A DECISION FRAMEWORK FOR GENERAL AFFAIRS SERVICE REQUEST PLATFORM USING THE ANALYTIC HIERARCHY PROCESS AT PT HUADIAN BUKIT ASAM POWER

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Abstract

General Affairs (GA) service requests at PT Huadian Bukit Asam Power (HBAP) are currently managed through fragmented paper forms, spreadsheets, emails, and messaging applications, resulting in inefficient service delivery, limited request tracking, and inadequate audit trails. Selecting an appropriate digital platform is therefore essential to improve operational efficiency under limited organizational resources. This study aims to develop a practical decision framework for selecting the most suitable GA service request platform. The study applies the Analytic Hierarchy Process (AHP) to evaluate three platform alternatives: an in-house low-code solution, a bespoke application developed by an external consultant, and a commercial off-the-shelf (COTS) software solution. The evaluation criteria were derived from the Total Cost of Ownership, DeLone and McLean Information Systems Success Model, Technology Acceptance Model, and Diffusion of Innovations framework. Root cause analysis using the Five Whys and Fishbone diagram was conducted to define the decision problem. Pairwise comparisons were obtained from thirteen organizational stakeholders and analyzed using AHP with group judgment aggregation and consistency testing. The results indicate that service quality and user acceptance (28.0%) were considered the most important decision criterion, followed by governance and risk (24.0%), strategic fit and technical compatibility (23.6%), delivery speed and adaptability (17.6%), and five-year cost (6.8%). The in-house low-code platform achieved the highest overall priority (64.4%), outperforming the COTS solution (19.9%) and bespoke development (15.7%). The findings provide a transparent and evidence-based decision framework that supports sustainable digitalization of GA services and can be adapted for similar platform selection decisions in other organizational support functions.

Keywords: Analytic Hierarchy Process, General Affairs, Low-Code Platform, Platform Selection, Service Request Management

INTRODUCTION

Digital transformation has become an important agenda for organizations seeking to improve operational efficiency, service transparency, and managerial control. In the power generation sector, the early stage of commercial operation is commonly focused on stabilizing plant performance, meeting grid requirements, and establishing reliable operating practices. However, as operational activities become more stable, internal support functions also require systematic improvement to ensure that administrative services can support business continuity effectively.

PT Huadian Bukit Asam Power is an independent power producer operating the Sumsel-8 mine-mouth power plant in Muara Enim, South Sumatra. Since the beginning of its commercial operation in October 2023, the company has focused on ensuring plant stability while gradually initiating the modernization of corporate support functions. One of the functions that requires improvement is General Affairs, which supports daily operational and administrative activities through services such as transportation, travel, accommodation, catering, meeting room requests, material requests, visitor access, courier services, and document handling.

At present, General Affairs service requests are managed through multiple channels, including Power Apps, DingTalk, Google Forms, Excel files, email, messaging applications, paper forms, and direct communication with officers. Although several services have been partially digitalized, there is still no integrated platform that provides centralized records, standardized tracking, and reliable service performance data. This fragmented condition creates practical problems for both users and management. Users often need to contact General Affairs officers directly to ask about the status of their requests, while management faces difficulties in monitoring request volume, response time, resolution time, approval history, and service-level achievement.

The absence of a centralized and traceable request management system also weakens auditability and data reliability. Requests submitted through messaging applications or paper forms are difficult to reconstruct, especially when officers need to calculate monthly request volumes or verify approval histories manually. As a result, General Affairs cannot consistently produce accurate performance information or identify service improvement priorities based on reliable data. This condition may also reduce internal users' confidence because they cannot easily monitor the progress of their requests in a transparent and real-time manner.

The issue is not merely a technical problem but also a managerial decision problem. The company needs to select a digitalization approach that is feasible under current organizational constraints, including limited non-core system budgets, lean information technology resources, and limited capacity for custom software development. Since the company already operates within the Microsoft 365 ecosystem, the selected solution must also consider strategic fit, implementation speed, user acceptance, governance, risk, and long-term sustainability. Therefore, the choice of a digital platform should be evaluated using a structured decision-making approach rather than based only on technical preference or short-term convenience.

This study aims to determine the ideal condition of General Affairs service request management at PT Huadian Bukit Asam Power and to recommend the most appropriate digitalization approach for achieving that condition. Specifically, the study focuses on centralized request recording, easy request tracking, reliable performance data, and improved

internal user confidence. To support the decision-making process, this study applies the Analytic Hierarchy Process to evaluate alternative digital platforms based on relevant managerial, technical, financial, and organizational criteria. Through this approach, the study is expected to provide a transparent and systematic recommendation for improving General Affairs service request management in a newly operating power generation company.

REVIEW OF LITERATURE

General Affairs as an Internal Service Function

General Affairs plays an important role in supporting the continuity of organizational operations. Although General Affairs is often positioned as a back-office function, its activities directly influence the ability of employees and business units to perform their core tasks effectively. General Affairs commonly manages facilities, transportation, office administration, logistics, asset support, accommodation, catering, document handling, and other administrative services needed in daily operations. In this sense, General Affairs can be understood as part of the broader facilities management function, which is responsible for ensuring that the physical and administrative environment of an organization operates properly. Facilities management contributes not only to operational continuity but also to employee productivity, cost efficiency, service reliability, and organizational performance.

The role of General Affairs can also be viewed through the perspective of internal service management. Internal service quality refers to the quality of support, interaction, and output provided by one unit to other units or employees within the same organization. In this context, General Affairs officers act as internal service providers, while employees and departments act as internal customers. The quality of General Affairs services can affect how smoothly employees perform their work. When services such as travel arrangements, facility requests, meeting room support, logistics, and document handling are delivered responsively and reliably, employees can focus more effectively on their main responsibilities. Conversely, fragmented and uncoordinated services may reduce internal service quality and create hidden productivity losses. The service-profit chain perspective suggests that better internal service quality can improve employee satisfaction and contribute to better organizational outcomes (Heskett et al., 1994).

Digitalization of Administrative Service Management

As organizations increasingly formalize internal services, information systems become important tools for managing requests, workflows, approvals, tracking, and reporting. The success of an information system can be explained using the DeLone and McLean Information Systems Success Model. The updated model consists of six interrelated dimensions: system quality, information quality, service quality, use, user satisfaction, and net benefits (DeLone and McLean, 2003). System quality refers to the technical performance, reliability, ease of use, and response time of a system. Information quality refers to the accuracy, completeness, timeliness, and relevance of information produced by the system. Service quality reflects the support provided to users, while use and user satisfaction describe actual utilization and user evaluation of the system. Net benefits represent the positive impacts of the system on individuals, groups, and organizations.

In the context of General Affairs service request management, the Information Systems Success Model provides a useful foundation for evaluating whether a digital platform can improve internal service delivery. A good request management system should be stable, easy to use, and capable of producing reliable information regarding request status,

approval history, response time, and resolution time. The system should also support users and service providers by making the process more transparent and traceable. Therefore, digitalization should not be understood merely as the adoption of technology, but as a redesign of internal service processes to improve system quality, information quality, service quality, and organizational benefits.

The digitalization of administrative and support services has become increasingly relevant as organizations seek to reduce paper-based procedures, informal communication, and scattered records. In many organizations, shared services, workflow systems, and integrated platforms are used to standardize administrative processes and improve efficiency. Digitalization enables service requests to be centralized, monitored in real time, and measured through performance indicators. For General Affairs, this means that requests can be recorded in one system, assigned unique identifiers, tracked from submission to completion, and converted into reliable data for managerial decision-making. Such digitalization can strengthen transparency, auditability, and accountability in internal service management.

User Acceptance and Innovation Adoption

The success of an internal application depends not only on technical capability but also on user acceptance. The Technology Acceptance Model explains that users are more likely to accept and use a system when they perceive it as useful and easy to use (Davis, 1989). Perceived usefulness refers to the extent to which a person believes that using a system will improve job performance, while perceived ease of use refers to the extent to which the system is perceived as free of effort. In the case of General Affairs service management, requesters must believe that the system makes it easier to submit and monitor requests, while General Affairs officers must believe that the system helps them manage workload, approvals, and reporting more efficiently. If users perceive the system as complicated or less convenient than informal channels, adoption may remain partial and the expected benefits of digitalization may not be fully achieved.

The adoption of internal digital platforms can also be explained using the Diffusion of Innovations theory. Rogers (2003) identifies five characteristics that influence the rate of adoption: relative advantage, compatibility, complexity, trialability, and observability. Relative advantage refers to the extent to which an innovation is perceived as better than the previous practice. Compatibility refers to the fit between the innovation and existing values, experiences, and needs. Complexity refers to the perceived difficulty of understanding and using the innovation. Trialability refers to the possibility of testing the innovation on a limited basis, while observability refers to the visibility of its results. For General Affairs digitalization, a platform is more likely to be adopted when it clearly improves transparency and responsiveness, fits the existing technology environment, is simple to use, can be piloted gradually, and produces visible improvements in service performance.

Cost, Governance, and Low-Code Platform Considerations

Cost consideration is an important aspect in selecting a digital platform. The concept of Total Cost of Ownership emphasizes that decision makers should consider not only the initial purchase or development cost, but also all costs incurred throughout the lifecycle of a system (Ellram, 1995). These costs may include licensing, subscription, infrastructure, maintenance, support, training, change management, customization, integration, switching costs, and possible vendor lock-in. In the context of internal service digitalization, an option that appears inexpensive at the beginning may become costly in the long term if it requires

extensive customization, external support, or complex maintenance. Therefore, platform selection should consider the full economic burden over a reasonable planning period rather than focusing only on upfront cost.

Low-code development platforms have emerged as an alternative for organizations that need internal applications but have limited information technology resources. Low-code platforms allow users to build applications using visual interfaces, predefined components, and declarative logic with minimal manual coding. These platforms can accelerate development, reduce development costs, support business agility, and allow business units to participate more directly in application design. For internal service management, low-code platforms may be suitable because they can support workflow-based applications such as request submission, approval routing, status tracking, and reporting. Nevertheless, low-code implementation also requires proper governance. Without clear policies, access control, technical standards, and monitoring, low-code projects may create shadow IT, inconsistent application quality, security risks, and long-term maintainability problems.

Analytic Hierarchy Process for Platform Selection

Selecting the most appropriate platform for General Affairs service request management is a multi-criteria decision problem. The decision cannot be based only on cost, because each alternative may differ in terms of delivery speed, adaptability, user acceptance, governance, risk, technical compatibility, and strategic alignment. Multi-Criteria Decision Making methods provide a structured way to evaluate several alternatives based on multiple criteria. One widely used method is the Analytic Hierarchy Process, which decomposes a complex decision into a hierarchy consisting of a goal, criteria, and alternatives (Saaty, 1980). Through pairwise comparison, stakeholders can express judgments regarding the relative importance of criteria and alternatives. The method then produces priority weights and allows consistency checking through the Consistency Ratio (Saaty, 1990).

The Analytic Hierarchy Process is suitable for this study because the selection of a General Affairs digitalization platform involves both quantitative and qualitative considerations. The method allows decision makers to compare alternatives transparently and systematically, while also incorporating stakeholder perspectives. In this study, the evaluation of digital platform alternatives is based on five main criteria derived from the theoretical foundation: five-year cost, delivery speed and adaptability, service quality and user acceptance, governance and risk, and strategic fit and technical compatibility. Five-year cost is derived from the Total Cost of Ownership perspective. Delivery speed and adaptability are related to the Diffusion of Innovations theory, particularly relative advantage and trialability. Service quality and user acceptance are grounded in the Information Systems Success Model and the Technology Acceptance Model. Governance and risk reflect the need for auditability, access control, and sustainable system management. Strategic fit and technical compatibility are related to compatibility and alignment with the existing enterprise environment.

Conceptual Basis of the Study

Based on these theoretical perspectives, the improvement of General Affairs service request management should begin with an understanding of the current fragmented condition and the expected ideal condition. The ideal condition includes centralized request records, real-time status monitoring, reliable performance data, complete audit trails, and improved user confidence. A structured decision-support model is required to evaluate which platform alternative can best achieve this condition under the company's resource constraints.

Therefore, this study uses the Analytic Hierarchy Process to support the selection of a digitalization approach that is not only technically feasible but also economically reasonable, acceptable to users, governable, and aligned with the organization's long-term needs.

RESEARCH METHOD

Research Type

This study used a single-case study design with a sequential mixed-methods approach. The research was conducted at PT Huadian Bukit Asam Power, focusing on the improvement of General Affairs service request management. This research type was selected because the study aimed to examine a specific managerial problem within one organizational context, namely the fragmented and partially manual management of General Affairs service requests. The mixed-methods approach was applied because the study required qualitative analysis to understand the current condition, service management gap, and root causes, as well as quantitative analysis to evaluate alternative improvement approaches using the Analytic Hierarchy Process.

The research was carried out in two main stages. The first stage was the exploration stage, which focused on identifying the business issue, comparing the current and expected conditions, analyzing root causes, and determining possible improvement alternatives. The second stage was the evaluation stage, which focused on assessing the alternatives using AHP. Through this design, the study was able to connect the operational problem found in the organization with a structured decision-making process for selecting the most suitable digitalization platform.

Data Collection

Data collection was conducted through a structured stakeholder questionnaire, internal document review, operational record review, and cost-related data collection. The questionnaire was used to collect primary data for the AHP analysis. It was designed in the form of pairwise comparison matrices using Saaty's 1–9 scale. Respondents were asked to compare the importance of the evaluation criteria and to compare the alternatives under each criterion. Before completing the questionnaire, each respondent received a briefing sheet that explained the purpose of the study, the platform alternatives, and the evaluation criteria.

The questionnaire was administered independently to thirteen selected stakeholders at PT Huadian Bukit Asam Power. This method was used because the respondents had different organizational roles, work schedules, and work locations, including the plant site in Muara Enim and the Jakarta Head Office. Each respondent completed the questionnaire individually and was allowed to ask for clarification before submitting the response. In addition to the questionnaire, internal documents and available operational records were reviewed to understand the existing General Affairs service request process, request channels, service categories, cost references, and system-related considerations.

Data Source

The data sources in this study consisted of primary and secondary sources. The primary data source was the stakeholder questionnaire completed by thirteen respondents representing different managerial and operational perspectives within PT Huadian Bukit Asam Power. The respondents included representatives from top management, Human Resources and General Affairs, Engineering, Operations, Health, Safety and Environment, Legal, Risk, Site Management, General Affairs, Commerce, Information Technology, and

engineering staff. The involvement of these respondents was intended to ensure that the evaluation reflected both managerial priorities and operational needs.

The secondary data sources included company records and supporting documents related to General Affairs operations, budget references, procurement information, vendor information, and internal cost estimates. Operational records were used to understand the current condition of General Affairs service requests, including request channels, service categories, request volume, response time, resolution time, and audit-trail completeness where available. Cost-related data were used to estimate the five-year Total Cost of Ownership for each alternative, including development or implementation cost, maintenance and support cost, training cost, licensing or subscription cost, hosting or infrastructure cost, and coordination or change-management cost.

Data Type

The data used in this study consisted of qualitative and quantitative data. Qualitative data included descriptions of the current General Affairs service request process, stakeholder perceptions, service management problems, root causes, user needs, and expected improvements. These data were used to explain why the existing process was insufficient and what kind of improvement was needed to achieve centralized records, real-time tracking, reliable performance data, complete audit trails, and stronger internal user confidence.

Quantitative data included pairwise comparison scores from the stakeholder questionnaire, service-level indicators, and five-year cost estimates for each alternative. The pairwise comparison scores were used to calculate the priority weights of the criteria and alternatives in the AHP model. Service-level indicators were used to describe the current operational condition where reliable data were available. Cost estimates were used to support the five-year cost criterion and to compare the economic implications of each improvement alternative.

Data Analysis

Data analysis was conducted in two stages. The first stage used qualitative analysis to identify the current condition, expected condition, and root causes of the General Affairs service request management problem. The Five Whys method was used to trace symptoms such as fragmented request channels, inconsistent response time, incomplete records, and weak auditability to their underlying causes. The Fishbone diagram was then used to classify the root causes into several categories, including methods, people, technology, data, policy, and environment. The results of this analysis were used to define the improvement direction and support the development of evaluation criteria.

The second stage used quantitative analysis through the Analytic Hierarchy Process. The AHP model consisted of five evaluation criteria: five-year cost, delivery speed and adaptability, service quality and user acceptance, governance and risk, and strategic fit and technical compatibility. The alternatives evaluated in this study were improvement of the manual process, semi-digital management using centralized spreadsheets and email-based tracking, and full digitalization of General Affairs service requests through an integrated workflow platform. Individual stakeholder judgments were aggregated using the geometric mean to obtain group priority weights. The consistency of the pairwise comparison matrices was assessed using the Consistency Ratio, with a value of 0.10 or lower considered acceptable.

The final priority score of each alternative was calculated by multiplying the weight of each criterion by the local priority of the alternative under that criterion and summing the

results across all criteria. The alternative with the highest global priority score was selected as the recommended improvement approach. The qualitative and quantitative findings were then integrated to ensure that the selected alternative not only achieved the highest AHP score but also addressed the main operational problems identified in the exploration stage.

RESULTS AND DISCUSSION

Current Condition of General Affairs Service Request Management

The empirical findings show that General Affairs service request management at PT Huadian Bukit Asam Power was still fragmented across several channels. Requests were submitted through Power Apps, DingTalk, Google Form, email, chat, paper forms, and direct communication. Although some services had already used digital tools, these tools were not integrated into a single service request platform. As a result, request records were scattered, request status was not visible in real time, and management could not consistently monitor service performance.

The baseline data were reconstructed from internal working documents and discussions with General Affairs officers and managers. The reconstruction process itself showed one of the main problems of the current system because some requests had to be counted manually from chat threads, paper forms, and email records. Therefore, the figures should be interpreted as representative operational indicators rather than exact population data. The baseline indicators are presented in Table 1.

Table 1.
Baseline indicators of GA service request management at HBAP (representative month; 68 internal users; Site and Jakarta offices combined).

Service category	Location	Current channel	Vol./ mo	On-time %	Ack (h)	Resolve (h)	Audit (0–3)
Flight ticket request	JKT+Site	Power Apps	42	83%	3.0	26.0	3
Vehicle / fleet request	Site	DingTalk app	58	79%	1.5	4.5	2
Meeting room booking	JKT	Google Form	36	88%	0.5	1.0	2
Meeting room booking	Site	Chat / walk-in	24	65%	2.0	3.5	1
Catering reservation	JKT+Site	Chat / email	19	68%	4.0	20.0	1
Accommodation booking	Site	Email / chat	14	60%	6.0	30.0	1
GA material requisition	JKT+Site	Paper form	31	55%	12.0	48.0	0
Visitor / access request	JKT+Site	Email / chat	22	70%	3.5	12.0	1
Courier / document dispatch	JKT+Site	Chat / walk-in	17	72%	2.0	8.0	1
Total / weighted average	—	Mixed	263	72% (wtd.)	3.8 (wtd.)	14.7 (wtd.)	1.2 (avg.)

Table 1 indicates that the weighted average on-time completion rate was only 72%, while the weighted median resolution time reached 14.7 hours. The lowest performance

appeared in services that were still paper-based or handled through informal channels. For example, General Affairs material requisition had only 55% on-time completion, a median resolution time of 48 hours, and an audit score of 0. This finding confirms that the problem was not only service delay but also weak traceability. Services using light digital tools performed relatively better, but because each tool stored data separately, management still could not obtain a unified view of General Affairs service performance.

Root Causes of Fragmented Service Management

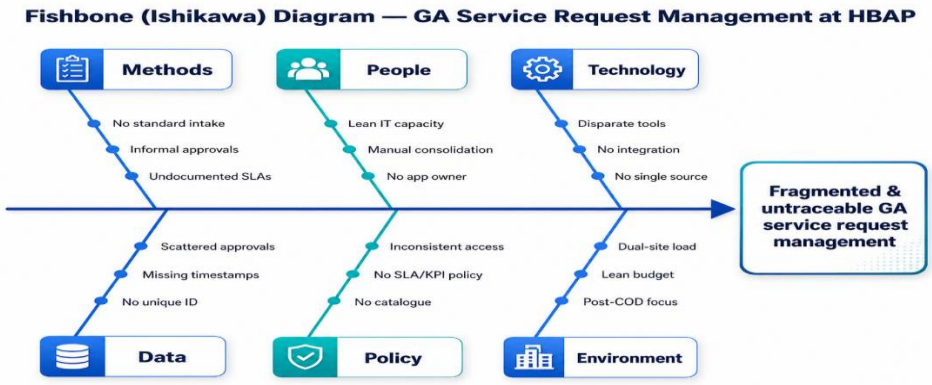
The root cause analysis was conducted using the Five Whys method and Fishbone diagram. The analysis showed that fragmented tracking, unmeasurable service levels, and incomplete audit trails were not separate problems. These problems came from the same structural cause, namely the absence of a single integrated General Affairs service request platform. The contributing causes are summarized in Table 2. Table 2 presents the causes identified in each category during the discussions and the document review.

Table 2.
Fishbone (Ishikawa) causes by category for the central problem: fragmented and untraceable GA service request management.

Category	Contributing causes observed at HBAP
Methods (Process)	No standardized intake across the eight GA categories; informal approvals (verbal, paper, chat); undocumented service-level targets; implicit escalation rules.
People (Users & Staff)	Lean IT function after COD with limited spare build capacity; GA officers manually consolidate requests; users unsure which channel to use; no designated citizen-developer / application owner.
Technology (Systems & Tools)	Disparate tools (Power Apps, DingTalk, Google Form, paper, chat/email) with no integration; no single source of truth; no mobile-friendly site access; no connector strategy.
Data (Information)	No unique request ID end-to-end; inconsistent or missing timestamps; approval records stored separately from requests; low data confidence for chat/paper routes.
Policy (Governance)	No published GA service catalogue; no SLA/KPI definitions per category; inconsistent access control across tools; no audit or reporting policy.
Environment (Organisational)	Post-COD focus on plant stabilisation; tight non-core budget typical of new IPPs; dual-location (Muara Enim + Jakarta) coordination load; existing M365 tenant not yet leveraged for GA.

The root cause analysis supports the argument that administrative tightening alone would not solve the problem. Adding more forms, asking officers to update spreadsheets manually, or increasing follow-up communication would only reduce symptoms temporarily. The deeper issue was the lack of a common data model, centralized records, and system-enforced workflow. This finding is consistent with the Information Systems Success Model, which emphasizes that system quality and information quality are essential for producing organizational benefits (DeLone and McLean, 2003). In this case, the absence of an integrated system reduced the quality, completeness, and timeliness of service information.

Figure 1.
Fishbone (Ishikawa) diagram for GA service request management at HBAP.



The fishbone analysis confirms that fragmented GA service request management is not caused by a single branch but by mutually reinforcing weaknesses across methods, people, technology, data, policy, and environment. The diagram shows that a platform-based solution – rather than a procedural fix – is the minimal intervention that can address all six branches simultaneously.

Screening of Improvement Options

After the root causes were identified, three improvement options were evaluated qualitatively. The first option was improving the existing manual process through standardized forms and more administrative control. The second option was developing a semi-digital process using centralized spreadsheets and email-based tracking. The third option was full digitalization through an integrated General Affairs service request platform. The screening result is presented in Table 3.

Table 3.
Screening of improvement options against gap-closing criteria.

Gap-closing criterion	Opt.1 Manual fix	Opt.2 Semi-digital	Opt.3 Full digital.	Min. needed
Centralised records of all eight GA services	Low	Medium	High	High
Real-time status visibility	Low	Low	High	High
Complete, system-enforced audit trail	Low	Low	High	High
Measurable SLAs / KPIs by category	Low	Medium	High	High
Sustainability under lean IT (5-year)	Low	Low	Medium–High	Medium
Verdict	Rejected	Rejected	Selected	—

Table 3 shows that only full digitalization could meet all gap-closing criteria. Manual improvement was rejected because it did not provide centralized records or system-enforced audit trails. Semi-digital tracking was also rejected because it still depended on manual updates and could not provide real-time visibility. Full digitalization was selected because it could integrate all General Affairs service requests into one platform, provide request status visibility, support service-level monitoring, and create a complete audit trail. This finding strengthens the argument that the improvement needed by HBAP was not merely procedural but platform-based.

Platform Alternatives and Total Cost of Ownership

After full digitalization was selected as the required improvement direction, three platform alternatives were compared. The first alternative was an internal low-code application using Microsoft Power Apps, SharePoint, Power Automate, and Power BI. The second alternative was a bespoke application developed by an external vendor. The third alternative was a commercial off-the-shelf subscription system. The five-year Total Cost of Ownership for each alternative is presented in Table 4.

Table 4.
Five-year Total Cost of Ownership (TCO) estimates for each alternative (68 users, 8 GA service categories; figures rounded in millions of IDR).

Cost component	A1 Low-Code (Power Apps)	A2 Bespoke (Vendor)	A3 COTS (Subscription)
Development / implementation	180	1,800	250
Maintenance & support (5 yr)	internal / included	1,350	included in sub.
Training	40	60	50
Licensing / subscription (5 yr)	250	150	1,630
Hosting / infrastructure (5 yr)	0 (incl. in M365)	180	0 (cloud-hosted)
Coordination & change mgmt	80	160	120
Five-year TCO (IDR mn)	≈ 550	≈ 3,700	≈ 2,050
Per-user / month (indicative)	≈ IDR 135 k	≈ IDR 905 k	≈ IDR 500 k

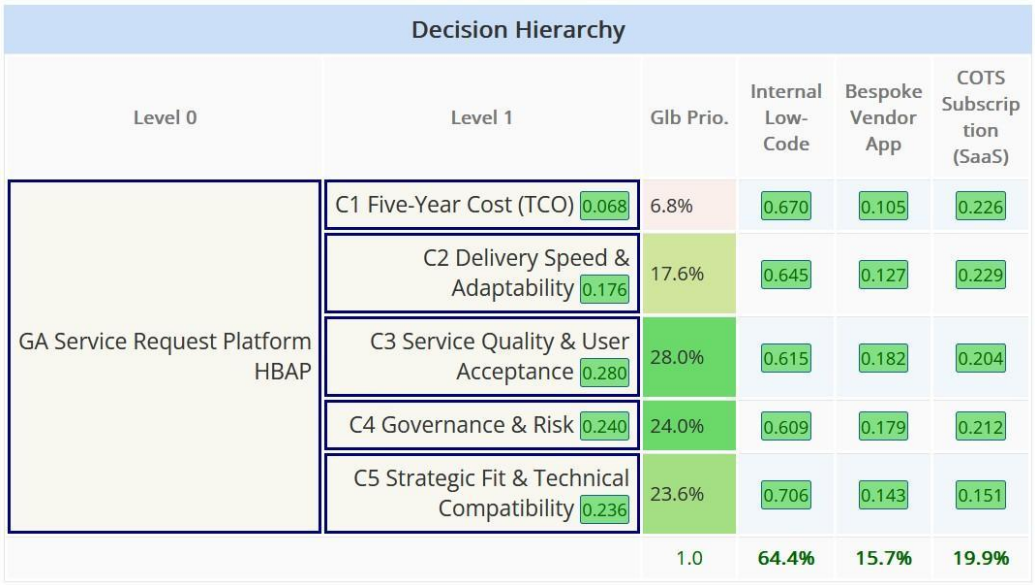
Table 4 shows that A1 Low-Code Power Apps had the lowest five-year TCO, approximately IDR 550 million. A3 COTS Subscription was second with approximately IDR 2.05 billion, while A2 Bespoke Vendor was the most expensive with approximately IDR 3.7 billion. The lower cost of A1 was mainly caused by the reuse of HBAP's existing Microsoft 365 environment and the possibility of internal development. However, cost alone did not determine the final decision because platform selection also involved service quality, governance, adaptability, and strategic fit. This is consistent with the Total Cost of Ownership perspective, which argues that system decisions should consider lifecycle cost rather than only initial purchase price (Ellram, 1995).

AHP Criteria Weights

The Analytic Hierarchy Process was used to evaluate the three alternatives based on five criteria: five-year cost, delivery speed and adaptability, service quality and user acceptance, governance and risk, and strategic fit and technical compatibility. The pairwise comparison data were collected from thirteen stakeholders and aggregated using the geometric mean. The resulting criteria weights are presented in Table 5.

Figure 2 shows the hierarchy as modelled in AHP-OS, and Table IV.6 summarises the criteria and sub-criteria.

Figure 2.
AHP decision hierarchy for platform selection, as modelled in AHP-OS (BPMSG)



Decision Hierarchy					
Level 0	Level 1	Glb Prio.	Internal Low-Code	Bespoke Vendor App	COTS Subscription (SaaS)
GA Service Request Platform HBAP	C1 Five-Year Cost (TCO) 0.068	6.8%	0.670	0.105	0.226
	C2 Delivery Speed & Adaptability 0.176	17.6%	0.645	0.127	0.229
	C3 Service Quality & User Acceptance 0.280	28.0%	0.615	0.182	0.204
	C4 Governance & Risk 0.240	24.0%	0.609	0.179	0.212
	C5 Strategic Fit & Technical Compatibility 0.236	23.6%	0.706	0.143	0.151
		1.0	64.4%	15.7%	19.9%

Table 5.
AHP criteria, their theoretical origin, and sub-criteria used to compare the three platform alternatives.

Code	Criterion	Derived from	Sub-criteria (interpretive)
C1	Five-year cost	TCO (Ellram, 1995)	C1.1 Development / implementation; C1.2 Maintenance & support; C1.3 Training; C1.4 Licensing / subscription; C1.5 Hosting / infrastructure; C1.6 Coordination & change management.
C2	Delivery speed & adaptability	DOI (Rogers, 2003)	C2.1 Time from concept to initial release; C2.2 Time from change request to release; C2.3 Release frequency feasible with local capacity.
C3	Service quality & user acceptance	D&M (1992, 2003); TAM (Davis, 1989)	C3.1 Expected on-time completion rate; C3.2 Audit-trail completeness; C3.3 User satisfaction and ease of use.
C4	Governance & risk	IT governance & risk	C4.1 Auditability and logging; C4.2 Access control and identity alignment; C4.3 Vendor lock-in and key-person risk.
C5	Strategic fit & technical compatibility	DOI compatibility; IT alignment	C5.1 Integration with Microsoft 365; C5.2 Mobile access for site users; C5.3 Long-term fit with HBAP's IT roadmap.

Table 5 shows that service quality and user acceptance became the most important criterion, followed by governance and risk, and strategic fit and technical compatibility. Five-year cost received the lowest weight. This result is important because it challenges the common assumption that digital platform decisions in resource-constrained organizations are dominated by cost. In HBAP's case, stakeholders placed greater emphasis on whether the platform could improve service reliability, user acceptance, auditability, and alignment with the existing technology environment.

The result is also theoretically relevant. The high weight of service quality and user acceptance supports the Technology Acceptance Model, which explains that perceived

usefulness and ease of use influence system adoption (Davis, 1989). The strong weight of governance and risk reflects the need for auditability and control in internal service processes. Meanwhile, the importance of strategic fit and technical compatibility is consistent with the Diffusion of Innovations theory, especially the concept of compatibility as a factor that influences adoption (Rogers, 2003).

Global Priority of Platform Alternatives

The final AHP synthesis combined the criteria weights with the local priority of each alternative under every criterion. The global priority score determined the final ranking of platform alternatives. The results are presented in Table 6.

Table 6.
Global priority computation for the three alternatives (weighted sum of local priorities under each criterion).

Criterion	Weight wj	A1 contribution	A2 contribution	A3 contribution
C1 Cost	0.068	0.0456	0.0071	0.0154
C2 Speed / Adaptability	0.176	0.1135	0.0224	0.0403
C3 Quality / User Acceptance	0.280	0.1722	0.0510	0.0571
C4 Governance / Risk	0.240	0.1462	0.0430	0.0509
C5 Strategic Fit	0.236	0.1666	0.0337	0.0356
Global priority Pa	1.000	0.644	0.157	0.199
Rank	—	1 (Selected)	3	2

Figure 3.
AHP global priorities of the three alternatives (consolidated group result from AHP-OS).

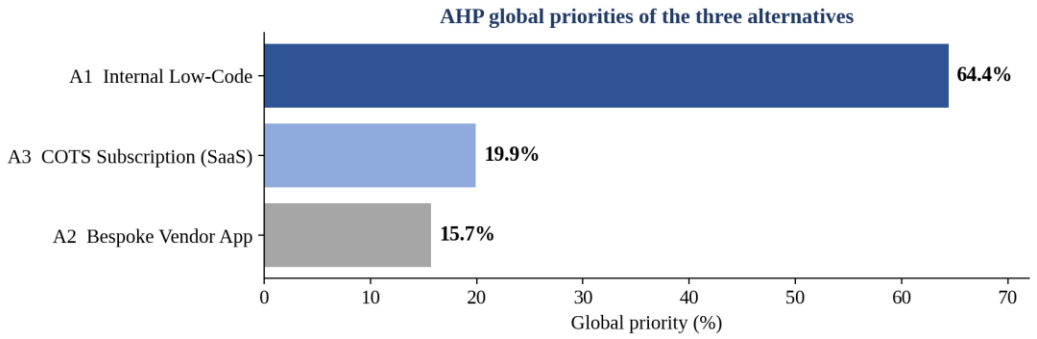


Table 6 shows that A1 Low-Code Power Apps achieved the highest global priority score at 64.4%. This score was more than three times higher than A3 COTS Subscription and about four times higher than A2 Bespoke Vendor. The sensitivity analysis also showed that A1 remained the first-ranked alternative under different weighting scenarios, including ±20% variation in the dominant criteria and an equal-weight scenario. This indicates that the recommendation was robust and did not depend on a single fragile assumption.

The dominance of A1 can be explained by its strong performance across the criteria that stakeholders valued most. A1 was not selected merely because it had the lowest cost. It was selected because it offered strong service quality potential, better user acceptance, stronger governance through corporate identity and audit trails, and high compatibility with

HBAP's existing Microsoft 365 environment. This result supports the idea that a successful internal digital platform must combine technical feasibility, user acceptance, governance, and strategic alignment.

Discussion

The findings show that the main problem in General Affairs service request management at HBAP was not only the use of manual channels but the absence of an integrated system of record. The fragmented use of paper forms, chat, email, spreadsheets, and disconnected applications made it difficult to monitor requests, calculate performance indicators, and maintain audit trails. This finding confirms the relevance of the Information Systems Success Model, especially the importance of system quality and information quality in producing reliable organizational benefits (DeLone and McLean, 2003).

The study also demonstrates that internal service digitalization should be understood as a managerial decision, not merely a technical procurement activity. The AHP results show that stakeholders did not place cost as the most important criterion. Instead, they prioritized service quality, user acceptance, governance, risk, and strategic fit. This indicates that digitalization decisions in internal support functions should consider whether the platform can improve transparency, user confidence, and managerial control. In this sense, the study contributes to the literature on internal service management by showing that the value of digitalization lies not only in automation but also in the creation of traceable, measurable, and accountable service processes.

The selection of A1 Low-Code Power Apps also provides an empirical illustration of how low-code platforms can support digital transformation in organizations with limited IT resources. Low-code development allows the company to build workflow-based applications more quickly while reusing the existing Microsoft 365 environment. This supports the Diffusion of Innovations theory because the selected platform has relative advantage, compatibility, trialability, and observability (Rogers, 2003). It also supports the Technology Acceptance Model because the platform is more likely to be accepted when users perceive it as useful, easy to access, and familiar through existing corporate accounts (Davis, 1989).

From a governance perspective, the findings show that an internal low-code platform can reduce some risks associated with fragmented tools. A single platform can provide standardized request IDs, timestamped status changes, role-based access, approval records, and audit logs. However, low-code implementation also requires governance to avoid shadow IT, weak application control, and dependency on individual citizen developers. Therefore, the recommendation should be accompanied by clear ownership, development standards, access control, and documentation.

The practical contribution of this study lies in its structured decision model for selecting a digital platform for internal service management. Many organizations face similar problems in administrative support functions, where service requests are handled informally and performance data are difficult to obtain. This study shows that AHP can be used to combine stakeholder judgment, cost estimation, governance concerns, user acceptance, and strategic fit into a transparent platform decision. The model may be adapted by other organizations that need to digitalize internal services under budget and resource constraints.

Overall, the results indicate that the most appropriate improvement approach for General Affairs service request management at PT Huadian Bukit Asam Power is full digitalization through an internally owned low-code platform based on Microsoft Power Apps. The platform is expected to centralize all request records, improve real-time tracking,

strengthen auditability, support service-level measurement, and increase internal user confidence. The finding contributes to knowledge on digital transformation in internal service functions by demonstrating how multi-criteria decision-making can produce a practical and evidence-based platform recommendation.

CONCLUSION

This study concludes that General Affairs service request management at PT Huadian Bukit Asam Power still requires improvement because requests are handled through fragmented channels, including paper forms, email, chat, spreadsheets, and separate digital tools. This condition limits real-time tracking, weakens audit trails, and makes service performance difficult to measure. The ideal condition requires a centralized platform with unique request identification, real-time status monitoring, measurable service-level indicators, and complete approval records.

The results show that full digitalization is the most appropriate improvement approach. Based on the Analytic Hierarchy Process, the internal low-code platform using Microsoft Power Apps, SharePoint, Power Automate, and Power BI obtained the highest priority score of 64.4%, followed by commercial off-the-shelf subscription software with 19.9% and bespoke vendor-developed software with 15.7%. The selected alternative was not only the lowest-cost option, but also the strongest in terms of service quality, user acceptance, governance, risk control, and compatibility with the existing Microsoft 365 environment.

Theoretically, this study contributes by integrating internal service management, information system success, technology acceptance, innovation diffusion, total cost of ownership, and AHP into a structured platform selection model. Practically, the study recommends that HBAP adopt an internally owned low-code General Affairs service request platform, supported by clear ownership, user training, role-based access control, and service-level dashboards. Future research may examine post-implementation performance, compare user satisfaction before and after digitalization, or apply the same decision-making model to other internal support functions.

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