (authors, year of publication, title, journal), methodological characteristics (research design, samples, data collection methods), intervention characteristics (type of government strategy, duration, scale of implementation), measured outcomes (indicators of women's empowerment), and key findings and recommendations. The extracted data is tabulated in a spreadsheet to facilitate comparative analysis and synthesis. To ensure accuracy, the data extraction process was carried out by two researchers independently with consensus discussions to address differences.

Data synthesis is carried out through an inductive thematic approach that allows the identification of patterns and themes that emerge from the literature. The analysis begins with an open coding of the key findings of each study, followed by a categorization of the codes into broader themes and sub-themes. NVIVO 14's qualitative data analysis software is used to facilitate the coding and categorization process of themes. The themes identified were then analyzed and interpreted in the context of the research questions. The narrative synthesis approach was chosen because of the heterogeneity of the studies analyzed, which includes a wide range of research methods, geographic contexts, and types of interventions. To ensure methodological rigour, several strategies are implemented including researcher triangulation in the process of selection and data extraction, comprehensive trail audit documentation, and researcher reflexivity recorded in the journal reflection. In addition, the member checking process is carried out by involving experts in the field of gender and digital policy to evaluate the credibility of interpretations and conclusions drawn from the data. All methodological steps are documented in detail to allow for replication and critical evaluation by other researchers. Additional analysis was also conducted to enrich understanding of the context of the intervention. It includes geographic analysis to compare strategies in different countries and regions, chronological analysis to identify policy trends and evolutions over time, as well as analysis based on the type of government strategy (e.g. regulations, education programs, economic incentives, etc.). Data visualization methods such as thematic mapping and bibliometric network analysis are also used to identify research clusters and relationships between key concepts.

Methodological limitations are explicitly acknowledged, including the potential for publication bias where studies with positive results are more likely to be published, language limitations that may exclude valuable studies in languages other than Indonesian and English, as well as the possibility of missed studies despite a comprehensive search strategy in place. Efforts to mitigate these limitations are made through gray literature searches and

snowballing techniques to identify relevant studies that may have been missed in formal database searches. The results of this systematic literature review are presented in accordance with the PRISMA protocol, starting with a flowchart describing the literature selection process, followed by the characteristics of the included studies, the results of the quality assessment, the synthesis of findings based on the main themes, and the implications for policy and practice. This rigorous and systematic methodological approach is expected to produce a comprehensive and credible review of the role of government strategies in fostering women's empowerment in the digital age, which can provide an evidence-based basis for more effective and data-driven policy development.

Results and Discussion

Research Results

This study uses a systematic approach in conducting a literature review by applying the PRISMA (Preferred Reporting Items for Systematic Reviews and Meta-Analyses) method as seen in Figure 1. The PRISMA flowchart shows a comprehensive and structured study selection process, starting with the initial identification of various sources of literature relevant to the topic of women's empowerment in the digital age and the role of government strategies. At the identification stage, a number of scientific articles from various electronic databases including Scopus, Web of Science, Google Scholar, and DOAJ have been collected using specific keywords such as "women's empowerment", "digital age", "government strategy", and "gender policy". The screening stage is carried out through two main phases: first, by eliminating duplicate and irrelevant articles based on titles and abstracts, then the second phase by evaluating the feasibility of the article through a full-text review. The inclusion criteria include studies published in the 2020-2025 period, in Indonesian or English, and explicitly discuss women's empowerment in the digital context as well as government interventions or policies. Exclusion criteria include studies that do not have a clear methodology, are opinion or editorial, and have no direct relevance to the research topic. Through this rigorous and systematic selection process, a total of 25 studies were finally identified and synthesized in this literature review. The PRISMA flowchart provides a clear visual overview of the literature review process, ensures transparency and quality in the collection of literature data, and allows for replication of future studies. This systematic approach is essential to ensure that research findings are based on strong and comprehensive scientific evidence.

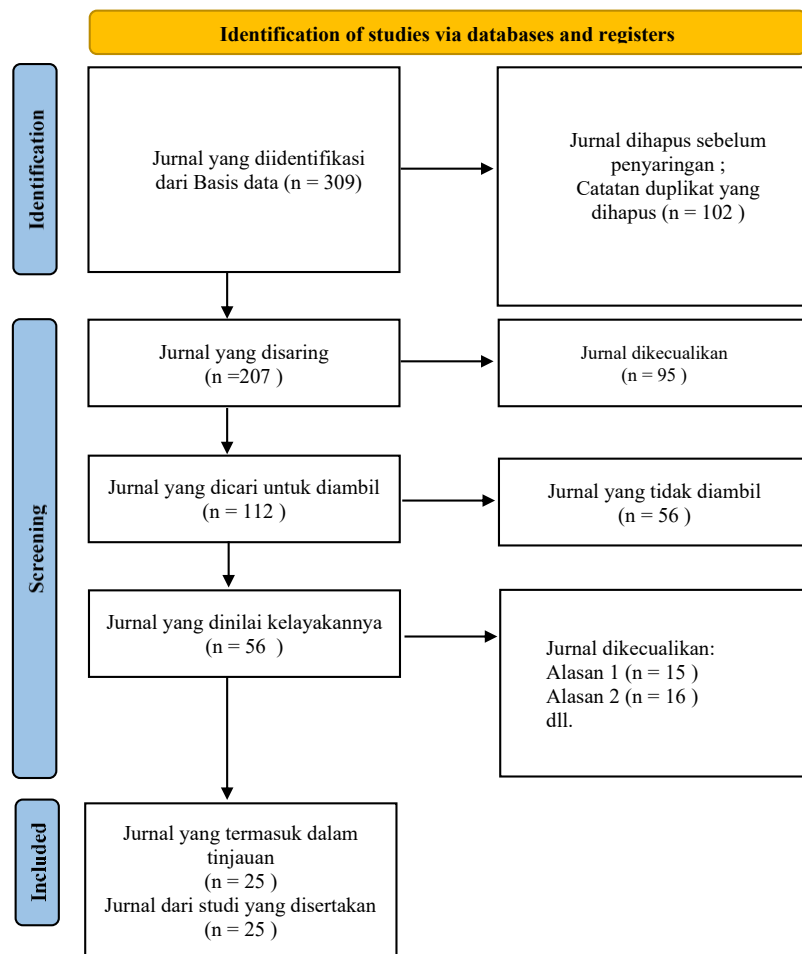


Figure 1. PRISMA Flowchart

Table 1 presents a comprehensive synthesis of 25 relevant scientific journals on the topic "The Role of Government Strategies in Encouraging Women's Empowerment in the Digital Era". The results of this literature search include publications from the period 2018 to 2024, showcasing the diversity of studies from both Indonesia's global and national contexts. The synthesis of this journal shows the variety of research methodologies used, including quantitative, qualitative, mixed-method approaches, case studies, systematic reviews, and conceptual framework development. An interesting aspect of this synthesis is its broad geographical coverage, covering studies from different regions including Indonesia, Africa, South Asia, Latin America, and developed countries, providing a comprehensive perspective on women's empowerment in various socio-economic contexts. The results of the analysis show several main themes that consistently emerge in various studies, including the importance of digital and financial literacy, the role of technology and e-commerce, entrepreneurship as an empowerment path, and structural and cultural barriers that women still face. In particular, a number of studies emphasize effective government interventions and strategies in encouraging women's participation in the digital economy,

such as digital training programs, inclusive internet access policies, and microfinance initiatives. Another important finding is the positive relationship between women's economic empowerment and the achievement of broader sustainable development goals. The synthesis also identifies common challenges that still need to be addressed, such as gaps in access to technology, limited digital literacy, and inhibiting socio-cultural norms. The diversity of studies synthesized in this table provides a strong empirical foundation for developing evidence-based policy recommendations for governments in designing effective women's empowerment strategies in the digital age.

Table 1. Journal Synthesis Related to the Role of Government Strategy in Encouraging Women's Empowerment in the Digital Era

Yes	Title	Author & Year	Design	Sample	Instruments	Intervention	Results
1	Gender equality in the workplace: A comparative review of USA and African Practices	(Idowu Sulaimon Adeniyi et al., 2024)	Comparative Review	Documents and research related to gender equality practices in the United States and Africa	Document analysis	No direct intervention (review study)	Identify differences in approaches, challenges, and advances in gender equality practices between the U.S. and Africa. Demonstrate the important role of legislation, advocacy, and cultural shifts, as well as shared challenges such as gender discrimination and lack of leadership representation.
2	Developing a framework for leveraging social media as a strategic tool for growth in Nigerian women entrepreneurs	(Otokiti et al., 2021)	Mixed-method	Women entrepreneurs in Nigeria	Interviews and surveys	Development of a framework for the use of social media	To produce a framework for the use of social media as a strategic tool for the growth of women entrepreneurs in Nigeria, identifying key factors such as digital literacy, branding, and content strategy. Recommend the important role of government policies and digital training programs.
3	Promoting gender equality across the sustainable development goals	(Leal Filho et al., 2023)	Literature review and case study analysis	16 case studies from 13 countries including China, India, and Australia	SDG matrix and document analysis	Development of new frameworks	Identify SDGs 1, 4, 11, 12, 14 and 16 as areas that need more attention for successful gender implementation. Provide a new framework that identifies the interaction between gender issues and other SDGs as well as recommendations to

							place gender issues more centrally in the achievement of the SDGs.
4	Youth empowerment in Africa: Lessons for U.S. youth development programs	(Chioma Ann Udeh et al., 2024)	Comparative analysis	Case studies of youth empowerment programs in different African countries	Literature review and program reports	No direct intervention (analytical study)	Identify successful strategies from African youth empowerment programs that can be applied to U.S. youth development programs. Emphasizing a community-based approach, entrepreneurship, and technology integration.
5	Do Access to Finance, Technical Know-How, and Financial Literacy Offer Women Empowerment Through Women's Entrepreneurial Development?	(Andriamahery & Qamruzzaman, 2022)	Quantitative	795 SMEs owned by women	Structured questionnaire and structural equation analysis	No direct intervention (analytical study)	Found a significant positive relationship between financial access, technical knowledge, and financial literacy with women's entrepreneurship sustainability and women's empowerment.
6	Green Microfinance and Women's Empowerment: Why Does Financial Literacy Matter?	(Lee & Schultz, 2022)	Quantitative	Not specifically mentioned	Variance-based SEM	No direct intervention (analytical study)	Financial literacy mediates part of the relationship between women's empowerment and green microfinance. Emphasizing the importance of financial literacy based on local wisdom.
7	Women empowerment and environmental sustainability in Africa	(Achuo et al., 2022)	Quantitative	Data from African countries for the period 1996–2019	Metode GMM (Generalised Method of Moments)	No direct intervention (data analysis)	Women's socio-economic empowerment improves the environment through GDP per capita and FDI. It is recommended to create a supportive business environment.
8	Digital literacy model to empower women using community-based education approach	(Sujarwo et al., 2022)	Qualitative (action research)	Women in tourist villages	Not specifically mentioned	Application of digital literacy model	Technology helps women in tourist villages develop culinary products. An effective community-based approach to continuous learning.
9	Technology as the key to women's empowerment: a scoping review	(Mackey & Petrucka, 2021)	Scoping review	51 articles from 4481 articles identified	Arksey and O'Malley's Methodology	No direct intervention (review)	Technology supports the development of women's capacity and resources. A consensus

							on the definition of empowerment and cross-stakeholder collaboration is needed.
10	Leveraging technology and financial literacy for women's empowerment in SMEs: A conceptual framework for sustainable development	(Chidiogo Uzoamaka Akpuokwe et al., 2024)	Development of conceptual frameworks	Non-specific	Not specifically mentioned	Development of conceptual frameworks	Proposed a holistic framework for technology integration, financial literacy, and ecosystem support.
11	The role of culinary-based women's entrepreneurship in the creation of local jobs at stie mahardhika surabaya	(Huwaitdah, 2024)	Qualitative	Women in the culinary sector	Literature studies	No direct intervention (analytical study)	Women's culinary entrepreneurship contributes to local job creation and product innovation.
12	Community Empowerment Through Digital Marketing Training for Micro and Small Businesses	(Hendra et al., 2024)	Descriptive qualitative	Micro and small business actors in KM Regency, West Sumatra	Not specifically mentioned	Digital marketing training	86% increased digital marketing knowledge, 73% women were more confident. The main obstacle: internet access (65%).
13	Community-Based Development Communication in Women's Empowerment Efforts	(Setiawati et al., 2024)	Qualitative	Non-specific	Literature studies	No direct intervention (analytical study)	Community-based development communication is effective in increasing women's awareness, participation, and skills.
14	Empowerment of PKK Mothers in Increasing Economic Independence	(Shanahan et al., 2025)	Qualitative	Iranian rural women	In-depth interviews	No direct intervention	Entrepreneurship increases the income and self-confidence of rural women. Barriers: patriarchal culture and market access.
15	Digitalization Strategy for MSME Independence and Women's Empowerment: Community Service in Kebon Pedas District, Sukabumi	(Suhaeli et al., 2024)	Quantitative	400 women digital entrepreneurs	Questionnaire and logistic regression	No direct intervention	Digital businesses increase women's economic autonomy and decision-making. Digital literacy is important.
16	Strengthening Digital Literacy for Kohati to Increase Kohati's Role in Encouraging Women's Digital Literacy	(Jusnawati et al., 2023)	Case study	Women's social entrepreneur group	Observations & interviews	Case study of social entrepreneurship activities	Social entrepreneurs improve the well-being of families and communities. Government support is important.

17	Women's Empowerment in MSMEs as a Pillar of Local Economic Growth	(Putu et al., 2025)	Quantitative	100 female MSME actors	Regression questionnaire and analysis	No direct intervention	Financial literacy has a positive effect on business management and women's empowerment.
18	Women's Empowerment Through Literacy Movement in the Digital Era	(Hasyim & Anisa Makruf, 2022)	Quantitative	500 women in big cities	Questionnaire	No direct intervention	Digital literacy encourages women's socio-economic participation. Barriers: internet access and cultural norms.
19	Muhammadiyah and Women's Empowerment: Muhammadiyah's View on Women's Issues	(Nasution, 2025)	Quantitative	300 girls	Questionnaire and logistic regression	No direct intervention	Financial literacy improves the ability to make financial decisions and be independent.
20	Az-Zahra Women's School Activities to Encourage Independence and Innovation in the Digital Era	(Fitriana & Nursuksmaningtyas, 2023)	Systematic review	20 selected studies	PRISMA and content analysis	No direct intervention	Entrepreneurship improves women's welfare and social role. Challenge: access to capital and training.
21	Women's Empowerment in the Digital Era of Smart Mothers Capable Digital	(Kumiasih, 2023)	Qualitative	Rural women who use ICT	Interviews & observations	No direct intervention	ICT access increases women's economic, educational, and health participation. Significant infrastructure barriers.
22	Women's Empowerment in Realizing Gender Equality: Strategies and Challenges in the Era of Globalization	(Suryaningsih & Sanjaya, 2024)	Descriptive qualitative	Female MSME actors	Literature studies & interviews	No direct intervention	E-commerce provides opportunities for business expansion and increase women's income.
23	Breaking Gender Boundaries in the Age of Technology Towards Women as a Pillar of the Modern Economy	(Kisti et al., 2025)	Longitudinal quantitative	1,800 households	Longitudinal data and panel regression	Microfund recipients	Microfinancial access increases women's income, household decisions, and social participation.
24	Women's Empowerment in Sustainable Development in the Era of the Industrial Revolution 4.0	(Masruchiyah & Laratmase, 2023)	Comparative qualitative studies	Women entrepreneurs	In-depth interviews	No direct intervention	Entrepreneurship increases social mobility and community influence. Need training and networking.
25	XI Axiata's Csr Digitalization Strategy to Improve the Digital Marketing Competency of MSME Women	(Pera Irawan & Alamsyah, 2023)	Qualitative	Women digital MSME actors	Observations and interviews	No direct intervention	Digital literacy expands the market and increases the confidence of women entrepreneurs.

Discussion

The Government's Strategy in Encouraging Women's Empowerment in the Digital Era

Women's empowerment in the digital era is a strategic issue in the sustainable development agenda. Based on the analysis of various literature, several government strategies have been identified that have been implemented to encourage women's empowerment through digital technology. First, the development of digital literacy programs that focus on women has become one of the main approaches. As shown by (Sujarwo et al., 2022), a community-based digital literacy model is effective in empowering women in rural tourism areas. This kind of program allows women to utilize technology in developing culinary products and promoting them through digital platforms. In line with this, (Kurniasih, 2023) through the "Bunda Cerdas Cakap Digital" program, it demonstrates that digital literacy training can increase women's capacity in utilizing information and communication technology (ICT). Second, the integration of women's empowerment into national policies related to digital transformation. (Masruchiyah & Laratmase, 2023) stated that gender equality has become an integral part of the 2030 Agenda for Sustainable Development. In the context of the Industrial Revolution 4.0, the government needs to ensure that women are not left behind in future jobs, especially in the fields of ICT, computing, physics, mathematics, and engineering. This is reinforced by (Kisti et al., 2025) which identifies a significant gap between men and women in the world of work and income in the digital age. Third, multi-stakeholder collaboration in encouraging women's empowerment. (Pera Irawan & Alamsyah, 2023) analyzing XL Axiata's Corporate Social Responsibility (CSR) digitalization strategy in collaboration with the government, MSME companion institutions, and women's communities to improve the digital marketing competencies of women MSME actors. This collaborative communication strategy allows for synergy between the government, the private sector, and the community in efforts to empower women. Fourth, developing access to financing and digital skills. (Andriamahery & Qamruzzaman, 2022) highlighting the importance of access to financing, technical knowledge, and financial literacy in empowering women through entrepreneurship development. Meanwhile, (Lee & Schultz, 2022) identifies the mediating role of financial literacy in the relationship between women's empowerment and green microfinance, demonstrating the importance of integrating financial and digital literacy in women's empowerment strategies.

Evaluating the Effectiveness of Strategies in Various Contexts

The effectiveness of women's empowerment strategies in the digital age varies depending on the social, economic, and cultural context. In Africa, (Achuo et al., 2022) found that women's socio-economic empowerment contributes to environmental sustainability, moderated by GDP per capita and Foreign Direct Investment (FDI). These findings show the complexity of the relationship between women's empowerment and macroeconomic factors. In Indonesia, especially in rural areas, (Hendra et al., 2024) reports that digital marketing training has a significant positive impact on micro and small business

actors. A total of 86% of business actors report increased knowledge about digital marketing, and 76% have switched to digital marketing strategies. However, 65% experienced internet access constraints, which shows infrastructure challenges in the implementation of digital strategies. In the context of community organizations, (Nasution, 2025) analyze the role of Aisyiyah in women's empowerment through education, da'wah, and economic empowerment. The organization established various charities to create women who are independent and contribute to society. This approach based on religious and cultural values shows the importance of considering cultural context in women's empowerment strategies. (Otokiti et al., 2021) identify factors influencing the utilization of social media by women entrepreneurs in Nigeria, including digital literacy, branding, customer engagement, content strategy, and platform selection. The study also revealed barriers such as limited digital skills, internet access, cyber threats, and online credibility issues. These findings show the need for a holistic approach that considers various aspects in the implementation of women's empowerment strategies through digital technology. (Leal Filho et al., 2023) identify SDGs 1, 4, 11, 12, 14, and 16 as areas that require further attention for the successful implementation of gender equality. These findings emphasize the importance of integrating gender equality into various aspects of sustainable development, including digital transformation.

Best Practices and Lessons from Women's Empowerment Initiatives Through Digital Technology

Various women's empowerment initiatives through digital technology have resulted in best practices and valuable learnings. (Mackey & Petrucka, 2021) Identify the role of information and communication technology in women's empowerment through outreach (health promotion), education (health literacy opportunities), lifestyle (peer training), prevention (screening opportunities), health challenges (application of intimate partner violence), and perception of barriers (adoption, utilization and prevalence of ICT for women). (Chidiogo Uzoamaka Akpuokwe et al., 2024) presents a conceptual framework for women's empowerment in SMEs through technology and financial literacy. The framework emphasizes the role of technology as a catalyst for women's empowerment by facilitating access to markets, networks, and resources. In addition, financial literacy equips women entrepreneurs with the knowledge and skills to manage finances effectively and make informed decisions. (Fitriana & Nursuksmaningtyas, 2023) reported the positive impact of Az-Zahra Women's School activities which included socialization, seminars on gender empowerment and equality, product creation training, and digital marketing workshops. The PAR (Participatory Action Research) approach used in this activity aims to learn in overcoming problems and meeting the practical needs of the community. (Suhaeli et al., 2024) identify steps in the digitalization strategy for MSME independence and women's empowerment, namely identification of digital needs, information technology and digital marketing training, and strengthening local digital infrastructure. The results show a

significant increase in MSMEs' understanding of the use of digital technology, improving product quality, and expanding market reach through online platforms.

Conceptual Framework for the Development of Effective Government Strategies

Based on the above analysis, a comprehensive conceptual framework can be formulated for the development of a more effective government strategy in encouraging women's empowerment in the digital era that is in accordance with the Indonesian context. The framework consists of four main components:

- 1) **Digital Capacity Building:** Includes digital literacy programs designed specifically for women, technical skills training, and local content development relevant to women's needs. As shown by (Suryaningsih & Sanjaya, 2024), education is key to reducing the gender gap in the technology sector.
- 2) **Access and Infrastructure:** This includes increasing access to technology and the internet, developing digital infrastructure in rural areas, and providing affordable technology facilities. (Jusnawati et al., 2023) emphasizing the importance of digital literacy awareness and insight to encourage women to be active in the digital society.
- 3) **Policies and Regulations:** Includes the development of gender-responsive policies in the digital sector, the integration of gender equality into national digital development strategies, and the protection of women from digital risks such as cyberbullying and online harassment. (Setiawati et al., 2024) highlighting the effectiveness of community-based development communication in supporting women's empowerment.
- 4) **Supporting Ecosystem:** Includes the development of women's networks and communities in the digital sector, mentorship and role model facilitation, and digital entrepreneurship support for women. (Putu et al., 2025) and (Shanahan et al., 2025) emphasizing the importance of the role of women in MSMEs and PKK as a pillar of local economic growth through the use of digital technology.

This conceptual framework emphasizes the importance of a holistic and integrated approach, considering various aspects of women's empowerment in the digital age, and involving various stakeholders in its implementation. Thus, the government's strategy in encouraging women's empowerment in the digital era can contribute significantly to the achievement of gender equality, which is one of the goals of sustainable development.

Conclusion

Based on the results of a systematic literature review of 25 relevant scientific journals from the 2018-2024 period, it can be concluded that government strategies play a crucial role in empowering women in the digital era. The analysis using the PRISMA method identified four main strategies that have been implemented: the development of women-focused digital literacy programs, the integration of gender equality in national digital transformation policies, multi-stakeholder collaboration between the government, the private sector and society, and the development of access to finance and digital skills. The effectiveness of these strategies varies based on socio-economic and cultural contexts, with

key challenges including limited digital infrastructure, especially in rural areas, digital literacy gaps, and structural-cultural barriers. Best practices demonstrate the importance of a holistic approach that integrates digital literacy with financial literacy, a community-based approach that considers local values, and digital marketing training programs that target women MSMEs. The comprehensive conceptual framework for an effective government strategy includes four key components: digital capacity building, access and infrastructure, gender-responsive policies and regulations, and the creation of supporting ecosystems. In conclusion, women's empowerment in the digital age requires an integrated approach that not only focuses on developing technological skills, but also overcomes structural and cultural barriers and engages various stakeholders to achieve gender equality as part of sustainable development goals.

Suggestions

- 1) Governments need to develop digital literacy programs that are more inclusive and contextual, taking into account the specific needs of women from diverse socio-economic and geographical backgrounds, and leveraging community-based approaches that have proven effective in increasing the adoption of digital technologies.
- 2) Greater investment in digital infrastructure, especially in rural and remote areas, accompanied by affordable internet access policies, is needed to address the digital gender gap that remains a major obstacle to women's empowerment in the digital era.
- 3) The integration of digital entrepreneurship education and financial literacy should be strengthened in women's empowerment programs, providing comprehensive skills that enable women not only to access technology, but also to leverage it for economic independence and decision-making.

It is necessary to develop data-driven monitoring and evaluation mechanisms to measure the impact of digital empowerment programs on women, so that interventions can be adapted and improved based on empirical evidence on their effectiveness in different contexts.

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