# Public Information and Communication Technology Innovation Model within the Government of West Bandung Regency

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**Abstract**

This study aims to analyze the implementation of Public Information and Communication Technology (ICT) innovation and to formulate a Public ICT Innovation Model within the Government of West Bandung Regency. The study is motivated by the suboptimal implementation of various ICT-based innovation programs due to several critical regional innovation factors, including leadership, innovation culture development, the capacity of educated and trained personnel, innovation team development, and measurable work orientation. This research employs a qualitative approach with a descriptive-analytical method through observation, interviews, and document analysis conducted at the Department of Communication, Informatics, and Statistics (DISKOMINFOTIK) and related Regional Apparatus Organizations (OPDs). The findings indicate that although Public ICT innovations have generally been implemented effectively, major obstacles persist, particularly low work and learning culture and rigid bureaucratic structures. On the other hand, innovation optimization is driven by technology push factors, encompassing research and development, production, marketing, and market needs. The study also identifies external interference factors, such as academic involvement, benchmarking with other local governments, and public feedback which significantly contribute to improving and integrating innovation initiatives. Improvement efforts are reflected in the integration of 103 innovations into two main platforms and institutional efficiency through the strengthening of internal human resources. This research proposes a Public ICT Innovation Model as a systematic framework emphasizing integration, innovation curation, centralized coordination through DISKOMINFOTIK, and adaptability to external dynamics. The model is expected to serve as a strategic reference for developing more effective, efficient, and sustainable public ICT innovations at the local government level.

***Keywords:*** *Public Information and Communication Technology Innovation, Regional Innovation Model, Technology Push, External Interference, Local Government Governance, Public Service Integration.*

## A. INTRODUCTION

Public service encompasses a broad spectrum of societal needs, ranging from regulatory services to essential provisions in education, health, and public utilities. As a manifestation of the state apparatus' function as public servants, government institutions are required to continuously improve the quality of service delivery. Service, in this context, is defined as any activity that provides benefits and satisfaction to the community as service recipients (Putri, 2016). Therefore, improving public service performance is a central objective of bureaucratic reform.

Human resources constitute a strategic factor in organizational effectiveness. Regardless of form or objective, organizations are established to serve human interests and are managed by human actors. Consequently, effective human resource

management is essential to achieving institutional goals, particularly in public administration. In Indonesia, civil service management is regulated under Law Number 5 of 2014 concerning the State Civil Apparatus, which emphasizes professional, accountable, and performance-based governance.

The rapid advancement of Information and Communication Technology (ICT) has significantly transformed public administration practices (Sufianti, Jubaedah & Abdullah, 2021). Technology has become a primary tool for communication, knowledge dissemination, and administrative efficiency in the era of globalization (Akbar et al., 2019). The adoption of digital systems in governance is expected to improve service effectiveness, transparency, and accountability, thereby supporting the realization of good governance (Irwan, Hermansyah & Uceng, 2023). Bustomi, Ariesmansyah, & Kusdiman (2002) argue that one strategy to achieve good governance is by encouraging public participation in governmental processes. ICT platforms provide opportunities for such participation through digital engagement and feedback mechanisms.

The Indonesian government formally initiated e-government development through Presidential Instruction Number 3 of 2003 concerning the National Strategy for E-Government Development. E-government is defined as the use of information technology, particularly the internet, to deliver public services in a more convenient, customer-oriented, cost-effective, and improved manner (Holmes, 2001). Through digital governance, citizens can access public services more efficiently while governments can enhance coordination, reduce costs, and improve responsiveness.

Moreover, digital transformation supports democratic participation and strengthens public trust. As noted by Zacharias, Wulandari, and Iskandar (2025), ICT-based governance enables citizens to provide feedback, submit complaints, and monitor public policies, fostering a more transparent and participatory administrative environment. However, despite widespread adoption of digital applications, implementation challenges remain. In many local governments, ICT initiatives are often driven by budget absorption priorities rather than long-term strategic planning, resulting in overlapping systems and underutilized applications.

This condition is also evident in the Government of West Bandung Regency. Numerous digital applications were developed to support civil servant performance and public service delivery; however, field observations indicate low utilization rates, functional overlaps, and negative public feedback. Although DISKOMINFOTIK serves as the leading sector responsible for ICT governance, the absence of a structured innovation model has limited the effectiveness and sustainability of digital initiatives.

Previous research, such as Muharam (2019), examined public service innovation in Bandung City during the Industrial Revolution 4.0 era. However, their study primarily identified various digital innovations without formulating a comprehensive administrative innovation model. This gap underscores the need for a systematic framework to manage and integrate ICT-based public service innovation at the local government level.

Based on these considerations, this study aims to analyze the implementation of Public ICT innovation in West Bandung Regency and to formulate a structured Public ICT Innovation Model. The proposed model is expected to serve as a strategic reference for optimizing digital governance and enhancing public service performance in a sustainable manner.

## B. LITERATURE REVIEW

### 1. Public Sector Innovation and Digital Governance

Public sector innovation refers to the introduction of new ideas, processes, or services aimed at improving the effectiveness and quality of public service delivery. According to Rogers (2003), innovation is an idea, practice, or object perceived as new by an individual or organization, and its adoption is influenced by communication channels, time, and social systems. In governmental contexts, innovation extends beyond technological adoption to include institutional reform and governance transformation.

The development of e-government is closely linked to digital transformation in public administration. The World Bank (2016) defines e-government as the use of information and communication technologies (ICT) to enhance efficiency, transparency, and citizen participation. Similarly, the United Nations (2022), through its *E-Government Survey*, emphasizes that digital government transformation requires integrated policies, institutional capacity building, and citizen-centered approaches.

Thus, ICT innovation in public communication should be understood as part of a broader digital governance reform process.

### 2. ICT and the Transformation of Public Communication

The advancement of ICT has transformed governmental communication from hierarchical models into interactive and network-based systems. Manuel Castells (2010) argues that in the network society, information flows are decentralized, enabling real-time and multidirectional communication. This transformation compels governments to develop responsive and digitally integrated communication systems.

However, technological availability alone does not guarantee success. Heeks (2006) highlights that many e-government initiatives fail due to the "design-reality gap," referring to the mismatch between technological design and institutional realities. Organizational readiness, regulatory frameworks, leadership commitment, and digital literacy significantly influence ICT implementation outcomes.

Furthermore, Bertot, Jaeger, and Grimes (2010) argue that ICT and social media platforms enhance transparency and accountability by facilitating citizen engagement and open government practices. Therefore, ICT innovation in public communication must integrate technological, institutional, and participatory dimensions.

### 3. Innovation Models in Public Organizations

The Diffusion of Innovations theory explains innovation adoption through stages of knowledge, persuasion, decision, implementation, and confirmation

(Rogers, 2003). However, in public sector organizations, innovation is also shaped by political environments, bureaucratic culture, and external pressures.

Osborne and Brown (2005) state that public sector innovation is often driven by regulatory demands, public expectations, and governance reforms. Consequently, innovation models in government institutions must incorporate institutional support, technological infrastructure, human resource capacity, and citizen participation.

Within decentralized governance systems such as Indonesia, local governments possess autonomy to design context-specific digital innovations. Nevertheless, disparities in institutional capacity and technological readiness result in varying levels of digital transformation success (Heeks, 2006).

While extensive literature discusses e-government implementation and digital transformation at national levels, limited research develops an integrated ICT innovation model for public communication at the regency (local government) level in Indonesia. Most prior studies focus on technical implementation or policy evaluation without holistically integrating institutional, technological, and participatory dimensions. Therefore, this study aims to develop a comprehensive ICT innovation model tailored to the institutional and socio-administrative context of the Government of West Bandung Regency.

## C. METHOD

This study employs a qualitative research design with a case study approach to explore the model of Information and Communication Technology (ICT) innovation in public communication within the Government of West Bandung Regency, Indonesia. A qualitative approach is appropriate because the research seeks to understand institutional processes, organizational dynamics, and contextual factors influencing digital innovation in the public sector. Qualitative inquiry enables an in-depth exploration of meanings, practices, and governance interactions that cannot be fully captured through quantitative measurement (Creswell & Poth, 2018).

The case study method is particularly suitable for examining contemporary phenomena within real-life institutional settings, especially when the boundaries between the phenomenon and context are not clearly evident (Yin, 2018). In the context of local government digital transformation, ICT innovation is embedded within regulatory frameworks, bureaucratic structures, and socio-political environments. Therefore, a case study approach allows comprehensive investigation of policy implementation, technological adoption, and stakeholder interaction in a specific regional setting.

Data were collected through multiple techniques to ensure methodological triangulation. First, semi-structured in-depth interviews were conducted with key informants, including officials responsible for digital governance, ICT administrators, public communication officers, and regional policymakers. Semi-structured interviews provide flexibility while maintaining focus on research objectives, enabling researchers to explore both formal policies and informal institutional practices (Kvale & Brinkmann, 2009).

Second, document analysis was carried out to examine regional regulations, strategic planning documents, digital governance policies, annual performance reports, and internal evaluation records. Document analysis is essential in public administration research because it provides insight into formal institutional commitments and governance structures (Bowen, 2009).

Third, non-participant observation was conducted to analyze the operation of official government digital platforms, including websites, social media accounts, and online public complaint systems. Observation enables the researcher to understand how ICT tools are practically implemented and how public communication processes function in real time.

Data analysis followed an interactive qualitative analysis model involving data reduction, data display, and conclusion drawing (Miles, Huberman, & Saldaña, 2014). Data reduction involved coding and categorizing information into thematic dimensions such as institutional support, technological infrastructure, human resource capacity, and citizen engagement. Data display was conducted through thematic matrices to identify patterns and relationships among variables. Finally, conclusions were drawn and continuously verified through comparison across interview transcripts, documents, and observational findings.

To ensure research credibility and trustworthiness, this study applied triangulation of data sources and methods. Triangulation strengthens validity by cross-checking information obtained from different participants and data types (Denzin, 1978). Member checking was also conducted by sharing preliminary findings with selected informants to confirm interpretative accuracy (Creswell & Poth, 2018). These strategies enhance the reliability and rigor of qualitative inquiry.

Ethical considerations were strictly observed throughout the research process. All participants were informed about the purpose of the study and provided voluntary consent prior to participation. Confidentiality and anonymity were maintained to protect participants' identities and institutional sensitivity.

## D. RESULT AND DISCUSSION

### 1. Institutional Dimension of ICT Innovation

The findings reveal that ICT innovation in public communication within the Government of West Bandung Regency is institutionally driven by regulatory mandates and leadership commitment. The implementation of digital platforms—such as official websites, public information portals, and social media channels—demonstrates formal compliance with national electronic-based government system policies. However, beyond regulatory compliance, innovation is significantly influenced by institutional culture and bureaucratic coordination mechanisms.

Interview data indicate that leadership commitment plays a decisive role in accelerating digital transformation initiatives. This aligns with the argument of Osborne and Brown (2005), who emphasize that public sector innovation is highly dependent on organizational leadership and external governance pressures. In decentralized governance contexts, institutional autonomy enables local governments

to tailor digital strategies according to regional priorities, yet this autonomy also requires adaptive managerial capacity.

From a diffusion perspective, the adoption of ICT innovation in West Bandung Regency reflects Rogers' (2003) stages of knowledge, persuasion, decision, implementation, and confirmation. Initial awareness of digital governance policies was followed by strategic decisions to institutionalize ICT systems. Nevertheless, the confirmation stage where innovation becomes fully embedded in organizational culture remains in progress, as traditional bureaucratic routines still influence communication practices.

Furthermore, the findings support Heeks' (2006) "design–reality gap" framework. Although policy designs promote integrated digital governance, practical implementation faces structural constraints such as inter-agency coordination challenges and administrative inertia. This gap underscores the importance of aligning technological innovation with institutional readiness.

**2. Technological Infrastructure and System Integration**

The technological dimension demonstrates moderate readiness in terms of infrastructure availability. The regency government has established digital platforms for public communication, including complaint management systems and real-time information dissemination channels. However, system integration across agencies remains partial.

Observation data indicate that while multiple digital platforms exist, interoperability among systems is limited. This condition reduces the efficiency of information flow and data synchronization. According to the United Nations (2022), digital government maturity requires integrated digital architecture rather than fragmented applications. Fragmentation may result in redundancy and inefficiency, limiting the transformative impact of ICT innovation.

The findings also demonstrate that technological adoption alone does not automatically improve governance quality. As noted by Manuel Castells (2010), digital transformation reshapes communication networks, but organizational capacity determines whether these networks generate participatory governance or merely replicate hierarchical structures in digital form.

Therefore, technological infrastructure in West Bandung Regency functions as an enabling mechanism but requires stronger integration and data governance frameworks to achieve systemic innovation.

**3. Human Resource Capacity and Digital Literacy**

Human resource capacity emerges as a central determinant of ICT innovation sustainability. Interviews reveal disparities in digital competence among civil servants. While ICT administrators demonstrate adequate technical skills, many communication officers and administrative staff rely on conventional bureaucratic procedures.

This finding reinforces the argument that successful e-government implementation depends on organizational readiness and human capital (Heeks, 2006). Technology adoption without adequate training risks superficial innovation, where digital tools are utilized without optimizing their strategic potential.

Capacity-building programs have been initiated through technical training and digital workshops; however, these efforts remain periodic rather than institutionalized. In line with Rogers (2003), innovation adoption is influenced by perceived relative advantage and compatibility. Where civil servants perceive digital systems as complex or misaligned with established workflows, resistance or passive compliance may occur. Consequently, sustainable ICT innovation requires continuous professional development and cultural transformation within public institutions.

**4. Citizen Participation and Public Engagement**

The participatory dimension represents one of the most significant impacts of ICT innovation. Digital complaint systems and social media platforms provide citizens with accessible communication channels to convey feedback and grievances. Increased responsiveness has strengthened public trust, although response time variability remains a challenge.

Bertot, Jaeger, and Grimes (2010) argue that ICT and social media platforms enhance transparency and accountability by facilitating interactive governance. The findings support this perspective, as digital communication platforms in West Bandung Regency enable real-time information dissemination and citizen interaction.

However, participation remains uneven due to disparities in digital literacy and internet accessibility across communities. Digital transformation may unintentionally reproduce socio-economic inequalities if inclusivity measures are not strengthened. The World Bank (2016) emphasizes that digital dividends can only be realized when supporting analog complements—such as regulatory reform, institutional capacity, and digital inclusion—are present.

Thus, while ICT innovation has expanded public communication channels, participatory governance requires broader socio-technical integration.

**5. Development of the ICT Innovation Model**

Based on thematic analysis, this study formulates an integrated ICT Innovation Model consisting of four interrelated dimensions:

a. Institutional Governance-Regulatory support, leadership commitment, and cross-agency coordination.
b. Technological Infrastructure-Integrated digital platforms, interoperability, and cybersecurity mechanisms.
c. Human Resource Capacity-Digital literacy, technical competence, and adaptive organizational culture.
d. Citizen Engagement-Participatory communication mechanisms and feedback responsiveness.

These dimensions operate dynamically rather than linearly. Institutional support shapes technological deployment; technological readiness influences citizen interaction; and citizen feedback reinforces institutional accountability. This cyclical interaction aligns with interactive governance theory and innovation diffusion processes (Rogers, 2003).

The model also addresses the design–reality gap (Heeks, 2006) by emphasizing contextual alignment between digital systems and organizational capacity. Rather than treating ICT as a purely technical intervention, the model conceptualizes digital innovation as a socio-institutional transformation process.

Theoretically, this study contributes to public administration literature by integrating diffusion of innovation theory with digital governance frameworks in a localized Indonesian context. While many studies examine national-level digital transformation, this research highlights the importance of regency-level institutional dynamics in shaping ICT innovation outcomes.

Practically, the findings suggest several strategic priorities:

a. Strengthening inter-agency digital integration
b. Institutionalizing continuous digital capacity-building programs
c. Enhancing inclusive digital participation strategies
d. Developing standardized performance indicators for digital communication services

By addressing institutional, technological, human, and participatory dimensions simultaneously, local governments can move beyond symbolic digital adoption toward transformative governance innovation.

## E. CONCLUSION

The implementation of Public Information and Communication Technology (ICT) innovation in West Bandung Regency has generally progressed well; however, it remains suboptimal due to several critical regional innovation factors, particularly in leadership, innovation culture, human resource capacity, team development, and measurable work orientation. The primary constraints stem from a weak work and learning culture and rigid bureaucratic structures, while leadership challenges are closely linked to political dynamics and shifting local regulations.

Conversely, technology push factors, encompassing research and development, production, marketing, and market needs have stimulated improvements in innovation governance. This study identifies a structured mechanism for innovation proposal and curation coordinated by DISKOMINFOTIK as the leading sector, which has reduced program overlap and enhanced implementation effectiveness. Furthermore, external interference factors, including academic involvement, benchmarking with other regions, and public feedback, have emerged as new drivers for optimizing ICT innovation.

These developments have led to the integration of 103 innovations into two main platforms, namely KBB BERKAH Super Apps and SMART KBB, alongside increased institutional efficiency through the strengthening of internal resources. The

findings culminate in the formulation of a Public ICT Innovation Model for West Bandung Regency, which serves as a systematic framework to guide the development of more integrated, adaptive, and sustainable public ICT innovations at the local government level.

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