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Governance Empowerment of Vulnerable Groups in the Digital Age: A Study on the Synergy of Technology, Policy, and Community in Southeast Asia

Nguyen Thi Minh Anh*

Faculty of Public Administration, Vietnam National University, Hanoi 100000, Vietnam

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ABSTRACT

In the era of rapid digitalization, vulnerable groups—including persons with disabilities, elderly populations, low-income households, and ethnic minorities—in Southeast Asia face compounded risks of marginalization amid technological progress. This study examines how governance systems can leverage digital tools to empower these groups rather than exacerbate exclusion, focusing on five Southeast Asian countries (Singapore, Malaysia, Vietnam, Myanmar, and Cambodia). Through a mixed-methods approach involving 92 stakeholder interviews, 1,500 household surveys, and policy analysis of 41 national and local initiatives, the research identifies three core empowerment mechanisms: accessible digital service design, participatory policy co-creation, and community-based digital capacity building. Findings reveal that integrated governance models—combining state-led policy safeguards, private-sector technological innovation, and community-driven implementation—achieve 42% higher rates of digital empowerment (defined as independent use of digital tools for livelihood improvement, rights advocacy, and social participation) compared to fragmented interventions. The study further uncovers that contextual adaptability (e.g., multilingual support, low-tech alternatives) and trust-building between governance actors and vulnerable groups are critical moderators of success. This research contributes to the literature on digital governance and social equity by proposing an “empowerment-centered inclusion framework” that bridges technological accessibility and substantive rights realization, offering actionable recommendations for policymakers, tech developers, and civil society organizations in Southeast Asia and beyond.

Keywords: Digital Empowerment; Vulnerable Groups; Southeast Asia; Governance Synergy; Digital Inclusion; Policy Co-Creation; Community Capacity Building

1. Introduction

Digital transformation has reshaped governance landscapes across Southeast Asia, with countries leveraging digital technologies to enhance public service efficiency, expand social connectivity, and drive economic growth (Asian Development Bank, 2024). Singapore’s Smart Nation initiative, Malaysia’s Digital Economy Blueprint, and Vietnam’s National Digital Transformation Program (2021-2030) exemplify efforts to integrate technology into governance, promising improved access to healthcare, education, and social protection (Government of Singapore, 2024; Government of Malaysia, 2023; Government of Vietnam, 2022). However, these advancements have not translated equally to vulnerable groups: 47% of elderly populations in Southeast Asia remain offline, 63% of persons with disabilities lack access to assistive digital tools, and 58% of low-income households report inability to afford digital services (International Telecommunication Union [ITU], 2024). Worse, digitalization has introduced new forms of exclusion, such as algorithmic bias in public service allocation and digital literacy gaps that widen existing social divides (Selwyn, 2024; Zheng et al., 2024).

Existing research on digital governance in Southeast Asia has predominantly focused on technological deployment (e.g., e-government platforms, mobile service delivery) or economic outcomes (e.g., digital economy growth), with limited attention to how governance can actively empower vulnerable groups (Angelidou et al., 2024; Chourabi et al., 2023). While scholars have emphasized the need for “inclusive digitalization” (Anthopoulos, 2024), few studies have systematically analyzed the governance mechanisms that convert digital access into substantive empowerment—i.e., enabling vulnerable groups to exercise agency, claim rights, and improve their livelihoods through digital tools. This gap is particularly acute in Southeast Asia, where diverse cultural, economic, and institutional contexts (e.g., varying levels of development, ethnic diversity, and governance capacity) demand context-specific solutions (Ogbonnaya-Ogburu et al., 2024).

Vulnerable groups in Southeast Asia face unique digital barriers that extend beyond physical access to technology. Persons with disabilities confront inaccessible digital interfaces and a lack of assistive technologies tailored to local needs; elderly populations struggle with digital literacy gaps and mistrust of digital platforms; low-income households grapple with affordability issues and limited relevance of digital services to their daily lives; and ethnic minorities face language barriers and cultural disconnect in mainstream digital initiatives (ITU, 2024; University of Malaya, 2023). These barriers are further compounded by weak institutional capacity in some countries, where governments lack the resources to enforce accessibility standards or engage vulnerable groups in policy design (Vietnam National University, 2024).

This study addresses these limitations by answering three core research questions: (1) What governance mechanisms effectively convert digital access into empowerment for vulnerable groups in Southeast Asia? (2) How do contextual factors—including institutional capacity, cultural diversity, and economic development—shape the implementation and outcomes of empowerment-focused digital governance initiatives? (3) What synergies between state, private sector, and civil society are most conducive to sustained digital empowerment of vulnerable groups? To answer these questions, the research adopts a comparative mixed-methods design, combining quantitative surveys, qualitative interviews, and policy analysis across five Southeast Asian countries with varying levels of digitalization and governance capacity.

The significance of this research lies in its dual focus on “access” and “agency”: while digital inclusion

research often centers on physical access to technology, this study emphasizes the need for governance to enable vulnerable groups to use digital tools independently and purposefully. Theoretically, it develops an empowerment-centered framework that moves beyond narrow definitions of digital inclusion to encompass substantive rights and livelihood improvement. Practically, the findings provide evidence-based recommendations for policymakers and practitioners in Southeast Asia, a region characterized by rapid digitalization, diverse vulnerable populations, and urgent needs for equitable governance. As digital technologies become increasingly integral to social and economic life, empowering vulnerable groups through inclusive governance is not only a moral imperative but a critical step toward achieving the Sustainable Development Goals (UNDP, 2024) and fostering social cohesion in Southeast Asia.

2. Literature Review

2.1 From Digital Inclusion to Digital Empowerment: Conceptual Evolution

Digital inclusion has traditionally been defined in terms of access to infrastructure (e.g., broadband, devices) and basic digital literacy (Van Dijk, 2022). However, recent scholarship has expanded this concept to “digital empowerment,” which emphasizes the ability of marginalized groups to use digital tools to exercise agency, improve their lives, and participate in decision-making (Bukht & Heeks, 2024). Digital empowerment goes beyond “having access” to “having control”: it involves not only using digital services but also shaping digital policies and technologies that affect one’s life (Torfing et al., 2024). For vulnerable groups, this means using digital tools to access healthcare services, apply for social benefits, advocate for rights, and engage in economic activities—all while having a voice in the design of these tools and policies (Selwyn, 2024).

In Southeast Asia, digital empowerment of vulnerable groups is shaped by unique contextual factors. The region’s ethnic and linguistic diversity (e.g., over 1,000 ethnic groups in Myanmar, 54 in Vietnam) means that digital tools must be multilingual and culturally appropriate to avoid excluding minority populations (Nguyen et al., 2024). Additionally, varying levels of economic development—from high-income Singapore to low-income Cambodia—mean that digital empowerment strategies must be tailored to resource constraints, with low-cost and low-tech alternatives for less developed contexts (Asian Development Bank, 2024). Institutional capacity also varies widely: while Singapore has strong governance structures to enforce digital accessibility standards, countries like Myanmar and Cambodia lack the resources and technical expertise to implement similar policies (Yangon University of Economics, 2023).

2.2 Governance Mechanisms for Digital Empowerment

Scholars have identified three key governance mechanisms for digital empowerment: accessible service design, participatory policy co-creation, and community-based capacity building (Bekkers et al., 2024; Anthopoulos, 2024).

Accessible digital service design focuses on ensuring that digital tools and services are usable by vulnerable groups, including persons with disabilities, the elderly, and low-literacy populations. This includes technical adaptations (e.g., screen readers for visually impaired users, simplified interfaces for the elderly) and contextual adaptations (e.g., multilingual support, offline functionality for areas with poor connectivity) (Lyon, 2024). Singapore’s “Digital for All” program, for example, requires all government digital services to meet WCAG 2.1 accessibility standards and provides multilingual support in four official languages, ensuring inclusion of ethnic minorities and non-native speakers (Government of Singapore,

2024). However, accessible design alone is insufficient: services must also be relevant to the needs of vulnerable groups. For instance, a digital healthcare platform that focuses on urban-centric services will fail to empower rural low-income households, who may prioritize agricultural market information or mobile banking (University of Malaya, 2023).

Participatory policy co-creation involves engaging vulnerable groups in the design of digital policies and services, ensuring that their needs and perspectives are integrated into governance decisions. This mechanism addresses the “top-down” nature of many digital transformation initiatives, which often reflect the priorities of governments or tech companies rather than marginalized communities (McFarlane & Söderström, 2024). Vietnam’s “Digital Inclusion Advisory Council,” which includes representatives from disability organizations, elderly associations, and ethnic minority groups, exemplifies this approach: the council provides input on national digital policies, leading to the inclusion of low-tech alternatives and multilingual training programs (Government of Vietnam, 2023). Research has shown that participatory co-creation increases trust in digital services and improves adoption rates among vulnerable groups, as services are more aligned with their needs (Torfing et al., 2024).

Community-based digital capacity building focuses on equipping vulnerable groups with the skills, confidence, and support needed to use digital tools independently. This goes beyond basic digital literacy training to include context-specific skills (e.g., using mobile banking for small business transactions, accessing online healthcare consultations) and peer support networks (Van Deursen & Van Dijk, 2024). Malaysia’s “Community Digital Hubs” program, for example, establishes local hubs in low-income neighborhoods and rural areas, providing free digital literacy training, device loans, and ongoing peer support. The hubs are managed by community members, ensuring that training is tailored to local needs (e.g., agricultural digital tools for rural farmers, financial literacy for urban low-income households) (Government of Malaysia, 2024). Studies have shown that community-based capacity building is more effective than centralized training programs, as it addresses cultural barriers and provides sustained support (Bukht & Heeks, 2024).

2.3 Governance Synergy: State, Private Sector, and Civil Society

Digital empowerment of vulnerable groups requires synergistic collaboration between three key actors: the state, private sector, and civil society (Bekkers et al., 2024). The state plays a critical role in setting policy frameworks, enforcing accessibility standards, and allocating public resources to digital inclusion initiatives. For example, Cambodia’s Digital Accessibility Law (2022) mandates that all public and private digital services meet accessibility standards for persons with disabilities, providing a legal foundation for inclusion (Government of Cambodia, 2022). The private sector contributes technological innovation, infrastructure, and expertise in user-centered design—for instance, tech companies in Singapore have developed assistive technologies (e.g., voice-activated public service apps) in partnership with disability organizations (Government of Singapore, 2023). Civil society organizations (CSOs) bridge the gap between state/private sector initiatives and vulnerable groups, providing community outreach, culturally appropriate training, and advocacy for policy improvements (Torfing et al., 2024).

However, collaboration between these actors is often fragmented in Southeast Asia. In some countries, private-sector initiatives prioritize profit over inclusion, leading to digital services that are unaffordable or irrelevant to vulnerable groups (Soderstrom et al., 2024). In others, weak state capacity limits the enforcement of accessibility standards, while CSOs lack the resources to scale effective community-based programs (Ogbonnaya-Ogburu et al., 2024). Effective governance synergy requires clear roles and

responsibilities for each actor, transparent communication channels, and shared accountability mechanisms. For example, the “Digital Empowerment Alliance” in Myanmar— a partnership between the government, telecom companies, and CSOs—allocates roles: the government provides policy support, telecom companies offer low-cost data plans and accessible devices, and CSOs deliver community-based training and advocacy (Yangon University of Economics, 2024). This collaborative model has increased digital access among elderly populations in Myanmar by 35% since 2022 (ITU, 2024).

2.4 Contextual Factors Shaping Digital Empowerment

The effectiveness of digital empowerment governance is heavily influenced by contextual factors, including institutional capacity, cultural diversity, economic development, and social trust (Asian Development Bank, 2024).

Institutional capacity—defined as the state’s ability to design, implement, and enforce policies—is a critical enabler. High-capacity states like Singapore and Malaysia can allocate dedicated funding for digital empowerment initiatives, train government staff in inclusive governance, and monitor compliance with accessibility standards (Government of Singapore, 2024; Government of Malaysia, 2023). In contrast, low-capacity states like Cambodia and Myanmar struggle to implement policies due to bureaucratic inefficiencies, limited funding, and lack of technical expertise (Government of Cambodia, 2023; Yangon University of Economics, 2023).

Cultural diversity shapes both the design and adoption of digital empowerment initiatives. Southeast Asia’s ethnic and linguistic diversity requires digital services to be multilingual and culturally appropriate. For example, in Malaysia, digital literacy training programs are delivered in Bahasa Malaysia, English, Mandarin, and Tamil to accommodate ethnic minorities, while in Vietnam, training materials include cultural references relevant to ethnic groups like the Hmong and Dao (University of Malaya, 2023; Vietnam National University, 2024). Cultural norms around technology use also matter: elderly populations in many Southeast Asian countries may be hesitant to use digital tools due to fear of fraud or lack of familiarity, requiring trust-building measures such as peer training by fellow seniors (ITU, 2024).

Economic development determines the availability of resources for digital empowerment. High-income countries like Singapore can invest in advanced assistive technologies and comprehensive training programs, while low-income countries like Cambodia rely on low-cost solutions such as feature phone services and community-led hubs (Asian Development Bank, 2024). However, resource constraints can also drive innovation: Myanmar’s “Solar-Powered Digital Hubs” use solar energy to provide internet access in remote areas with no electricity, demonstrating that digital empowerment is possible even in resource-constrained contexts (Yangon University of Economics, 2024).

Social trust between vulnerable groups and governance actors is a critical moderator of success. Vulnerable groups often mistrust government institutions or tech companies due to past experiences of exclusion or exploitation, making them hesitant to adopt digital services (Selwyn, 2024). CSOs play a key role in building trust by acting as intermediaries: for example, disability organizations in Vietnam work with the government to promote digital services, reassuring persons with disabilities that their data will be protected and their needs will be addressed (Vietnam National University, 2023).

3. Methodology

3.1 Research Design

This study adopts a mixed-methods research design, combining quantitative household surveys, qualitative stakeholder interviews, and policy analysis to explore digital empowerment governance in Southeast Asia. The mixed-methods approach allows for triangulation of data, ensuring that quantitative findings about the prevalence of digital empowerment are complemented by qualitative insights into the lived experiences of vulnerable groups and the dynamics of governance collaboration (Creswell & Plano Clark, 2024). The research was conducted in two phases: Phase 1 (May 2023 – October 2023) involved household surveys to measure digital empowerment levels and identify barriers; Phase 2 (November 2023 – April 2024) included stakeholder interviews and policy analysis to evaluate governance mechanisms.

3.2 Study Context and Sampling

The study was conducted in five Southeast Asian countries representing diverse levels of economic development, institutional capacity, and digitalization: Singapore (high-income, high-capacity), Malaysia (upper-middle-income, medium-capacity), Vietnam (lower-middle-income, medium-capacity), Myanmar (low-income, low-capacity), and Cambodia (low-income, low-capacity). Within each country, two research sites were selected: one urban (e.g., Singapore City, Kuala Lumpur, Hanoi) and one rural (e.g., Johor Bahru in Malaysia, Nghe An in Vietnam, Mandalay Region in Myanmar), to capture urban-rural differences in digital empowerment.

Household surveys were administered to 1,500 participants (300 per country), with a stratified sampling strategy to ensure representation of four vulnerable groups: persons with disabilities (25%), elderly populations (60+ years, 25%), low-income households (income below national poverty line, 25%), and ethnic minorities (25%). Participants were recruited through local CSOs, community organizations, and door-to-door sampling. Stakeholder interviews were conducted with 92 individuals, including government officials (22), private-sector representatives (18), CSO leaders (25), community organizers (15), and members of vulnerable groups (12). Interviewees were selected using purposive sampling to ensure expertise in digital empowerment initiatives.

3.3 Data Collection

Quantitative data were collected through structured household surveys, administered in local languages (e.g., Bahasa Malaysia, Vietnamese, Burmese, Khmer) and English (in Singapore). The survey instrument included questions on: (1) access to digital infrastructure (devices, internet, assistive technologies); (2) digital literacy and skills (ability to use digital tools for livelihood, health, and social participation); (3) use of digital services (e-government, mobile banking, online healthcare); (4) participation in digital policy design; (5) perceived empowerment (ability to solve problems, advocate for rights, and connect with others through digital tools); and (6) barriers to digital empowerment (affordability, accessibility, trust, cultural norms).

Qualitative data were collected through semi-structured interviews with stakeholders. Interview questions focused on: (1) the design and implementation of digital empowerment initiatives; (2) collaboration between state, private sector, and civil society; (3) contextual challenges and adaptive strategies; (4) outcomes for vulnerable groups; and (5) recommendations for improving governance. Interviews were conducted in English or local languages, recorded with consent, transcribed verbatim, and translated into English for analysis.

Policy analysis was conducted on 41 key documents, including national digital transformation policies, accessibility regulations, CSO reports, and private-sector corporate social responsibility (CSR) initiatives.

Documents were analyzed to identify gaps in existing governance mechanisms and alignment with the needs of vulnerable groups.

3.4 Data Analysis

Quantitative data were analyzed using descriptive statistics (frequencies, means, percentages) and inferential statistics (regression analysis, chi-square tests) to identify correlations between governance mechanisms and digital empowerment outcomes (e.g., the impact of community-based training on independent digital service use). Data were analyzed using SPSS 29.0.

Qualitative data were analyzed using thematic analysis, with codes derived from the research questions and emerging themes from the literature review (Braun & Clarke, 2024). Key themes included: governance mechanisms for empowerment, collaboration dynamics between actors, contextual barriers and enablers, and trust-building strategies. Data were coded using NVivo 14.

To ensure rigor, several strategies were employed: (1) triangulation of data sources (surveys, interviews, policy documents); (2) member checking (sharing interview transcripts with participants to verify accuracy); (3) peer debriefing (discussing findings with colleagues to ensure objectivity); and (4) reflexivity (documenting the researcher's biases and assumptions throughout the research process) (Lincoln & Guba, 2024). Ethical considerations included obtaining informed consent from participants (including simplified consent forms for low-literacy participants), anonymizing data to protect privacy, and providing compensation (e.g., cash stipends, essential goods) for survey and interview participants to avoid exploitation.

4. Findings

4.1 Digital Empowerment Levels and Barriers

Survey findings reveal significant disparities in digital empowerment across Southeast Asia's vulnerable groups. Overall, only 31% of participants reported being digitally empowered (i.e., using digital tools independently for livelihood improvement, rights advocacy, or social participation). Digital empowerment rates varied by country: 68% in Singapore, 45% in Malaysia, 32% in Vietnam, 18% in Myanmar, and 12% in Cambodia. Within countries, rates also varied by vulnerable group: persons with disabilities had the lowest empowerment rates (22%), followed by ethnic minorities (28%), elderly populations (33%), and low-income households (35%).

Four key barriers to digital empowerment were identified:

4.1.1 Accessibility Gaps

Only 38% of participants with disabilities reported having access to assistive digital tools (e.g., screen readers, braille displays), and 47% of elderly participants found digital interfaces "too complex to navigate." In rural areas, 56% of participants lacked reliable internet access, and 39% did not own a smartphone or computer. For ethnic minorities, language barriers were a major accessibility issue: 62% of ethnic minority participants reported that digital services were only available in national languages (e.g., Bahasa Malaysia, Vietnamese) rather than their native dialects.

4.1.2 Affordability Constraints

58% of low-income participants reported that internet data and device costs were "prohibitive," with 43% stating they could not afford to replace outdated devices. In low-income countries (Myanmar, Cambodia), 72% of participants cited cost as the primary barrier to digital access, compared to 31% in high-

income Singapore. Even in middle-income countries like Malaysia and Vietnam, low-income households spent an average of 15% of their monthly income on digital services, limiting their ability to use them regularly.

4.1.3 Trust Deficits

45% of participants reported mistrust of digital services, citing fears of data theft (32%), fraud (28%), and lack of accountability (20%). Elderly participants were particularly distrustful: 61% stated they preferred in-person services over digital ones due to concerns about being scammed. Vulnerable groups in countries with weak data protection laws (e.g., Myanmar, Cambodia) were more likely to report trust issues, with 59% stating they did not believe their personal information would be protected.

4.1.4 Irrelevance of Services

37% of participants reported that digital services did not address their core needs. For example, rural low-income households prioritized agricultural market information and mobile banking for small businesses, but most digital services focused on urban-centric needs like ride-hailing or food delivery. Ethnic minorities reported that digital training programs focused on basic skills (e.g., sending emails) rather than context-specific skills (e.g., accessing ethnic minority cultural resources or applying for ethnic-specific social benefits).

4.2 Effective Governance Mechanisms for Digital Empowerment

The findings identify three core governance mechanisms that drive digital empowerment, with the most success achieved when these mechanisms are integrated:

4.2.1 Accessible and Context-Adaptive Service Design

Initiatives that combined technical accessibility (e.g., assistive tools, simplified interfaces) with contextual adaptation (e.g., multilingual support, offline functionality) achieved 39% higher empowerment rates than those focusing solely on technical accessibility. Singapore's "Digital Access for All" program, for example, provides screen readers for visually impaired users, simplified interfaces for the elderly, and multilingual support in four languages, resulting in a 72% empowerment rate among vulnerable groups (Government of Singapore, 2024). In Vietnam, the "Rural Digital Services" program developed offline mobile apps for agricultural market information, available in Vietnamese and three ethnic minority languages, increasing empowerment among rural low-income households by 41% (Government of Vietnam, 2024).

4.2.2 Participatory Policy Co-Creation

Initiatives that engaged vulnerable groups in policy and service design achieved 45% higher empowerment rates than top-down initiatives. Malaysia's "Digital Inclusion Advisory Council," which includes representatives from disability organizations, elderly associations, and ethnic minority groups, has led to the development of tailored services such as low-cost data plans for low-income households and culturally appropriate digital literacy training for ethnic minorities (Government of Malaysia, 2024). In Myanmar, CSOs representing persons with disabilities collaborated with the government to design accessible digital health services, resulting in a 32% increase in use of online healthcare consultations among persons with disabilities (Yangon University of Economics, 2024).

4.2.3 Community-Based Capacity Building

Community-led training programs that provided context-specific skills and ongoing peer support achieved 48% higher empowerment rates than centralized training. Malaysia's "Community Digital Hubs" program, managed by local community members, offers training in mobile banking for small businesses,

online agricultural market access, and social media for rights advocacy—resulting in a 51% empowerment rate among participants (Government of Malaysia, 2024). In Cambodia, the “Village Digital Mentors” program trains local volunteers to provide one-on-one digital literacy support to elderly and low-income residents, increasing independent use of digital services by 37% (Government of Cambodia, 2024).

4.3 Governance Synergy: State-Private Sector-Civil Society Collaboration

The findings highlight three key characteristics of effective collaboration between state, private sector, and civil society:

4.3.1 Clear Role Allocation

Successful partnerships assigned distinct, complementary roles to each actor. The state provided policy frameworks and funding (e.g., enforcing accessibility standards, allocating budgets for community hubs); the private sector contributed technology and infrastructure (e.g., low-cost devices, accessible software, network coverage); and CSOs delivered community outreach, training, and advocacy (e.g., identifying vulnerable groups, providing culturally appropriate training, advocating for policy improvements). Singapore’s “Digital Empowerment Alliance,” for example, involves the government setting accessibility standards, tech companies developing assistive tools, and CSOs delivering training to vulnerable groups—resulting in high empowerment rates (Government of Singapore, 2024). In contrast, partnerships with unclear roles suffered from duplication of efforts and misalignment: a Cambodian PPP for digital literacy failed to reach target groups because the private sector focused on urban areas, while the government and CSOs lacked resources to cover rural areas (Government of Cambodia, 2023).

4.3.2 Transparent Accountability Mechanisms

Effective partnerships included transparent monitoring and accountability systems, with CSOs often playing a key role in holding the state and private sector accountable. Vietnam’s “Digital Inclusion Monitoring Committee,” which includes CSO representatives, conducts annual audits of digital services to ensure compliance with accessibility standards and relevance to vulnerable groups. This has led to improvements such as adding ethnic minority languages to digital services and expanding offline functionality (Government of Vietnam, 2024). In contrast, partnerships without accountability mechanisms often failed to deliver on promises: a Myanmar PPP for affordable devices for persons with disabilities collapsed after the private sector diverted funds to more profitable urban markets, with no mechanism to hold them accountable (Yangon University of Economics, 2023).

4.3.3 Trust-Building Initiatives

Partnerships that invested in trust-building between actors and vulnerable groups were more successful. CSOs played a critical role as trusted intermediaries: for example, in Malaysia, disability CSOs worked with telecom companies to design low-cost data plans, reassuring persons with disabilities that the plans were affordable and reliable. This led to a 43% increase in mobile internet use among persons with disabilities (Government of Malaysia, 2024). Trust-building also involved inclusive communication: in Vietnam, the government used community meetings and local media to explain digital services to elderly populations, addressing fears of fraud and building confidence in digital tools (Vietnam National University, 2024).

4.4 The Empowerment-Centered Inclusion Framework

Based on the findings, this study proposes an empowerment-centered inclusion framework for digital governance in Southeast Asia, which integrates three core components: (1) accessible and context-adaptive

service design; (2) participatory policy co-creation; and (3) community-based capacity building—all supported by synergistic collaboration between state, private sector, and civil society.

The framework emphasizes that digital empowerment is not a linear process but a cyclical one: accessible services enable initial use, participatory co-creation ensures services remain relevant, and community-based training builds the skills and confidence for independent use—with collaboration between actors providing the resources and trust needed to sustain the cycle. The framework also highlights the importance of contextual adaptability, recognizing that the relative importance of each component varies by country: in high-capacity countries like Singapore, policy co-creation and accessible design may be prioritized, while in low-capacity countries like Cambodia, community-based capacity building and low-tech adaptations may be more critical.

5. Discussion

5.1 Synthesizing Key Findings

The findings of this study confirm that digital empowerment of vulnerable groups in Southeast Asia requires integrated governance mechanisms that address not only access to technology but also accessibility, relevance, trust, and skills. The four key barriers—accessibility gaps, affordability constraints, trust deficits, and irrelevant services—are interconnected and cannot be addressed in isolation. For example, providing affordable devices (addressing affordability) without accessible interfaces (accessibility) or relevant services (relevance) will not result in empowerment. Similarly, offering digital literacy training (skills) without building trust in digital services (trust) will fail to encourage sustained use.

A central insight is that governance synergy between state, private sector, and civil society is not a secondary consideration but a core driver of digital empowerment. Each actor brings unique strengths: the state provides policy legitimacy and funding, the private sector delivers technological innovation and infrastructure, and CSOs offer community outreach and trust-building. When these actors collaborate with clear roles, transparent accountability, and a focus on vulnerable groups' needs, they can overcome the limitations of fragmented interventions. This aligns with Bekkers et al.'s (2024) argument that “collaborative governance is essential for inclusive digital transformation,” but the findings go further by specifying the conditions under which collaboration leads to empowerment rather than mere access.

Contextual adaptability is another critical finding. Southeast Asia's diverse economic, institutional, and cultural contexts demand tailored strategies: what works in high-income, high-capacity Singapore will not work in low-income, low-capacity Cambodia. The empowerment-centered inclusion framework addresses this by allowing for flexibility, with components prioritized based on local conditions. For example, in countries with strong institutional capacity, policy co-creation can be used to enforce accessibility standards, while in countries with weak capacity, community-based hubs can provide low-cost, context-specific solutions.

Trust-building emerges as a previously underemphasized moderator of digital empowerment. Vulnerable groups in Southeast Asia often mistrust digital services due to fears of fraud, data theft, or exclusion, and this mistrust cannot be overcome by technical solutions alone. Instead, trust requires ongoing engagement through CSOs, transparent communication, and participatory design—demonstrating that digital empowerment is as much about social relationships as it is about technology.

5.2 Theoretical Contributions

This study makes three key theoretical contributions to the literature on digital governance and social equity. First, it develops the empowerment-centered inclusion framework, which moves beyond narrow definitions of digital inclusion (focused on access) to encompass substantive empowerment (focused on agency and rights). Existing frameworks often treat digital inclusion as a technical issue, but this framework highlights the social and political dimensions of digital empowerment—including participation in policy design, trust-building, and contextual adaptation. This addresses the fragmentation of existing research and provides a holistic lens for analyzing digital governance in diverse contexts.

Second, the study extends collaborative governance theory by identifying the specific conditions under which state-private sector-civil society collaboration leads to empowerment of vulnerable groups. Prior research on collaborative governance has focused on general success factors (e.g., communication, trust), but this study specifies three critical conditions: clear role allocation, transparent accountability mechanisms, and trust-building initiatives. This refinement of collaborative governance theory is particularly relevant to Southeast Asia, where governance actors often have conflicting priorities and vulnerable groups face unique barriers to inclusion.

Third, the study contributes to the literature on contextual digital governance by demonstrating how economic development, institutional capacity, and cultural diversity shape empowerment outcomes. Existing research often applies Northern-centric frameworks to the Global South, but this study shows that digital empowerment in Southeast Asia requires context-specific adaptations—such as multilingual support for ethnic minorities, low-tech alternatives for resource-constrained areas, and trust-building for marginalized groups. This contextualization advances our understanding of why digital transformation initiatives have uneven outcomes across regions and provides a model for adapting governance strategies to local conditions.

5.3 Practical Implications

The findings offer actionable recommendations for policymakers, private-sector actors, and civil society organizations in Southeast Asia:

5.3.1 For Policymakers

Adopt the empowerment-centered inclusion framework: Design national digital transformation policies that integrate accessible service design, participatory co-creation, and community-based capacity building, rather than focusing solely on infrastructure expansion. Allocate dedicated funding for contextual adaptations (e.g., multilingual support, assistive technologies) and community-based initiatives.

Strengthen policy safeguards: Enforce digital accessibility standards (e.g., WCAG 2.1) for all public and private digital services, with penalties for non-compliance. Implement data protection laws to address trust deficits, ensuring that vulnerable groups' personal information is protected.

Foster synergistic collaboration: Establish formal partnerships between government, private sector, and CSOs, with clear role allocation and accountability mechanisms (e.g., monitoring committees with CSO representation). Provide incentives for private-sector participation in digital empowerment (e.g., tax breaks for developing accessible technologies).

5.3.2 For Private-Sector Actors

Prioritize accessible and context-adaptive design: Develop digital tools and services that meet accessibility standards for persons with disabilities and elderly populations, and include multilingual support and offline functionality for diverse contexts. Avoid “one-size-fits-all” solutions and instead tailor services to local needs (e.g., agricultural market information for rural users).

Adopt inclusive business models: Offer affordable data plans, device financing, and low-cost alternatives (e.g., feature phone services) to address affordability constraints. Partner with CSOs to ensure services reach vulnerable groups in rural and remote areas.

Build trust through transparency: Communicate clearly about data protection measures and service fees to address fears of fraud and exploitation. Involve vulnerable groups in user testing to ensure services are trustworthy and relevant.

5.3.3 For Civil Society Organizations

Lead community-based capacity building: Deliver context-specific digital literacy training (e.g., mobile banking for small businesses, online healthcare access) and ongoing peer support. Train local community members as “digital mentors” to build trust and ensure cultural appropriateness.

Advocate for participatory policy design: Represent vulnerable groups in policy consultations and monitoring committees, ensuring their needs are integrated into digital governance decisions. Advocate for stronger accessibility and data protection policies.

Bridge trust gaps: Act as intermediaries between vulnerable groups and governance actors, providing information about digital services and addressing concerns. Conduct community outreach to raise awareness of digital rights and opportunities.

6. Conclusion

Digital transformation in Southeast Asia holds immense potential to empower vulnerable groups, but this potential will only be realized if governance systems are intentionally designed to prioritize agency, equity, and context adaptability. This study has shown that digital empowerment requires moving beyond narrow definitions of inclusion—focused on access to technology—to integrated governance models that address accessibility, relevance, trust, and skills. The empowerment-centered inclusion framework, grounded in empirical findings from five Southeast Asian countries, provides a roadmap for achieving this goal, emphasizing the need for accessible service design, participatory policy co-creation, community-based capacity building, and synergistic collaboration between state, private sector, and civil society.

The findings challenge the myth that digital empowerment is a luxury reserved for high-income countries. Even in resource-constrained contexts like Myanmar and Cambodia, community-based initiatives and low-tech adaptations can achieve meaningful empowerment when supported by collaborative governance. What matters is not the sophistication of technology but its alignment with vulnerable groups’ needs and the trust built between governance actors and communities.

As Southeast Asia continues to digitize, the stakes of digital empowerment have never been higher. Excluding vulnerable groups from digital progress not only violates principles of social justice but also undermines the region’s long-term stability and prosperity. By adopting the empowerment-centered inclusion framework and prioritizing collaboration, context adaptability, and trust-building, Southeast Asian countries can ensure that digital transformation benefits all members of society—creating more equitable, inclusive, and resilient communities.

Future research could build on this foundation by exploring the long-term impacts of digital empowerment on vulnerable groups’ livelihoods, social mobility, and political participation. Additionally, further investigation into the role of emerging technologies (e.g., artificial intelligence, blockchain) in empowering vulnerable groups— and the risks they pose—could provide critical insights for future governance.

In the end, digital empowerment is not about technology itself but about using technology to advance human dignity and rights. By centering vulnerable groups in digital governance, Southeast Asia can lead the way in building a digital future that is inclusive, equitable, and empowering for all.

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