



Department of Digital Business

Journal of Artificial Intelligence and Digital Business (RIGGS)

Homepage: <https://journal.ilmudata.co.id/index.php/RIGGS>

Vol. 5 No. 2 (2026) pp: 21412- 21418

P-ISSN: 2963-9298, e-ISSN: 2963-914X

Digital Tourism Revenue Monitoring Framework for Heritage Destinations in Baubau

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Abstract

This study develops a digital tourism revenue monitoring framework for heritage destination management in Baubau City, Indonesia. Although tourism retribution from government-managed attractions has exceeded local revenue targets, the field evidence indicates that revenue governance still depends on conventional collection, recording, verification, and treasury deposit procedures. Using a descriptive qualitative design, this study analyzed field interviews, government documents, tourism revenue targets, visitor-related infrastructure data, and the institutional roles of the Tourism and Culture Office of Baubau City. The findings show that Benteng Keraton Buton and Batu Sori are the only tourism assets directly managed by the local government, while other destinations rely on community management. Tourism revenue reached 120% of the 2024 target and 111.11% of the 2025 target, supported by retribution tariffs, destination maintenance, cultural events, and digital promotion. However, the current system lacks integrated data capture, real-time revenue dashboards, visitor segmentation, digital payment traceability, and automated monitoring of collection-to-deposit flows. The proposed framework integrates destination-level retribution input, digital payment options, collector verification, treasury reconciliation, visitor category data, and managerial dashboards for revenue forecasting and anomaly detection readiness. The study contributes to digital business-oriented tourism governance by positioning local tourism revenue not only as a financial outcome but also as a data asset for accountability, planning, and destination competitiveness.

Keywords: Digital Tourism, Revenue Monitoring, Heritage Destinations, Tourism Retribution, Baubau

1. Introduction

Digital transformation has changed the way local governments manage tourism destinations, public revenue, and visitor-related business ecosystems. In tourism-dependent regions, digital tools are no longer limited to promotional media; they increasingly support ticketing, payment traceability, visitor data collection, service monitoring, and managerial decision-making. For a local government, tourism revenue is not only an income stream but also a data source that can describe destination demand, visitor segmentation, seasonal flows, and the effectiveness of public service delivery [1]-[6].

The relevance of digital tourism revenue governance becomes stronger in heritage destinations. Heritage sites usually require continuous maintenance, security, interpretation, visitor control, and cultural preservation. These activities demand stable financing and accountable revenue administration. If retribution collection remains manual and fragmented, destination managers may experience delayed reporting, weak reconciliation, limited visitor analytics, and difficulty linking revenue performance with destination investment needs [7]-[11].

Baubau City offers an important case for examining this issue. The city has several tourism assets, including historical, cultural, marine, religious, and culinary attractions. The field report shows that only two destinations, Benteng Keraton Buton and Batu Sori, are directly managed by the Tourism and Culture Office of Baubau City. Other destinations are generally managed by community groups, Pokdarwis, local communities, or village-level actors with government facilitation. This institutional configuration creates a clear distinction between government-managed revenue assets and community-managed tourism spaces.

The empirical data indicate that tourism retribution has performed strongly. In 2024, Baubau City set a tourism local revenue target of IDR 150,000,000 and realized IDR 180,000,000, equal to 120% of the target. In 2025, the target increased to IDR 180,000,000 and realization reached IDR 200,000,000, or 111.11%. The 2026 target was then increased to IDR 200,000,000. These figures show that heritage tourism revenue has become a meaningful fiscal instrument for the local government, although the report also indicates that revenue administration still relies on collection, recording, verification, and deposit procedures rather than an integrated digital monitoring system.

Previous studies have examined digital destination marketing, smart tourism, community-based tourism, and local tourism governance [12]-[18]. However, fewer studies connect heritage destination management with digital local revenue monitoring in a small-city government context. This gap is important because digital business orientation in tourism should not stop at online visibility. It should also include data-driven revenue administration, accountability, and service improvement.

Therefore, this study aims to develop a digital tourism revenue monitoring framework for heritage destination management in Baubau City. The research question is: how can tourism retribution data from government-managed heritage destinations be transformed into a digital monitoring framework that supports accountability, planning, and destination competitiveness? The study contributes by translating field evidence into a practical framework that links tourism retribution, visitor categories, verification, treasury deposits, and dashboard-based decision support.

2. Research Methods

2.1. Research design

This study used a descriptive qualitative approach supported by a framework development logic. The approach was appropriate because the study did not test a statistical model but interpreted field evidence, institutional workflows, revenue data, and governance needs in order to design a digital monitoring framework for tourism retribution. The framework is positioned as an applied digital business proposal for local government tourism management.

The unit of analysis is the Tourism and Culture Office of Baubau City, with a specific focus on heritage destination revenue from Benteng Keraton Buton and Batu Sori. These two destinations were selected because the field report identifies them as the only tourism objects directly managed by the local government and as sources of tourism retribution.

2.2. Data sources and field material

Primary material came from the field study report based on interviews and observations at the Tourism and Culture Office of Baubau City. The field report documents the organizational roles of destination development, tourism marketing, creative economy, culture, and tourism human resources. It also reports the current retribution mechanism, tariff categories, PAD target realization, and roadmap for improving tourism management.

Secondary material included regulatory references, local tourism data, regional revenue information, and scholarly literature on digital transformation, smart tourism, destination governance, revenue accountability, and digital business ecosystems.

2.3. Analytical procedure

The analysis proceeded through four steps. First, the existing tourism revenue configuration was identified by mapping government-managed destinations, community-managed destinations, retribution tariffs, and treasury deposit procedures. Second, the revenue governance gap was analyzed by comparing the current process with the requirements of digital monitoring, including data capture, verification, reconciliation, and reporting. Third, the study synthesized the literature on digital transformation and smart tourism to define the components of a digital tourism revenue monitoring framework. Fourth, an implementation roadmap was developed based on the practical conditions of Baubau City.

The framework was assessed digital business, management, information technology, and applied innovation. The framework does not claim that an AI system has already been implemented in Baubau. Instead, it proposes an AI-ready revenue monitoring architecture that can later support forecasting and anomaly detection once enough transaction data have been collected.

3. Results and Discussion

3.1. Existing tourism revenue configuration

The field evidence shows that the tourism portfolio of Baubau City is institutionally differentiated. Benteng Keraton Buton and Batu Sori are managed directly by the local government, while most other tourism objects are managed by Pokdarwis and local communities. This distinction is important because only government-managed assets are directly linked to official retribution collection and local treasury deposits. In digital business terms, these two destinations represent the first feasible entry points for digitizing tourism revenue monitoring.

The retribution system is based on visitor categories. The tariff is IDR 10,000 for students, IDR 20,000 for domestic tourists, and IDR 50,000 for international tourists. Collection is conducted at the destination entrance,

recorded by officers, verified by the receiving treasurer, and deposited into the regional treasury. This workflow demonstrates administrative accountability but remains vulnerable to delay and data fragmentation if it is not supported by a digital record system.

Table 1. Existing retribution configuration and digital monitoring implications

Field evidence	Current condition	Digital implication
Directly managed destinations	Benteng Keraton Buton and Batu Sori	Initial scope for digital ticketing and retribution dashboard
Other destinations	Managed by Pokdarwis and communities	Future integration through partnership reporting
Tariff categories	Students, domestic tourists, international tourists	Visitor segmentation and revenue classification
Collection flow	Collector - treasurer - treasury deposit	Verification and reconciliation module
PAD performance	Targets exceeded in 2024 and 2025	Forecasting and performance dashboard

Source: Field study data, processed by authors.

3.2. Revenue performance and the need for digitalization

The PAD data indicate that tourism retribution has become a reliable revenue source. The 2024 realization exceeded the target by 20%, while the 2025 realization exceeded the target by 11.11%. These achievements justify the increase of the 2026 target to IDR 200,000,000. However, stronger revenue performance also increases the need for better monitoring. As revenue grows, manual administration may become less efficient for tracking visitor categories, daily receipts, officer performance, destination-level income, and deposit timelines.

Digital revenue monitoring is not merely a technical upgrade. It changes how managers view tourism revenue. Under a manual system, revenue is mainly recorded after collection. Under a digital monitoring system, revenue becomes a live managerial signal that can inform staffing, facility maintenance, event planning, promotion, and budget prioritization. This logic is consistent with digital transformation literature, which argues that data and technology reshape organizational processes, value creation, and decision-making [1]-[4].

Table 2. Target and realization of tourism PAD in Baubau City

Year	Target PAD	Realization	Achievement
2024	IDR 150,000,000	IDR 180,000,000	120%
2025	IDR 180,000,000	IDR 200,000,000	111.11%
2026	IDR 200,000,000	In progress	-

Source: Field study data from the Tourism and Culture Office of Baubau City, 2026.

3.3. Proposed digital tourism revenue monitoring framework

The proposed Digital Tourism Revenue Monitoring Framework consists of six connected module

Table 3. Components of the digital tourism revenue monitoring framework

Module	Core function	Managerial benefit
Destination identity	Records asset status, tariff basis, facility profile	Defines scope of accountable revenue
Visitor transaction input	Captures category, tariff, payment, time, collector	Creates daily transaction database
Verification	Matches collector report and treasurer record	Reduces reporting gaps
Treasury reconciliation	Links revenue to deposit evidence	Strengthens accountability
Dashboard reporting	Displays target, realization, trend, destination income	Supports planning and supervision
AI-readiness	Stores historical data for forecasting and anomaly flags	Prepares data-driven decision support

Source: Authors' framework.

3.4. Digital dashboard indicators for heritage destination management

A dashboard should not display only total income. It should connect revenue with managerial indicators. For Benteng Keraton Buton and Batu Sori, relevant indicators include daily visitor volume, visitor category distribution, tariff realization, cash versus digital payment proportion, collector identity, deposit status, variance

between expected and received income, and comparison with monthly targets. These indicators allow the Tourism and Culture Office to observe whether revenue growth is supported by stable demand, event effects, promotional effects, or operational improvement.

The digital dashboard can also support destination maintenance. For example, if revenue from a destination increases but complaints about facilities also increase, managers can prioritize facility repair. If student visits dominate certain months, education-oriented cultural interpretation can be improved. If international visitors are small but pay a higher tariff, the office can evaluate whether multilingual information, online maps, and heritage storytelling are adequate. Thus, a digital revenue dashboard can connect finance, service quality, and destination competitiveness.

3.5. AI-readiness without premature AI implementation

Once daily transaction data, visitor categories, destination conditions, event schedules, and payment records are stored consistently, the local government can later apply simple forecasting and anomaly detection. Forecasting can estimate expected monthly revenue, while anomaly detection can identify unusual gaps between visitor records, tariff categories, and deposits.

This staged approach avoids technology overclaiming. Many local governments do not need complex AI at the first stage of digital transformation. They need clean data, standard operating procedures, reliable input forms, and accountable reconciliation. Only after these foundations are available can AI tools become useful and responsible. This principle is consistent with digital transformation studies that emphasize organizational process redesign before advanced analytics [1], [2], [6], [19].

3.6. Implementation roadmap

The roadmap begins with standardizing the retribution workflow at government-managed destinations. This includes uniform transaction forms, collector identification, tariff category coding, and daily deposit documentation. The second stage is digitizing daily revenue entry through a spreadsheet-based or simple web-based form. The third stage is dashboard creation for monitoring targets, realization, and destination-level trends. The fourth stage is digital payment integration, which may begin with QR-based payment options. The fifth stage is AI-readiness through data cleaning, monthly forecasting, and anomaly flagging.

This roadmap allows the government to adopt digital transformation gradually without disrupting current administrative routines. It also keeps the framework realistic for a small-city tourism office with limited budget and human resources. The most important requirement is not advanced technology at the beginning but consistency in data input and verification.

Table 4. Implementation roadmap for digital tourism revenue monitoring

Stage	Action	Output	Time frame
1	Standardize tariff and collector forms	Uniform revenue records	1-3 months
2	Digitize transaction entry	Destination-level database	3-6 months
3	Build dashboard indicators	Target and realization dashboard	6-9 months
4	Integrate QR/payment options	Traceable payment records	9-12 months
5	Prepare forecasting and anomaly flags	AI-ready revenue analytics	12-24 months

Source: Authors' framework based on field findings.

3.7. Discussion: digital business value for local tourism revenue

The proposed framework strengthens digital business value in three ways. First, it transforms tourism revenue into structured data. This is important because data can support managerial decisions beyond financial reporting. Second, it links service delivery and financial accountability. When destination revenue is visible, the government can justify maintenance spending and facility investment more transparently. Third, it creates a pathway toward smart tourism governance, where public revenue, visitor flows, destination services, and community partnerships are managed through connected information.

The framework also extends the discussion on digital tourism. Much of the literature emphasizes destination branding, social media, and tourist experience. This study shows that digital tourism should also include revenue administration. For local governments, the economic value of tourism is captured not only through visitor

attraction but also through accountable retribution systems, clear financial flows, and evidence-based reinvestment in destination quality.

However, the framework has limitations. The field data did not include transaction-level records, visitor satisfaction surveys, payment method data, or social media analytics. Therefore, the framework should be treated as a practical design derived from qualitative evidence, not as a tested information system. Future studies should pilot the framework at Benteng Keraton Buton and Batu Sori, collect daily transaction data, and evaluate whether digital monitoring improves reporting speed, revenue accuracy, and managerial responsiveness.

3.8. Data governance safeguards for public revenue

Digital revenue monitoring can improve accountability only if it is accompanied by data governance safeguards. The proposed system should define user roles, access rights, audit trails, backup procedures, and daily closing protocols. Collectors should only input transactions, treasurers should verify and reconcile deposits, and managers should access dashboard summaries. This separation of duties is important because digitalization can reduce some manual risks but may create new risks if access is uncontrolled.

The framework should also standardize master data. Destination names, tariff categories, payment channels, collector codes, and deposit references must be consistent. Without master data standardization, dashboards may produce misleading summaries. In the context of Baubau, the first version of the system can focus on two government-managed destinations before expanding to community-managed destinations through partnership reporting modules.

Another safeguard is exception reporting. The system should generate simple alerts when there is a gap between expected revenue and deposited revenue, when a collector does not close daily records, when one visitor category suddenly disappears from the record, or when revenue deviates sharply from the normal pattern. These exception reports do not require complex AI at the initial stage; rule-based thresholds are sufficient before machine learning models are introduced.

Table 5. Data governance safeguards for the proposed system

Safeguard	Operational rule	Expected control effect
Role-based access	Collector, treasurer, and manager roles are separated	Prevents unauthorized editing
Daily closing	Transactions are locked after daily verification	Reduces retrospective manipulation
Deposit evidence	Each verified amount must have a treasury reference	Strengthens reconciliation
Master data standardization	Destination, tariff, and payment codes are fixed	Improves dashboard accuracy
Exception alerts	Unusual variance and missing deposits are flagged	Supports early supervision

Source: Authors' framework.

3.9. Contribution to the digital business scope

This manuscript is aligned with the scope of digital business because it treats tourism revenue as a digital value chain. The value chain begins with visitor entry, continues through tariff classification and payment, moves into verification and treasury reconciliation, and ends with managerial analytics. Each stage produces data that can help the local government improve destination services and strengthen revenue accountability.

It proposes a practical architecture rather than a purely conceptual discussion. The proposed framework can be implemented using low-cost tools at the first stage, such as structured forms, spreadsheet dashboards, QR-based payment records, and monthly reconciliation templates. Later, the system can be developed into a web-based application with forecasting and anomaly detection modules.

The contribution is different from general tourism promotion studies. Instead of asking how digital media attracts tourists, this study asks how tourism retribution can be converted into an accountable digital data asset. This angle is important because local governments need not only more visitors, but also reliable mechanisms for capturing, reporting, and reinvesting tourism income.

4. Conclusion

This study developed a digital tourism revenue monitoring framework for heritage destination management in Baubau City. The field evidence shows that Benteng Keraton Buton and Batu Sori are the only tourism assets

directly managed by the local government, while other destinations are managed mainly by community actors. Tourism PAD exceeded targets in 2024 and 2025, indicating the fiscal relevance of heritage tourism revenue. However, the current retribution process still requires stronger digital monitoring to improve transaction capture, verification, treasury reconciliation, visitor segmentation, dashboard reporting, and AI-readiness. The proposed framework offers a practical pathway for transforming tourism revenue into a digital business data asset. It recommends phased implementation, beginning with standardized forms and digital entry, followed by dashboard reporting, payment traceability, and later forecasting or anomaly detection.

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