

Strengthening Local Revenue Through Service Innovation: Digitalization, Human Resources, and Collaboration in Construction Testing Retribution

Septian Satria Erlangga Putra

UIN Sunan Ampel Surabaya

Email: contoh@uinsby.ac.id

Abstract

Local governments in Indonesia are under increasing pressure to strengthen *Pendapatan Asli Daerah* (PAD) as a foundation of fiscal independence under decentralization. While retributions are often treated as routine revenue instruments, their management reflects the broader capacity of local institutions to innovate and deliver quality services. This study examines the role of service innovation in enhancing PAD through construction testing retributions at the UPT Pengelolaan dan Pelayanan Perumahan dan Permukiman.

Using a mixed-methods design, the research combines quantitative surveys of 100 service users with qualitative interviews of 12 stakeholders, including UPT staff, local government officials, contractors, and professional associations. Secondary data from regulations, financial reports, and PAD statistics (2019–2023) were also analyzed. Quantitative data were tested using Pearson correlation and regression analysis, while qualitative data were thematically coded to capture institutional strategies and challenges.

Findings reveal that **digitalization** significantly improved efficiency, transparency, and user satisfaction, with 78% of respondents preferring online systems. **Service quality** was strongly correlated with compliance ($r = 0.72$, $p < 0.05$), underscoring the importance of professionalism and responsiveness. **Human resources** played a decisive role, as staff competence determined the effectiveness of technological adoption, yet irregular training and limited budgets remained constraints. Meanwhile, **collaborative governance** — particularly partnerships with associations and universities — expanded technical capacity and legitimacy, although such partnerships lacked institutionalization.

This study contributes to the literature by linking fiscal decentralization with micro-level institutional practices, showing that local revenue generation depends not only on regulatory frameworks but also on frontline service innovation. Policy implications emphasize the need for investments in digital infrastructure, continuous staff development, and formalized collaboration to sustain innovation. By shifting the perspective from revenue extraction to revenue legitimacy, this study highlights how compliance can be built on trust, transparency, and credible service delivery.

Keywords: *Pendapatan Asli Daerah (PAD); Service innovation; Digitalization; Human resource capacity; Collaborative governance; Construction testing retribution*

Introduction

Regional autonomy in Indonesia has shifted significant responsibility for fiscal management to local governments, with *Pendapatan Asli Daerah* (PAD, or locally generated revenue) becoming the primary indicator of financial independence. A critical component of PAD is derived from retributions, which are not only revenue sources but also instruments for improving public service quality. Among these, retribution from construction testing services represents a strategic

and underexplored avenue for strengthening PAD. The UPT Pengelolaan dan Pelayanan Perumahan dan Permukiman (UPT Housing and Settlement Management Service Unit) plays a pivotal role in this regard, functioning as both a technical service provider and a revenue generator.

However, despite its potential, retribution from construction testing services has often been constrained by limited institutional capacity, outdated equipment, bureaucratic inefficiencies, and a lack of service innovation. As Indonesia pursues fiscal decentralization, the ability of local service units to modernize and innovate becomes crucial for ensuring that PAD not only increases quantitatively but also contributes to sustainable governance and equitable service delivery (Puspitasari, 2021).

Recent developments highlight the growing importance of **service innovation** in public administration. Digitalization, for instance, has enabled transparent and efficient management of local taxes and retributions (Suharto & Nugroho, 2022). Human resource capacity, particularly staff training and technical expertise, is also central to improving service quality (Nurhidayati et al., 2023). Furthermore, collaborative governance — involving partnerships with private actors, professional associations, and communities — has emerged as a vital mechanism for strengthening institutional capacity at the local level (Ansell & Torfing, 2021).

Despite this progress, the literature remains limited in addressing **how practical service innovations at the UPT level directly translate into PAD enhancement through construction testing retributions**. Much of the existing scholarship on PAD focuses on macro-level fiscal policy, efficiency of tax administration, or political dimensions of decentralization (Fadli, 2020; Kuswanto, 2021). While these are important, they do not sufficiently explain the micro-level institutional strategies that drive effective retribution management, particularly in specialized technical units such as construction testing. This creates a gap in understanding the operational link between **service innovation practices** and **fiscal outcomes** at the sub-agency level.

This article seeks to fill that gap by analyzing the strategies employed by the UPT Pengelolaan dan Pelayanan Perumahan dan Permukiman in managing construction testing retribution. It examines how innovations in digital systems, service quality improvement, human resource development, and collaborative partnerships contribute to increasing PAD. By situating the UPT's practices within the broader discourse of public sector innovation and local fiscal governance, the study provides insights into how local governments can strengthen revenue independence without overburdening communities.

The significance of this research lies in its dual contribution. First, it provides a practical roadmap for local governments seeking to optimize PAD through targeted service improvements, especially in sectors with high technical

value such as construction. Second, it contributes to the academic literature by bridging the gap between theories of fiscal decentralization and the operational realities of service units. In doing so, it underscores the importance of innovation not only as a managerial tool but also as a fiscal strategy that directly impacts local autonomy and development.

The article is structured as follows. The literature review situates this study within existing research on PAD, service innovation, and digital transformation in public administration. The methodology section outlines the mixed-methods approach combining surveys, interviews, and document analysis. The findings present empirical evidence on the UPT's strategies, challenges, and outcomes in enhancing PAD through construction testing retributions. The discussion interprets these findings in light of governance and innovation theory, while the conclusion reflects on policy implications and directions for future research.

By emphasizing the role of practical service innovations, this study argues that local fiscal independence is not merely the outcome of policy design but of institutional creativity and responsiveness at the frontline of public service delivery.

Method

This research adopts a mixed-methods approach, combining quantitative and qualitative techniques to provide a comprehensive analysis of strategies for increasing *Pendapatan Asli Daerah* (PAD) through construction testing retributions. A mixed approach was selected because fiscal and institutional phenomena are best understood by integrating numerical data with stakeholder perspectives (Creswell & Plano Clark, 2018).

Quantitative data were collected through structured questionnaires distributed to service users of the UPT Pengelolaan dan Pelayanan Perumahan dan Permukiman. A total of 100 respondents were surveyed, focusing on perceptions of service quality, accessibility, digital systems, and willingness to comply with retribution payments. The quantitative component was designed to measure correlations between service innovation variables (e.g., digitalization, responsiveness, transparency) and user satisfaction or compliance.

Qualitative data were obtained from 12 semi-structured interviews with key stakeholders, including UPT staff, local government officials, contractors, and representatives of professional associations. These interviews explored institutional challenges, resource constraints, and strategies for improving retribution management. In addition, secondary data such as local government regulations, performance reports, and PAD statistics from 2019–2023 were analyzed to contextualize findings.

Quantitative data were analyzed using Pearson correlation and multiple regression to test the strength and significance of relationships between service innovation factors and retribution outcomes. Statistical analysis was supported by

SPSS software. Qualitative data were analyzed through thematic coding to identify patterns related to digitalization, human resource capacity, and collaboration. Triangulation was applied to validate findings across data sources and enhance reliability.

All participants were informed about the purpose of the research, and informed consent was obtained. Identities of respondents and interviewees were anonymized to ensure confidentiality.

This methodological design provides both statistical evidence and contextual insights, allowing for a nuanced understanding of how practical service innovations at the UPT level contribute to enhancing PAD through construction testing retributions.

Results And Discussions

Findings

Digitalization of Services

One of the most significant innovations implemented at the UPT Pengelolaan dan Pelayanan Perumahan dan Permukiman was the adoption of digital systems to support construction testing retributions. The survey results indicated that **78% of respondents** preferred using digital platforms for registration, scheduling, and payments compared to traditional manual procedures. Respondents emphasized that digitalization reduced waiting times, minimized errors, and improved transparency in fee calculation. UPT staff confirmed that online systems allowed better tracking of retribution flows, reducing opportunities for leakage and enabling real-time monitoring. However, interviews also revealed persistent barriers such as limited internet infrastructure in peri-urban areas and the need for additional technical training for staff.

Service Quality and User Satisfaction

Survey data showed a strong correlation between service quality and user compliance with retribution obligations (Pearson correlation = 0.72, $p < 0.05$). Respondents reported higher willingness to comply when services were timely, accurate, and delivered by professional staff. Qualitative interviews revealed that service quality improvements — including clearer testing procedures, faster turnaround times, and more responsive communication — were instrumental in increasing user satisfaction. Contractors, in particular, expressed greater trust in the UPT's technical credibility, which encouraged voluntary compliance with retribution requirements.

Human Resource Capacity

Interviews with UPT staff underscored the importance of human resource development in sustaining service innovations. While digitalization streamlined processes, the effectiveness of these systems ultimately depended on staff

competence. Respondents highlighted ongoing challenges in technical expertise, with some staff still relying on outdated methods. Training programs, although introduced, remained irregular due to budget constraints. Staff expressed the need for continuous professional development, particularly in IT and construction testing standards. The findings suggest that without parallel investment in human resources, technological innovation risks being underutilized.

Collaboration and Institutional Partnerships

The study also identified collaboration as a key driver of innovation. Partnerships with construction associations and local universities supported the UPT in updating testing methods and improving technical accuracy. Collaborative efforts also expanded the UPT's service user base, as professional networks encouraged contractors to comply with official testing requirements. Respondents from the private sector noted that collaboration reduced information asymmetry and enhanced legitimacy. However, some stakeholders pointed out that partnerships remained ad hoc and lacked formalized agreements, limiting their sustainability.

Challenges and Constraints

Despite these positive outcomes, several challenges persisted. Budgetary limitations constrained investment in modern equipment and limited the frequency of staff training programs. Digitalization efforts were hindered in some areas by unreliable internet connectivity. In addition, bureaucratic procedures sometimes slowed decision-making, particularly when multiple levels of government approval were required. These constraints highlight the need for more consistent resource allocation and stronger institutional support to sustain innovation.

Overall, the findings indicate that practical service innovations – particularly digitalization, service quality improvements, human resource development, and collaboration – have significantly contributed to increasing construction testing retributions and, by extension, PAD. Quantitative results demonstrate strong correlations between innovation factors and compliance, while qualitative insights reveal institutional and stakeholder perspectives on both successes and challenges. At the same time, constraints such as limited resources, capacity gaps, and weak institutionalization suggest that innovation remains a work in progress rather than a fully embedded practice.

Discussion

The findings from this study reinforce the argument that **service innovation is a central mechanism for strengthening PAD at the local level**, particularly in specialized technical services such as construction testing. While fiscal decentralization provides the policy framework, it is the operational practices of frontline units like UPTs that determine whether local governments can achieve

financial independence. By examining digitalization, service quality, human resource development, and collaboration, this study provides evidence that micro-level innovations translate into tangible fiscal outcomes.

Digitalization and Transparency

The adoption of digital platforms at the UPT illustrates how technology enhances transparency and efficiency in retribution management. Consistent with Setiawan and Yuliani (2022), the findings show that digitalization reduces administrative bottlenecks and opportunities for leakage while increasing user trust. The positive correlation between digital services and compliance rates confirms that citizens are more likely to fulfill obligations when processes are accessible and transparent. However, as Sutrisno et al. (2023) caution, digital innovation is unevenly implemented across Indonesia due to infrastructure disparities. The persistence of connectivity issues in peri-urban areas in this case echoes these broader challenges. This suggests that while digitalization is transformative, it must be accompanied by investments in infrastructure and staff training to ensure inclusivity.

Service Quality and Compliance

The strong link between service quality and user compliance aligns with Borins' (2014) framework of public service innovation, which emphasizes user-centered outcomes. Contractors and construction stakeholders in this study expressed greater willingness to comply with retribution requirements when services were accurate, timely, and professional. This finding echoes De Vries et al. (2016), who argue that improved service delivery creates a virtuous cycle of trust and compliance. Yet, the findings also highlight that service quality is not static; it requires ongoing feedback mechanisms, resource investment, and adaptive management.

Human Resource Capacity as a Limiting Factor

A recurring theme in both the findings and the literature is the critical role of human resources in enabling or constraining innovation. While digital platforms streamline administrative tasks, their success depends on staff competence and adaptability. The limited training opportunities reported by UPT staff are consistent with broader critiques of local governance capacity in Indonesia (Puspitasari, 2021). Without continuous investment in professional development, service innovation risks becoming superficial, with technology implemented but not fully utilized. Ansell and Torfing (2021) similarly note that innovation is as much about people as it is about systems, requiring empowerment, motivation, and skill-building.

Collaborative Governance as an Enabler

Collaboration emerged as a promising but underdeveloped strategy in this study. Partnerships with construction associations and universities enhanced technical

credibility and expanded the user base for retribution services. These findings resonate with Ansell and Gash's (2008) theory of collaborative governance, which highlights the role of trust and shared responsibility in achieving public goals. However, the ad hoc nature of partnerships suggests that institutionalization is still lacking. Torfing et al. (2021) emphasize that co-production of services can only be sustained when supported by formal frameworks, clear incentives, and accountability mechanisms. For UPTs, formalizing collaboration through memoranda of understanding or joint programs could ensure continuity and impact.

Innovation, PAD, and Local Autonomy

The evidence from this case supports the argument that innovations at the UPT level directly contribute to PAD enhancement. Improved compliance and reduced leakages increase revenue, thereby strengthening local financial independence. This micro-level perspective complements macro-level studies of fiscal decentralization, offering a more grounded understanding of how PAD is generated in practice (Kuswanto, 2021). Importantly, the findings suggest that PAD growth is not solely dependent on expanding tax bases but also on improving the quality and credibility of services. This shifts the discourse from revenue extraction toward **revenue legitimacy**, where compliance stems from trust and satisfaction rather than coercion.

Remaining Challenges

Despite these advances, challenges persist. Limited budgets constrain investment in equipment and training, while bureaucratic procedures slow innovation adoption. These findings echo broader critiques of Indonesia's local governance system, where decentralization has devolved responsibilities without fully equipping local units with resources (Martinez-Vazquez et al., 2017). Addressing these challenges requires both local-level commitment and central government support, particularly in resource allocation and regulatory flexibility.

Contribution of the Writing

This study contributes to the literature in two ways. First, it empirically demonstrates how **service innovations at the operational unit level** can enhance PAD, filling a gap in research that often remains at the policy or macro level. Second, it underscores the interplay between digitalization, human resource capacity, and collaboration, highlighting the multi-dimensional nature of innovation. Together, these insights advance understanding of how fiscal independence is constructed not just through decentralization policies but through practical institutional creativity at the frontline of service delivery.

Conclusion

This study has examined the role of service innovation in strengthening *Pendapatan Asli Daerah* (PAD) through construction testing retributions at the

UPT Pengelolaan dan Pelayanan Perumahan dan Permukiman. By focusing on digitalization, service quality, human resource capacity, and collaboration, the analysis demonstrates that micro-level innovations in public service delivery can directly translate into fiscal outcomes.

The findings highlight three key contributions. First, **digitalization** improved efficiency, transparency, and compliance, although uneven infrastructure limited its inclusiveness. Second, **service quality** emerged as a critical determinant of user compliance, with professionalism and responsiveness encouraging voluntary payment. Third, **human resources and collaboration** were identified as both enablers and constraints: while partnerships with associations and universities enhanced credibility, limited staff training and budgetary constraints restricted the sustainability of innovation.

Theoretically, this study extends the literature on fiscal decentralization by linking macro-level policy frameworks to micro-level operational practices. It shows that local financial independence depends not only on regulatory authority but also on the **capacity and creativity of frontline institutions**. The emphasis on service innovation shifts the discourse from revenue extraction to revenue legitimacy, where compliance is built on trust, satisfaction, and institutional credibility.

Policy implications are clear. Local governments should prioritize investments in digital infrastructure and continuous staff development, while also formalizing collaborative partnerships to sustain innovation. Central government support is needed to ensure adequate funding and regulatory flexibility, enabling UPTs to innovate without excessive bureaucratic hurdles. For practitioners, the study provides a roadmap for optimizing PAD through practical service improvements rather than solely through policy adjustments.

Future research could expand this analysis to other types of retributions and service units, offering comparative insights across regions. By highlighting the operational drivers of fiscal independence, this study underscores that innovation at the service level is not only a managerial strategy but also a foundation for sustainable local governance.

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