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Bureaucratic adaptation to policy change: a mixed-methods study of organizational learning, digital readiness, and local social capital

Dwi Indah Yuliani Solihin*), Heldi Vanni Alam, Asna Aneta, Novianty Djafri
Universitas Negeri Gorontalo, Indonesia

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ABSTRACT

Local bureaucracies must translate frequent policy changes into workable routines despite hierarchical procedures, uneven employee capacity, and unequal digital infrastructure. This study examines bureaucratic adaptation in the Boalemo Regency Government through a convergent descriptive mixedmethods design grounded in organizational adaptive capacity, organizational learning, digital readiness, and social capital. Survey data were obtained from 185 civil servants selected through proportional random sampling, and qualitative evidence was collected from 15 purposively selected officials and staff through interviews, participatory observation, and document review. Quantitative data were summarized using means, achievement percentages, and frequency distributions; qualitative data were analyzed through reduction, display, and conclusion verification. The two strands were integrated by comparing convergence and divergence across the same analytical dimensions. Organizational learning capacity had the highest mean (M = 3.94), followed by structural flexibility (M = 3.82) and policy responsiveness (M = 3.75). Openness to innovation (M = 3.88) exceeded the speed of digital migration (M = 3.42), indicating a descriptive gap between behavioral willingness and implementation readiness. Qualitative findings showed that pohala'a-based kinship supported informal coordination, while red tape, uneven village-level capacity, and infrastructure constraints limited implementation. The findings support an Adaptive Bureaucracy Cycle that links people development, process simplification, culture, and digital support. Because the design is cross-sectional and the reported statistics are descriptive, the results identify patterns and plausible mechanisms rather than causal effects.

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Corresponding Author:

Dwi Indah Yuliani Solihin,
Universitas Negeri Gorontalo,
Email: dwiindah@ung.ac.id

Introduction

Rapid policy change tests whether local bureaucracies can convert new rules into coordinated action without disrupting public services. Adaptive capacity refers here to the ability to notice change, interpret its implications, mobilize knowledge, and revise structures and routines. It therefore combines anticipatory, coping, and learning capabilities rather than merely changing an organizational chart (Cedergren & Hassel, 2024; Duchek, 2020). In public administration, this capacity is especially important because adaptation must occur under formal accountability rules, intergovernmental dependence, and limited discretion (Capano, 2020; Rajala & Jalonen, 2023).

The expected condition is a bureaucracy that communicates policy changes rapidly, learns across units, reallocates work flexibly, and uses digital systems to support implementation. The observed condition in Boalemo was less consistent: interviews, observation, and document review indicated delays in policy transmission, multilayered procedures, unequal technical capacity between regency and village administrations, and uneven digital support. These problems did not prevent adaptation, but they created a recurring gap between employees' willingness to change and the organizational capacity to implement change. The study does not estimate the duration or financial cost of those delays; instead, it examines the organizational mechanisms through which they arise and are managed (Williams et al., 2021).

Prior research identifies several relevant mechanisms. Organizational resilience depends on anticipatory, coping, and learning capabilities (Duchek, 2020), while adaptive organizing requires autonomy, distributed problem solving, and digital support (Marchese et al., 2026). Digital transformation research similarly shows that technology produces change only when strategy, skills, processes, and organizational readiness develop together (Fuglsang et al., 2021; Saarikko et al., 2020). Studies of decentralized governance further show that local capacity and coordination shape whether national reforms are translated into effective services (Salomo, 2023; Shoesmith et al., 2020).

These perspectives remain incomplete for settings where formal hierarchy coexists with strong local relational norms. Social capital can improve trust, information exchange, and collective action, but it can also conceal structural weaknesses if informal coordination substitutes for procedural reform (Carmen et al., 2022; Miranda et al., 2022). In Boalemo, the kinship value of pohala'a provides a context-specific mechanism for examining this tension. The study's novelty lies in treating local social capital not as background culture but as a component that can enable coordination while remaining contingent on leadership, procedures, skills, and digital infrastructure.

Accordingly, the study addressed three questions: (1) What patterns characterize organizational behavior and bureaucratic adaptive capacity in responding to policy change? (2) Which organizational, technological, and socio-cultural factors enable or constrain adaptation? (3) How can those findings be integrated into an evidence-linked framework for strengthening adaptation? These questions are exploratory and descriptive; they do not assume causal effects or statistically significant differences between indicator means.

The study contributes an integrated interpretation of structural flexibility, organizational learning, policy responsiveness, digital readiness, leadership, and local social capital. It also develops the Adaptive Bureaucracy Cycle (ABC) as a context-grounded analytical framework linking people, process, culture, and digital support. The framework is proposed as an empirically informed model for further testing, not as a validated causal model.

Method

This study used a convergent descriptive mixed-methods design. Quantitative and qualitative data were collected during the same study period, analyzed separately, and integrated during interpretation by comparing findings across structural flexibility, organizational learning, policy responsiveness, digital readiness, leadership, implementation barriers, and local social capital. This design was chosen to describe the distribution of perceived adaptive capacity and explain the organizational processes underlying those patterns; it was not designed to establish causal effects (Salehi & Veitch, 2020; Sarta & Durand, 2021).

The quantitative strand involved 185 civil servants from units responsible for personnel management, education and training, and regional development planning. Respondents were selected through proportional random sampling from the available civil-servant sampling frame. A five-point Likert questionnaire measured openness to innovation, speed of digital migration, structural flexibility, organizational learning capacity, policy responsiveness, internal knowledge transfer, periodic policy evaluation, and leadership responsiveness. Analysis used means, achievement percentages, and frequency distributions. No inferential comparison between means is claimed in this article, and the differences reported should be interpreted descriptively (Robitzsch & Lüdtke, 2023).

The qualitative strand involved 15 purposively selected informants representing strategic, managerial, and operational levels, including the Regional Secretary, heads of regional government agencies, division heads, and operational staff. Selection continued until the available interviews no longer added materially different explanations to the predefined analytical dimensions. Data were collected through in-depth interviews, participatory observation of service activities, and reviews of policy and performance documents. Analysis followed iterative data reduction, data display, and conclusion verification, with attention to evidence that confirmed or contradicted survey patterns (Lim, 2025).

Integration occurred through a joint interpretive comparison: quantitative scores identified stronger and weaker dimensions, while interviews, observations, and documents were used to explain why those patterns appeared. Source triangulation compared accounts across hierarchical levels, and methodological triangulation compared survey responses with interview, observational, and documentary evidence (Schlunegger et al., 2024). Convergence strengthened an interpretation; divergence was retained as a limitation or alternative explanation rather than being forced into a single conclusion.

Item-level reliability coefficients, factor-analytic evidence, confidence intervals, and a prospective power calculation were not available for the reported analysis. Consequently, the quantitative results are limited to construct-level descriptive patterns, and no claims are made about measurement quality, statistical significance, or causality. Future validation should report internal consistency, factor structure, and a priori sample-size justification in an independent sample.

Results and Discussions

The descriptive results show an organization that is open to change but unevenly equipped to implement it. Openness to innovation reached M = 3.88, whereas speed of digital migration reached M = 3.42. The 0.46-point gap is interpreted as a descriptive difference, not a statistically tested effect. It suggests that favorable attitudes alone did not remove infrastructure, skill, and coordination constraints associated with digital implementation (Saarikko et al., 2020).

Among the three core dimensions, organizational learning capacity had the highest mean (M = 3.94), followed by structural flexibility (M = 3.82) and policy responsiveness (M = 3.75). Within organizational learning, internal knowledge transfer reached M = 3.91, periodic policy evaluation M = 3.85, and leadership responsiveness to field-level criticism M = 4.02. These values indicate the relative ordering of respondents' perceptions within this sample. Without variance estimates and inferential tests, they do not establish population differences or causal relationships.

Table 1. Summary of bureaucratic adaptability indicators

INDICATOR	MEAN
Openness to innovation	3.88
Speed of digital migration	3.42
Structural flexibility	3.82
Organizational learning capacity	3.94
Policy responsiveness	3.75
Internal knowledge transfer	3.91
Periodic policy evaluation	3.85
Leadership responsiveness to field-level criticism	4.02

Qualitative evidence converged with the survey pattern by showing that knowledge exchange and responsive leadership helped units interpret new policies. Informants described pohala'a-based kinship as facilitating informal contact between supervisors, subordinates, and work units. This relational channel helped employees resolve coordination problems when formal communication was slow. The finding is consistent with research linking social capital to collective learning and resilience, while also showing that the mechanism is embedded in a specific local ethic (Carmen et al., 2022; Miranda et al., 2022).

The same evidence also identified competing explanations for uneven adaptation. Red tape, differences in employee competence between regency and village administrations, limited access to digital infrastructure, and resource constraints could each account for slower implementation. The data therefore do not support attributing the digital-readiness gap to employee behavior alone. Instead, adaptation appears to depend on the interaction of individual willingness, institutional procedures, technology, leadership, and intergovernmental capacity (Rogers et al., 2023).

The regency-village relationship was a recurrent implementation bottleneck. Policies understood at the regency level could still be delayed when village officials lacked technical capacity, digital literacy, or access to supporting systems. This pattern aligns with evidence that decentralized governance outcomes depend on subnational capacity and coordination rather than formal delegation alone (Salomo, 2023; Shoesmith et al., 2020).

These findings informed three mutually dependent intervention domains. The people domain covers learning, competency development, psychological readiness, and supportive leadership. The process domain covers procedural simplification, removal of nonessential administrative layers, and cross-unit coordination. The culture domain covers movement from instruction dependence toward collaboration, initiative, and results

orientation (Vosman et al., 2023). Digital support connects the domains by accelerating policy communication and access to learning resources.

The proposed ABC framework organizes these domains as a recurring sequence of sensing policy change, interpreting its operational effects, mobilizing people and resources, adapting procedures, and learning from implementation. E-Adaptif Boalemo is proposed as a supporting mechanism for identifying affected units, distributing policy information, and linking policy changes to self-directed learning materials. Neither ABC nor E-Adaptif Boalemo was experimentally tested in this study; both are evidence-linked propositions for development and evaluation.

The central finding is not that Boalemo has already achieved an adaptive bureaucracy, but that its adaptive capacity is unevenly distributed across behavioral, organizational, and technological dimensions. This pattern supports capability-based resilience theory: organizations may possess learning and coping strengths while remaining weak in the resources needed to institutionalize change (Cedergren & Hassel, 2024; Duchek, 2020). It also refines that perspective by showing that adaptation in decentralized government extends across regency and village levels rather than residing within a single organization.

The relatively high organizational-learning score is consistent with evidence that knowledge transfer, communication, and responsive leadership support change implementation (Ferede et al., 2024; Hedqvist et al., 2024; Waizenegger et al., 2020). However, absorptive-capacity theory distinguishes access to knowledge from the ability to assimilate and apply it. Boalemo's results illustrate this distinction: employees reported openness and learning capacity, yet implementation remained constrained by procedures, village-level competence, and infrastructure. Learning is therefore necessary but not sufficient for adaptive performance.

The gap between openness to innovation and digital migration is also consistent with digital-transformation research. (Fuglsang et al., 2021; Saarikko et al., 2020) describe transformation as an organizational change process rather than a technology purchase, Digital transformation requires readiness conditions involving skills, organizational structures, and management practices. The present findings extend this argument to local government: favorable attitudes can coexist with slow implementation when technical and institutional capacity is uneven (Pegan, 2024). Because the study did not test competing predictors statistically, resource scarcity, infrastructure access, and political-administrative constraints remain plausible alternative explanations (Heinze, 2026).

Pohala'a adds a socio-cultural mechanism to this account. Its contribution resembles social-capital findings in which trust and relational ties facilitate information exchange and coordinated action (Carmen et al., 2022; Miranda et al., 2022). Yet the evidence also warns against romanticizing informality. Virtual-team and interorganizational research shows that relational communication can reduce coordination barriers but cannot substitute for clear roles, shared systems, and institutional support (Hedqvist et al., 2024; Morrison-Smith & Ruiz, 2020; Waizenegger et al., 2020). In Boalemo, pohala'a functioned as adaptive capital when it enabled problem solving; it risked masking dysfunction when informal workarounds became a substitute for procedural correction.

Institutional theory offers a further interpretation. Local agencies face coercive pressure to comply with centrally introduced policies, but formal adoption does not guarantee operational capability (Capano, 2020). The observed dependence on instructions and multilayered procedures may therefore reflect compliance-oriented adaptation rather than substantive learning. The ABC framework addresses this risk by linking sensing and interpretation to changes in competencies, procedures, culture, and digital support rather than treating the issuance of a regulation as completed implementation (Pettersen & Olav, 2024).

The findings also converge with studies of decentralized governance in Indonesia. Disadvantaged regions face capacity and accountability constraints, while local-government performance reforms continue to encounter institutional challenges. The present study adds a within-system explanation: policy responsiveness at the regency level can weaken during transmission to villages. Therefore, adaptive capacity should be assessed across the entire implementation chain, including organizations responsible for executing policies at the frontline (Hassel & Cedergren, 2025).

ABC differs from a generic managerial checklist by specifying a recurring analytical sequence and connecting each stage to observed evidence. The sensing stage responds to delayed policy transmission; interpretation responds to differences in policy understanding; mobilization responds to competence and resource gaps; procedural adaptation responds to red tape; and learning responds to the need for evaluation and knowledge transfer. The framework remains provisional. Its explanatory and predictive value should be tested through longitudinal implementation research, comparison across regencies, and measurement models with verified psychometric properties (Mettert et al., 2020).

Limitations

This study is cross-sectional and relies partly on self-reported perceptions, which may be affected by social-desirability and common-method bias. The descriptive means do not establish statistically significant differences, causal direction, or the effectiveness of the proposed interventions (Outhwaite et al., 2020). The analysis also lacks item-level reliability coefficients, factor-validation results, variance estimates, confidence intervals, and a prospective power analysis; these omissions limit measurement and statistical inference.

The qualitative sample supports contextual explanation but does not permit claims of representativeness beyond the participating units. The study also did not quantify the duration, frequency, or financial cost of implementation delays (Smith & Hasan, 2020). Future research should validate the measurement instrument, use longitudinal or quasi-experimental designs, compare multiple regencies, incorporate objective service-performance indicators, and evaluate the ABC framework and E-Adaptif Boalemo before either is treated as an effective model.

Conclusions

In response to the first research question, Boalemo's bureaucracy displayed comparatively strong perceived organizational learning (M = 3.94), structural flexibility (M = 3.82), and policy responsiveness (M = 3.75), alongside a lower speed of digital migration (M = 3.42). These scores describe the ordering of perceptions in the sample and should not be interpreted as validated thresholds of strong or weak performance. In response to the second question, adaptation was enabled by responsive leadership, knowledge transfer, and pohala'a-based informal coordination, but constrained by red tape, uneven technical capacity, infrastructure limitations, and discontinuity between regency and village implementation. In response to the third question, these findings support a provisional ABC framework that links sensing, interpretation, mobilization, procedural adaptation, and organizational learning across people, process, culture, and digital support. The empirical contribution is the identification of an implementation gap between willingness to innovate and readiness to execute change, together with evidence that local social capital can enable coordination without replacing institutional capacity. The theoretical contribution is therefore conditional: relational culture strengthens adaptation when it is supported by competence, clear procedures, leadership, and technology, but informal coordination alone cannot overcome structural constraints. Policy recommendations are separated from the empirical conclusions. The Boalemo Regency Government should prioritize interventions directly linked to the observed constraints: simplify procedures where red tape delays implementation, extend technical learning to village officials where competence gaps occur, strengthen infrastructure where digital access is uneven, and use digital policy communication to connect regulatory change with unit-specific learning needs. These recommendations require staged implementation and evaluation; the present study does not establish their causal effectiveness.

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