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Utilization of Information Systems in Promoting Social Innovation and Digital Equity

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Abstract

The rapid expansion of digital technologies has created new opportunities for social innovation while simultaneously raising concerns about digital inequality. This study aims to explore how the utilization of information systems contributes to social innovation and promotes digital equity within a digital society. A qualitative approach was employed through in-depth interviews, observations, and document analysis involving users and stakeholders of digital public services. The findings reveal that information systems enable participatory innovation by facilitating citizen engagement and collaborative problem-solving. However, unequal access, limited digital literacy, and variations in system usage create significant disparities in benefits. The study also identifies the importance of adaptive governance in ensuring that digital systems remain inclusive and responsive to user needs. This research proposes a conceptual framework linking information system utilization, participatory innovation, and digital equity. The findings contribute to a more comprehensive understanding of digital transformation by integrating technological, social, and institutional perspectives.

Keywords: *information systems, social innovation, digital equity, participatory governance, qualitative study*

1. INTRODUCTION

The rapid expansion of digital technologies has fundamentally reshaped how societies interact, collaborate, and solve social problems. Information systems are no longer limited to administrative functions but have evolved into platforms that enable innovation, participation, and collective action. In this context, digital transformation plays a crucial role in fostering social innovation, defined as the development of new solutions that address societal challenges and improve community well-being (Vial, 2019).

Information systems contribute to social innovation by facilitating communication, enabling data sharing, and supporting collaborative problem-solving. Digital platforms allow citizens to actively participate in governance processes, report issues, and co-create solutions with public institutions. This shift reflects a transition from traditional top-down service delivery to a more participatory and inclusive model of governance. As a result, digital systems are increasingly viewed as enablers of participatory innovation within modern societies.

However, the benefits of digital transformation are not equally distributed. The emergence of digital society has also highlighted the issue of digital equity, which refers to

the fair and inclusive access to digital technologies and their benefits. Inequalities in internet access, device ownership, and digital literacy create barriers that prevent certain groups from participating fully in digital ecosystems (Mergel et al., 2019). These disparities result in uneven outcomes, where digital innovation benefits some segments of society while excluding others.

Previous studies have primarily focused on the technical and performance aspects of information systems. The DeLone and McLean IS Success Model emphasizes system quality, information quality, and service quality as determinants of system success. Meanwhile, the Technology Acceptance Model highlights the role of perceived usefulness and ease of use in influencing user adoption. While these models provide valuable insights, they tend to focus on system effectiveness rather than broader social outcomes such as inclusion and equity.

Furthermore, existing research often adopts quantitative approaches that measure system performance and user satisfaction. Such approaches may overlook the complex social dynamics involved in digital transformation, particularly at the local level where contextual factors, user experiences, and institutional practices vary significantly. There is limited research that integrates the perspectives of social innovation and digital equity to understand how information systems shape both opportunities and inequalities within digital society.

This study addresses this gap by exploring how the utilization of information systems contributes to social innovation while simultaneously influencing digital equity. Using a qualitative approach, this research examines user experiences, participation patterns, and institutional practices in the context of digital public services. The study focuses on three key dimensions: participatory innovation, digital inequality, and adaptive governance. By analyzing these dimensions, this research aims to provide a more comprehensive understanding of how information systems can support inclusive and sustainable social development.

2. METHOD

This study employs a qualitative research approach with a case study design to explore how the utilization of information systems contributes to social innovation and digital equity. A qualitative approach is chosen to capture in-depth insights into user experiences, participation patterns, and institutional practices within digital public services.

Research Design

The study adopts an exploratory case study design focusing on digital public service platforms in Pangkalpinang City. This design allows the researcher to understand the interaction between information systems, users, and institutions in a real-world context. The case study approach is particularly suitable for examining complex socio-technical phenomena such as digital transformation and social innovation.

Data Collection

Data were collected using multiple techniques to ensure data triangulation:

1. In-depth Interviews

   Semi-structured interviews were conducted with key informants to explore their experiences in using and managing digital systems. The interviews focused on system utilization, participation, and perceived accessibility.

2. Observation

   Direct observation was carried out on digital platforms and service processes to understand how systems are used in practice, including user interaction patterns and system navigation.

3. Document Analysis

   Relevant documents such as SPBE reports, policy documents, and system guidelines were analyzed to provide contextual understanding of digital transformation initiatives

Informants Selection

Informants were selected using purposive sampling based on their relevance to the study. The participants include:

- Users of digital public services
- Community representatives
- Government staff and system administrators

A total of 6–10 informants were involved to ensure variation in perspectives, particularly in terms of digital literacy, access, and system usage.

Data Analysis

Data were analyzed using thematic analysis following the framework proposed by Braun and Clarke (2006). The analysis process consists of:

1. Data Familiarization

   Transcribing and reviewing interview data

2. Coding

   Identifying meaningful patterns and assigning codes

3. Theme Development

   Grouping codes into broader themes such as participatory innovation, digital inequality, and adaptive governance

4. Interpretation

   Analyzing relationships between themes and linking findings to theoretical frameworks

Research Scope and Limitations

This study focuses on the utilization of information systems within the context of local digital public services. The findings are context-specific and may not be generalized to all regions. However, the insights provide valuable implications for similar settings with comparable levels of digital development.

3. RESULTS AND DISCUSSION

This study identifies three interrelated themes derived from thematic analysis: participatory social innovation, digital inequality, and adaptive system governance. Findings are triangulated from interviews, observations of digital platforms, and document analysis

(e.g., SPBE reports), providing a comprehensive view of how information systems shape both innovation and equity outcomes.

Participatory Social Innovation

Findings indicate that information systems enable participatory innovation, where citizens actively contribute to identifying problems and co-creating solutions. Interview data show that users value features that allow reporting, feedback, and interaction with public institutions.

"Through the platform, we can report issues and get responses faster." (Informant 2)

"It's easier to submit complaints online than coming to the office." (Informant 1)

Observation confirms that digital platforms provide channels such as online reporting forms, feedback modules, and tracking systems. Document analysis (SPBE guidelines) also emphasizes citizen engagement as a key objective of digital services.

However, participation is selective. Active contributors are typically users with higher digital literacy and prior experience with digital platforms. Less experienced users rarely engage beyond basic service use.

From a theoretical perspective, these findings extend beyond adoption models such as the Technology Acceptance Model by showing that use does not automatically imply participation. Participation requires additional conditions, including trust, digital skills, and system responsiveness.

Digital Inequality and Exclusion

Despite the potential of information systems to broaden access, the study reveals persistent digital inequality. Triangulated data show that unequal access and skills significantly affect who benefits from digital services.

"I still prefer offline services because I don't understand the system." (Informant 5)

"Older people in my neighborhood rarely use online services." (Informant 4)

Observation indicates that although platforms are accessible online, many users struggle with navigation, login processes, or understanding system instructions. Document analysis highlights ongoing efforts to expand access, but implementation remains uneven.

Digital inequality in this study manifests in three dimensions:

Table 1. Dimensions of Digital Inequality

Dimension	Description	Evidence Source	Impact
Access Divide	Limited internet/devices	Interview, Document	Exclusion from services
Skill Divide	Low digital literacy	Interview, Observation	Low participation
Usage Divide	Unequal system utilization	Observation	Uneven benefits

Source: Research Data (2026)

These findings indicate that availability does not equal accessibility. Without addressing literacy and usage gaps, digital transformation risks reinforcing existing inequalities.

Adaptive System Governance

The third theme highlights the importance of adaptive governance in managing digital systems. Informants from the institutional side emphasized ongoing challenges related to system integration, training, and responsiveness to user feedback.

"We update the system based on feedback, but integration with other systems is still limited." (Informant 7)

"Training is not evenly distributed across staff." (Informant 6)

Observation shows that systems are often implemented in fragmented modules, leading to duplicated processes and inconsistent user experiences. Document analysis confirms that integration remains a key agenda in SPBE implementation.

These findings align with the DeLone and McLean IS Success Model, particularly in the dimensions of service quality and system quality. However, this study extends the model by emphasizing governance adaptability as a critical success factor.

Adaptive governance includes:

- Continuous system improvement
- User-centered design adjustments
- Institutional responsiveness to feedback

Without these mechanisms, digital systems risk becoming static and misaligned with user needs

Integrated Analysis: Linking Innovation and Equity

The three themes are interconnected and form a socio-technical system where outcomes depend on the interaction between users, systems, and institutions.

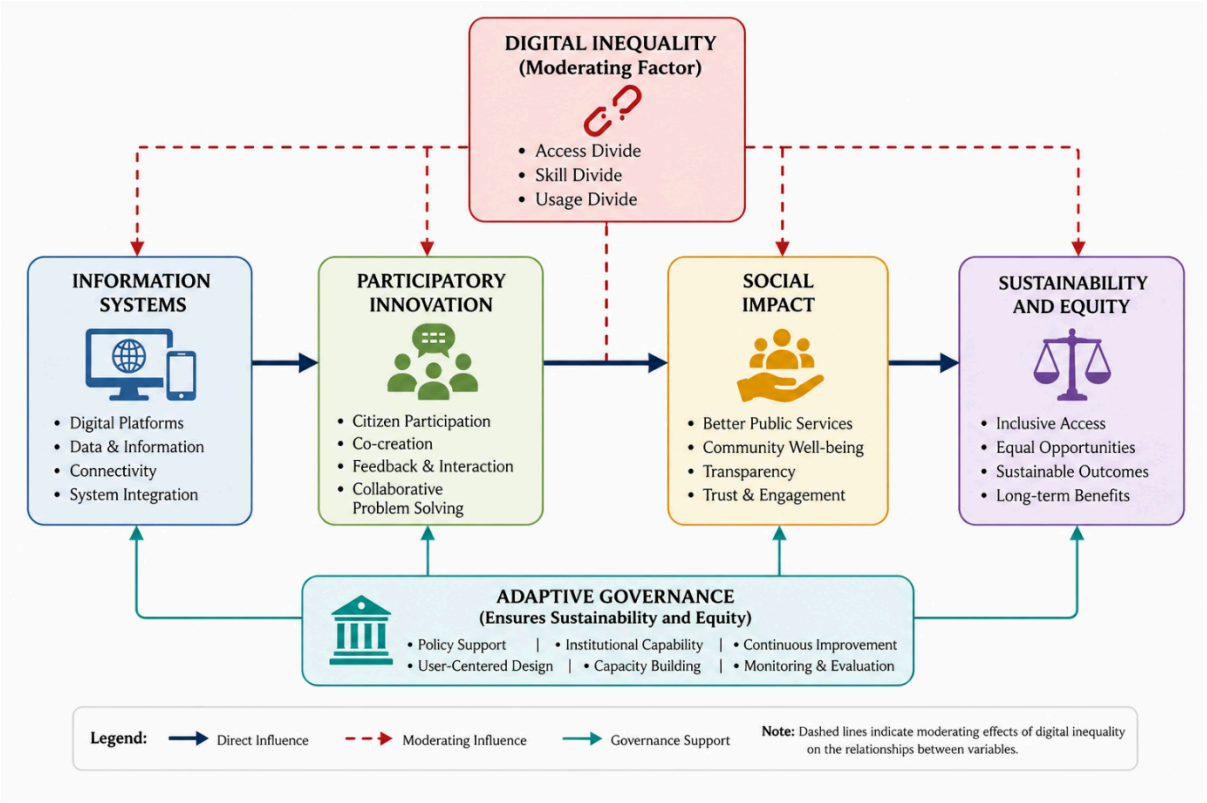

Figure 1. Conceptual Model of Information Systems, Social Innovation, and Digital Equity

- Information Systems → Participatory Innovation
- Participatory Innovation → Social Impact
- Digital Inequality → Moderating Factor
- Adaptive Governance → Sustainability and Equity

This model demonstrates that:

- Innovation is enabled by system utilization
- Equity is shaped by access and capability
- Sustainability depends on governance adaptability

Importantly, digital inequality moderates the relationship between system use and social impact, meaning that innovation benefits are unevenly distributed).

Critical Discussion and Research Gap

The findings challenge the dominant assumption that digital transformation inherently leads to positive outcomes. While information systems enable innovation, they also produce new forms of inequality if access and participation are uneven.

Most existing studies focus on system performance, efficiency, and user satisfaction. These perspectives often overlook the broader social implications of digital transformation. This study addresses this gap by integrating:

- Innovation perspective (how systems create new solutions)

- Equity perspective (who benefits from these solutions)

Unlike prior research, this study shows that:

- Technology can both enable and constrain participation
- Inclusion depends on user capability, not just system availability
- Institutional adaptability determines long-term impact

These findings are consistent with recent literature emphasizing socio-technical integration in digital transformation (Verhoef et al., 2021), but extend it by providing contextual, qualitative evidence at the local government level.

4. CONCLUSION

This study demonstrates that the utilization of information systems plays a significant role in promoting social innovation while simultaneously shaping digital equity within a digital society. Based on the qualitative findings, several key conclusions can be drawn:

1. Information systems enable participatory social innovation by facilitating citizen engagement, collaboration, and real-time problem-solving.
2. The benefits of digital transformation are not equally distributed, as digital inequality persists due to disparities in access, skills, and usage.
3. Digital equity is influenced not only by system availability but also by users' digital literacy and their ability to effectively utilize digital platforms.
4. Adaptive governance is essential to ensure that digital systems remain inclusive, responsive, and sustainable over time.
5. The integration of technological, social, and institutional dimensions is necessary to achieve meaningful and equitable digital transformation.

From a practical perspective, this study highlights the need for policymakers to prioritize inclusive system design, digital literacy programs, and integrated digital governance. Without these efforts, digital transformation may reinforce existing inequalities rather than reduce them.

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