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Configurations of Competence, Mindset, Leadership, and Support in Civil Servants' Digital Capability

Ira Meiyenti[1], Sri Hartati[2], Teresa Irmina Nangameka[3]*, Azharisman Rozie[4], M. Imam Gazali[5], Thomas A. Boro[6], Marvin Persulessy[7]

[1,2,3,4,5,6] Institut Pemerintahan Dalam Negeri, Indonesia
Jl. Ir. Soekarno, Km. 20, Jatinangor, West Java, Indonesia
[7] Yeungnam University, South Korea
280 Daehak-ro, Gyeongsan-si, Gyeongsangbuk-do 38541, South Korea
*Email Corresponding: teresanangameka@ipdn.ac.id

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Abstract: The electronic-based government system (Sistem Pemerintahan Berbasis Elektronik, SPBE) depends on whether civil servants can make digital systems routine, secure, and data-driven, yet Indonesian studies mostly test single determinants through linear models. This study examines how digital competence, digital mindset, digital leadership, and training and support systems combine in civil servants' work practices and how these combinations relate to four capability dimensions: system operation, technology integration, adaptability to system change, and data-based output quality. This study used a qualitative single-case design at the Regional Civil Service Agency of West Java Province. Data from two semi-structured group interviews with 12 purposively selected officials of the agency and of the provincial Communication and Informatics Office, collected in June 2026, and from eight institutional documents were analyzed thematically through an explicit configurational lens. Informants described system use that was initially enforced through performance indicators accounting for about 60% of the performance allowance and later became habitual. Capability was stronger where application proficiency, performance-linked targets, and training co-occurred, whereas training focused on computer administrators, reliance on the provincial Communication and Informatics Office for threat detection, user-side data-handling errors, and slow inter-agency data reconciliation constrained it. The study proposes different routes for technical and administrative staff. This study shows that, even in the highest-ranked SPBE province, capability is uneven across dimensions and that the dynamic-capability functions behind it are distributed across agencies; sensing lies largely with that office, while seizing operates through performance-linked leadership.

Keywords:
Civil servant digital capability
Configurational analysis
Digital leadership
Digital mindset
Electronic-Based Government System

1. Introduction

The digital transformation of the public sector has become a strategic agenda for administrative reform in various countries, where governments must not only modernize technology but also reform processes and organizational culture to improve governance quality. This transformation involves holistic changes that encompass organizational culture, institutional structure, and human resource capabilities,

not just the procurement or adoption of technology (Mergel et al., 2019; Vial, 2019). Digital governance literature emphasizes that ongoing digitalization efforts should produce governance that is responsive, inclusive, and data-driven, including by developing digital competencies among officials (Mergel et al., 2019; The OECD Digital Government Policy Framework, 2020).

In the context of Indonesia, the effort to digitize the government is mandated through Presidential Regulation Number 95 of 2018 concerning the Electronic-Based Government System (SPBE) as a policy framework to realize system integration, data interoperability, and the acceleration of digital-based public services (Presidential Regulation of the Republic of Indonesia No. 95 of 2018 on the Electronic-Based Government System, 2018). This policy responds to structural challenges in the bureaucracy, characterized by system duplication and low inter-agency synergy. However, empirical studies on SPBE implementation at the national and regional levels show mixed results: some agencies have improved services and accountability, while others still face significant operational challenges (Bahagia et al., 2025; Yusuf & Imawan, 2025). This shows that SPBE success depends not only on technology but also on institutional factors and bureaucratic capacity (Gil-Garcia et al., 2018; Tangi et al., 2021). In Indonesia, smart-government applications have expanded faster than the skilled human resources and infrastructure needed to operate them (Santosa et al., 2024), and research on Indonesian digital governance has shifted from technology-oriented e-government toward questions of administrative capacity and local implementation, which remain underexplored (Basuki et al., 2026).

However, digital transformation is not only related to technology and infrastructure. Empirical evidence shows that the success of bureaucratic digitalization is greatly influenced by the human capabilities within it. Empirical studies on the digital competence of civil servants (aparatur sipil negara, ASN) emphasize that, in addition to technical skills, the adaptive and innovative abilities of personnel have a significant impact on the adoption of technology and new work culture in digital bureaucracy, although organizational cultural resistance remains a major obstacle (Sarjito & Pantja Djati, 2025). Another study shows that the development of civil servants' competence in the digital era needs to be formulated through a conceptual framework that considers the readiness of human resources to manage technology-based services, including digital literacy and collaborative abilities, which are part of the strategy to strengthen institutional capabilities (Herwanto et al., 2024).

Furthermore, research on information-based human resource management shows that information technology can enhance administrative efficiency and transparency, but only if the apparatus possesses technical competence, the ability to utilize data in decision-making, and adaptive leadership support (Sutrisno, 2023). In addition, digital leadership is highlighted as an important factor in driving effective digital transformation. Research on leadership in public services shows that digitally competent leaders not only influence technology use but also help create an innovative climate and inter-unit organizational support, strengthening cross-functional learning and coordination within the bureaucracy (Khoeroni et al., 2023).

Conceptually, this aligns with findings in the digital governance literature that emphasize organizational capabilities and human resources as conditions linking technology adoption to performance outcomes (Gil-Garcia et al., 2018; Tangi et al., 2021). In other words, advanced technology does not automatically lead to performance improvement if the personnel lack technical competence, mental readiness, leadership support, and adequate organizational learning systems. Therefore, one of the main issues in public-sector digital reform ultimately lies in civil servants' digital capabilities as the primary agents of SPBE policy implementation.

Although the literature on digital government is rapidly evolving, empirical findings regarding the determinants of civil servants' digital capabilities remain fragmented. Most of the Indonesian studies reviewed in Table 2 are survey-based and estimate the effect of one or two determinants on individual performance, for example digital competence (Firdaos et al., 2025; Nawawi et al., 2026; Pundissing et al., 2025) or digital leadership (Aldhi et al., 2025; Natasha et al., 2025), while qualitative studies tend to examine leadership (Zuhriyati et al., 2025) or competence (Sarjito & Pantja Djati, 2025) separately. Although interaction and moderation terms in these models may suggest that the influence of one factor depends on another, such models rarely reveal which specific combinations of individual, managerial, and institutional conditions actually coexist in practice; nor do they explain why the same organization might demonstrate strong capabilities in certain tasks yet remain weak in others (Furnari et al., 2021; Misangyi et al., 2017). Consequently, the empirical gap addressed here is not merely a matter of studies focusing on different determinants; rather, it is a lack of process-level evidence regarding how competencies, mindsets, leadership, and support emerge in tandem and mutually constrain one another within high-performing SPBE organizations, and how these combinations vary across different areas of work.

Based on this synthesis, this research formulates the concept of "Digital Capability of Civil Servants" as the outcome of a configuration of various conditions that collectively enable civil servants to carry out tasks based on the Electronic-Based Government System (SPBE) effectively. To avoid circular reasoning, Digital Capability is defined by observable work accomplishment rather than by its inputs: the extent to which civil servants operate SPBE applications independently, integrate them into end-to-end workflows, adapt to system changes, and produce accurate, secure, data-based outputs. Therefore, this concept is analytically distinct from the four aforementioned conditions: DC refers to skills and knowledge, DM to beliefs and attitudes, DL to leader behavior, and TS to organizational provisions. This conceptualization draws upon the dynamic capabilities perspective, which emphasizes the importance of integrating and reconfiguring competencies in response to environmental changes (Teece, 2007, 2018a), as well as literature on digital transformation, which highlights the synergy between individuals, leadership, and organizational support (OECD, 2020; Vial, 2019; Westerman et al., 2014). Because dynamic capabilities theory was developed at the firm level, this study uses its notions of sensing, seizing, and reconfiguring as a sensitizing lens to interpret how individual skills are mobilized through leadership and organizational support, not as a theory of individual capability.

This research focuses its analysis on four key conditions that consistently appear in the literature as constituents of Digital Capability: (1) Digital Competence (DC), which refers to the technical skills and digital problem-solving abilities of individual civil servants in carrying out SPBE-based tasks; (2) Digital Mindset (DM), which describes an open attitude toward digital change and a readiness to adapt to technological innovations; (3) Digital Leadership (DL), which reflects the extent to which unit leaders provide direction, support, and encouragement for the utilization of digital systems; and (4) Training & Support System (TS), which denotes the availability and quality of organizational support, including continuous training, technical assistance, and adequate digital facilities. These four conditions are examined as a combination observed in practice, rather than as factors that operate independently or linearly.

This research was conducted in the West Java Provincial Government, which obtained the highest SPBE index value among all provincial governments in Indonesia in the 2024 evaluation, with a score of 4.73, up from 4.14 in 2023 (Ministry of Administrative and Bureaucratic Reform, 2024; West Java Provincial Government, 2025). Recent studies have identified West Java, particularly Bandung, as a model of successful digital transformation in public administration (Meiyenti et al., 2026; Rahayu et al., 2024).

West Java has the largest population in Indonesia (Province, 2025) and faces governance complexities within the framework of government decentralization (OECD Regional Outlook 2021, 2021).

West Java was selected as an extreme, potentially revelatory case (Flyvbjerg, 2006; Seawright & Gerring, 2008): its high institutional digital maturity makes it possible to observe whether individual capability keeps pace with organizational digitization. Since the SPBE index measures institutional performance at the provincial level, rather than the individual capabilities of staff at the Regional Civil Service Agency (BKD), it serves solely as a criterion for case selection and is not used as evidence of actual outcomes achieved. To mitigate "success-case bias," the interviews deliberately explored weaknesses or unevenness in capabilities, for instance, by asking whether digitalization had actually increased administrative burdens, whether the adoption of a system was driven by fears of benefit cuts, and whether the application had ever been subject to attacks or disruptions (TR-S3, S10, S15). Furthermore, the analysis examined tasks still performed manually, instances where groups delegated system use to others or rejected it entirely, and incidents categorized as "user error." This approach ensured that institutional maturity would not automatically dictate the patterns interpreted as capabilities. The corresponding limits on transferability are discussed with the other limitations in the Conclusion.

Accordingly, this study aims to explain how DC, DM, DL, and TS combine in the digital work practices of civil servants at BKD of West Java Province and how these combinations relate to variation in their digital capability. Two research questions guide the analysis. RQ1: How are the four conditions manifested in SPBE-based work practices, and what strengths and limitations does each display? RQ2: Which combinations of conditions are observed alongside stronger or weaker capability in each of the four capability dimensions (system operation, technology integration, adaptability to system change, and data-based output quality), and which conditions constrain it?

2. Literature Review

Theoretical and Conceptual Foundation

Civil Servants' Digital Capability as a Configurational Outcome

In this study, civil servants' digital capabilities are understood as the capacity of state officials to function effectively within the government's digital ecosystem, particularly in the context of implementing an Electronic-Based Government System (SPBE). Digital transformation in the public sector demands more than mere proficiency in applications or software; it requires an integrative set of abilities, encompassing technical, cognitive, and behavioral aspects, that form a coherent whole (Eshet-Alkalai, 2024; The OECD Digital Government Policy Framework, 2020). Literature on digital transformation in government emphasizes that digitalization success depends not only on the availability of infrastructure or systems but also on individual officials' capacity to internalize and use technology productively (Gil-Garcia et al., 2018; Mergel et al., 2019). Recent reviews further indicate that organizational change involving digital aspects within public institutions depends as much on organizational and cultural adjustments as on the technology itself (Haug et al., 2024), and that "digital champions" must actively work to overcome institutional barriers (Wilson & Mergel, 2022). Within this framework, digital capability is not merely a technical competency, but rather a form of functional readiness that enables civil servants to integrate technology into substantive work processes (Teece, 2018).

Based on this premise, Digital Capability is not positioned as a linear consequence of a single dominant determinant, but as a configurational outcome that emerges from a combination of complementary conditions. This perspective is inspired by the configurational logic underlying set-

theoretic approaches such as fuzzy-set Qualitative Comparative Analysis (Fiss, 2011a; Misangyi et al., 2017; Ragin, 2000). However, the present study does not perform calibration, necessity or sufficiency tests, or Boolean minimization. It therefore does not use set-membership scores. Conversely, each capability dimension is assessed qualitatively as high, partial, or low, based on explicit criteria outlined in the Data Analysis subsection; furthermore, configuration concepts are employed as interpretive heuristics rather than as formal tests (Furnari et al., 2021). Thus, digital capability is defined as a comprehensive and consistent level of digital work performance in tasks related to the Electronic-Based Government System (SPBE), evaluated across the four dimensions mentioned above.

Digital Competence (DC)

Conceptually, digital competence refers to an individual's ability to use digital technology effectively; not merely knowing what the buttons do, but being able to think critically about digital information, solve emerging problems, and generate new solutions within a digital context. An influential early approach is Eshet-Alkalai (2004) who emphasized that digital literacy encompasses technical, cognitive, and evaluative dimensions. This framework was then expanded in contemporary digital competence literature, such as the DigComp 2.2 model, which includes areas of information and data literacy, digital safety, and digital problem-solving as core competencies (Vuorikari et al., 2022) and has been applied in Indonesian studies of digital literacy (Anggraeni & Wachidah, 2025). Recent empirical studies in the Indonesian public sector confirm that digital competence significantly influences employee performance, both directly and indirectly through employee engagement (Firdaos et al., 2025; Nawawi et al., 2026), and that the combination of digital competence and innovative organizational culture enhances innovative performance (Pundissing et al., 2025).

In this study, DC is operationalized through four indicators: proficiency in SPBE applications and systems (DC-01), data literacy and information security (DC-02), technology-based problem solving (DC-03), and the ability to learn new technologies (DC-04) (Eshet-Alkalai, 2004; Teece, 2018b; Vuorikari et al., 2022). The indicators were specified deductively before fieldwork by adapting DigComp 2.2 areas to SPBE tasks at BKD and were refined during coding; DC-01 to DC-04 are therefore analytical codes of one construct, not separate constructs. Table 1 summarizes their sources, adaptations, example interview prompts, and evidence sources.

Digital Mindset (DM)

A "digital mindset" reflects an individual's cognitive orientation and attitude toward digital transformation. While digital competence relates to technical capacity, a "digital mindset" (DM) concerns how an individual interprets digital change: whether such change is perceived as a threat to job stability or, conversely, as an opportunity to enhance value and performance.

Theoretically, the concept of a "mindset" is rooted in Dweck (2016), who distinguishes between a "fixed mindset" and a "growth mindset." In the context of organizational digital transformation, this idea has been further developed by Westerman et al. (2014), Kane (2019), and Solberg et al. (2020) , who argue that the success of a transformation is determined more by leadership and organizational mindset than by mere investment in technology. In this study, a digital mindset is operationalized through three indicators: openness to innovation (DM-01), a willingness to move beyond conventional patterns (DM-02), and a positive perception of technology as an "enabler" (DM-03) (Kane, 2019; Solberg et al., 2020; Westerman et al., 2014). Complementing this framework, Yanti (2025) found that a digital mindset

moderates the relationship between the quality of technical guidance and the quality of reporting within government agencies, while Izzati et al. (2026) demonstrated that digital literacy training (specifically regarding the "Coretax" system) significantly improves the understanding of digital systems among civil servants.

Because system use in bureaucracies is often mandated, this study distinguishes three empirically different states: (a) incentive-driven compliance, in which systems are used mainly to avoid sanctions or allowance cuts; (b) openness, in which change is accepted but not yet self-initiated; and (c) an internalized digital mindset, in which technology is valued as an enabler and used beyond what is required (Solberg et al., 2020). The mere use of an application is not considered evidence of a shift in cognitive orientation; a digital mindset is inferred based on the beliefs expressed by informants and their underlying reasons for using the application, including voluntary use as self-reported by the users, such as preferring a mobile app for attendance tracking over a fingerprint scanner, or perceiving the use of the system as a habit rather than merely an obligation.

Digital Leadership (DL)

Digital leadership reflects unit leaders' capacity to direct, facilitate, and normalize digital transformation as an integral part of organizational strategy. Transformational leadership literature emphasizes that leaders build vision and mobilize change (Özkan Alakaş, 2024). In the digital context, this concept expands to leadership that integrates technology into the organization's strategic direction.

Recent studies consistently validate the pivotal role of digital leadership in Indonesia's public sector transformation. Digital leadership is a critical driver of innovation adoption in both local governments and national digital reform (GovTech/SPBE) (Ariawan et al., 2025; Rahayu et al., 2024). Expanding on this, digital leadership competencies also accelerate organizational performance and public service innovation (Adriansyah, 2025; Zuhriyati et al., 2025). In regional apparatus organizations, leaders' commitment and willingness to take risks have been shown to sustain service innovation beyond innovation competitions (Rahman et al., 2022), while e-leadership research defines the managerial side of digital work as competence in ICT-mediated communication (Roman et al., 2019). Furthermore, Aldhi et al. (2025) clarify that performance gains depend on strong managerial digital readiness, with digital leadership moderating this relationship, while Samsuri et al. (2025) establish its mediating role between transparency, accountability, and organizational performance in local governments.

Westerman et al. (2014) show that organizations that succeed in digital transformation have leaders who not only understand technology but can also articulate a clear, consistent digital vision. DL in this study is operationalized through four indicators: providing a vision and direction for digital transformation (DL-01), offering moral and policy support (DL-02), encouraging the use of digital systems in work practices (DL-03), and being a role model in the utilization of technology (DL-04) (Kane, 2019; Özkan Alakaş, 2024; Westerman et al., 2014).

Training & Support System (TS)

The Training & Support System is an institutional dimension that provides structural support for developing and using digital capabilities. Research on digital transformation emphasizes that technology adoption must be accompanied by organizational learning and support (Kane, 2019).

In the context of digital transformation, technology investment without investment in training and organizational support tends to result in superficial adoption (Kane, 2019). In this study, TS is

operationalized through four indicators: continuous training (TS-01), technical assistance (TS-02), support services (helpdesk) or troubleshooting systems (TS-03), and adequate digital infrastructure and facilities (TS-04) (Kane, 2019; Westerman et al., 2014).

Table 1. Operationalization of Conditions and Outcome

Construct (role)	Indicators / analytical codes	Example interview question (transcript segment)	Main evidence sources
DC (condition)	DC-01 to DC-04: application proficiency, data literacy and security, problem solving, learning new technology (adapted from DigComp 2.2)	"From all your main tasks and functions, roughly what percentage has been digitized?" (S2); "What digital abilities of civil servants are still needed or lacking?" (S9)	Interviews; training records
DM (condition)	DM-01 to DM-03: openness, willingness to leave conventional patterns, perception of technology as enabler	"After the transformation, has work become more complicated, or added administrative burden?" (S3); "Does pay-linked enforcement affect employees' mindset, filling in out of fear rather than need?" (S10)	Interviews (reasons for use); self-reported voluntary use (S3, S10)
DL (condition)	DL-01 to DL-04: vision, moral/policy support, encouragement through performance targets, role-modelling	"In the performance application, is it only filling in activities, or is productivity visible?" (S11); "If cascading is rigid, can additional tasks be converted into indicators to accommodate innovation?" (S13)	Interviews; West Java Governor Regulations No 68/2023 (as amended by No. 1/2026) and No 10/2022
TS (condition)	TS-01 to TS-04: continuous training, technical assistance, helpdesk, infrastructure	"Is there digital training or development for civil servants?" (S16); "Has any BKD application ever been attacked or disabled?" (S15)	Interviews (BKD and Diskominfo officials); Regional Regulation of West Java No. 4/2021 (DOC-04)
Digital Capability (outcome)	Four dimensions: system operation, technology integration, adaptability to system change, data-based output quality	"If the applications could not be used for a week, would BKD's work be disrupted?" (S15); "How long has digitalization been used?" (S5)	Interviews; public digitization records; BKD service standards reports; 2025 circular requiring the KMob and performance applications

Source: Authors' elaboration (2026)

Previous Studies and State of the Art

Table 2 compares the most relevant prior studies by context, unit of analysis, design, findings, and limitations. Three patterns emerge. First, quantitative studies consistently report a positive impact of digital competence or digital leadership on employee or organizational performance; however, these studies estimate net or moderated effects across all respondents and do not examine how conditions combine within specific tasks. Second, qualitative and conceptual studies provide in-depth explorations of leadership, competence, or institutional readiness, yet they typically address only one condition at

a time. Third, outcomes are frequently measured as general performance or innovation rather than as digital work achievements, making it difficult to disentangle the capabilities under study from their antecedent factors. These limitations provide the rationale for employing a configurational, within-case research design in this study.

Table 2. Comparison of Previous Studies

Study	Context and unit of analysis	Design	Main finding	Limitation relative to this study
Nawawi et al., (2026)	Regional Secretariat of Central Java Province; 142 employees (proportional random sampling)	Quantitative survey, mediation model	Digital competence improves performance, partially mediated by smart digital services	Net effects; single determinant
Pundissing et al., (2025)	Local Government of Tana Toraja Regency; 365 civil servants	Quantitative explanatory survey, SEM-PLS	Digital competence and innovative culture raise innovative performance (57% variance explained)	Outcome is innovation, not digital work capability
Firdaos et al., (2025)	KPP Pratama Jakarta Mampang Prapatan tax office; 106 employees	Quantitative survey, SEM-PLS	Engagement mediates digital competence and performance	Leadership and support not examined
Natasha et al., (2025)	Ministry of Religious Affairs Office, Mamuju Regency; 220 permanent employees	Quantitative survey, multiple regression	Digital competence, digital leadership, and resilience improve HR performance	Additive effects; no within-case variation
Aldhi et al., (2025)	Surabaya City Government (smart city programme); 1380 civil servants	Quantitative survey, PLS-SEM with mediation and moderation	Managerial digital readiness mediates the effect of IT capability and digital skills on performance; digital leadership strengthens these relationships	Interaction tested, but not combinations in practice
Tangi et al., (2021)	Italian public administrations, mostly municipalities; 491 respondents (managers, civil servants, politicians)	Quantitative survey, SEM	Sense of urgency, need for change, and a collaborative environment drive digital government transformation; organizational barriers and lack of support impede it; resistance to change was not found to impede it.	Variable-centred; no task-level evidence
Zuhriyati et al., (2025)	Yogyakarta government; organization	Qualitative descriptive case study	E-leadership drives infrastructure, institutional-policy, and cultural innovation	Focus on leadership only

Source: Authors' synthesis of the cited studies (2026).

Research Gap, Novelty, and Analytical Framework

The preceding review outlined four distinct conditions, Digital Competence (DC), Digital Mindset (DM), Digital Leadership (DL), and Training & Support System (TS), each rooted in established theoretical traditions. However, examining these conditions in isolation risks obscuring the study's central insight: civil servants' digital capabilities may not emerge merely from an accumulation of these factors, but from their interdependent interactions.

Integrating these four conditions into a coherent configurational framework reveals a multi-layered structure of organizational influence. At the individual level, DC and DM serve as the micro-foundations for digital capabilities, providing the technical skills and cognitive orientations necessary to engage with digital systems (Dweck, 2016; Teece, 2007). Yet, individual capacity alone is insufficient. At the managerial

level, DL acts as a strategic catalyst, transforming individual readiness into collective action by providing a vision, policy direction, and exemplary behavior (Kane, 2019; Westerman et al., 2014). Finally, at the institutional level, TS establishes an organizational support framework, including structural elements such as training, infrastructure, and technical assistance, that sustains and renews digital capabilities over time (Gil-Garcia et al., 2018; Mergel et al., 2019). Figure 1 summarizes this analytical framework.

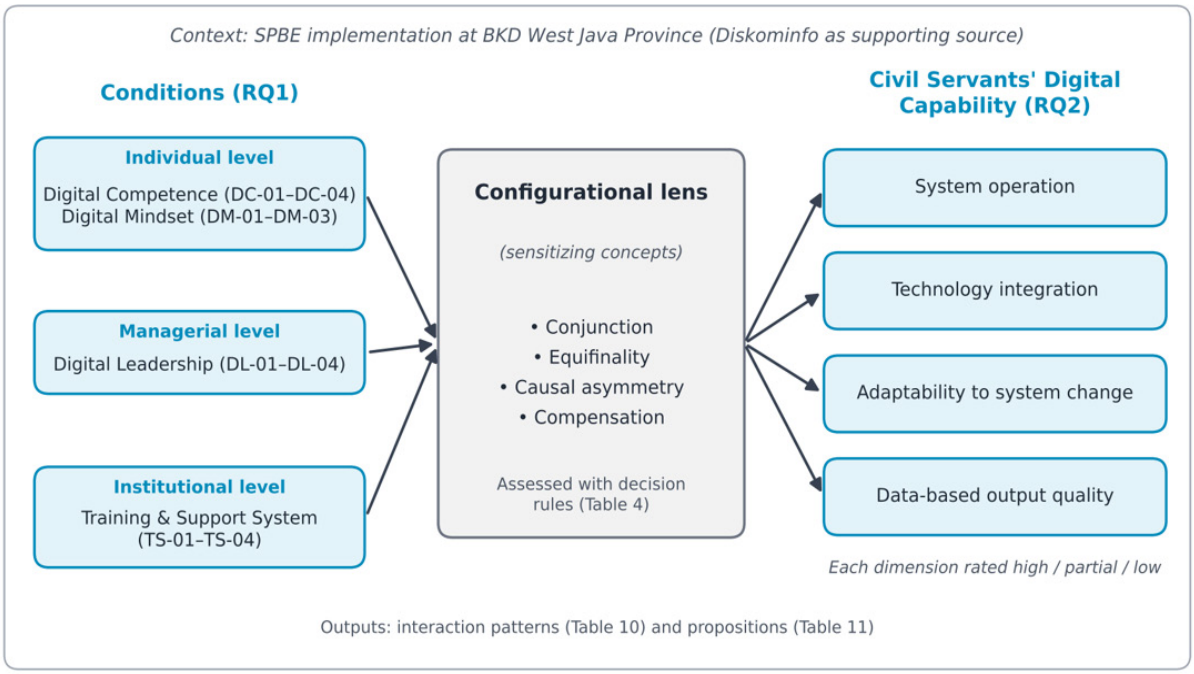

Figure 1. Analytical Framework of the Study
Source: Authors' elaboration (2026), adapted from Fiss, (2011b); Furnari et al., (2021); Teece, (2007).

In this study, "configuration" refers to a combination of conditions observed simultaneously in relation to capability dimensions; the term is descriptive and does not, in itself, imply a claim of conjunctural causality. Four notions of configuration (conjunction, equifinality, causal asymmetry, and compensation) are employed as "sensitizing concepts" rather than as predetermined outcomes, with each requiring specific empirical evidence (Fiss, 2011a; Furnari et al., 2021; Ragin, 2000). Conjunction is indicated when a certain level of capability is observed only when several conditions are present simultaneously, and that level fails to emerge, or is weakened, when one of these conditions is absent. Equifinality is demonstrated when two or more distinct combinations of conditions are associated with the same level of capability within the same dimension. Causal asymmetry requires a comparison between the conditions present when capability is high and those present when capability is low; the mere observation that a strength fails to offset a weakness indicates only a lack of compensation, not asymmetry. Compensation is indicated when a weakness in one observed condition is partially offset by a strength in another, without resulting in a decline in the final outcome. These identification criteria, operationalized as decision rules in the Data Analysis subsection, are applied before the findings are interpreted. The analysis remains open to evidence that does not align with these criteria; such evidence is reported as "disconfirming" or as an unresolved finding.

This configurational perspective complements dominant variable-centered models. While regression analysis and structural equation modeling can certainly incorporate interaction and moderation effects

(e.g., (Aldhi et al., 2025; Özkan Alakaş, 2024), these methods typically estimate only the net or conditional effects of specific variables within a population. This study prioritizes combinations and processes, as its research questions focus on how various conditions co-occur in actual work practices and why capabilities may differ across tasks and groups within a single organization, questions best addressed through evidence from qualitative case studies. It aligns with the digital governance literature that views bureaucratic digitalization as non-linear, context-dependent, and path-contingent (The OECD Digital Government Policy Framework, 2020; Vial, 2019). By adopting this framework, the study moves beyond simply asking "which factors are the most influential" to instead examining "what combinations of factors, and under what conditions, are associated with effective digital capabilities." This shift in perspective is highly relevant to the context of the public bureaucracy in Indonesia, where institutional heterogeneity, resource disparities, and cultural diversity render uniform interventions problematic.

Therefore, this study conceptualizes civil servants' digital capability as a configurational outcome, implying that it depends on a combination of factors at the individual, managerial, and institutional levels rather than on any single factor. This conceptualization underpins both the methodological approach (a qualitative single-case study with cross-dimensional analysis) and the interpretive framework (incorporating the concepts of conjunction, compensation, equifinality, and causal asymmetry as guiding principles) used in the subsequent analysis. The study's novelty is threefold: Conceptually, it separates civil servants' digital capability, observed across four dimensions of work accomplishment, from its antecedent conditions. Empirically, it shows that even in the highest-ranked SPBE province, capability varies across dimensions and is constrained by legal and inter-agency factors that institutional indices do not capture. Theoretically, it shows that the dynamic-capability functions underpinning civil servants' digital capability are distributed across agencies; sensing is largely located in the provincial Communication and Informatics Office, seizing operates through performance-linked leadership, and reconfiguring through training and infrastructure adjustment. Unlike six of the eight studies reviewed in Table 2, which test individual determinants through survey-based linear models, these claims come from qualitative case data and explicit, auditable decision rules (Table 4).

3. Research Methods

Research Design

This research uses a qualitative approach with a single case study design that is descriptive-exploratory in nature (Yin, 2018). This approach was chosen to deeply understand how configurational conditions, namely Digital Competence, Digital Mindset, Digital Leadership, and Training & Support System, interact and are directly interpreted by civil servants in shaping digital capabilities within the context of SPBE implementation in the Local Government environment. Unlike the quantitative approach, which seeks to measure and test the relationships between variables numerically, this research is based on the assumption that bureaucratic digital transformation is a contextual, processual, and subjectively meaningful social phenomenon, and therefore cannot be fully understood solely through numbers or scores (Creswell & Poth, 2018).

This case concerns the Regional Civil Service Agency (BKD) of West Java Province. The Communication and Informatics Office (Diskominfo) is not treated as a second case; instead, it provides supporting evidence on the infrastructure, security, and helpdesk functions on which BKD relies. Separate group interviews were conducted with Diskominfo officials, ensuring that evidence concerning these functions was obtained directly from both agencies (TR-S6, S7, S15). The two interview transcripts were compiled

into one thematically segmented transcript, and statements are attributed to the group interviews rather than to either agency; this is appropriate for the study's purpose, since the analysis concerns how conditions combine across the two agencies rather than differences between their views.

The unit of analysis is BKD as an organization: capability is assessed at the organizational level for each of the four capability dimensions, and Diskominfo provides supporting information on the functions BKD relies on. Individual informants are data sources rather than units of analysis. Differences between occupational groups, such as computer administrator (Pranata Komputer, Prakom) staff, administrative staff, and teachers as end users, appear in the data only as within-case contrasts reported by informants and are not treated as separate units. Accordingly, comparisons in this article are made across capability dimensions within one case, not across groups.

The selection of the location is based on the following considerations: (1) West Java is the province with the highest SPBE index nationally, reflecting a relatively advanced level of digital governance maturity; (2) West Java faces high governance complexity as the province with the largest population in Indonesia; (3) BKD was chosen because it plays a central role in HR management and the facilitation of civil servant training, while Diskominfo is involved as a supporting unit for managing regional ICT infrastructure. Fieldwork was conducted in June 2026. The stages of the research process are summarized in Figure 2.

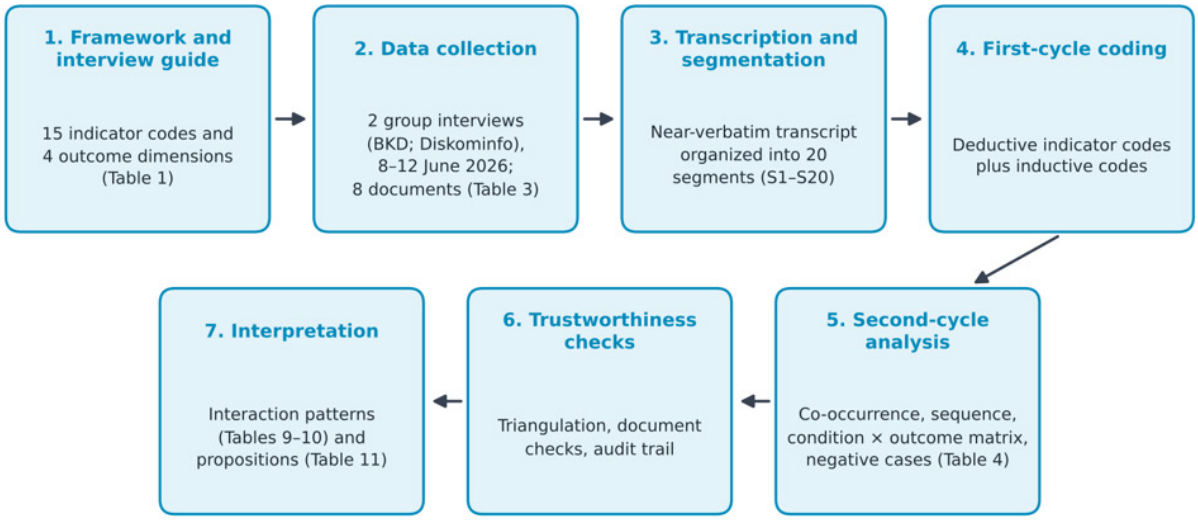

Figure 2. Stages of the Research Process
Source: Authors' elaboration (2026)

Informants

Research informants were determined through purposive sampling techniques with the following criteria: (1) civil servants who have worked for at least two years at BKD or Diskominfo; (2) civil servants who actively use, manage, or are directly involved in the application policies and SPBE systems; (3) civil servants who have the authority or adequate knowledge to explain policies and practices related to digital capabilities. The interview evidence consists of two semi-structured group interviews: one with BKD officials responsible for personnel services, performance management, innovation, and the agency's applications, and one with Diskominfo officials responsible for server infrastructure and information security (Table 3). Twelve officials took part: 5 from BKD (1 structural, 3 functional, and 1 staff) and 7 from Diskominfo (2 structural and 5 functional). The group thus combined managerial and technical

perspectives from both agencies, with functional officials forming the majority (8 of 12). Since individual speakers are not identified in the transcripts, the excerpts are attributed to specific group interviews and the corresponding transcript segments (S1–S20) from which they are drawn. Given the specific objectives of this study and the participants' direct responsibilities regarding SPBE applications and infrastructure, the adequacy of the interview data is assessed based on the concept of "information power" (Malterud et al., 2016) and supported by relevant documentation, rather than the concept of "saturation", which assumes that a series of interviews must continue until no new codes emerge (Fusch & Ness, 2015; Guest et al., 2020). With two information-rich group interviews involving the officials directly responsible for the system studied, a narrow study aim, and an explicit theoretical framework, the sample's information power is considered adequate for analytic purposes. Teachers and school administrative staff were not interviewed directly; statements about them are based on officials' accounts (TR-S3) and are treated as secondary evidence.

Table 3. Profile of Informants and List of Documents

Code	Agency	Participants	Role in SPBE	Date	Duration (min)
INT-01	BKD West Java Province	Group interview: 5 officials (1 team leader – structural; 3 functional; 1 implementing staff)	Personnel services, performance application, innovation, application management	8–12 June 2026	360 (total for INT-01 and INT-02)
INT-02	Diskominfo West Java Province	Group interview: 7 officials (2 structural; 5 functional)	Server hosting, security and encryption, penetration tests		
DOC-01–03	Government of West Java Province	Governor Regulations No. 68/2023 (amended by No. 1/2026) and No. 10/2022	Performance assessment weights, special instructions, allowance (TPP)	2022–2026	–
DOC-04	Government of West Java Province	Regional Regulation No. 4/2021 on Communication and Informatics, Statistics, and Cryptography	Data centre, SPBE infrastructure, information security	2021	–
DOC-05	BKD West Java Province	Published service standards (Standar Pelayanan), incl. performance management (TRK)	Online delivery of personnel services	n.d.	–
DOC-06	iNews.id	Report on the launch of seven personnel applications (then Jabar SMART Birokrasi programme)	Scope of digitized personnel services	2021	–
DOC-07	Regional Secretary of West Java Province	Circular No. 150/KPG.03/ BKD on a trial staff work arrangement for budget efficiency	Mandatory use of KMob attendance and the provincial performance application	2025	–
DOC-08	Ministry of Administrative and Bureaucratic Reform	Ministerial Decree No. 663/2024 on the 2024 SPBE evaluation results	SPBE index of West Java Province (4.73)	2024	–

Source: Research data (2026).

Data Sources and Data Collection

Data were collected through (1) two semi-structured group interviews (one with BKD and one with Diskominfo) based on the configurational framework; both interviews were audio-recorded and transcribed close to verbatim, retaining spoken expressions, and the compiled transcript is organized into 20 thematic segments (S1–S20) (Table 3); the two interviews were held on 8–12 June 2026 and lasted about 360 minutes in total; (2) documentation studies of official documents, comprising eight documents (DOC-01 to DOC-08, Table 3): the governor regulations on civil servant performance management and the performance allowance, the regional regulation on communication and informatics, BKD's published service standards, a report on the personnel applications launched in 2021, a 2025 Regional Secretary circular on staff work arrangements, and the ministerial decree on the 2024 SPBE evaluation results. No observation was conducted; capability levels are therefore assessed from interview accounts corroborated by documents. The authors translated quotations from Indonesian into English.

All informants received an explanation of the study's purpose and gave oral informed consent before interviews. Informants are not identified individually; quotations are attributed to the group interviews and the transcript segment. Sensitive information, including the data-exposure incident discussed below, is reported without details that could identify individuals or systems. The study involved minimal-risk interviews with public officials about their professional roles and was conducted under a research permit issued by the authors' university, submitted to BKD and Diskominfo of West Java Province before the interviews; participation was voluntary, consent covered audio recording, and no personal data are reported.

Data Analysis

Data analysis uses a thematic analysis approach combined with configurational analysis logic in a qualitative-interpretative manner. The interactive model of Miles et al. (2014), comprising data condensation, data display, and conclusion drawing and verification, provides the overall frame; thematic analysis (Braun & Clarke, 2019) is the coding procedure used within the condensation stage.

Coding proceeded in two cycles. In the first cycle, transcripts, field notes, and documents were coded deductively with the 15 indicator codes (DC-01 to TS-04), which had been defined before fieldwork and also structured the interview guide (Table 1), and the four outcome dimensions, while inductive codes were added for issues outside the framework, such as inter-agency data coordination (TR-S14) and tasks that cannot be digitized because they require physical presence, such as disciplinary examinations (TR-S8). In the second cycle, codes were grouped into themes and pattern codes linking conditions to outcomes. The first author conducted the coding, and the second author reviewed the coded segments against the transcript; differences in interpretation were discussed until agreement was reached, and the codebook was revised accordingly.

The four configurational ideas defined in the Analytical Framework (conjunction, equifinality, causal asymmetry, and compensation) are used as sensitizing concepts, not as expected results: whether the evidence meets the criteria for each is assessed with the decision rules in Table 4, and an idea that is not met is reported as an interpreted interaction pattern or a proposition rather than as a finding. To identify how specific combinations of thematic codes (DC-01 to TS-04) co-occur with each dimension of civil servants' digital capability, the second-cycle analysis proceeds through four steps: (1) co-occurrence mapping; (2) process tracing of reported sequences; (3) cross-dimensional juxtaposition, displayed as

a condition × outcome matrix by capability dimension; and (4) examination of negative and contrast cases. The output of each step is shown in the tables and narrative of the Results section. Combinations observed in the data are distinguished from hypothetical combinations, which are reported separately as propositions for future research.

Table 4. Qualitative Decision Rules for the Configurational Analysis

Element	Decision rule applied
Condition level (strong / partial / weak)	Strong: an interview account corroborated by a document, or consistent accounts across several transcript segments, without contrary evidence; partial: supported but with documented gaps or contrary accounts; weak: absent or mainly contrary evidence.
Capability level per dimension (high / partial / low)	High: tasks completed independently and end-to-end in the system, consistent across sources; partial: completed with delegation, manual steps, or external help; low: mostly delegated, manual, or with recurring errors.
Co-occurrence (step 1)	A condition and an outcome are linked when they are coded in the same episode or the informant explicitly connects them.
Sequence (step 2)	A sequence is claimed only when informants describe a before/after order or documents date the change; otherwise the link is reported as co-occurrence only.
Juxtaposition (step 3)	Condition and outcome levels are compared across the four dimensions in one matrix (Table 10).
Negative/contrast case (step 4)	An episode in which the expected conditions are present but capability is low, or capability is high despite a weak condition; each is reported and used to qualify claims.
Configurational claims	Conjunction, equifinality, compensation, and asymmetry are claimed only when the criteria in the Analytical Framework subsection are met; otherwise patterns are reported as interpreted interaction patterns or propositions.

Source: Authors' elaboration based on Fiss (2011), Furnari et al. (2021), and Miles et al. (2014).

Trustworthiness and Ethics

The trustworthiness of the data is maintained through source and method triangulation and audit trails to ensure credibility, transferability, dependability, and confirmability (Lincoln & Guba, 1985); these procedures are described concretely to show how they shaped the findings (Birt et al., 2016; Nowell et al., 2017). For example, the reported 60% weight of KPI achievement in the performance allowance (TR-S11) was checked against West Java Governor Regulation No. 68/2023, whereas the informants' estimate that "around 38" of 46 mapped functions are digitized (TR-S2), and their report of a 90% reduction in paper use (TR-S5) refer to internal records that informants mentioned, but that were not available to the researchers; both figures are therefore reported as informants' estimates. Instead of formal member checking, whose value as a validation procedure is itself contested (Birt et al., 2016), interpretations were clarified with participants during the interviews through follow-up questions, and key factual claims were checked against public documents, such as Diskominfo's mandate for the data centre and information security (Regional Regulation of West Java Province No. 4 of 2021 on the Administration of Communication and Informatics, Statistics, and Cryptography, 2021) and the continued mandatory use of the attendance and performance applications (Regional Secretary of West Java Province, 2025). The audit trail comprises the interview recording and segmented transcript, versions of the codebook, analytic memos, and successive versions of the condition × outcome matrix. Procedures that were not conducted are not claimed.

4. Results and Discussion

Results

West Java Province has the largest population in Indonesia, reaching 50,489,208 people in the first semester of 2024 (approximately 17.9% of the national total) (Ministry of Home Affairs population data for the first semester of 2024, reported in Sinambela, 2024). From a digital governance perspective, West Java achieved the highest SPBE Index nationally in the provincial government category, with a score of 4.73 and a "Satisfactory" designation based on the Minister of Administrative and Bureaucratic Reform's Decree Number 663 of 2024 (West Java Provincial Government, 2025). BKD of West Java Province, as the main locus, has developed and operated several digital applications, including CASN Juara, e-Fungsional, DiLan, e-Pension, e-Rank, e-KGB, e-Card, K-MOB, e-Mutation, SIAP Jabar, and e-Talent Jabar, reflecting the extensive scope of digitalization in personnel services. Diskominfo plays a role as a technical partner in managing server infrastructure, information security, and the integration of personnel application systems. Digitalization has been part of daily work since mobile attendance became mandatory in 2018, about eight years before the interview (TR-S3, S5); performance and activity data are integrated at the position level and transmitted to the National Civil Service Agency (BKN) (TR-S4).

Configurational Conditions (RQ1)

Digital Competence (DC)

Organizational digitization at BKD is extensive. Informants mapped 46 service and task functions, of which "around 38" (roughly four-fifths, by informants' estimate) have been digitized and about 8 have not, the latter including the recording of disciplinary examinations (BAP) (TR-S2). Digitized processes include digital signatures, introduced about three years before the interview, performance (SKP) reporting, and the internal correspondence and disposition system Seribah, which informants noted predated the national Srikandi system (TR-S1, S2). This figure describes the organizational environment in which competence is exercised rather than the competence of individual civil servants. Evidence on individual competence comes from informants' accounts. Teachers, for example, reported relying on school administrative staff to operate some applications: "it is usually not the teacher who does it, but the school's technical staff" (group interview, TR-S3), and these administrative staff felt burdened by the requests (TR-S3). Strong institutional policies support data literacy and information security (single sign-on, multi-factor authentication, password updates every three months, and penetration tests every three months and after each system change; TR-S6). These measures were strengthened after Diskominfo's security team detected exposed user credentials (TR-S6). A separate data-exposure incident originated from a file exported by an employee rather than from a system breach (TR-S15), indicating security gaps on the user side.

Technology-based problem solving is carried out through storage capacity management (e.g., deleting photos and data older than five years that are no longer needed for audits by the Audit Board; TR-S7) and periodic data reconciliation, but the initiation of problem resolution is mostly triggered by findings from Diskominfo: "the early alarm comes from Diskominfo, then we are the ones who close the gaps" (group interview, TR-S15). We interpret this as internal problem-solving capacity that remains largely responsive-executive. The ability to learn new technologies has generally been established through habituation to digitalization since 2018. Informants described younger civil servants as adapting faster than older civil servants, who are "not unable, but slow" (TR-S7), but added that the gap is not pronounced because the workforce is now dominated by employees born between 1976 and 2000

(TR-S7). Resistance was reported mainly among teachers (TR-S3); because this comes from BKD and Diskominfo officials rather than from teachers themselves, it is treated as an interpretation to be tested. Overall, DC in BKD appears strongly established as an institutional foundation, but equal distribution and individual technical independence still need improvement (Table 5).

Table 5. Main Findings of Digital Competence

Code	Indicator	Main findings	Evidence
DC-01	Proficiency in SPBE Systems and Applications	Strength: about 38 of 46 mapped task functions (informant estimate) have been digitized, with habituation since 2018. Weaknesses: about 8 of the 46 functions are not yet digital; teachers rely on school administrative staff; uneven distribution among end users.	TR-S1, S2, S3; DOC-05, DOC-06, DOC-07
DC-02	Data Literacy and Information Security	Strengths: single sign-on, MFA, three-monthly password updates and penetration tests. Weakness: data exposure from an exported file due to individual negligence (human error).	TR-S6, S15
DC-03	Technology-Based Problem Solving	Strength: storage management and data reconciliation. Weakness: problem resolution initiation still comes from Diskominfo (responsive-executive).	TR-S7, S14, S15
DC-04	Ability to Learn New Technology	Strength: accustomed to system updates. Weaknesses: slower adaptation among older civil servants (a small share of the workforce), reported teacher resistance, less specific recruitment (backend).	TR-S3, S7, S17

Source: Authors' elaboration based on research data (2026). TR-Sn = interview transcript segment; DOC = document.

Digital Mindset (DM)

Openness to innovation is evident from the scheme of converting additional tasks into performance indicators and the cross-OPD innovation monitoring forum: employees report achievements and innovations every three months, and tasks outside their formal duties can be linked to those duties through a decree-based team when they relate to organizational goals (TR-S13). Informants considered that there is "still room for employee creativity" despite top-down cascading, supported by innovation coordinators in each agency's secretariat and a weekly innovation discussion (TR-S13). The constraint is that innovations outside the main duties must pass formal verification. The willingness to move away from conventional work patterns is reflected in the transition from fingerprint attendance to photo and mobile attendance in 2018, which was initially rejected but is now considered more convenient: staff no longer need to queue at fingerprint machines, and teachers who were used to the system preferred it (TR-S3).

However, the transition was initially forced: "at the beginning we were forced to carry out digital transformation, because if we could not follow, it affected each person's take-home pay" (group interview, TR-S1). Informants reported having calculated a reduction in paper use of about 90%, measured in reams of paper (TR-S5), and BKD now applies flexible working in which staff may work from anywhere four days a week and attend the office on Mondays, subject to service needs in each unit (TR-S5); a 2025 circular on a trial work arrangement for provincial staff likewise requires attendance through the KMob application when working from home and daily performance reporting through the

provincial performance application (Regional Secretary of West Java Province, 2025). Reduced paper use is treated here as evidence of procedural change, not of mindset; mindset is inferred from informants' reasons for using the systems. Asked whether pay-linked enforcement produced use out of fear rather than need, informants located the fear in the early period (2019) and described current use as a need and a habit: "now it seems it has become a need… no longer because of fear of having the allowance cut… it comes from habit" (TR-S10). Because this is a retrospective self-report by the same group, it is treated as reported habituation rather than as demonstrated internalization. Some groups (teachers, school administrative staff) still perceive digitalization as a burden, for example, when teachers were required to upload photos as evidence of performance (TR-S3). The manual handling of financial data and disciplinary examinations (TR-S2, S8) should not be read as resistance: informants explained that disciplinary examinations require the physical presence of the employee and witnesses and therefore cannot yet be conducted online (TR-S8) (Table 6).

Table 6. Main Findings of Digital Mindset

Code	Indicator	Main findings	Evidence
DM-01	Openness to Innovation	Strengths: conversion of additional tasks to performance indicators; quarterly achievement and innovation reporting; innovation forum. Weakness: innovation outside formal duties must pass formal verification, although informants see room for creativity.	TR-S13
DM-02	Willingness to Deviate from Conventional Patterns	Strength: transition to photo attendance and mobile attendance (2018). Weakness: initially forced; finance still manual; manual BAP reflects a legal presence requirement rather than resistance.	TR-S1, S2, S3, S8
DM-03	Positive perception of technology as an enabler	Strengths: calculated reduction in paper use of about 90%, WFA four days a week; use now described as a habit. Weaknesses: initial motivation due to fear of allowance cuts; some groups still feel burdened.	TR-S3, S5, S10; DOC-07

Source: Authors' elaboration based on research data (2026).

Digital Leadership (DL)

The vision and direction of digital transformation are reflected in a cascading scheme that translates vision and mission into measurable performance targets: "starting from the vision and mission… each breakdown downward has cascading from the vision and mission" (TR-S11). Each employee has an annual performance agreement with monthly key performance indicator (KPI) targets, and KPI achievement, rather than activity logging, determines about 60% of the performance-based allowance (TR-S11); this account is consistent with the provincial regulation on civil-servant performance management, which weights work results (SKP) at 60% and work behavior at 40% in the monthly performance assessment on which the allowance is based (West Java Governor Regulation No. 68/2023). However, when asked how digital government differs from SPBE, informants answered tentatively that "SPBE is more about evidence first" and that digital government means adding innovations (TR-S6), which we interpret as limited conceptual articulation of the vision. Moral and policy support is evident from the encouragement of updating work tools (after the allowance increase in 2020, leaders advised staff to upgrade their phones and laptops; TR-S3) and routine monitoring (TR-S19), but the initial approach was described as punitive through financial control (take-home pay cuts) (TR-S1, S3). Informants associated application-

based performance incentives with consistent system use; however, alternative explanations, including regulatory compliance mandated by the SPBE framework, the incentive design itself, and the availability of technical support, cannot be ruled out, and effectiveness is not inferred from these perceptions alone. Activities that do not match a KPI are recorded as additional tasks (TR-S11). The exemplary leadership as a role model is evident from the digital signature and the use of digital channels by the Governor, but informants reported that the Governor's instructions are often sudden: special gubernatorial instructions, for instance on cross-agency interventions in a district case, are entered into the performance application and converted into take-home pay, but "whether the budget is included or not is another matter" (TR-S14, S19), creating unexpected workloads for civil servants. The same regulation formalizes such special leadership instructions (Instruksi khusus Pimpinan), each adding 1% to the performance score up to a maximum of 20% (Art. 24), and the allowance regulation provides up to 20% of the workload-based allowance for completing them (West Java Governor Regulation No. 10/2022) (Table 7).

Table 7. Main Findings of Digital Leadership

Code	Indicator	Main findings	Evidence
DL-01	Providing a Vision and Direction for Digital Transformation	Strength: cascading vision-mission to measurable targets. Weakness: conceptual articulation (SPBE vs digital governance) is lacking.	TR-S6, S11; DOC-01
DL-02	Offering Moral and Policy Support	Strengths: device upgrade push (2020), monitoring. Weakness: initial punitive approach (financial control).	TR-S1, S3, S19
DL-03	Encouraging the Use of Digital Systems	Strength: KPI achievement determines about 60% of the performance allowance. Weakness: rigid KPIs; non-matching activities become "additional tasks."	TR-S11, S13; DOC-01
DL-04	Role Model in Technology Utilization	Strengths: digital signatures, Governor's channel. Weaknesses: reported sudden instructions, ambiguous budget.	TR-S1, S14, S19; DOC-01, DOC-03

Source: Authors' elaboration based on research data (2026).

Training & Support System (TS)

Continuous training is held annually (e.g., Excel training for BKD staff), and more focused digital development training is provided for Pranata Komputer (Prakom, computer administrator) positions through their supervising institution in the communication and informatics sector, while staff outside Prakom positions are sent to other institutions as needed (TR-S16). In addition, the recruitment of IT human resources has not fully aligned with specialization needs: the only available position is the generic "Pranata Komputer Ahli Pertama", so applicants tended to have front-end rather than the required back-end programming skills (TR-S17). Under a "negative growth" recruitment policy, in which retiring staff are replaced by fewer but more competent recruits (TR-S8), specific digital competence in recruitment becomes more important. Technical assistance through collaboration with external institutions (PPSDM) gives BKD flexibility to choose providers that match its needs (TR-S18). Technical support for core infrastructure is provided by Diskominfo, which owns the servers on which BKD's applications are hosted; every system change is reported to Diskominfo and penetration-tested (TR-S6); under provincial law, the data centre and SPBE infrastructure are managed by the agency responsible for communication and informatics, and SPBE information security by the agency responsible for cryptography (Regional Regulation of West Java No. 4/2021), functions that in West Java are carried out within Diskominfo, whose cryptography and information security division hosts the provincial computer security incident

response team (JabarProv-CSIRT). This division of authority is not in itself a weakness. The limitation identified concerns the capability BKD is expected to have internally, namely detecting threats and disruptions in its own applications, for which the early alarm comes from Diskominfo (TR-S15). The helpdesk/troubleshooting system operates effectively through collaboration with Diskominfo; informants reported no attack that disabled BKD's applications (TR-S15). Digital infrastructure and facilities, such as storage capacity and servers, are continuously adjusted in collaboration with Diskominfo, but capacity limitations necessitate periodic manual data deletion (TR-S7), and several critical processes (finance, discipline) remain outside the scope of digital infrastructure (Table 8).

Table 8. Main Findings of Training & Support System

Code	Indicator	Main findings	Evidence
TS-01	Continuous training	Strengths: annual training (Excel); focus on Prakom. Weaknesses: ad hoc for non-Prakom staff; recruitment less specific.	TR-S16, S17
TS-02	Technical assistance	Strength: freedom to choose external institutions. Weakness: core infrastructure support rests with Diskominfo as server owner; limited internal capability at BKD.	TR-S6, S18; DOC-04
TS-03	Helpdesk/ troubleshooting system	Strength: effective collaboration with Diskominfo; no disabling attack reported. Weakness: initial detection mostly from external sources.	TR-S6, S15; DOC-04
TS-04	Adequate digital infrastructure and facilities	Strength: capacity adjustment with Diskominfo. Weakness: manual data deletion; critical processes not yet digital.	TR-S7, S8; DOC-04

Source: Authors' elaboration based on research data (2026).

Interaction Patterns across the Four Capability Dimensions (RQ2)

Applying the decision rules in Table 4, this subsection examines how the indicators described in the previous subsection (Configurational Conditions) co-occur with each dimension of civil servants' digital capability. Table 9 summarizes the indicators that were coded together with each dimension in the transcript segments; this thematic mapping does not by itself establish causal configurations. Table 10 then displays the observed levels of conditions and outcomes for BKD across the four dimensions, which is the evidence base for the interpretations that follow.

Table 9. Thematic Mapping of Indicators Co-occurring with Each Dimension of Civil Servants' Digital Capability

Dimension of civil servants' digital capability	Brief description	Co-occurring input indicators (theme code)
System operation	The ability of civil servants to operate applications and digital systems independently and consistently in the execution of daily tasks.	DC-01, DL-01, DL-02, TS-01, TS-04
Technology integration	The extent to which digital technology is integrated into the workflow and practices of civil servants, replacing conventional work patterns.	DM-02, DL-03, TS-03
Adaptability to system change	The readiness and speed of civil servants in responding, learning, and adapting to changes or innovations in digital systems.	DC-03, DC-04, DM-01, DL-04
Data-based output quality	The extent to which the utilization of technology produces work outputs that are accurate, secure, and efficient based on data.	DC-02, DM-03, TS-02

Source: Authors' elaboration based on research data (2026).

Table 10. Condition × Outcome Matrix (Observed Levels)

Capability dimension	Supporting conditions (level)	Constraining conditions	Capability level	Main evidence	Contrast / negative evidence
System operation	DC-01 strong; DL-02 strong (KPI ≈ 60% of allowance); DL-01 partial (cascading KPIs, strategic vision not articulated); TS-01 strong for Prakom, ad hoc for others	TS-04 storage limits requiring deletion of old data	High: all reporting and correspondence through applications	TR-S1, S2, S7, S11, S16; DOC-01, DOC-05–07	Teachers rely on school staff to operate applications (S3)
Technology integration	DM-02 enforced use, later habit; DL-03 KPI targets; TS-03 joint helpdesk with Diskominfo	Finance data and disciplinary examinations outside the digital flow	Partial: end-to-end in Seribah sign-off and data flow to BKN; manual in finance and disciplinary examinations	TR-S2, S4, S8, S10, S11	BAP requires physical presence (S8); finance manual (S2)
Adaptability to system change	DC-04 established since 2018; DM-01 quarterly innovation reporting; DL-04 leader monitoring and support (partial)	DC-03 initiation from Diskominfo; slower adaptation of older civil servants	Partial	TR-S7, S13, S15, S19 (interpreted pattern)	Initial teacher protest against photo uploads (S3)
Data-based output quality	DC-02 institutional controls (SSO, MFA, penetration tests); DM-03 use described as a habit, initially extrinsic; TS-02 Diskominfo support	User-side data handling; inter-agency reconciliation via messaging groups	Partial	TR-S6, S14, S15; DOC-04	Exported-file data exposure (S15); salary repayments after late updates (S14)

Source: Authors' analysis of interview transcript segments (S1–S20) and documents (2026).

First, system operation co-occurs with proficiency in SPBE systems and applications (DC-01), continuous training (TS-01), vision and direction of digital transformation (DL-01), policy support (DL-02), and adequate digital infrastructure and facilities (TS-04).

These five indicators are interconnected: DC-01, serving as the technical foundation, does not stand alone. While TS-01 ensures that competencies remain relevant through periodic updates, gaps arise because in-depth training is directed exclusively toward computer administrators (Prakom). TS-04 provides the necessary infrastructure, such as servers and networks, for operations; however, limited storage capacity and reliance on manual processes in critical areas constrain its reach. DL-01 provides direction through KPIs cascaded across organizational levels, yet its strategic vision remains unclear. DL-02 promotes compliance through financial incentives, but this coercive approach risks fostering only superficial compliance.

Based on the available evidence, consistent system operation occurs when these conditions are met simultaneously. Informants attribute disruptions to infrastructure limitations, even when user competence is adequate, explaining the need to delete old photos and data to prevent storage from filling up, as well as the need to clear the server of accumulated files that slow access (TR-S7, S15). We interpret this as an interaction pattern; however, the data do not establish that each condition is necessary, because no group was observed in which one of these conditions was entirely absent.

Informants' accounts also point to a within-case contrast that is not tested as a separate unit: Prakom/IT staff receive focused training (TS-01; TR-S16), whereas administrative staff receive mainly ad hoc training, yet informants attributed consistent system use across the agency to pay-linked KPI enforcement (DL-02, DL-03; TR-S1, S11). The idea that strong policy enforcement (DL-02) compensates for a weak strategic vision (DL-01) was not directly observed and is reported as Proposition 1 (Table 11).

Second, the integration of technology in task completion co-occurs with willingness to move away from conventional work patterns (DM-02), encouragement to use digital systems through KPIs (DL-03), and a responsive helpdesk/troubleshooting mechanism (TS-03).

DM-02, as psychological readiness, appears insufficient without structural encouragement. DL-03 links readiness to practice through binding KPI targets, but a rigid KPI system risks reducing contextual contributions to "additional tasks." TS-03 is associated with continuity of digital work during technical constraints; informants reported that the applications had never been fully disabled and that disruptions, such as a server slowed by accumulated files, were resolved jointly with Diskominfo (TR-S15); however, early detection of issues mostly comes from Diskominfo, indicating that BKD's internal detection capacity is still limited.

This pattern suggests an interaction: technology integration appears to be more than individual volition (DM-02); it reflects synergy between policy-driven initiatives, articulated through clear KPI targets (DL-03), and responsive technical support (TS-03). Integration is visible in end-to-end workflows: in Seribah, drafts are uploaded, monitored, and signed digitally by leaders as "one digital product" (TR-S2), and performance data flow to each position and on to BKN (TR-S4). Informants recalled that its use only became widespread after it was mandated through attendance and allowance policies (TR-S1, S3). Financial and disciplinary manual processes stand in contrast: integration remained partial in areas requiring physical presence, such as disciplinary reviews (TR-S8), or where data existed outside the digital infrastructure, as with finance (TR-S2).

This case did not show whether strong DM-02 and TS-03 could substitute for weaker KPI pressure among technically proficient staff, or whether peer support could replace formal KPI systems; these possibilities are stated as Proposition 2 (Table 11).

Third, adaptability to system changes co-occurs with technology-based problem solving (DC-03), the ability to learn new technologies (DC-04), openness to innovation (DM-01), and the exemplary behavior of leaders as role models (DL-04).

DM-01 fosters an attitude of accepting change, but without DL-04 as a role model, civil servants may be hesitant to take risks. DC-04 ensures the learning capacity to keep up with change, but the reported age gap and resistance from certain groups indicate that homogeneity remains low. DC-03 provides technical capabilities to respond to emerging issues, but since the initiation still comes from external sources, adaptability is not yet fully proactive.

Adaptability appears to result not merely from individual openness (DM-01), but from the joint presence of leaders' monitoring and support (DL-04), continuous learning capacity (DC-04), and technical problem-solving ability (DC-03). This reflects an interpreted interaction pattern: supporting accounts include quarterly innovation reporting and weekly innovation prompts (TR-S13), leaders' active monitoring and support (TR-S19), and system adjustments initiated by Diskominfo (TR-S7, S15).

Fourth, the quality and efficiency of data-based output co-occur with data literacy and information security (DC-02), a positive perception of technology as an enabler (DM-03), and technical assistance (TS-02).

DC-02 supports the data integrity underlying the output, yet it remains vulnerable to human error. DM-03 encourages optimal utilization by fostering a positive perception; however, because the initial motivation is extrinsic and driven by fear of sanctions, such utilization risks becoming a mere formality. TS-02 ensures that technical obstacles can be addressed promptly; yet, reliance on Diskominfo for core support limits BKD's autonomy in sustaining the outcomes achieved.

This is likewise interpreted as an interaction pattern. The quality and efficiency of data-driven work outcomes appear to be more than just the product of a sound system; rather, they result from a synergy between individual security awareness (DC-02), a positive functional perception of technology (DM-03), and the availability of responsive technical support (TS-02). The data-exposure incident is a negative case: strong institutional security policies did not prevent a user-side error, showing that institutional provisions did not compensate for individual practice.

An additional inductive code, one not anticipated by the framework, also emerged: the accuracy of work outcomes depends on inter-agency coordination. Data updates on transfers, retirements, or deaths require coordination with the performance team, the transfer/assignment team, and the Regional Financial Management Agency (BPKD) before the payroll processing deadline. Reconciliation occurs via messaging groups rather than formal meetings, and delayed updates require recovering salary payments already disbursed (TR-S14). This condition falls outside the categories of DC, DM, DL, and TS, and serves as evidence that challenges the notion of a purely intra-organizational configuration.

This study did not observe the possibility that strong DC-02 and TS-02 could compensate for weak DM-03 among technically trained staff, or that automated systems and peer knowledge-sharing could replace formal assistance; these possibilities are formulated as Propositions 3 and 4 (Table 11).

Table 11. Propositions for Future Research (Not Tested in This Study)

No	Proposition
P1	Where strategic vision (DL-01) is weak, strong policy enforcement (DL-02) partially compensates in sustaining system operation, but not in fostering adaptability.
P2	Among technically proficient staff, strong willingness to leave conventional patterns (DM-02) and responsive helpdesk support (TS-03) reduce the need for KPI pressure (DL-03) in integrating technology.
P3	Among technically trained staff, strong data literacy (DC-02) and technical assistance (TS-02) sustain output quality despite a weak positive perception of technology (DM-03).
P4	Where formal assistance (TS-02) is limited, automated controls or peer knowledge-sharing provide an alternative path to output quality.
P5	Technical staff reach consistent system operation mainly through application mastery and continuous training (DC-01, TS-01), whereas administrative staff reach it mainly through policy enforcement and performance targets (DL-02, DL-03); this possible equifinal pattern can be tested by sampling occupational groups separately.

Source: Authors' elaboration (2026).

Overall, the findings align with a configurational reading of civil servants' digital capability: in this case, capability was observed when several conditions co-occurred rather than as the simple sum of separate factors. The claims, however, are bounded. The four capability dimensions are distinct outcomes, so the fact that each is associated with different indicators does not itself demonstrate equifinality; because the analysis is conducted at the organizational level, equifinality is not claimed, and the possibility that different staff groups reach the same outcome through different combinations is stated as a proposition (Table 11). Regarding causal asymmetry, the evidence is limited: the conditions associated with the weakest capability reported (delegation of application use by teachers) are not

simply the inverse of those associated with high capability, but because these accounts are secondary, asymmetry is treated as a tentative observation. The observation that strength in one indicator does not compensate for weakness in another is referred to as non-compensation, rather than as causal asymmetry. If these criteria are not met, such patterns are reported as interpreted interaction patterns.

Discussion

These results validate earlier studies and add nuance. They highlight that digital competence is an essential basis (Nawawi et al., 2026; Pundissing et al., 2025), while also showing that its effect on capability depends on access to training and infrastructure. This sheds light on why organizational digitalization, which informants estimate covers around 38 of 46 functions, does not automatically produce consistent individual capabilities. The study further confirms the significance of digital leadership in promoting adoption (Ariawan et al., 2025; Zuhriyati et al., 2025), yet it also indicates that, in this context, leadership is implemented mainly through performance indicators and financial controls rather than relying on an inspirational vision alone. In contrast to survey-based studies that treat leadership as a moderating variable (Aldhi et al., 2025), the comparisons here suggest that leadership may have its strongest influence on groups with limited access to training, a trend that merits further research.

Informants' accounts of the shift from mandatory use to habit formation (TR-S10) align with the view that a digital mindset can develop through repeated practice (Solberg et al., 2020). However, the available data are not sufficient to conclude whether these habits represent internalized values or simply reflect compliance driven by routine. The role of change leaders, continuous learning, and individual competence development in adaptability is consistent with studies of agile local government (Sari et al., 2023), and the uneven access to training across positions mirrors the unequal resources and limited technological capacity reported for civil-service reform more broadly (Diana et al., 2026). Finally, the persistence of manual financial and disciplinary processes and the emergent importance of inter-agency data reconciliation (TR-S8, S14) are consistent with institutional accounts of digital government (Gil-Garcia et al., 2018; Mergel et al., 2019), in which routines, legal requirements, and cross-agency interdependence limit what individual capability can achieve.

The first question is why capabilities remain uneven across various dimensions in a province that ranks first in the SPBE evaluation. Part of the answer lies in what the index measures. The SPBE evaluation assesses internal policies, governance, management, and services at the institutional level (Bahagia et al., 2025); consequently, a high score may coexist with only partial integration and inconsistent practices at the unit level. Studies of other Indonesian governments report a similar gap between the expansion of applications and the readiness of the people and units that operate them (Santosa et al., 2024; Yusuf & Imawan, 2025). In this case, a gap emerges when certain tasks require legal or physical requirements that the existing system was not designed to handle, such as disciplinary reviews that must be conducted in person or financial data stored outside the digital workflow (TR-S2, S8). System operation capability was therefore high, while technology integration and data-based output remained partial (Table 10). This supports treating civil servants' capability as an outcome distinct from institutional maturity rather than inferring one from the other.

A second related question is why leadership relied primarily on performance indicators and allowance regulations, rather than on an inspiring vision. The provincial regulations offer one explanation: work results account for 60% of the monthly performance assessment on which the allowance is based, and special leadership instructions are rewarded through the same scheme (West Java Governor

Regulation No. 10/2022; No. 68/2023). Leaders in this setting therefore had a ready-made instrument for converting digital targets into individual incentives. This differs from accounts that locate digital leadership mainly in vision and role modelling (Kane, 2019; Özkan Alakaş, 2024; Westerman et al., 2014) and from studies of regional agencies that emphasize leaders' commitment and willingness to take risks (Rahman et al., 2022). The difference does not so much contradict those accounts as show that, where formal performance systems are strong, the managerial side of digital leadership can be exercised largely through them: role modeling (DL-04) was reported only partially, and the articulation of a strategic vision (DL-01) remained weak (Table 7). It remains an open question whether this leadership style preserves capability once enforcement becomes routine, or whether capability suffers when sudden directives compete with planned objectives (TR-S14).

Third, this case qualifies Tangi et al.'s (2021) finding that resistance to change does not obstruct digital government transformation. The same pattern also appears at the organizational level: once the system was connected to attendance policies and benefits (TR-S1, S3), its use became widespread. However, resistance did not simply vanish. Teachers protested the photo-based attendance system, more senior staff reportedly adjusted more slowly, and teachers' dependence on school administrative staff led to some of the digital work being transferred to those staff members (TR-S3; Table 10). Accordingly, resistance did not prevent adoption; instead, it reallocated the digital workload within the organization. Survey studies that assess the average effect across all respondents (Table 2) are unlikely to identify this kind of redistribution, which becomes visible only when capabilities are evaluated task by task.

Fourth, the data exposure incident highlights the limitations of institutional-level security measures. Competency frameworks view the secure handling of data and information as an integral component of an individual's digital competence (Eshet-Alkalai, 2004; Vuorikari et al., 2022), whereas security at BKD relies primarily on institutional controls, such as single sign-on (SSO) systems, multi-factor authentication, and periodic penetration testing (TR-S6). Because the incident originated from a file exported by an employee rather than from a system breach (TR-S15), strong institutional controls did not compensate for weak individual practice. This is consistent with the non-compensation pattern reported in the Results and suggests that, for data-based output, institutional and individual conditions function as complements rather than substitutes.

Finally, several conditions that the framework placed inside the organization were, in practice, provided by another agency. Diskominfo usually detected problems first, as it owns the servers on which BKD's applications run, and data accuracy depended on reconciliation with the regional finance agency (BPKD) (TR-S6, S14, S15). Reviews of digitally induced change in the public sector likewise stress that change depends on organizational and inter-organizational arrangements rather than on individual skills alone (Haug et al., 2024; Wilson & Mergel, 2022). The case therefore extends variable-centered models that treat capability determinants as attributes of individuals within a single agency (Aldhi et al., 2025; Nawawi et al., 2026), a point developed in the theoretical implications below.

Theoretical and Practical Implications

The configurational analysis presented above yields several tentative contributions to the literature on digital government, public sector human resource management, and organizational capability theory, which should be read in light of the single-case design.

First, the study shows that the microfoundations of dynamic capabilities are distributed across agencies. Teece's (2007, 2018b) framework emphasizes sensing, seizing, and reconfiguring competencies

to respond to rapidly changing environments. Although this perspective is influential, its application in the public sector, particularly in the bureaucracy of developing countries, has not yet been extensively studied. Kattel and Mazzucato (2018) argue that public-sector dynamic capabilities rely on routines and capacities that extend beyond a single organization, a perspective that aligns with this case. Seen through this lens, the "sensing" process at BKD is predominantly external, because issues are mainly identified by Diskominfo; the "seizing" process is carried out primarily by leadership, which converts digital objectives into KPIs and incentives; and the "reconfiguring" process is implemented through training and adjustments to the infrastructure. The findings therefore suggest that individual DC and DM do not automatically translate into organizational capabilities; in this case, DL and TS mediated their actualization. Beyond the recognized importance of organizational support, this case demonstrates that these functions do not reside within a single organization: the "sensing" function is carried out by the agency mandated to handle information security (Regional Regulation of West Java No. 4/2021); the "seizing" function is executed through provincial-level performance management regulations (West Java Governor Regulation No. 68/2023); and the accuracy of work outcomes depends on coordination with the regional finance agency (TR-S14). Therefore, any study of dynamic capabilities within public organizations must view inter-institutional arrangements as part of the "microfoundations" of civil servants' digital capability. The implication is that capacity-building initiatives that focus solely on individual training (DC/TS-01) without simultaneous attention to leadership alignment (DL) and institutional infrastructure (TS-04) are unlikely to produce sustainable transformation.

Second, a proposition on equifinality in the public sector. Although Fiss (2011a) and others have demonstrated equifinality in organizational studies and the private sector, applications in public administration, particularly at the level of occupational groups of civil servants, are still rarely found. This study does not claim equifinality, because its unit of analysis is the organization. However, informants' accounts suggest that technical staff (Prakom) may reach consistent system operation mainly through application mastery (DC-01) and continuous training (TS-01), while administrative staff may do so mainly through policy enforcement and performance targets (DL-02, DL-03). This proposition (P5, Table 11) challenges the assumption that standardized digital policies, such as uniform SPBE implementation guidelines, will necessarily yield uniform outcomes. It suggests that contextual differentiation may be crucial for effective policy design, a notion future studies could test by sampling distinct occupational groups separately.

Third, the study refines the concept of digital leadership in the context of bureaucracy. Existing literature on digital leadership emphasizes visionary inspiration and exemplary behavior (Kane, 2019; Özkan Alakaş, 2024; Westerman et al., 2014). This study aligns with these functions but adds a nuance: in contexts characterized by low initial motivation and compliance driven by external factors, a directive, or even coercive, leadership approach can catalyze initial adoption. Informants linked financial incentives tied to KPI fulfillment to the initial stages of adoption, even though such incentives have limitations in fostering intrinsic motivation. Retrospective accounts from informants describing a transition from compulsion during the 2018–2019 period toward habitual use (TR-S1, S10) suggest a phased strategy in which rule enforcement precedes the development of intrinsic motivation. Because this study uses a cross-sectional design and relies on the recollections of a specific group, this sequence is presented as a proposition rather than an empirically proven process. Furthermore, relying on financial pressure carries consequences: it may erode intrinsic motivation and place a heavier burden on groups with limited access to training, such as teachers and the school administrative staff who support them (TR-S3), raising questions about inclusion.

Fourth, applying a configurational lens to qualitative thematic analysis. The alignment of thematic codes across dimensions (DC-01 through TS-04), guided by explicit decision rules (Table 4) and a condition × outcome display (Table 10), demonstrates how configurational thinking can structure qualitative case analysis. This is not presented as an alternative to fsQCA, which is itself a case-oriented, set-theoretic method with qualitative foundations (Greckhamer et al., 2018; Ragin, 2000). Its contribution is more modest: it makes the move from narrative evidence to interpreted combinations auditable and produces propositions (Table 11) that can later be tested with set-theoretic methods.

Fifth, contextualizing the digital capabilities of civil servants within institutional theory. The findings suggest that individual capabilities are embedded in and shaped by broader institutional arrangements, including regulatory frameworks (SPBE mandate), resource availability (infrastructure, budget), and organizational culture (hierarchical authority, risk aversion). The manual processes that still persist (e.g., financial management, disciplinary action reports) reveal the limits of digitization, highlighting that institutional inertia restricts even individuals with high capabilities. This aligns with the institutionalist perspective, which emphasizes path dependence and the rigidity of established routines (Gil-Garcia et al., 2018; Mergel et al., 2019). For theory, this implies that efforts to enhance individual digital capabilities must be accompanied by structural reforms that enable those capabilities to be actualized.

For practice, the evidence supports five priorities. First, BKD should extend structured digital training beyond Prakom positions to administrative and other staff, because uneven training access was associated with weaker capability (Table 10). Second, BKD needs to strengthen practices for securing individual data through periodic training on handling exported data, given that incidents have previously occurred on the user side despite strict institutional controls (TR-S15). Third, BKD and Diskominfo need to agree on internal monitoring procedures that allow BKD to detect disruptions in its own applications, while still respecting Diskominfo's role as the server owner (TR-S6). Fourth, BKD and BPKD could replace their current reconciliation through messaging groups with a scheduled and documented data reconciliation process; this step would help prevent the need to recover salary payments already disbursed because of delays in status updates (TR-S14). Fifth, formation requests for computer administrator (Prakom) positions should specify the required areas of expertise, such as back-end programming (TR-S17). Another option worth considering, though its impact has yet to be tested, is to review the KPI cascading scheme to better recognize context-specific innovations and reduce reliance on financial sanctions.

5. Conclusion

This study aims to explain how digital competence, digital mindset, digital leadership, and training and support systems integrate into the work practices of civil servants at the Regional Civil Service Agency (BKD) of West Java Province, and how this integration relates to their digital capabilities. Regarding RQ1, digital competence is well established at the institutional level but unevenly distributed among individuals; the digital mindset moved, by informants' account, from use enforced through the performance allowance to habitual use; digital leadership provides cascaded KPI targets that determine about 60% of the allowance but relies on financial controls and sudden instructions; and training and support are strong for Prakom staff but ad hoc for others, with threat detection depending on Diskominfo. Regarding RQ2, stronger capability in each of the four dimensions was observed where several of these conditions co-occurred; data-based output also depended on inter-agency data reconciliation, a condition outside the framework; and informants' accounts suggest, as a proposition rather than a finding, that technical and administrative staff may reach consistent system operation through different combinations; this and the propositions on compensation require testing in comparative and longitudinal

designs. The main contribution is to show that civil servants' digital capability, defined separately from its conditions, is uneven across dimensions even in a high-maturity SPBE agency and rests on dynamic-capability functions distributed across agencies; these inferences are limited to a single case and to the evidence displayed.

This research has several limitations. First, as a single case study at BKD of West Java Province, with Diskominfo as a supporting source, in a province that has the highest SPBE index nationally, the findings cannot be statistically generalized and are highly contextual; analytical transferability depends on the contextual description provided in the Research Design and Results sections. Second, reliance on self-reported interview data may introduce social desirability bias, even with source and method triangulation. Third, the research is cross-sectional, so temporal sequences, such as the reported move from enforced to habitual use, rely on retrospective accounts. Fourth, the configurational interpretation was conducted without formal calibration or Boolean minimization, so patterns resembling conjunction are reported as interpreted interaction patterns and equifinality is not claimed. Fifth, the interview evidence comes from two group interviews, one with BKD and one with Diskominfo officials, compiled into one transcript in which speakers were not individually identified, and some segments were not transcribed, so statements cannot always be attributed to a specific agency or position; the informant composition may over-represent managerial and technical perspectives, because Diskominfo participants outnumbered BKD participants (seven to five), which may have amplified infrastructure and security perspectives; and the perspectives of teachers and school administrative staff are secondary. Variation in individual-level outcomes was therefore not tested.

Practically, BKD is advised to extend structured digital training to all positions, strengthen user-level data-security practice, agree with Diskominfo on internal monitoring of its own applications, and formalize data reconciliation with BPKD. Future research should test the propositions in Table 11 across agencies and provinces with different SPBE maturity, using set-theoretic (fsQCA) or mixed-method designs, examine groups that resist digitalization, such as teachers, directly, and adopt longitudinal designs to trace how capability changes over time.

6. References

Adriansyah, F. (2025). Strategi Penguatan Kompetensi Kepemimpinan Digital Guna Akselerasi Kinerja Organisasi. *Jurnal Transformasi Administrasi*, *15*(02), 178–189. https://doi.org/10.56196/jta.v15i02.528

Aldhi, I. F., Suhariadi, F., Rahmawati, E., Supriharyanti, E., Hardaningtyas, D., Sugiarti, R., & Abbas, A. (2025). Bridging Digital Gaps in Smart City Governance: The Mediating Role of Managerial Digital Readiness and the Moderating Role of Digital Leadership. *Smart Cities*, *8*(4), 117. https://doi.org/10.3390/smartcities8040117

Anggraeni, R. D., & Wachidah, K. (2025). Digital Literacy Practices of Elementary School Teachers. *Indonesian Journal of Education Methods Development*, *20*(2). https://doi.org/10.21070/ijemd.v20i2.985

Ariawan, Soemartono, T., Effendy, K., & Sukmana, P. (2025). Digital Leadership and Innovation in Indonesia's Public Administration: Insights from the Govtech INA Digital Reform. *International Journal of Social Science and Religion (IJSSR)*, 305–320. https://doi.org/10.53639/ijssr.v6i2.372

Bahagia, S. I., Amirulloh, M. R., & Mulyadi, A. (2025). Evaluating The Implementation Of An Electronic-Based Government System: A Lesson From Sukabumi District. *Publisia: Jurnal Ilmu Administrasi Publik*, *10*(1), 10–22. https://doi.org/10.26905/pjiap.v10i1.13824

Basuki, B., Mutiarin, D., Fauzie, N. D., & Sabarofek, L. A. (2026). Digital Transformation In Governance: Implications For Public Policy Effectiveness. *Publisia: Jurnal Ilmu Administrasi Publik*, *11*(1), 187–199. https://doi.org/10.26905/pjiap.v11i1.16231

Birt, L., Scott, S., Cavers, D., Campbell, C., & Walter, F. (2016). Member Checking: A Tool To Enhance Trustworthiness Or Merely A Nod To Validation? *Qualitative Health Research*, *26*(13), 1802–1811. https://doi.org/10.1177/1049732316654870

Braun, V., & Clarke, V. (2019). Reflecting On Reflexive Thematic Analysis. *Qualitative Research in Sport, Exercise and Health*, *11*(4), 589–597. https://doi.org/10.1080/2159676X.2019.1628806

Creswell, J. W., & Poth, C. N. (2018). Qualitative Inquiry And Research Design: Choosing Among Five Approaches. SAGE Publications.

Diana, D., Suhardiman, S., & Boonsayan, R. (2026). Strengthening Bureaucratic Integrity Through State Civil Apparatus Professionalism And Ethics. *Publisia: Jurnal Ilmu Administrasi Publik*, *11*(1), 147–164. https://doi.org/10.26905/pjiap.v11i1.16503

Dweck, C. S. (2016). *Mindset: The new psychology of success* (Updated ed.). Ballantine Books.

Eshet-Alkalai, Y. (2004). Digital Literacy: A Conceptual Framework For Survival Skills In The Digital Era. *Journal of Educational Multimedia and Hypermedia*, *13*(1), 93–106.

Eshet-Alkalai, Y. (2024). Digital Literacy: A Conceptual Framework for Survival Skills in the Digital Era. *Journal of Educational Multimedia and Hypermedia*.

Firdaos, A., Lubis, Y., & Siregar, R. T. (2025). Unpacking The Pathway from Digital Competency To Employee Performance: The Mediating Role Of Employee Engagement In The Public Tax Sector. *Proceeding of the International Conference on Management, Entrepreneurship, and Business*, *2*(2), 434–443. https://doi.org/10.61132/icmeb.v2i2.287

Fiss, P. C. (2011a). Building Better Causal Theories: A Fuzzy Set Approach to Typologies in Organization Research. *Academy of Management Journal*, *54*(2), 393–420. https://doi.org/10.5465/amj.2011.60263120

Fiss, P. C. (2011b). Building Better Causal Theories: A Fuzzy Set Approach to Typologies in Organization Research. *Academy of Management Journal*, *54*(2), 393–420. https://doi.org/10.5465/amj.2011.60263120

Flyvbjerg, B. (2006). Five Misunderstandings About Case-Study Research. *Qualitative Inquiry*, *12*(2), 219–245. https://doi.org/10.1177/1077800405284363

Furnari, S., Crilly, D., Misangyi, V. F., Greckhamer, T., Fiss, P. C., & Aguilera, R. V. (2021). Capturing Causal Complexity: Heuristics For Configurational Theorizing. *Academy of Management Review*, *46*(4), 778–799. https://doi.org/10.5465/amr.2019.0298

Fusch, P., & Ness, L. (2015). Are We There Yet? Data Saturation in Qualitative Research. *The Qualitative Report*. https://doi.org/10.46743/2160-3715/2015.2281

Gil-Garcia, J. R., Dawes, S. S., & Pardo, T. A. (2018). Digital Government And Public Management Research: Finding The Crossroads. *Public Management Review*, *20*(5), 633–646. https://doi.org/10.1080/14719037.2017.1327181

Greckhamer, T., Furnari, S., Fiss, P. C., & Aguilera, R. V. (2018). Studying Configurations With Qualitative Comparative Analysis: Best Practices In Strategy And Organization Research. *Strategic Organization*, *16*(4), 482–495. https://doi.org/10.1177/1476127018786487

Guest, G., Namey, E., & Chen, M. (2020). A Simple Method To Assess And Report Thematic Saturation In Qualitative Research. *PLOS ONE*, *15*(5), e0232076. https://doi.org/10.1371/journal.pone.0232076

Haug, N., Dan, S., & Mergel, I. (2024). Digitally-Induced Change In The Public Sector: A Systematic Review And Research Agenda. *Public Management Review*, *26*(7), 1963–1987. https://doi.org/10.1080/14719037.2023.2234917

Herwanto, T. S., Rohmansyah, H., Daga, A. K., & Roflebabin, B. G. (2024). Kompetensi Aparatur Sipil Negara Di Era Digital: Sebuah Kerangka Konseptual. *Kebijakan: Jurnal Ilmu Administrasi*, *15*(2), 201–209. https://doi.org/10.23969/kebijakan.v15i02.6582

Izzati, B. A., Zulfa, D. H., Anggraeni, I., Nisa, S. K., & Sylvanita, T. C. (2026). Analisis Tingkat Pemahaman Literasi Digital Perpajakan: Pelatihan Coretax Bagi Aparatur Sipil Negara (ASN). *Manajemen: Jurnal Ekonomi*, *8*(1), 67–78. https://doi.org/10.36985/pntycw10

Kane, G. (2019). The Technology Fallacy. *Research-Technology Management*, *62*(6), 44–49. https://doi.org/10.1080/08956308.2019.1661079

Kattel, R., & Mazzucato, M. (2018). Mission-Oriented Innovation Policy And Dynamic Capabilities In The Public Sector. *Industrial and Corporate Change*, *27*(5), 787–801. https://doi.org/10.1093/icc/dty032

Khoeroni, R., Suryadi, S., & Gunawan, A. (2023). Implementation of Digital Leadership in Development Digital Competence in Public Services. *The Management Journal of Binaniaga*, *7*(2). https://doi.org/10.33062/mjb.v7i2.6

Lincoln, Y. S., & Guba, E. G. (1985). *Naturalistic inquiry*. SAGE Publications.

Malterud, K., Siersma, V. D., & Guassora, A. D. (2016). Sample Size in Qualitative Interview Studies: Guided by Information Power. *Qualitative Health Research*, *26*(13), 1753–1760. https://doi.org/10.1177/1049732315617444

Meiyenti, I., Bulan, N. S., Athahirah, A. U., Nangameka, T. I., & Rahmah, M. (2026). How Bandung Succeeds: Multi-Perspective Study of Determinants of Digital Transformation Success in Public Administration. *Jurnal Borneo Administrator*, *22*(1), 1–16. https://doi.org/10.24258/jba.v22i1.1738

Mergel, I., Edelmann, N., & Haug, N. (2019). Defining Digital Transformation: Results From Expert Interviews. *Government Information Quarterly*, *36*(4), 101385. https://doi.org/10.1016/j.giq.2019.06.002

Miles, M. B. , Huberman, A. M. , & Saldaña, J. (2014). *Qualitative Data Analysis: A methods sourcebook*. SAGE Publications.

Misangyi, V. F., Greckhamer, T., Furnari, S., Fiss, P. C., Crilly, D., & Aguilera, R. (2017). Embracing Causal Complexity. *Journal of Management*, *43*(1), 255–282. https://doi.org/10.1177/0149206316679252

Natasha, N., AC, A., & Anggoro, Y. A. R. (2025). Strengthening Digital Competence, Digital Leadership, and Employee Resilience in Improving Human Resource Performance in the Digital Era of Public Services. *Golden Ratio of Human Resource Management*, *5*(2), 326–341. https://doi.org/10.52970/grhrm.v5i2.1219

Nawawi, S., Ingsih, K., Riyanto, F., Sari, R. A. A. R. P., & Sartika, M. (2026). Does Digital Competence Improve Employee Performance? The Role of Smart Digital Services Mediation in the Public Sector. *Jurnal Penelitian Ekonomi Dan Bisnis*, *11*(1), 77–89. https://doi.org/10.33633/jpeb.v11i1.15497

Nowell, L. S., Norris, J. M., White, D. E., & Moules, N. J. (2017). Thematic Analysis: Striving To Meet The Trustworthiness Criteria. *International Journal of Qualitative Methods*, *16*(1). https://doi.org/10.1177/1609406917733847

OECD. (2020). OECD Digital Government Policy Framework: Six Dimensions of a Digital Government.

OECD Regional Outlook 2021. (2021). OECD Publishing. https://doi.org/10.1787/17017efe-en

Özkan Alakaş, E. (2024). Digital transformational leadership and organizational agility in digital transformation: Structural equation modelling of the moderating effects of digital culture and digital strategy. *The Journal of High Technology Management Research*, *35*(2), 100517. https://doi.org/10.1016/j.hitech.2024.100517

Presidential Regulation of the Republic of Indonesia No. 95 of 2018 on the Electronic-Based Government System (2018).

Province, B.-S. of J. B. (2025). *Provinsi Jawa Barat dalam angka 2025*. BPS Provinsi Jawa Barat.

Pundissing, R., Tangdialla, R., & Matasik, A. L. (2025). The Impact of Digital Competence and Innovative Organizational Culture on Innovative Performance in Indonesian Public Sector. *Jurnal Ilmiah Manajemen Kesatuan*, *13*(6), 5243–5254. https://doi.org/10.37641/jimkes.v13i6.4281

Ragin, C. C. (2000). *Fuzzy-Set Social Science*. https://press.uchicago.edu/ucp/books/book/chicago/F/bo3635786.html.

Rahayu, N., Nugroho, A., Yusuf, R., & Widowati, Y. (2024). Improving the Local Government Performance: The Role of Digital Innovation and Digital Leadership. *Proceedings of the 5th International Conference on Administration Science, ICAS 2023, 29 November 2023, Bandung, West Java, Indonesia*. https://doi.org/10.4108/eai.29-11-2023.2347781

Rahman, F., Sobari, W., & Pohan, I. A. (2022). Efforts Of Leaders In Regional Apparatus Organizations (OPD) To Cultivate Innovation In Public Services. *Publisia: Jurnal Ilmu Administrasi Publik*, *7*(2), 250–268. https://doi.org/10.26905/pjiap.v7i2.8447

Regional Regulation of West Java Province No. 4 of 2021 on the Administration of Communication and Informatics, Statistics, and Cryptography (2021). https://peraturan.bpk.go.id/Download/164182/2021pd00320004.pdf

Roman, A. V., Van Wart, M., Wang, X., Liu, C., Kim, S., & McCarthy, A. (2019). Defining E leadership as Competence in ICT Mediated Communications: An Exploratory Assessment. *Public Administration Review*, *79*(6), 853–866. https://doi.org/10.1111/puar.12980

Samsuri, E. R., Ujianto, & Ratih, I. A. B. (2025). The Influence Of Organizational Transparency, Accountability, Responsibility, Independence, And Fairness On Organizational Performance, Mediated By Organizational Commitment And Digital Leadership Within The Barito Selatan Regency Government Environment. *Lex Localis - Journal of Local Self-Government*, *23*(S6), 9606–9618. https://doi.org/10.52152/jwrens34

Santosa, M. R. N., Husein, R., Nurmandi, A., & Fridayani, H. D. (2024). Application Of The Smart Government Concept In Indonesia. *Publisia: Jurnal Ilmu Administrasi Publik*, *9*(2), 181–193. https://doi.org/10.26905/pjiap.v9i2.13249

Sari, M., Alfitri, A., Nadjib, A., & Fefta, A. (2023). Identification Of Important Actions For Musi Rawas Utara Regency To Become An Agile Government. *Publisia: Jurnal Ilmu Administrasi Publik*, *8*(1), 91–101. https://doi.org/10.26905/pjiap.v8i1.8697

Sarjito, A., & Pantja Djati, S. (2025). Implikasi Kompetensi Digital Aparatur Sipil Negara Milenial terhadap Reformasi Birokrasi Digital di Era Transformasi Pemerintahan. *Jurnal Administrasi Publik*, *21*(1), 87–109. https://doi.org/10.52316/jap.v21i1.610

Seawright, J., & Gerring, J. (2008). Case Selection Techniques In Case Study Research: A Menu Of Qualitative And Quantitative Options. *Political Research Quarterly*, *61*(2), 294–308. https://doi.org/10.1177/1065912907313077

Solberg, E., Traavik, L. E. M., & Wong, S. I. (2020). Digital Mindsets: Recognizing And Leveraging Individual Beliefs For Digital Transformation. *California Management Review*, *62*(4), 105–124. https://doi.org/10.1177/0008125620931839

Sutrisno, S. (2023). The Role of Information and Communication Technology in Improving the Efficiency of Human Resource Management Administration. *Jurnal Minfo Polgan*, *12*(1), 1315–1324. https://doi.org/10.33395/jmp.v12i1.12732

Tangi, L., Janssen, M., Benedetti, M., & Noci, G. (2021). Digital Government Transformation: A Structural Equation Modelling Analysis Of Driving And Impeding Factors. *International Journal of Information Management*, *60*, 102356. https://doi.org/10.1016/j.ijinfomgt.2021.102356

Teece, D. J. (2007). Explicating dynamic capabilities: The Nature And Microfoundations Of (Sustainable) Enterprise Performance. *Strategic Management Journal*, *28*(13), 1319–1350. https://doi.org/10.1002/smj.640

Teece, D. J. (2018a). Business Models And Dynamic Capabilities. *Long Range Planning*, *51*(1), 40–49. https://doi.org/10.1016/j.lrp.2017.06.007

Teece, D. J. (2018b). Business Models And Dynamic Capabilities. *Long Range Planning*, *51*(1), 40–49. https://doi.org/10.1016/j.lrp.2017.06.007

The OECD Digital Government Policy Framework. (2020). https://doi.org/10.1787/f64fed2a-en

Vial, G. (2019). Understanding digital transformation: A review and a research agenda. *The Journal of Strategic Information Systems*, *28*(2), 118–144. https://doi.org/10.1016/j.jsis.2019.01.003

Vuorikari, R., Kluzer, S., & Punie, Y. (2022). *DigComp 2.2,* The Digital Competence Framework For Citizens.

Westerman, G., Bonnet, D., & McAfee, A. (2014). *Leading Digital: Turning Technology into Business Transformation*. Harvard Business Publishing Education." Harvard Business Review Press. https://books.google.com/books/about/Leading_Digital.html?hl=id&id=Fh9eBAAAQBAJ

Wilson, C., & Mergel, I. (2022). Overcoming Barriers To Digital Government: Mapping The Strategies Of Digital Champions. *Government Information Quarterly*, *39*(2), 101681. https://doi.org/10.1016/j.giq.2022.101681

Yanti, T. D. (2025). Technical Guidance Quality, Organizational Commitment, Digital Mindset In Enhancing Reporting. *International Conference of Business and Social Sciences*, 760–770. https://doi.org/10.24034/icobuss.v5i1.720

Yin, R. K. (2018). *Case study research and applications: Design and methods*. Sage.

Yusuf, I. M., & Imawan, S. A. (2025). Assessing The Performance: E-Government In Public Services In Semarang. *Publisia: Jurnal Ilmu Administrasi Publik*, *10*(1), 23–32. https://doi.org/10.26905/pjiap.v10i1.14024

Zuhriyati, E., Pramusinto, A., Kusumasari, B., Agustiyara, A., & Gusmi, A. D. (2025). E-Leadership and Public Service Innovation: A Case Study of Yogyakarta, Indonesia's Digital Governance Transformation. *Journal of Governance and Public Policy*, *12*(3), 279–297. https://doi.org/10.18196/jgpp.v12i3.25891