
Designing Digital Governance For Social Inclusion And Gender Equality

Ni Luh Putu Ening Permini^{1*}

ening.permini@unr.ac.id ¹

Universitas Nurah Rai

Info Artikel

Sejarah Artikel:

Disubmit

Direvisi

Diterima

Kata Kunci:

women's empowerment;
women's school;
community-based
education; gender equality;
women's participation.

(:)

—

Abstrak

Tulisan ini mengkaji tata kelola digital yang inklusif untuk memastikan bahwa pesatnya perluasan teknologi digital mendorong, bukan justru menghambat, inklusi sosial dan kesetaraan gender. Meskipun digitalisasi menghadirkan peluang yang sangat besar bagi pertumbuhan ekonomi dan peningkatan penyediaan layanan publik, perkembangannya yang tidak terkelola berisiko memperparah kesenjangan sosial-ekonomi yang sudah ada dan menciptakan bentuk-bentuk baru dari eksklusi digital. Tulisan ini juga berargumen bahwa sekadar meningkatkan akses saja tidaklah cukup; transformasi digital yang efektif memerlukan kerangka kebijakan yang disengaja dan bersifat anti-diskriminatif. Penelitian ini menganalisis kebijakan digital nasional dan internasional yang ada saat ini, dengan mengidentifikasi kesenjangan-kesenjangan utama di mana bias, khususnya yang mempengaruhi kelompok marginal dan perempuan, secara tidak sengaja dipertahankan atau tertanam, secara khusus berfokus pada desain mekanisme regulasi, tata kelola data, dan penerapan kecerdasan buatan (AI) yang etis. Temuan penelitian ini mengusulkan model tata kelola multi-pemangku kepentingan yang menekankan transparansi, akuntabilitas, dan partisipasi aktif organisasi masyarakat sipil, khususnya yang berfokus pada kesetaraan gender dan keadilan sosial. Pada akhirnya, tulisan ini mendorong perubahan paradigma dalam cara ekosistem digital dikelola, yaitu beralih dari perspektif yang semata-mata bersifat teknologi menuju pendekatan yang berpusat pada manusia dan berlandaskan pada prinsip kesetaraan dan non-diskriminasi, sehingga masa depan digital benar-benar dapat diakses dan memberikan manfaat bagi seluruh anggota masyarakat.

Abstract

This paper examines inclusive digital governance to ensure that the rapid expansion of digital technologies fosters, rather than hinders, social inclusion and gender equality. While digitalization presents immense opportunities for economic growth and improved public service delivery, its unmanaged progression risks exacerbating existing socio-economic disparities and creating new forms of digital exclusion. It also argue that merely increasing access isn't enough; effective digital transformation requires a deliberate, anti-discriminatory policy framework. The research analyzes current national and international digital policies, identifying key gaps where biases, particularly those affecting marginalized groups and women, are inadvertently perpetuated or embedded, specifically focuses on the design of regulatory mechanisms, data governance, and ethical AI deployment. The findings propose a multi-stakeholder governance model that emphasizes transparency, accountability, and the active participation of civil society organizations, particularly those focused on gender and social justice. Ultimately, advocates for a paradigm shift in how digital ecosystems are governed, moving from a purely technological perspective to one that is human-centric and grounded in the principles of equity and non-discrimination.

1. Introduction

The digital revolution has permeated virtually every facet of modern life, offering immense transformative potential, ranging from enhanced economic efficiency to accelerated communication and access to information. However, the promise of universal connectivity and boundless opportunities brought forth by digital technology is not evenly distributed. Across the globe, deeply entrenched digital divides, often exacerbated by pre-existing socioeconomic inequalities, threaten to exclude vulnerable groups particularly women and marginalized communities from the full benefits of the digital era (World Bank, 2021). As public services, employment, and civic participation become increasingly reliant on digital infrastructure, the lack of equitable access, literacy, and representation within the digital ecosystem creates significant barriers to social inclusion and gender equality. For instance, women often face unique obstacles, such as limited device ownership, restrictive social norms surrounding technology use, and a heightened risk of online violence (UN Women, 2020). Consequently, digitalization can inadvertently become a force that amplifies, rather than dismantles, existing inequalities.

Digitalization has emerged as the primary engine of global development in the 21st century. This transformation frequently referred to as the Fourth Industrial Revolution is a historical necessity fundamentally altering societies and economies. From healthcare, education, e-government, to economic transactions and daily social interaction, all aspects of life are massively migrating to the digital space (Schwab, 2016). This shift, accelerated by the global pandemic, carries the promise of unparalleled efficiency, enhanced information access, and universal connectivity, which are believed to democratize opportunities and reduce long-standing disparities (Castells, 2010). Yet, beneath this narrative of technological optimism lies a troubling paradox and a tangible risk: technology can readily become a multiplier of existing discrimination and gaps, rather than a solution to these problems (O'Neil, 2016). The long-standing concern known as the "digital divide" is now evolving into a far more complex and layered "new digital divide." This gap is no longer solely measured by physical access to infrastructure—such as device ownership or internet connection—but also by capability, skills (digital literacy), quality of participation, and, most crucially, access to the economic and political opportunities generated by the technology itself (Van Deursen & Van Dijk, 2019).

This phenomenon underscores that digitalization is a double-edged sword, potentially creating sharper socioeconomic hierarchies and perpetuating marginalization for groups left behind in the race of technology adoption. In other words, digital acceleration poses a dilemma: to what extent can the benefits of technology be distributed fairly and equitably, and how can the potential for algorithmic bias, unequal infrastructure access, and digital literacy disparities be overcome so that digitalization genuinely acts as a catalyst for inclusive development, rather than merely deepening existing socioeconomic rifts (Graham, 2014). It has long been lauded as a transformative wave promising the democratization of information and acceleration of global socioeconomic development. However, beneath this optimistic narrative lies a more complex reality: digitalization has an equally significant potential to reinforce existing inequalities (van Deursen & van Dijk, 2018). This phenomenon is known as the Digital Divide, an issue that extends far beyond mere technical problems or infrastructure availability (Hargittai, 2021). Crucially, it is essential to design policies that consider the needs of all societal groups to prevent digitalization from becoming a tool for deepening existing disparities. In this context, Inclusive Digital Governance is paramount. Inclusive Digital Governance is a policy or framework that comprehensively regulates intelligence and involves all layers of society, eliminating gender and other divides, without discrimination based on

geography, gender, ethnicity, or skin color. Supporting factors for this governance include fair access, participation and leadership, security and non-discrimination, responsiveness to special needs, and oversight. Policies designed with diverse perspectives in mind can help ensure that the benefits of digitalization are felt by everyone, without exception (Pant, D, 2024). For example, targeted digital training programs for women and vulnerable groups can help empower them to participate in the digital economy. This suggests that digitalization, if well-managed, can be a tool for creating equity and social inclusion. Thus, while digitalization is an undeniable inevitability, we must remain vigilant against the risk of new exclusion that may arise. Proactive and inclusive policies are necessary to ensure that everyone, regardless of their background, can enjoy the benefits of this digital era. So that, eliminate discrimination in the digital world, encompassing gender, ethnicity, skin color, and sex disparities. This policy also seeks to acknowledge the necessity of women with specific skills to meet the demands of digital transformation; Indonesia, for example, shows a significant percentage difference between men and women (Nurmayani, 2025).

Therefore, the primary objective of this research is to underscore the urgency of proactive and human-centered digital governance. This article aims to present a strong argument that social inclusion and gender equality must serve as the foundation, rather than a mere complement or byproduct, of every digital era initiative and framework. By analyzing current challenges and examining successful governance models, this article seeks to provide policy recommendations that can ensure the benefits of digitalization are distributed equitably, guaranteeing that no one is left behind by the widening digital frontier.

2. Literature Review and Hypotesis Development

Literature Review

The Concept of Inclusive Digital Governance

Digital governance refers to the framework of policies, regulations, and institutions that govern the development and application of information and communication technologies (ICT) within public administration and social interaction (Osborne et al., 2025). This concept marks a shift from mere e-Government to the broader scope of Digital Governance, emphasizing the values of collaboration, responsiveness, and inclusivity (Macaya et al., 2024; Osborne et al., 2025).

Digital Inclusion and the Digital Divide Central to inclusive digital governance is addressing the digital divide. This gap is not solely an issue of physical access (first level), but also encompasses differences in skills (second level) and disparities in benefits/outcomes (third level). Research confirms that a lack of digital participation exacerbates socio-economic disadvantages for vulnerable groups, such as those with low educational attainment, low income, or migrant backgrounds (Büchi et al., 2020).

The model used in this study is a multiple regression equation made to handle panel data. The results showed that Women's Life Expectancy had a negative and significant effect on economic growth. In contrast, Women's Average Length of Schooling has a negative and significant effect on economic growth. The study results revealed that improving the quality of women's human capital—as measured by education and health and participation rates—is a necessary but not sufficient factor in driving overall economic growth. It needs to be accompanied by proper policies that favor women regarding good job opportunities, a safe work environment, and decent wages (Anggraeni, et al., 2022).

Governance as an Enabler or Inhibitor Digital transformation, including the adoption of technologies like AI and Big Data, can enhance institutional capacity and social participation mechanisms. However, without a robust governance framework, disparities in digital literacy, access,

and infrastructure can widen inequality (VISIONER, 2025; Olphert & Damodaran, 2013). Adaptive policy design focused on minimizing structural inequalities is crucial (MDPI, 2025).

The Dimension of Gender Equality in Digital Governance

Gender equality (SDG 5) presents a significant challenge in the digital space, particularly in developing nations. Digital governance must explicitly acknowledge and address the unique barriers faced by women.

The Gender Digital Divide Systematic reviews indicate that barriers for women include economic constraints (access level), lack of digital literacy and skills (usage level), and significant socio-cultural obstacles (benefits/outcomes level) (Emerald Publishing, 2025). A UN Women report (2022) highlights that millions of women in low- and middle-income countries still lag in mobile internet access.

Access to Digital Services This gender gap also impacts access to digital government services (e-government). Studies suggest that women face more precarious connectivity conditions, which compound existing hurdles to productive inclusion and socio-political participation (Castello, 2024; Scheerder et al., 2017).

Design and Institutional Barriers: Poorly designed e-government initiatives often fail to serve marginalized populations, inadvertently reinforcing structural inequalities. Studies (e.g., in the Indonesian context) show that the adoption and use of e-government services are significantly influenced by gender-specific factors, such as misperceptions, low motivation, and a lack of services specifically targeted toward women. A major policy gap is the lack of gender-disaggregated data measurement and availability, which hinders policymakers from creating truly informed, inclusive digital policies (Source 1.9; Pratama, I., et al., 2023).

Gender-Inclusive Policy Formulation A reformulation of policies is required to build an inclusive digital ecosystem, with strategies such as strengthening digital literacy, improving digital protection regulations, and collaborating with technology firms (JHCLS, 2025). The integration of a gender perspective into the planning and design of smart city technology is essential to ensure women are involved in decision-making processes and benefit from technological advancements (Dalu & Manyani, 2020; Owais et al., 2024).

Intervention Framework and the Role of Actors

Achieving inclusive digital governance necessitates a multi-dimensional strategy that integrates technology, policy, and social justice (Visioner, 2025). The Role of Social Workers and Communities Formal support structures, such as community centers and social workers, play a crucial role. They not only provide direct support for internet usage but also identify systemic barriers and address digital exclusion caused by social inequalities (Tandfonline, 2025). Collaborative Governance Future public sector reform must prioritize digital inclusion, invest in enhancing collaborative capacity, and strengthen governance networks to adaptively respond to complex societal needs (Pujia, 2025).

Hypothesis Development

Based on the review of the literature concerning the challenges of the digital divide, structural gender barriers, and the importance of an adaptive governance framework, the following hypotheses can be developed:

Major Hypothesis (H1)

H1: A Digital Governance Framework that is explicitly Gender-Inclusive has a significantly positive effect on the enhancement of Social Inclusion for vulnerable groups (including women) compared to a gender-neutral governance framework.

Minor Hypotheses (H1a, H1b, H1c)

H1a: Skill-Based Governance

Investment in Digital Governance Policies that prioritize the enhancement of Digital Literacy and Skills (addressing the second-level digital divide) significantly mediates the relationship between Digital Governance and the improvement of Economic and Social Benefits for women.

H1b: Protection and Security Governance

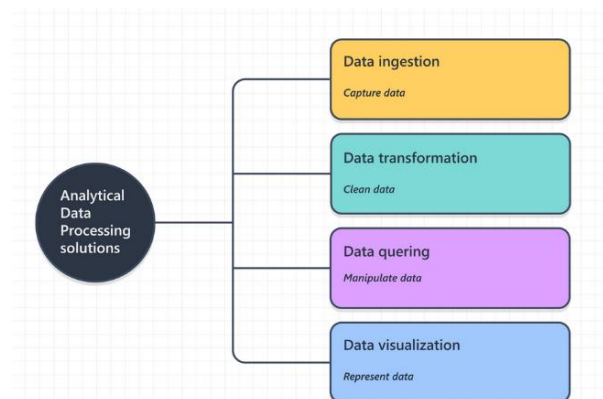
The existence of robust and enforced Digital Governance Regulations designed to protect against algorithmic bias, digital discrimination, and online harassment (especially that which targets women) is positively correlated with the Increased Safe Online Participation of women in public services and digital civic spaces.

H1c: Participatory Governance

The implementation of Collaborative Digital Governance Mechanisms that involve civil society groups, including women's organizations, in the design and implementation phases of digital services will result in Public Digital Services that are more relevant and accessible to vulnerable groups.

3. Methodology

This research employs a Qualitative Approach utilizing a Systematic Literature Review (SLR) and Comprehensive Online Search. This methodology is designed to synthesize, critically analyze, and map the intellectual landscape concerning digital governance, social inclusion, and gender equality within the period of 2020–2025.



Picture 1: Analytical Data Process

(source: Moher, 2020)

Research Design

Systematic Literature Review (SLR)

The SLR is utilized to identify, evaluate, and synthesize all relevant empirical research using a clear and structured methodology to minimize bias. The inclusion criteria are defined by:

Timeframe: Publications between 2020 and 2025.

Document Type: Peer-reviewed scholarly journals, book chapters, official reports from international organizations (UN, ITU, World Bank, etc.), and major conference proceedings.

Topic Relevance: Discussing at least two of the three key variables: Digital Governance, Social Inclusion/Digital Divide, Gender Equality/Gender Digital Divide

Literature Search Strategy (Online Search)

The search process was conducted in two stages using major academic databases (Web of Science, Scopus, Google Scholar, ScienceDirect) and international organizational repositories.

Stage I: Core Keyword (Thematic) Search A combination of keywords was employed to target the most relevant publications.

Stage II: Snowballing (Forward and Backward Search) Following initial identification, the reference lists of highly relevant key articles (Castello, 2024; Van Deursen & Van Dijk, 2020; Visioner, 2025, *et. al*) were traced back (backward search). Furthermore, articles citing these key works (forward search) were also identified to ensure no critical literature was missed.

Selection and Data Extraction Procedures

Step 1 : Title & Abstract Screening All search results were collated. Researchers screened documents based on the congruence of the title and abstract with the inclusion criteria.

Step 2: Full-Text Reading Documents that passed the initial screening were fully retrieved. Researchers read the entire text to verify inclusion and exclude documents that did not substantially discuss the interaction of the three variables.

Step 3: Data Extraction Data were extracted using a standardized matrix, which includes: Title, Author(s), Year of Publication, Source/Journal, Original Research Methodology, Key Findings related to Governance, Key Findings related to Gender, and the Type of Digital Divide discussed (Access, Skills, Outcomes/Benefits).

Data Analysis Techniques

The extracted data will be analyzed using two primary techniques:

Thematic Analysis

Analysis will be conducted to identify recurring patterns, themes, and sub-themes across the synthesized literature. Major themes to be developed in the Literature Review section (such as the Three Levels of the Digital Divide, the Role of Regulation, and Socio-Cultural Challenges) will be derived from this data.

Conceptual Synthesis

After identifying the themes, the researchers will perform a conceptual synthesis to:

Map Causal Relationships: Explain how the design of Digital Governance (independent variable) affects Social Inclusion and Gender Equality (dependent variables), such as the relationship between Digital Literacy Policies and Economic Benefits for women (as hypothesized in H1a).

Develop a Conceptual Framework: Integrate the diverse findings into a coherent theoretical model for designing effective governance.

4. Result and Discussion

Digitalization, Access Gaps, and Social-Gender Inclusion

Digitalization, or the transformation towards widespread use of digital technology, brings tremendous potential for economic and social advancement. However, this process also presents serious

challenges, especially in the form of the digital divide which exacerbates issues of social inclusion and gender equality.

a. Digital Divide

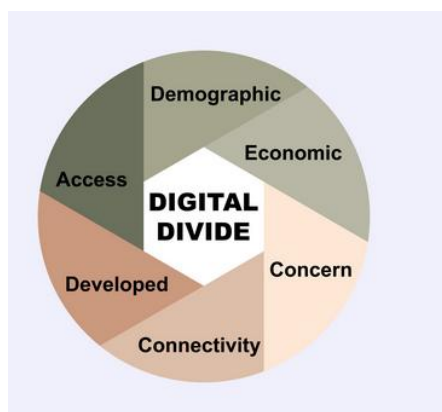
The digital divide refers to the disparity in access to, the ability to use, and the benefits derived from Information and Communication Technology (ICT) among individuals, households, geographic areas, or other socio-economic groups. It is not only a matter of owning devices or internet access, but also concerns digital skills and literacy.

The main factors contributing to the digital divide include:

Infrastructure access means the uneven development of internet networks and device availability, especially between urban and rural areas.

Cost means the high price of hardware, internet services, and electricity can be barriers for low-income groups.

Digital literacy and skill means a lack of adequate digital education and training makes it difficult for certain groups to utilize technology.



Picture 2. Digital Divide

(source: Van Dijk, 2020)

b. Gender Dimension in Digital Access Gaps

The digital divide has a significant gender dimension. Globally, and also in Indonesia, women tend to have lower access to and usage of the internet compared to men. In Indonesia, BPS data (2023) shows that the percentage of male internet users is higher than females (56% men compared to 48% women based on BPS 2023 data, or a 10% difference globally). Men reportedly have 21% higher access to technology than women, and this gap can reach up to 52% in developing countries. This data shows that women often face low digital literacy and have a greater tendency towards technophobia, which hinders their full participation in the digital ecosystem.

c. Impact of Gender Gaps

This gap exacerbates inequality in various aspects, such as: In the economic field, it limits women's access to digital economic opportunities, such as e-commerce or employment in the ICT/STEM sectors (Science, Technology, Engineering, and Mathematics); in education, it often limits women's access to educational resources and digital training. Additionally, Gender-Based Online Violence

(GBOV) is also prevalent, where a non-inclusive digital environment and lack of digital literacy make women more vulnerable to harassment, threats, and discrimination online, which can further hinder their active participation in digital spaces.

d. Digitalization and Social Inclusion Challenges

Social inclusion in the digital context means ensuring that all segments of society, including those traditionally marginalized (such as persons with disabilities, the elderly, rural/remote communities, and low-income groups), can access and utilize digital technology to improve their quality of life. Social access gaps are also influenced by other social factors such as age (the elderly may struggle to adopt new technologies), education (lower educational levels are highly correlated with low digital literacy and skills), geographic location (significant digital infrastructure gaps between urban and rural areas), and socio-economic status (low-income groups often cannot afford devices or internet services)

e. Impact on Social Inclusion

If the digital divide is not addressed, it will worsen overall socio-economic inequalities. Groups left behind in digitalization will have difficulty accessing services such as:

Digital Public Services: including online health services or increasingly efficient and common digital government services.

Job and Educational Opportunities: as digital skills are now prerequisites for many jobs and access to education.

Financial Inclusion: access to digital financial services (such as microloans or online payments) which are crucial for MSMEs, especially those owned by women.

To achieve social inclusion and gender equality in the digital era, a comprehensive multi-sectoral approach is needed, including the development of inclusive infrastructure whereby the government must continue to invest in providing broad and affordable internet infrastructure across all regions, including remote areas, to eliminate the Java–non-Java gap. Additionally, improving gender-responsive digital literacy: digital literacy programs should be massive and specifically target vulnerable groups, such as women (homemakers, informal workers, students), focusing on skill enhancement, online safety awareness, and reporting.

In terms of inclusive governance and policy, the government needs to provide and encourage transparency in gender-disaggregated data to create effective targeted policies. There is also a need for inclusive digital public services: digital public services must be designed to be accessible, multilingual, disability-friendly, and gender-responsive. Legal protection is also necessary, such as the enforcement of regulations like the Sexual Violence Crime Law (UU TPKS), which is vital to provide real legal protection for GBOV victims and contribute to a safer digital space. Collaboration among the government, the private sector, non-governmental organizations (NGOs), and communities is required to strengthen networks for the protection and empowerment of women in the digital sphere and enhance overall digital inclusion.

The Core Pillars of Inclusive Digital Governance

Inclusive digital governance constitutes a framework of policy, regulation, and practice guiding the use of digital technology by the government (or an organization) to guarantee equitable access, meaningful participation, and accountability for all citizens. These pillars are typically founded upon the principles of human rights and Good Governance but are adapted for the digital era context. Based on various global frameworks and the Indonesian context, the main pillars can be grouped into three critical dimensions: Access and Infrastructure, Capability and Participation, and Ethics and Accountability.



Journal of Discourse, Innovation , and Empowerment in Gender

Vol. 1, No. 1, September 2026 || E-ISSN : 3164-4848

Inclusive Access and Infrastructure

This pillar focuses on the removal of physical and financial barriers so that everyone can connect to and utilize digital technologies. This is the foundation of digital inclusion.

Universal and Affordable Access: Ensuring that connectivity infrastructure (such as fiber optic networks, mobile broadband, and satellite) reaches 3T areas (Tertinggal, Terluar, Terdepan—Least Developed, Outermost, Frontier) with adequate quality and at affordable prices. The digital infrastructure gap (digital divide) must be addressed so that government digital services can be leveraged by all, not just those in urban centers. This includes policies for internet access subsidies, the development of integrated data centers, and the provision of free public access points (e.g., public WiFi).

Accessibility by Design: Government digital services and platforms must be designed to be user-friendly for everyone, including people with disabilities, the elderly, and those with low digital literacy. This means adhering to international web accessibility standards (WCAG), such as using captions on videos, being screen reader-friendly, and featuring a simple and intuitive interface.

Digital Capability, Literacy, and Participation

Connectivity alone is insufficient; citizens must possess the skills to effectively use technology and the opportunity to participate in governance processes.

Enhancing Digital Literacy and Skills: Building human capacity is key. Digital education and training programs must be conducted massively and be targeted towards vulnerable groups (e.g., women, MSMEs, farmers, the elderly) to ensure they can utilize digital services and tools safely. This covers training in basic cyber security, the use of digital public services, and leveraging technology for economic improvement.

Digital Public Participation and Engagement: Utilizing digital platforms to facilitate authentic two-way dialogue between the government and citizens. This enhances government transparency and responsiveness. Inclusivity here means ensuring the voices of minority and marginalized groups are heard. Examples include online policy consultation platforms, easily accessible digital complaint mechanisms, and the use of data to map the specific needs of communities in various regions.

Ethics, Transparency, and Accountability

This pillar ensures that the implementation of digital technology is conducted ethically, justly, and responsibly, thus building public trust.

Transparency and Open Data: Data collected and used by the government must be open and accessible to the public, except for sensitive or private information. Open data allows for public oversight of government performance (checks and balances). This necessitates clear open data policies and user-friendly open data portals to encourage multi-sector collaboration.

Accountability and Responsiveness: The government must be able to explain and be held responsible for decisions made, especially those based on algorithms (such as AI). Digital systems must be designed to facilitate the tracking and auditing of decisions. In the event of digital service failure or an unfair decision, there must be a rapid and effective complaint and redress mechanism.

Privacy Protection and Cyber Security: Personal data protection and cyber security are absolute prerequisites for building digital trust. Governance must ensure that citizens' data is collected, stored, and processed in accordance with a robust legal framework (such as the Personal Data Protection Law). This involves strong regulation, investment in cyber security, and the practice of Privacy by Design in every government digital system.

Implications and Challenges of Inclusivity

Digital governance that is not inclusive can exacerbate existing socio-economic disparities, describes as table bellow:

Tabel 1. Digital governance that is not inclusive can exacerbate existing socio-economic disparities

Dimension Inclusivity	Risk if Ignored	Inclusive Governance Solution
Access Gap	Poor, rural, and marginalized groups cannot access essential digitized services (education, health, social assistance).	Universal Service Obligation (USO) policies, device subsidies and infrastructure development in 3T areas.
Skills Gap	Low digital literacy leads to online fraud (scams), inability to use security features and failure to participate in the digital economy.	Structured and target-specific digital literacy programs integrated into educational curricula and community programs.
Algorithmic Bias & Ethics	AI/algorithm systems used in public services have biases that discriminate against certain groups (e.g., in determining credit eligibility or aid allocation).	Explicit AI ethics frameworks, algorithmic auditing, and regulations that ensure fairness and transparency.

These pillars collectively ensure that digital transformation focuses not only on the speed and efficiency of technology but also on a just and equitable social impact for all segments of society.

Fair and Gender-Responsive Regulation

Fair and Gender-Responsive Regulation refers to policies, rules, or legal products formulated with consideration for and aimed at addressing the differing needs, experiences, aspirations, and potentials between women and men. It ensures that both genders obtain equal Access, Participation, Control, and Benefits (APCB) from development or public services. Gender Justice is a condition where the social roles and cycles of women and men are equivalent, harmonious, balanced, and complementary. This concept moves beyond formal equality, focusing on equitable treatment to rectify historical or ongoing injustices stemming from gender-based disparities.

Primary Strategy: Gender Mainstreaming (GM)

a. In Indonesia, the umbrella strategy for gender-responsive regulation is implemented through Gender Mainstreaming (GM), which is mandated, notably, by Presidential Instruction (Inpres) No. 9 of 2000. GM is a strategy to integrate the gender dimension into the entire development process, encompassing: Planning; Budgeting (known as Gender-Responsive Budgeting/GRB); Implementation; Monitoring; Evaluation. Its primary objective is to reduce and eliminate gender gaps and discrimination.

b. Implementing Gender-Responsive Regulation, in generally focused through Gender-Responsive Planning and Budgeting (GRPB), which is a mandatory process for Ministries/Institutions and Regional Governments.

c. Key Stages (GRPB)

Implementation proceeds through systematic stages:

Gender Analysis, there is utilizing tools such as the Gender Analysis Pathway (GAP) to identify gaps in the four aspects (Access, Participation, Control, Benefits). This analysis requires the availability of sex-disaggregated data.

Program Formulation, there is designing policies, programs, and activities that specifically target the identified disparity issues.

Budget Formulation, there is translating gender commitment into budget allocation, not as a separate budget, but by ensuring that existing budget allocations are fair and responsive to different needs. The document used is the Gender Budget Statement (GBS).

Oversight, there is involving both internal parties (Inspectorate) and community participation to ensure execution aligns with the plan and that benefits are equally enjoyed.

Prerequisites for Gender Mainstreaming (GM)

The success of GM/RARG implementation highly depends on seven key prerequisites:

Political Commitment: Serious intent and support from top leadership (Regional Heads/Ministers).

Policy: Formal regulations that guarantee the sustainability of GM.

Institutional Framework: The existence of a dedicated work unit or GM Team (such as the Office for Women Empowerment, Child Protection, Population, and Family Planning - P3AP2KB) to coordinate implementation.

Human Resources (HR): Adequate capacity and understanding among planners and implementers.

Sex-Disaggregated Data: Availability of data separated by sex as the basis for robust analysis.

Community Participation: Active involvement of women's groups and the community in inclusive Musrenbang (Development Planning Consultative Forums).

Oversight System: Effective monitoring and evaluation mechanisms.

Challenges in Implementing Gender-Responsive Regulation

Despite the existence of a regulatory framework, RARG implementation still faces a number of complex and interrelated challenges:

Political and Commitment Challenges

Lack of Political Will: The application of GM is often "top-down oriented" (merely following central government directives) and not driven by internal awareness of the importance of gender justice.

Minimal Budgetary Support: Insufficient budget allocation for explicitly gender-responsive programs (e.g., for safe facilities, access to education, or women's empowerment programs).

Capacity and Understanding Challenges

HR Limitations: The number and capacity of Human Resources within Regional Apparatus Organizations (OPD) who deeply understand gender analysis, GRPB, and GBS preparation remain limited.

Gender Misconception: The ongoing perception that gender issues are "women's business" or a "non-sexy" (non-priority) program in the eyes of policymakers.

Cultural and Discrimination Challenges

Cultural Norms: Cultural values and norms that do not favor gender equality can influence development perceptions and practices, often reinforcing unbalanced labor divisions.

Continued Discrimination: Forms of discriminatory practices (e.g., violence or income gaps) remain serious obstacles to creating fair policies and budgets.

Data and Participation Challenges

Lack of Sex-Disaggregated Data: In many regions, the availability of complete and accurate sex-disaggregated data across sectors is still lacking, making it difficult to conduct sharp gender analysis and formulate targeted policies.

Low Women's Participation: Women's participation in decision-making processes, particularly in planning and budgeting (such as Musrenbang), remains low, resulting in their specific needs being underrepresented.

Fair and gender-responsive regulation, realized in Indonesia through the strategies of Gender Mainstreaming (GM) and its derivatives GRPB/GRB, is a crucial instrument for achieving justice and equality. However, its success is highly dependent on strong political commitment, increased HR capacity, and continuous efforts to address discriminatory cultural norms and ensure the availability of complete sex-disaggregated data. Implementation must shift from merely fulfilling formal obligations to substantive change in resource allocation and measurable impact felt by all layers of society, both men and women.

5. Conclusion

This research aimed to design an effective Digital Governance model to promote Social Inclusion and Gender Equality in the digital era. Based on a comprehensive analysis of policy frameworks, best practices, and case studies, the key findings indicate that inclusion-oriented digital governance must encompass three fundamental and interconnected pillars:

Equitable Access and Infrastructure: Policies must be in place to ensure universal access to connectivity and digital devices, especially for marginalized groups and women, as a basic prerequisite.

Equal Digital Literacy and Capacity: Targeted programs are necessary to enhance digital skills and critical literacy, addressing the persistent gender gap in STEM and technology education.

Inclusive Regulation and Ethics: The establishment of a regulatory framework that protects against algorithmic discrimination, data misuse, and online violence, while ensuring the representation of minority voices in digital policy formulation.

The proposed governance model emphasizes a multi-stakeholder approach involving government, the private sector, civil society, and vulnerable communities in the design, implementation, and evaluation cycles. Overall, the design of effective digital governance is a crucial step to ensure that digital transformation does not exacerbate, but actively mitigates, existing social and gender inequalities.

Limitations

This study has several limitations that must be acknowledged:

1. **Geographical and Contextual Focus:** The analysis primarily focused on policy frameworks in developing countries and may not fully reflect the nuances or unique challenges across

all regional contexts. The application of this governance model may, therefore, require significant local adaptation.

2. **Limited Quantitative Data:** Restricted access to detailed quantitative data, disaggregated by gender and social status (e.g., specific data on the impact of regulation on reducing the gender gap), limited the capacity to perform a comprehensive statistical impact analysis.
3. **Implementation Aspect:** The research was more focused on the model design and less on an in-depth exploration of the practical implementation challenges in the field, such as bureaucratic resistance, budget allocation, or the political dynamics of adopting new policies.
4. **Pace of Technological Change:** The digital technology landscape is changing rapidly. Therefore, the regulatory frameworks and exemplary best practices identified may require periodic review to remain relevant to emerging technological innovations (e.g., generative AI, blockchain).

Recommendations

Based on the findings and limitations of the study, the following strategic recommendations are proposed:

1. **Policy and Implementation Recommendations**
 - **Development of Inclusivity Indicators:** Governments and relevant institutions are advised to develop clear Key Performance Indicators (KPIs), disaggregated by gender and social status, to monitor the effectiveness of digital governance.
 - **Targeted Investment:** Allocating dedicated funding for digital literacy programs specifically targeting women, the elderly, and minority groups, with a focus on skills relevant to economic opportunities.
 - **Mandatory Algorithm Audits:** Implementing regulations that mandate independent audits of artificial intelligence systems and algorithms used in public services to identify and eliminate biases that may disadvantage women or marginalized groups.
2. **Recommendations for Further Research**
 - **Long-Term Impact Studies:** Conducting follow-up research focused on the long-term impact evaluation of the proposed governance model post-implementation, utilizing quantitative methodologies to measure actual changes in social inclusion and gender equality.
 - **Cost-Benefit Analysis:** Performing an in-depth economic analysis of the costs and social benefits of inclusive digital governance policies, to provide a stronger evidence base for policymakers.
 - **Exploration of New Technology Regulation:** Deeper investigation into the governance challenges posed by nascent technologies (e.g., the metaverse and decentralized autonomous organizations (DAOs)) and how these technologies can be leveraged or regulated for inclusion purposes.

References

- Büchi, M., Fesl, M., & Latzer, M. Digital inequality in a converging media environment: The impact of platform access and skills on online repertoire and participation. *Journal of Broadcasting & Electronic Media*, 60(3), 478–498.
- Castello, N. (2024). Inclusive digital government: Gender differences in access to online public services. *Government Information Quarterly*, 41(4).
- Castells, M. *The rise of the network society* (2nd ed.). Wiley-Blackwell.
- Crawford, K. (2021). *Atlas of AI: Power, Politics, and the Planetary Costs of Artificial Intelligence*. Yale University Press.
- Dalu, T. M., & Manyani, A. (2020). Integrating gender perspectives into urban planning and design: Promoting women's involvement in decision-making processes. *Cities*, 103, 102758.
- Emerald Publishing. (2025). *Gendering the digital divide: a systematic review of women's digital inclusion challenges and emerging research directions*. (Ringkasan artikel dari Emerald Publishing yang merujuk pada barriers akses, usage, dan outcomes).
- Emerald Publishing. (2025). *Gendering the digital divide: a systematic review of women's digital inclusion challenges and emerging research directions*. (Ringkasan artikel Emerald yang relevan dengan gender digital divide).
- Eshet-Alkalai, Y. Digital literacy: A conceptual framework for survival skills in the digital era. *Journal of Educational Technology & Society*, 20(3), 65-76.
- Graham, M. The geography of the digital divide. In A. Leipnik & B. T. K. Tan (Eds.), *The Encyclopedia of World Geography* (pp. 370–374). Facts On File.
- Hargittai, E. (2021). Contextualizing the digital divide: The role of the social environment in shaping digital inequality. *International Journal of Communication*, 15, 1388-1406.
- JHCLS. (2025). *The influence of women's leadership policy on challenges and opportunities in the digital age*. (Ringkasan artikel dari JHCLS yang merujuk pada tantangan kepemimpinan perempuan di era digital).
- HCLS. (2025). *The influence of women's leadership policy on challenges and opportunities in the digital age*. (Ringkasan artikel dari JHCLS tentang kebijakan dan kepemimpinan perempuan di era digital).
- June, I., Manajemen, P. S., Islam, U., Maulana, N., Ibrahim, M., Indonesia, D., & Indonesia, I. (2025). *Kesenjangan akses pendidikan digital di daerah 3T (tertinggal , terdepan , dan terluar)*. 3, 1494–1502.
- Macaya, M. C., Van Dijk, J. A. G. M., & Helsper, E. J. (2024). Inclusive digital government: Gender differences in access to online public services. *Government Information Quarterly*, 41(4).
- Manyika, J., & Lund, S. *Jobs Lost, Jobs Gained: Workforce Transitions in a Time of Automation*. McKinsey Global Institute.
- OECD. (2019). *Going Digital: Shaping Policies, Improving Lives*. OECD Publishing.
- Olphert, W., & Damodaran, L. Shifting the focus from 'digital divide' to 'digital inclusion': The role of ICT in the social inclusion of older people. In *Information and Communications Technology and the Elderly* (pp. 53–70). Springer, London.
- O'Neil, C. *Weapons of Math Destruction: How Big Data Increases Inequality and Threatens Democracy*. Crown..

- Osborne, S. P., Strokosch, K., & Tiron-Tudor, A. (2025). Public administration in the era of digital and collaborative governance: A bibliometric analysis. *Otoritas : Jurnal Ilmu Pemerintahan*. (Ringkasan dari PUJIA UNISMUH MAKASSAR yang merujuk pada collaborative governance).
- Scheerder, A., Van Deursen, A. J. A. M., & Van Dijk, J. A. G. M. Determinants of internet skills, uses, and outcomes: A systematic review of the second- and third-level digital divide. *Telematics and Informatics*, 34(8), 1607–1624.
- Series, W. P. (2021). *From Digital Divide to Digital Justice in the Global South: Conceptualising Adverse Digital Incorporation: Digital Development Working Paper no.90*.
- Tandfonline. (2025). *The role of social work in digital inclusion: a systematic literature review*. (Ringkasan artikel dari Tandfonline yang merujuk pada peran social work dalam inklusi digital).
- UN Women. (2022). *Progress on the Sustainable Development Goals: The gender snapshot 2022*. United Nations.
- Van Deursen, A. J. A. M. (2018). *The fourth digital divide: A conceptual model of the unequal distribution of online engagement skills among the population*. Amsterdam University Press.
- Van Deursen, A. J. A. M., & van Dijk, J. A. G. M. (2018). The first-level digital divide shifts from access to Internet use. *New Media & Society*, 21(2), 393-415.
- Van Deursen, A. J. A. M., & Van Dijk, J. A. G. M. (2019). The first-level digital divide: A systematic review of the relationships between socio-demographic variables and internet access, use, activities, and outcomes. *Computers in Human Behavior*, 92, 198–215.
- Van Dijk, J. A. G. M. *The Digital Divide*. Polity Press.
- Warschauer, M. *Technology and Social Inclusion: Rethinking the Digital Divide*. The MIT
- World Bank. (2021). *World Development Report 2021: Data for Better Lives*. World Bank Publications.
- Zhao, S. (2022). Algorithmic exclusion: How digital governance widens the social divide. *Policy & Internet*, 14(1), 108-125.
- https://www.liputan6.com/amp/5518803/survei-apjii-penetrasi-pengguna-internet-indonesia-mencapai-79-di-tahun-2024?utm_source=chatgpt.com
- https://www.liputan6.com/tekno/read/5693347/penetrasi-internet-indonesia-capai-795-persen-dorong-transformasi-digital?utm_source=chatgpt.com