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Stakeholder Salience and Resource-Based View Analysis in Digital Building Permit Service: A Case Study in Jakarta

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Keywords

Building Management Information System; Building Permits; Building Approval; Project Management; Resources Stakeholders.

Abstract

The process for building permit was transformed to building approval which is implemented through the Building Management Information System (BMIS). Building permit process is influenced by the roles of various stakeholders and the availability of resources. This study aims to analyze the characteristics of stakeholders, using the dimensions of power, legitimacy, urgency, and interest, and the adequacy of resources, using the VRIN framework (valuable, rare, inimitable, and non-substitutable). The process used Likert-scale questionnaires distributed to stakeholders. Statistical analysis is conducted using ANOVA and RII tests to identify the characteristics of stakeholders and resources in supporting the performance of building approval process through BMIS. The results of this study are: (1) stakeholder attributes differed significantly across groups and indicating multidimensional distribution of stakeholder salience in the building approval process, (2) resources characteristics showed largely homogenous perception across groups, and (3) the influence of stakeholders and resources in the building approval process. This result indicates that all stakeholders and resources is significant for building approval process as a whole. This study aims to contribute to the improvement of digital governance in the building approval process by providing the perception for stakeholder prioritization and resource characteristics. The results are intended to support public organizations, especially in Jakarta, to optimize building approval process performance through the implementation of BMIS.

INTRODUCTION

Digital transformation for public services is conducted in many countries to improve governance efficiency, transparency, and accountability. For the construction industry, building permit is one of public services that has been developed from manual to digital, and even automatic with systems, such as Building Information Modelling (BIM) and Geographic Information System (GIS). The digital development is important to enhance service delivery performance and lighten administrative burdens (Bloch & Fauth, 2023; Noardo et al., 2022). Building permit in Indonesia was transformed from building construction permit to building approval as an enactment of Law Number 11 of 2020 on Job Creation. Based on Government Regulation Number 16 of 2021 on Implementing Regulation of Law Number 28 of 2002 on Building Construction, the transformation is implemented through the Building Management Information System (BMIS). BMIS is a program that was created by the Ministry of Public Works and is used by provincial and municipal governments across the country. Jakarta, as one of provincial government, utilize the system to issue building approval.

As one of the e-government implementations, BMIS is intended to be a digital platform that improves the administrative processes and delivery performance, and enhance efficiency, transparency, and accountability in building permit process (Aminudin et al., 2024; Susanti & Putera, 2023; Wahyudin et al., 2024). However, despite the purpose of the program, BMIS still faces several challenges, such as the resources availability, lack of stakeholders' qualifications, system errors, lack of communication between stakeholders, and lack of stakeholders' comprehension about the procedure and the system (Cahyani et al., 2024; Hendra et al., 2024; Heryanto et al., 2023; Mallappiang et al., 2023; Muhamad et al., 2024; Putri & Putri, 2024; Susanti & Putera, 2023; Syafrizal & Marto, 2021). Facing these challenges, some of the most important factors to improve the process in BMIS are stakeholders and resources. As the information system to proceed building permits, BMIS provide services for various stakeholders. The challenges are corresponded with the complexity of the building permit process which involves several stakeholders, high level of technical accuracy, and coordinated information exchange (Wahed, 2017).

Digital building permit systems require more than technical aspect to ensure effective outcome. Based on the existing literature, many challenges faced building permit process, particularly in Indonesia, involve stakeholder's qualification and communication, and also the availability and adequacy of resources (Mukminati & Maharani, 2024; Putra et al., 2024; Putranto & Pasaribu, 2024). These challenges can cause significant problems to the organization or applicants who are building owners that apply for building approval issuing. Delays in permit processing remain a significant issue, indicating gaps in workflow coordination, stakeholder interaction, and system utilization. These inefficiencies can generate multiple adverse impacts, including increased consultation costs for applicants due to prolonged processing times and reduced organizational performance of the responsible technical agency. Furthermore, delays in permit issuance may lead to project uncertainties, disrupting construction schedules and potentially causing financial losses. Therefore, the challenges in BMIS implementation not only affect administrative efficiency but also have broader implications for project performance and stakeholder trust in public service delivery.

In building approval procedure, the technical evaluation is conducted by Experts Team and technical department staff appointed by the local government. In Jakarta, as one of the provinces in Indonesia, the provincial government issued various regulations to legislate Experts Team appointment, technical department staff appointment, technical documents requirements, and standard operational procedure (Government Law No 16 of 2021). The procedure to issue building approval through BMIS involves various stakeholders and resources. In Jakarta, the provincial government issued the standard operational procedure to regulate building approval process that explains the step-by-step process, stakeholders involved, resources needed, and the duration of the process. Based on this document, the building approval issuing procedure involves the technical department staffs, Experts Team, applicants who request building approval process, and building designers or engineering consultants who are appointed by the owners to provide technical documents. All of these are stakeholders whose roles need to be analyzed and regulated. To

accommodate the procedure, the government needs resources during the process, such as the system itself, communication platform, consultation platform, and office equipment.

The urgency of this research is underscored by the critical role of building permits in urban development and the ongoing digital transformation agenda in Indonesia. The findings are expected to provide a deeper understanding of stakeholder and resource influences on BMIS performance. The novelty of this research lies in its integrated theoretical approach, combining stakeholder salience and the power-interest matrix (Ackermann & Eden, 2011) with the Resource-Based View (Madhani, 2010) to analyze a public service digitalization case.

Although the literatures and regulations may give some insight about the challenges that are caused by stakeholders or resources, there is still limitation on research that integrates stakeholder and resource theory in building permit process in Indonesia. This gap suggests the needs to analyze stakeholders and resource analyze that can give an impact in the BMIS-based building permit process, especially for building approval procedure in Jakarta. This study aims to provide an analysis of stakeholder roles based on their characteristics (power, legitimacy, urgency, and interests) and resources evaluation. The outcome of this study is expected give more understanding of the stakeholder and resource influences for BMIS performance.

METHOD

This research was conducted at technical department of the provincial government in Jakarta, who has the responsibility and authority to do technical evaluation of building approval application. The object of this research is the stakeholders' roles and resources characteristics in the technical evaluation process for building approval application through BMIS. The method that was used in the research process to gain the data is by reviewing regulations and literature, and also conducting survey through questionnaire to respondents. The respondents are the stakeholders that are or were involved in the technical evaluation process for building approval applications that require consultation from technical Experts Team. The stakeholders are categorized by four groups: technical department staffs, Experts Team, applicants who apply for building approval, and the designers or engineering consultants who provide the technical documents for building approval applications.

The stakeholders are being analyzed based on each category (technical department staffs, Experts Team, applicants, and consultants) by several indicators: power, legitimacy, urgency, and interest. Power, legitimacy, and urgency are the indicators based on the attributes from salience model. Meanwhile interest is the indicator based on Power-Interest matrix (Ackermann & Eden, 2011). Meanwhile resources are being analyzed based on each category (the system / BMIS, communication platform, consultation platform, and office equipment) by several characteristics: valuable, rare, imperfect imitability, and non-substitutable (Madhani, 2010). The questionnaire was created based on these indicators to analyze how each stakeholder and resource affect building approval issuing process performance. The data analysis technique that was used in this research is statistical descriptive analysis, analysis of variance (ANOVA), and relative important index (RII) by using Microsoft Excel.

The collected data is tested through validity test, conducted to evaluate whether the questionnaire items adequately measured their intended constructs. Item validity was assessed using the Pearson item–total correlation coefficient, which measures the relationship between each item score and the corresponding construct score. Following the recommendations of Nunnally and Bernstein (1994) and Abu Bakar, a correlation coefficient greater than 0.30 ($r > 0.30$) was adopted as the criterion for acceptable validity. This threshold is also consistent with the interpretation of correlation strength proposed by Cohen (1988), where coefficients above 0.30 indicate at least a moderate relationship. The analysis was performed using Microsoft Excel. In addition, significance testing was conducted to verify that the observed correlations were statistically meaningful. The significance of each correlation coefficient was evaluated using a two-tailed test, with p-values ≤ 0.05 indicating statistically significant and valid relationships between questionnaire items and their respective constructs (Khidzir et al., 2018).

At the same time, the collected data is also tested through reliability test, conducted to assess the internal consistency of the questionnaire items. Creswell (2010) stated that reliability refers to the extent to which an instrument produces stable and consistent results across measurements. Internal consistency was evaluated using Cronbach's alpha, one of the most widely applied reliability measures in survey-based research. Following the recommendation of Pallant (2001), a Cronbach's alpha value greater than 0.60 ($\alpha > 0.60$) was considered acceptable for demonstrating adequate reliability (Khidzir et al., 2018). Cronbach's alpha coefficients were calculated using Microsoft Excel based on the variance of individual items and the total variance of each construct. Higher alpha values indicate greater internal consistency among the questionnaire items.

In order to determine whether significant differences existed among the groups evaluated under each indicator, one-way Analysis of Variance (ANOVA) was employed. This method is widely used to compare mean values across multiple groups and assess whether observed variations are statistically significant (Badrudin, 2015; Chen et al., 2025; Lai & Lam, 2010; Lin & Fan, 2018; Robert et al., 2014; Skica & Dvouletý, 2018). Statistical significance was evaluated using the F-statistic and p-value. Differences were considered significant when the p-value was less than 0.05 ($p < 0.05$) and when the calculated F-value exceeded the critical F-value. In this study, one-way ANOVA was applied to examine differences among stakeholder groups (technical staffs, experts' team, applicants, and engineering consultants) based on the stakeholder indicators of power, legitimacy, urgency, and interest. Similarly, ANOVA was used to determine the differences among resource categories (system, communication media, consultation media, and office equipment) based on the VRIN dimensions, namely valuable, rare, imperfectly imitable, and non-substitutable.

Relative Importance Index (RII) was used to evaluate and rank the relative importance of stakeholder and resource factors based on respondents' perceptions (Rooshdi et al., 2018). RII values range from 0 to 1, with higher values indicating greater importance (A. Kassem et al., 2020; Akadiri, 2011; Azman et al., 2019; Boakye & Adanu, 2022; Khaleel & Nassar, 2018; Rooshdi et al., 2018). The RII analysis was performed using Microsoft Excel. Following established

classifications in the literature (Surya Bataric & Waty, 2025; Yazid et al., 2025), the results were interpreted using five categories that are shown in Table 1.

Table 1. RII Score Category

No	Score Interval	Category
1	$0.8 \leq RII \leq 1$	Very High
2	$0.6 \leq RII < 0.8$	High
3	$0.4 \leq RII < 0.6$	Moderate
4	$0.2 \leq RII < 0.4$	Low
5	$0 \leq RII < 0.2$	Very Low

RESULTS AND DISCUSSION

The sample of this research was 83 respondents who answer the questionnaire with a Likert scale. The respondents are consisted on 35 technical department staffs, 25 experts' team, 14 applicants, and 8 engineering consultants. The collected data from the respondents' response has been assessed through statistical tests, such as validity test, reliability test, ANOVA test, and RII test.

The validity assessment confirmed that all stakeholder-related indicators met the established validity criteria ($r > 0.30$, $p < 0.05$). Correlation coefficients ranged from 0.493 to 0.855, indicating moderate to very strong associations between individual items and their respective constructs. Since all indicators were statistically significant, the stakeholder and resource measurement instrument demonstrated satisfactory construct validity and was retained for further analysis (Khidzir et al., 2018) The result for this validity test is shown on Table 2 below.

Table 2. Validity Test Result

No	Variables	Indicators	Correlation Score (r)	Significant Values (P-Value)	Result
I	**Stakeholders**				
	A. Technical Department Staffs	1. Power	0.755	1.71E-16	Valid
		2. Legitimacy	0.750	8.54E-14	Valid
		3. Urgency	0.493	2.35E-17	Valid
		4. Interest	0.584	1.77E-14	Valid
	B. Experts Team	1. Power	0.706	3.33E-16	Valid
		2. Legitimacy	0.716	2.85E-14	Valid
		3. Urgency	0.636	4.46E-16	Valid
		4. Interest	0.620	3.7E-15	Valid
	C. Building Owners	1. Power	0.768	2.23E-06	Valid
		2. Legitimacy	0.748	1.07E-10	Valid
		3. Urgency	0.854	9.38E-25	Valid
		4. Interest	0.825	6.74E-24	Valid
	D. Engineering Consultants	1. Power	0.720	6.65E-09	Valid
		2. Legitimacy	0.732	4.22E-10	Valid
		3. Urgency	0.847	9.36E-22	Valid
		4. Interest	0.808	2.87E-20	Valid
II	**Resources**				
	A. System (BMIS)	1. Valuable	0.746	7.58E-16	Valid

No	Variables	Indicators	Correlation Score (r)	Significant Values (P-Value)	Result
		2. Rare	0.683	5.7E-17	Valid
		3. Imitability	0.686	6.06E-13	Valid
		4. Non-Substitutable	0.822	1.11E-15	Valid
	B. Communication Platform	1. Valuable	0.764	1.48E-12	Valid
		2. Rare	0.797	2.56E-19	Valid
		3. Imitability	0.813	4.64E-17	Valid
		4. Non-Substitutable	0.819	2.33E-18	Valid
	C. Consultation Platform	1. Valuable	0.691	1.09E-12	Valid
		2. Rare	0.766	1.51E-20	Valid
		3. Imitability	0.817	7.05E-21	Valid
		4. Non-Substitutable	0.855	4.67E-17	Valid
	D. Office Equipment	1. Valuable	0.743	2.39E-21	Valid
		2. Rare	0.785	4.02E-21	Valid
		3. Imitability	0.766	1.22E-24	Valid
		4. Non-Substitutable	0.648	4.34E-11	Valid

The reliability of the measurement instrument was assessed using Cronbach's alpha. As shown in Table 3, all dimensions exceeded the recommended threshold of 0.60, with alpha coefficients ranging from 0.683 to 0.798 (Khidzir et al., 2018). These results confirm the satisfactory internal consistency of the stakeholder and resource constructs, indicating that the instrument is reliable for further analysis.

Table 3. Reliability Test Result

No	Variables - Indicators	Cronbach's Alpha	Result
1	Stakeholder – Power	0.71343	Reliable
2	Stakeholder – Legitimacy	0.69986	Reliable
3	Stakeholder – Urgency	0.69099	Reliable
4	Stakeholder – Interest	0.68347	Reliable
5	Resource – Valuable	0.71784	Reliable
6	Resource – Rare	0.74963	Reliable
7	Resource – Imperfect Imitability	0.77193	Reliable
8	Resource – non-substitutable	0.79832	Reliable

Based on the ANOVA test, it was found that critical F value is calculated to be 2.63214. The ANOVA results revealed significant differences across all stakeholder indicators, including power, legitimacy, urgency, and interest ($p < 0.05$). Among the resource indicators, only non-substitutability showed a significant difference ($F = 5.817$, $p = 0.0007$), while valuable, rare, and imperfectly imitable did not exhibit statistically significant differences ($p > 0.05$). These results, shown in Table 4, indicate greater variation in stakeholder perceptions than in resource-related perceptions across the respondent groups (Lin & Fan, 2018; Robert et al., 2014). These findings suggest that respondents perceived the four resource categories as possessing similar value, uniqueness, and inimitability characteristics in service delivery processes. This implies that organizational competitive advantage particularly in service process efficiency is not determined by any single resource indicator but rather by the synergistic combination of multiple resource characteristics. This is in line with a critique about RBV that resource characteristics alone do not

guarantee outcomes; organizational capability in resource management remains essential (Kraaijenbrink et al., 2010). Moreover, resources functionality relies on managerial capability to select, combine, and utilize them. With strategic combination, resources may produce new capabilities and improve organizational performance. For public service delivery, resource availability and effective management are key principles in improving service quality and performance outcomes. Consequently, within the building approval service process through the BMIS system, the four resource groups function as an integrated bundle rather than discrete categories.

Table 4. ANOVA Test Result

No	Indicators	F Value	P-Value	Result
1	Power	4.1260	0.0068	Significant
2	Legitimacy	6.9925	0.0001	Significant
3	Urgency	11.2995	4.5E-07	Significant
4	Interest	8.7431	1.4E-05	Significant
5	Valuable	1.4393	0.2312	Not Significant
6	Rare	1.2774	0.2821	Not Significant
7	Imperfect Imitability	2.3539	0.0719	Not Significant
8	Non-substitutable	5.8169	0.0007	Significant

Relative Importance Index (RII) analysis was performed to evaluate and rank the relative importance of stakeholder and resource indicators. The results indicate that all stakeholder indicators were perceived as highly important, with RII values ranging from 0.708 to 0.925. Specifically, consultants achieved the highest ranking for the power indicator (RII = 0.921), while experts team ranked highest for both legitimacy (RII = 0.925) and interest (RII = 0.863). In contrast, technical staffs received the highest score for urgency (RII = 0.839). Overall, the dimensions of power and legitimacy were consistently rated as having very high importance across stakeholder groups. The result for RII test for stakeholder variable is shown in Table 5.

Table 5. RII Test Result for Stakeholder

No	Stakeholders	RII	Category	Ranks
Power				
1	Technical Department Staffs	0.8506	Very High	3
2	Experts Team	0.8506	Very High	3
3	Building Owners	0.8843	Very High	2
4	Engineering Consultants	0.9205	Very High	1
Legitimacy				
1	Technical Department Staffs	0.8675	Very High	2
2	Experts Team	0.9253	Very High	1
3	Building Owners	0.8530	Very High	3
4	Engineering Consultants	0.8265	Very High	4
Urgency				
1	Technical Department Staffs	0.8386	Very High	1
2	Experts Team	0.8265	Very High	2
3	Building Owners	0.7084	High	4
4	Engineering Consultants	0.7277	High	3
Interest				

No	Stakeholders	RII	Category	Ranks
1	Technical Department Staffs	0.8506	Very High	2
2	Experts Team	0.8627	Very High	1
3	Building Owners	0.7590	High	4
4	Engineering Consultants	0.7711	High	3

The RII analysis indicates that all stakeholder groups exhibited high to very high levels of salience across the dimensions of power, legitimacy, urgency, and interest. Consultants achieved the highest score in power, highlighting the critical role of technical document preparation in the building approval process. Meanwhile, the Experts Team demonstrated the highest legitimacy and interest, reflecting its formal authority and active involvement in technical assessments. Technical staffs obtained the highest urgency score, emphasizing their central role in coordinating and maintaining service continuity. Overall, the findings suggest that all stakeholder groups possess substantial influence and engagement within the BMIS-based building approval process. Based on the stakeholder salience model (Aapaoja et al., 2013; Castro et al., 2024) and the power–interest matrix (Ackermann & Eden, 2011; Zhu et al., 2024), all stakeholder groups can be classified as definitive stakeholders and players, indicating that they possess significant influence and interest in the process. However, the aggregated salience scores (Zhu et al., 2024) revealed that the Experts Team and Technical Staffs are the most critical stakeholders, suggesting that the effectiveness of the building approval process largely depends on their participation, coordination, and decision-making roles.

Table 6. RII Test Result for Resource

No	Stakeholders	RII	Category	Ranks
Valuable				
1	System	0.8554	Very High	3
2	Communication Platform	0.8554	Very High	3
3	Consultation Platform	0.8578	Very High	2
4	Office Equipment	0.8892	Very High	1
Rare				
1	System	0.7494	High	4
2	Communication Platform	0.7542	High	3
3	Consultation Platform	0.7831	High	2
4	Office Equipment	0.7952	High	1
Imperfect Imitability				
1	System	0.8843	Very High	1
2	Communication Platform	0.8482	Very High	2
3	Consultation Platform	0.8482	Very High	2
4	Office Equipment	0.8289	Very High	3
Non-Substitutable				
1	System	0.8193	Very High	3
2	Communication Platform	0.7928	High	4
3	Consultation Platform	0.8217	Very High	2
4	Office Equipment	0.8819	Very High	1

Based on Table 6 above, RII values for the resource variable ranged from 0.749 to 0.889, indicating high to very high rates. Office equipment achieved the highest overall score,

emphasizing the continued importance of physical infrastructure in supporting BMIS-based building approval services. In contrast, the BMIS system received the highest score for imperfect imitability, suggesting that its strategic value derives not only from the technology itself but also from the organizational capabilities, experience, and institutional arrangements required for its effective implementation (Kraaijenbrink et al., 2010; Madhani, 2010). Consistent with the Resource-Based View (RBV), the findings suggest that the BMIS system, communication platform, consultation platform, and office equipment possess valuable and difficult-to-replicate characteristics that can support organizational effectiveness and contribute to sustained competitive advantage (Madhani, 2010). Overall, the results reinforce the RBV argument that both digital and physical resources constitute complementary strategic assets. To maintain the effectiveness, coordination, and long-term sustainability of BMIS-enabled building approval (Kraaijenbrink et al., 2010; Madhani, 2010; Truong et al., 2024), the organization needs to be able to manage the combined contribution of the strategic resources.

CONCLUSION

This study evaluated stakeholder salience attributes (power, legitimacy, urgency, and interest) and resource characteristics (valuable, rare, imperfect imitability, and non-substitutable) in the context of BMIS-based building approval process. The findings reveal that stakeholder attributes have significant differences across groups, emphasizing that stakeholder roles are heterogenous and contributed differently depending on their function. Consultant are perceived to have highest level in power, while Experts Team in legitimacy, and staffs in urgency and interest, portraying a multidimensional distribution of stakeholder salience. In contrast, resource characteristics were generally perceived similarly across groups. It suggests that each resource group have similar characteristics and is distributed evenly, suggesting that effective building approval services rely on a combination of all resources rather than a single dominant resource. These findings support the RBV perspective that organizational effectiveness depends on the integrated management of strategic resources. In general, the building approval service process depends not only one stakeholder or one resource. To achieve the optimization in the process, the organization needs to manage the stakeholders and strategic resources as overall combination. These findings suggest that improving building approval process through BMIS should apply differentiated stakeholder engagement strategies and continuous investment in strategic resources, particularly system infrastructure, to enhance the effectiveness and sustainability of digital building approval services. This study has several limitations. First, the use of perception-based (Likert scale) data may configurate subjectivity, particularly because the respondents are also the stakeholders in question. Second, the analysis using ANOVA may conclude that there are significant differences in stakeholder, but it does not specify which group is differ in detail. Third, the research is limited to the context of building approval process, particularly the one that involve consultation with Experts Team. Fourth, the research was conducted in technical department of Jakarta Provincial Government, it may have different result with other organizations. The third and fourth limitation may affect generalizability. Future studies should

expand the analysis to other regions and organizational contexts and examine the relationship between stakeholders, resources, and service performance using more advanced analytical approaches.

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