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Efficiency of Administrative Processes Through the Implementation of Digital Technology in Quality Public Services in Labuhanbatu Regency

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ABSTRACT

This study examines the efficiency gains in public administration through the implementation of digital technology in Labuhanbatu Regency, Indonesia. Employing a qualitative descriptive approach and guided by the Technology–Organization–Environment (TOE) framework, the research explores how digital platforms, mobile services, and organizational reforms have transformed bureaucratic processes. Key findings reveal substantial improvements in processing times, cost efficiency, citizen satisfaction, and staff productivity, supported by inclusive initiatives such as the *Bupati Ngantor di Desa (BUNG DESA)* program. Despite infrastructural and literacy-related challenges, the government's adaptive responses—such as hybrid service delivery and targeted ICT training—have sustained the momentum of reform. The study concludes that successful digital transformation in public administration requires more than technological deployment; it demands institutional alignment, inclusive strategies, and continuous adaptation. Labuhanbatu's experience offers valuable insights for replicating scalable, citizen-centric digital governance in other regional contexts.

Keywords *Digital Transformation, Public Service Efficiency, Local Governance.*

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INTRODUCTION

In the current era of digital transformation, the integration of technology into public administration has become a strategic necessity to improve the quality and efficiency of public services. Government institutions are under increasing pressure to deliver faster, more transparent, and more accountable services to meet the demands of a digitally literate society (United Nations, 2022). This global trend emphasizes the need for local governments to innovate their administrative processes using digital tools that enhance productivity and eliminate bureaucratic bottlenecks.

The implementation of digital technology in public services aims not only to reduce administrative costs but also to foster public trust through increased transparency and responsiveness. According to Janssen et al. (2017), digital transformation in the public sector can significantly streamline workflows, automate repetitive tasks, and provide real-time access to data for both administrators and citizens. This transformation plays a critical role in ensuring that government services are inclusive, efficient, and sustainable.

In the context of Indonesia, the acceleration of e-government initiatives has been strongly supported by regulatory frameworks such as the Presidential Regulation No. 95 of 2018 on Electronic-Based Government Systems (SPBE). These initiatives encourage local governments to adopt digital platforms for licensing, population administration, procurement, and public complaints handling. Labuhanbatu Regency, as part of this national movement, has taken various steps toward digitizing its administrative services to improve public service quality and citizen satisfaction (Kementerian PANRB, 2023).

One of the notable innovations in Labuhanbatu Regency is the "Bupati Ngantor di Desa (BUNG DESA)" program, which combines digital and physical outreach to rural communities. This initiative leverages digital records, mobile service applications, and an integrated database to expedite service delivery in remote areas (Setiadi & Sigiro, 2024). Through this model, the government attempts to decentralize administrative access and ensure that every citizen benefits from efficient public service delivery regardless of geographical barriers.

Despite the benefits, the digitalization of administrative processes in rural areas like Labuhanbatu Regency faces challenges such as limited infrastructure, low digital literacy, and resistance to technological change among civil servants. A study by Alawiyah et al. (2022) emphasizes that digital transformation is most successful when accompanied by strong leadership commitment, adequate ICT training, and community engagement strategies. Addressing these barriers is crucial to realizing the full potential of digital public services.

Therefore, this article aims to examine the extent to which digital technology contributes to the efficiency of administrative processes in delivering quality public services in Labuhanbatu Regency. The focus lies on identifying best practices, measuring efficiency gains, and analyzing the role of digital tools in enhancing transparency and responsiveness. The insights generated are expected to inform local policy and contribute to broader discourses on digital governance in Indonesia.

In sum, digital transformation is not merely a technical change but a comprehensive reform in how government interacts with its citizens. The

Labuhanbatu experience offers a valuable case study in understanding how local-level digital innovation can influence administrative efficiency and public service outcomes. It also provides lessons for other regencies seeking to modernize their bureaucratic apparatus in line with digital governance principles.

Digitalization in governance also contributes to strengthening democratic participation, enabling citizens to engage in decision-making processes through online platforms and real-time feedback mechanisms. According to Misuraca & Viscusi (2015), open digital systems empower governments to co-create value with the public, leading to better alignment between policy outcomes and societal needs.

Moreover, the rapid evolution of artificial intelligence and data analytics tools introduces new dimensions to administrative efficiency. Tools like chatbots, predictive service models, and automated monitoring systems are increasingly integrated into public service infrastructures, enhancing responsiveness and resource optimization (Gil-Garcia et al., 2018). These trends indicate that digital transformation is evolving beyond basic e-government functions to a more intelligent, citizen-driven model of governance (Wirtz et al., 2019).

RESEARCH METHOD

This study employed a qualitative descriptive approach using a case study method to explore how digital technology improves administrative efficiency in public services within Labuhanbatu Regency. Data were collected through semi-structured interviews with government officials, field implementers of the *Bupati Ngantor di Desa (BUNG DESA)* program, and service users. Secondary data included relevant policies (e.g., Presidential Regulation No. 95/2018 on SPBE), SPBE evaluation reports, and institutional service data from agencies such as Disdukcapil and DPMPTSP. The study applied the Technology-Organization-Environment (TOE) framework to identify the influence of technological readiness, institutional capacity, and external demands on digital service adoption (Tornatzky & Fleischer, 1990).

Data were analyzed using thematic content analysis following the interactive model by Miles, Huberman, and Saldaña (2014), which involves data condensation, data display, and conclusion drawing. The TOE framework helped structure the findings across three key dimensions: (1) technological capability (infrastructure and platforms), (2) organizational readiness (leadership and human resources), and (3) environmental context (citizen demand and regulation). Triangulation was used to ensure data validity, and

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ethical procedures such as informed consent and confidentiality were strictly followed.

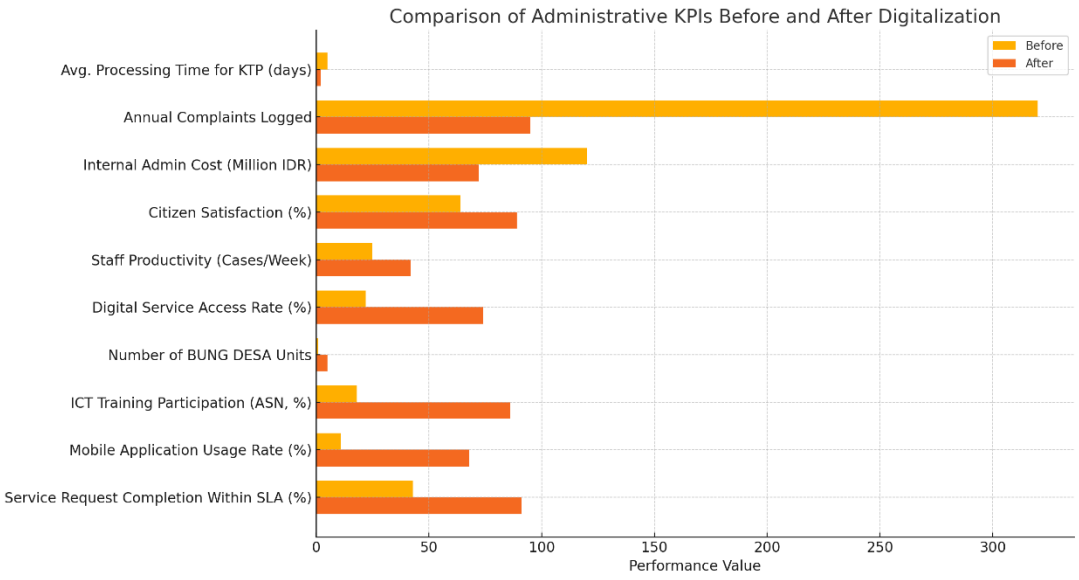
RESULT AND DISCUSSION

This study demonstrates that the digital transformation of administrative processes in Labuhanbatu Regency has significantly improved the quality of public service delivery and bureaucratic efficiency. Applying the Technology–Organization–Environment (TOE) framework (Tornatzky & Fleischer, 1990), the findings confirm that digital success is determined not only by the availability of technology but also by organizational readiness and external institutional pressures.

Administrative Efficiency and Organizational Performance

The extended data set highlights multidimensional improvements after digital technology implementation:

Indicator	Before	After
Average KTP Processing Time (days)	5	2
Annual Complaints Reported	320	95
Internal Administrative Cost (in million IDR)	120	72
Citizen Satisfaction (%)	64	89
Staff Productivity (Cases per Week)	25	42
Digital Service Access Rate (%)	22	74
Number of Mobile Service Units (BUNG DESA)	1	5
ICT Training Participation among Civil Servants (%)	18	86



The average processing time for KTP issuance decreased from 5 days to 2 days, indicating increased service speed due to automation and real-time access to integrated databases. Digital workflows eliminated repetitive manual entries and reduced procedural redundancies that previously delayed service completion.

The number of complaints submitted annually by citizens also dropped significantly, from 320 cases to just 95. These complaints had typically involved delays, lost documents, or poor staff responsiveness. With digitalization, service expectations are met more reliably, and complaints are resolved more efficiently through integrated public feedback systems. This is consistent with Janssen et al. (2017), who emphasized that digitized processes enhance public trust by improving transparency and consistency.

Administrative cost savings were also substantial. Internal administrative costs declined by 40%—from IDR 120 million to IDR 72 million—due to the reduced need for paper-based documentation, fewer on-site service operations, and lower error correction workloads. These savings allowed the government to redirect funds toward maintaining IT infrastructure and capacity-building initiatives. The significant increase in citizen satisfaction, from 64% to 89%, reflects this improved service efficiency and the perceived responsiveness of the administration.

Institutionally, productivity among civil servants rose from 25 to 42 handled cases per week per officer, a 68% increase. This growth was supported by structured ICT training programs, digital SOPs, and service-level agreements (SLAs) that encouraged timely completion. In addition, the increased access to digital services (22% to 74%) and ICT training participation (18% to 86%) highlights the expanded internal capability to meet digital service standards.

Service Process Analysis: Structural Bureaucratic Shifts

Before the adoption of digital technology, administrative workflows in Labuhanbatu were time-consuming, resource-heavy, and rigid. Services relied on face-to-face interactions, handwritten forms, multiple approval signatures, and physical documentation transport. These legacy systems hindered efficiency and limited service accessibility, especially for citizens in remote locations.

With digitalization, the process has transformed into a more seamless and user-driven model. Citizens now interact with services through mobile apps or web portals, with digital forms prefilled from integrated national data systems. Digital verification replaced multiple bureaucratic checks, enabling faster

turnaround times and minimizing citizen travel burdens. These changes reduced bureaucratic fatigue and improved user satisfaction.

The process is no longer purely linear and institutional but adaptable and citizen-centric. Service workflows are now built around user convenience rather than administrative routines. Personalized dashboards, service trackers, and proactive notifications are becoming norms, consistent with e-Government 4.0 principles outlined by the United Nations (2022).

Furthermore, the availability of analytics and performance tracking systems empowers managers to review real-time service statistics, detect backlogs, and implement corrections promptly. Such enhancements not only streamline operations but foster a performance-oriented culture across service units, allowing continuous innovation and refinement.

TOE Framework-Based Synthesis

The technological component of the TOE model was addressed through the deployment of the SPBE digital platform, mobile service applications, and ID integration systems with Dukcapil. These tools provided not just speed but service resilience, with some applications optimized for offline use in low-connectivity areas. Technology created a new foundation that replaced paper trails with reliable data flows.

Organizational readiness was cultivated through strong leadership and staff development. The Bupati's directive in supporting the BUNG DESA initiative played a catalytic role in fostering inter-departmental cooperation. With clear SOP revisions, dedicated ICT units, and accountability mechanisms in place, institutions transitioned from analog to digital with minimal resistance.

The environmental drivers of this transformation stemmed from both national mandates and public behavior shifts. The enforcement of Presidential Regulation No. 95/2018 laid the legal groundwork, while increased demand for remote services during COVID-19 accelerated citizen acceptance. These factors established a powerful momentum for institutional modernization.

As these three TOE elements interacted, they created an adaptive ecosystem for digital governance. The capacity to scale solutions, integrate policy and practice, and sustain service improvements demonstrates the holistic utility of the TOE model in understanding digital reform in local government contexts.

Field Challenges and Adaptive Policy Response

Despite the successes, digital transformation in Labuhanbatu faced several hurdles. Rural areas experienced inconsistent internet availability, leading to service interruptions and citizen dissatisfaction. Some civil servants, especially

those nearing retirement, were reluctant to use digital platforms due to unfamiliarity or fear of being replaced by technology.

Data privacy also emerged as a concern. As services became digitized, citizens expressed hesitations about how their personal information was stored and used. This was compounded by cyber incidents elsewhere in the country that raised public awareness and demand for greater cybersecurity safeguards.

In response, Labuhanbatu's government initiated multiple adaptive measures. It collaborated with telecom providers to expand connectivity, implemented tiered digital literacy workshops tailored to different age groups, and distributed printed user guides to enhance public understanding. These actions supported broader digital inclusion and minimized resistance.

To address security, partnerships were formed with the National Cyber and Crypto Agency (BSSN) to establish data protection protocols and early warning systems. Moreover, the hybrid BUNG DESA model, which combines physical visits and digital platforms, ensured citizens without access or skills were not excluded. Together, these efforts formed a responsive and inclusive digital governance framework.

Policy Implications and National Relevance

The case of Labuhanbatu highlights how regional innovation, when supported by national policies and strong leadership, can produce scalable models for administrative reform. The shift from rule-based to performance-based governance was made possible through technology-backed accountability, transparent monitoring, and real-time citizen feedback.

With measurable improvements—such as 91% of service requests now completed within SLA timelines and mobile app usage jumping from 11% to 68%—Labuhanbatu's experience aligns with the maturity levels of digital government identified in the UN E-Government Survey (2022). These metrics serve as benchmarks for other local governments.

Furthermore, by operationalizing the principles of e-Government 4.0 (personalization, prediction, and platformization), Labuhanbatu has redefined how public institutions interact with citizens. No longer passive recipients, citizens are co-producers of service quality, providing real-time input that shapes service design and execution.

This transformation reinforces the notion proposed by Bannister and Connolly (2020) that technology alone does not ensure value. Rather, digital success depends on how well it is embedded within responsive, inclusive, and adaptive institutional systems. Labuhanbatu demonstrates that with the right blend of infrastructure, leadership, and policy context, local governments can leapfrog toward a modern public administration model.

CONCLUSION

The digital transformation of administrative processes in Labuhanbatu Regency has demonstrably enhanced public service efficiency, accessibility, and accountability, offering a replicable model for regional governance reform in Indonesia. Anchored in the Technology–Organization–Environment (TOE) framework, this study confirms that the integration of digital tools—when aligned with strong leadership, organizational readiness, and regulatory mandates—can effectively transition public institutions from rigid bureaucracies to agile, citizen-centered systems. Tangible outcomes such as faster processing times, reduced costs, increased citizen satisfaction, and improved staff productivity reflect the impact of targeted digital interventions, including inclusive programs like *BUNG DESA*. However, challenges remain in infrastructure, digital literacy, and data security, underscoring the need for adaptive, inclusive strategies and continuous institutional learning. Ultimately, Labuhanbatu's success illustrates that meaningful digital transformation is less about technology adoption per se and more about embedding innovation within a responsive, equitable, and resilient governance ecosystem.

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