

SBSN FINANCING AND INFRASTRUCTURE PERFORMANCE IN ISLAMIC HIGHER EDUCATION

Muhtadin^{1*}, Athok Fu'adi², Lukman Hakim³

¹Universitas Islam Negeri Kiai Ageng Muhammad Besari, Ponorogo

²Universitas Islam Negeri Kiai Ageng Muhammad Besari, Ponorogo

³Universitas Islam Negeri Kiai Ageng Muhammad Besari, Ponorogo

DOI: <https://doi.org/10.21154/muslimheritage.v11i1.13462>

*Corresponding Author: muhtadinondon@gmail.com

Received: Marc 31, 2026

Revised: May 30, 2026

Approved: June 10, 2026

Abstract

Government-issued State Sharia Securities (SBSN) have become an increasingly important funding source for infrastructure development in Indonesian Islamic universities. However, the performance of SBSN-funded projects often varies, raising concerns regarding governance, planning quality, and stakeholder engagement. This study aims to model the key determinants of project performance in SBSN-funded Islamic university infrastructure programs using a PLS-SEM approach. The object of this study is the Kiai Ageng Muhammad Besari State Islamic University (UIN) in Ponorogo. A total of 165 project stakeholders at the University participated in a structured survey based on five constructs: Project Planning Quality, Managerial Capability, Monitoring and Evaluation System, Stakeholder Engagement, and Project Performance. The results show that Managerial Capability has the strongest direct influence on project performance. Stakeholder Engagement and Monitoring and Evaluation also show significant influences. Interestingly, Project Planning Quality does not have a significant direct influence on monitoring or performance, but contributes indirectly through managerial and evaluative channels. These findings underscore the importance of integrating planning with leadership, institutional monitoring, and participatory mechanisms to achieve optimal project outcomes. This study contributes to the development of a governance model for religious finance-based infrastructure programs and provides practical insights for universities and policymakers to improve SBSN implementation. Future research could explore longitudinal changes, regulatory factors, and digital tools in infrastructure governance.

Abstrak

Surat Berharga Syariah Negara (SBSN) yang diterbitkan pemerintah telah menjadi sumber pendanaan yang semakin penting untuk pengembangan infrastruktur di Perguruan tinggi keislaman Indonesia. Namun, kinerja proyek yang didanai SBSN seringkali bervariasi, sehingga menimbulkan kekhawatiran terkait tata kelola, kualitas perencanaan, dan keterlibatan pemangku kepentingan. Studi ini bertujuan untuk memodelkan penentu utama kinerja proyek dalam program infrastruktur universitas Islam yang didanai SBSN menggunakan pendekatan PLS-SEM. Objek Penelitian ini adalah Universitas Islam Negeri Kiai Ageng Muhammad Besari Ponorogo. Sebanyak 165 pemangku kepentingan proyek di Universitas UIN Kiai Ageng Muhammad Besari Ponorogo berpartisipasi dalam survei terstruktur berdasarkan lima konstruk: Kualitas Perencanaan Proyek, Kemampuan Manajerial, Sistem Pemantauan dan Evaluasi, Keterlibatan Pemangku Kepentingan, dan Kinerja Proyek. Hasil penelitian menunjukkan bahwa Kemampuan Manajerial memiliki pengaruh langsung terkuat terhadap kinerja proyek. Sedangkan Keterlibatan Pemangku Kepentingan dan Pemantauan dan Evaluasi juga menunjukkan pengaruh yang signifikan. Menariknya, Kualitas Perencanaan Proyek tidak memiliki pengaruh langsung yang signifikan terhadap pemantauan maupun kinerja, tetapi berkontribusi secara tidak langsung melalui jalur manajerial dan evaluatif. Temuan ini menggarisbawahi pentingnya mengintegrasikan perencanaan dengan kepemimpinan, pemantauan kelembagaan, dan mekanisme partisipatif untuk mencapai hasil proyek yang optimal. Studi ini berkontribusi pada pengembangan model tata kelola untuk program infrastruktur

berbasis keuangan keagamaan dan memberikan wawasan praktis bagi universitas dan pembuat kebijakan untuk meningkatkan implementasi SBSN. Penelitian selanjutnya dapat mengeksplorasi perubahan longitudinal, faktor regulasi, dan alat digital dalam tata kelola infrastruktur.

Keywords: Project Performance; State Sharia Securities; Managerial Capability; SBSN; PLS-SEM



© 2026 by the authors. Published as an open-access publication under the terms and conditions of the Creative Commons Attribution-NonCommercial 4.0 International License (<http://creativecommons.org/licenses/by-nc/4.0/>).

INTRODUCTION

Investment in higher education infrastructure has become a strategic priority in many countries due to its significant contribution to educational quality, institutional competitiveness, and long-term national development. Adequate academic facilities such as classrooms, laboratories, libraries, and digital learning environments are essential to support effective teaching and learning processes, research productivity, and institutional sustainability^{1,2}. In developing countries, the rapid expansion of student enrollment, technological transformation, and increasing demands for global competitiveness have intensified the need for modern and adaptive university infrastructure^{3,4,5}. In Indonesia, higher education institutions are increasingly encouraged to improve physical infrastructure as part of broader national education reform and sustainable development agendas^{6,7}. However, the realization of such infrastructure projects requires substantial financial resources that often exceed conventional state budget allocations. Consequently, the Indonesian government has adopted alternative financing mechanisms through Islamic public finance instruments to support long-term educational infrastructure development.

One of the most prominent Islamic financing instruments implemented by the Indonesian government is State Sharia Securities (Surat Berharga Syariah Negara/SBSN), commonly referred to as sovereign sukuk. SBSN represents a Sharia-compliant public financing mechanism designed to mobilize long-term capital through asset-based transactions while maintaining fiscal sustainability and compliance with Islamic financial principles⁸. Since its introduction in 2008, SBSN has financed strategic national sectors, including transportation, healthcare, energy, and public education infrastructure^{9,10}. In recent years, Islamic higher education institutions and public universities have increasingly utilized SBSN funding for the construction of academic buildings, laboratories, and integrated educational facilities. Unlike conventional financing schemes, SBSN-funded projects operate within dual dimensions of

¹ Chikibayeva et al., "Analysis of Investments in the Expansion of Social University Infrastructure Facilities and Student Dormitories in Kazakhstan"; Ntorukiri et al., "Policy and Infrastructure Challenges Influencing ICT Implementation in Universities."

² Ntorukiri et al., "Policy and Infrastructure Challenges Influencing ICT Implementation in Universities."

³ Ahriz et al., "Enhancing Information Technology Governance in Universities."

⁴ Alghail et al., "Will Knowledge Infrastructure Capabilities Elevate the Project Management Maturity?"

⁵ Ma and Li, "Performance Evaluation of Education Infrastructure Public-Private Partnership Projects in the Operation Stage Based on Limited Cloud Model and Combination Weighting Method."

⁶ Iqbal et al., "Optimizing Quality Enhancement Cells in Higher Education Institutions: Analyzing Management Support, Quality Infrastructure and Staff Training."

⁷ Opabola and Galasso, "Informing Disaster-Risk Management Policies for Education Infrastructure Using Scenario-Based Recovery Analyses."

⁸ Masfiatun and Zuhdi, "Analysis of the Determinants of Financing Risk in Islamic Banks in Indonesia."

⁹ Suhaidi et al., "Implementation of Illegal, Unreported, and Unregulated Fishing Policies in North Sumatera Province."

¹⁰ Ab Wahid, "Sustaining ISO 9001-Based QMS in Higher Education."

accountability, namely compliance with public financial governance and adherence to Sharia ethical principles¹¹. This characteristic positions SBSN infrastructure projects within a unique governance environment that requires transparency, efficiency, accountability, and alignment between institutional objectives and Islamic financial values.

Despite the strategic importance of SBSN-funded infrastructure programs, various implementation problems continue to emerge in Indonesian universities. Several audits and evaluation reports indicate recurring issues such as construction delays, procurement inefficiencies, budget absorption problems, underutilized facilities, and weak long-term maintenance planning¹². In many cases, infrastructure projects formally satisfy administrative requirements but fail to achieve optimal operational performance after completion. In addition, monitoring and evaluation systems are often fragmented and administrative rather than functioning as integrated governance mechanisms capable of ensuring project effectiveness and accountability^{13,14}. Stakeholder participation particularly from academic users, faculty leaders, and campus management also remains limited, resulting in infrastructure outputs that are sometimes misaligned with institutional needs. These conditions demonstrate that the challenges of SBSN-funded projects are not merely technical or financial, but also managerial and governance-related. Therefore, identifying the governance determinants that influence project performance becomes an important academic and practical issue in the context of Islamic public financing.

Previous studies on public infrastructure and project management have extensively examined factors influencing project success, including cost efficiency, schedule performance, leadership, risk management, and contractor capability^{15,16}. Other studies have highlighted the importance of planning quality, organizational competence, and stakeholder communication in improving infrastructure outcomes. Within the Islamic finance literature, research on SBSN has primarily focused on legal frameworks, Sharia compliance, fiscal policy, and the macroeconomic contribution of sukuk instruments^{17,18}. Although these studies provide important insights, they generally emphasize normative discussions and macro-financial perspectives rather than project-level governance performance. Empirical studies investigating how governance-related variables interact to determine the success of SBSN-funded infrastructure projects remain very limited, particularly in the higher education sector.

This condition reveals a significant research gap in the existing literature. First, previous research has rarely integrated Islamic public finance perspectives with project governance and infrastructure performance frameworks. Second, most studies examine project performance using isolated variables without explaining the structural relationships among planning quality, managerial capability, monitoring systems, stakeholder engagement, and project outcomes. Third, empirical investigations employing advanced predictive approaches such as Partial Least Squares Structural Equation Modeling (PLS-SEM) remain scarce in the context of SBSN-funded university infrastructure. Consequently, there is still limited understanding regarding

¹¹ Sastri, "Tanggung Jawab Profesi Notaris Dalam Penerbitan Sukuk Negara Atau Surat Berharga Syariah Negara (SBSN)."

¹² Yuli and Rofik, "Unleashing Open Innovation."

¹³ Mochtar and Rahayu, "Tanggung Jawab Perusahaan Dalam Investasi Surat Berharga Syariah Negara."

¹⁴ Mulazid, "Penyelesaian Sengketa Bisnis Syariah," 2021.

¹⁵ Nurbiyanto and Pribadi, "Surat Berharga Syariah Negara Berbasis Proyek Pada Kementerian Agama."

¹⁶ Putri et al., "Flood Risk Assessment of Public Infrastructure in Semarang City from an Insurance Perspective."

¹⁷ Mulazid, "Penyelesaian Sengketa Bisnis Syariah," 2021; Masfiatun and Zuhdi, "Analysis of the Determinants of Financing Risk in Islamic Banks in Indonesia."

¹⁸ Masfiatun and Zuhdi, "Analysis of the Determinants of Financing Risk in Islamic Banks in Indonesia."

which governance dimensions play the most influential role in determining project success within Sharia-based public financing systems.

The state of the art of this study lies in the development of an integrated governance-performance model specifically designed for SBSN-funded higher education infrastructure projects. This study combines perspectives from Islamic public finance, project governance, and performance management into a unified analytical framework. Unlike prior studies that focus predominantly on financial compliance or descriptive policy evaluation, this research quantitatively examines both direct and indirect relationships among governance constructs using PLS-SEM. The study positions Project Planning Quality, Managerial Capability, Monitoring and Evaluation Systems, and Stakeholder Engagement as multidimensional latent variables that collectively explain infrastructure project performance within the unique institutional context of Islamic higher education.

Accordingly, the novelty of this study is reflected in three main aspects. First, the study introduces a governance-based predictive model for evaluating infrastructure performance within the framework of Sharia-compliant public financing. Second, it empirically integrates Islamic financial governance with contemporary project management theory, an area that has received limited scholarly attention. Third, this study provides empirical evidence from the context of Islamic higher education institutions in Indonesia, thereby extending the discourse on Islamic infrastructure financing beyond macroeconomic and regulatory dimensions toward operational project governance.

Based on these considerations, this study aims to develop and empirically test a structural model of the determinants of project performance in SBSN-funded university infrastructure programs. Specifically, the research examines the effects of Project Planning Quality, Managerial Capability, Monitoring and Evaluation Systems, and Stakeholder Engagement on infrastructure project performance. The findings are expected to contribute theoretically to the development of governance and Islamic public finance literature, while also providing practical recommendations for policymakers, university administrators, and project managers in improving the effectiveness, accountability, and sustainability of SBSN-funded infrastructure development programs.

METHODE

This study employed a quantitative explanatory design to examine the causal relationships among factors influencing the performance of SBSN-funded infrastructure projects in Indonesian higher education institutions. The analysis used Partial Least Squares Structural Equation Modeling (PLS-SEM), which is suitable for predictive and complex structural models involving latent variables with multiple indicators, particularly in studies with relatively limited sample sizes and non-normal data distribution^{19,20}. PLS-SEM also enables simultaneous evaluation of measurement and structural models, allowing comprehensive analysis of both direct and indirect relationships among variables. The population consisted of individuals directly involved in the implementation and supervision of SBSN-funded infrastructure projects, including project managers, infrastructure coordinators, procurement officers, faculty representatives, and internal auditors. Purposive sampling was applied to select respondents with relevant experience and knowledge of SBSN project management. Data were collected from

¹⁹ Hair et al., "Executing and Interpreting Applications of PLS-SEM: Updates for Family Business Researchers."

²⁰ Sarstedt et al., "Beyond a Tandem Analysis of SEM and PROCESS."

165 respondents affiliated with five faculties at UIN Kiai Ageng Muhammad Besari Ponorogo, Indonesia. This number exceeded the minimum requirement for PLS-SEM analysis, which recommends at least 5–10 times the number of indicators used in the model.

The study examined five latent constructs: Project Planning Quality, Managerial Capability, Monitoring and Evaluation System, Stakeholder Engagement, and Project Performance. These constructs were operationalized into 29 indicators derived from project management literature and public infrastructure governance frameworks. All indicators were measured using a five-point Likert scale ranging from 1 (strongly disagree) to 5 (strongly agree). To ensure content validity, the instrument was reviewed by two experts and pilot-tested with 15 respondents outside the main sample to assess clarity, consistency, and reliability. Data were collected through structured self-administered questionnaires distributed to respondents involved in SBSN project planning, implementation, and evaluation. Participation was voluntary, and informed consent was obtained prior to data collection. Respondents' identities and institutional information were anonymized to ensure confidentiality. Data analysis was conducted using SmartPLS through a two-stage procedure: evaluation of the measurement model and assessment of the structural model. Convergent validity, discriminant validity, and reliability were tested using factor loadings, Average Variance Extracted (AVE), Fornell-Larcker criterion, HTMT ratio, Cronbach's Alpha, rho_A, and Composite Reliability. Structural model evaluation included path coefficient analysis, coefficient of determination (R^2), predictive relevance (Q^2), and effect size (f^2). Bootstrapping procedures were applied to test the significance of direct and indirect relationships among variables.

SBSN FINANCING AND INFRASTRUCTURE PERFORMANCE IN ISLAMIC HIGHER EDUCATION

Result and Discussion

Islamic studies continue to expand into broader and more interdisciplinary spheres of discussion. Various contemporary phenomena can be examined through Islamic perspectives, while Islamic objects themselves may also be analyzed using diverse scientific and methodological approaches. Observing phenomena occurring within institutions characterized by strong Islamic values is therefore an important and compelling endeavor, as it enables scholars to identify distinctive characteristics and portray the empirical realities of their implementation. In this regard, mathematically oriented measurements are necessary to ensure objective and systematic analysis of observable facts.

The discussion section of this study is directed toward interpreting the relationships among variables influencing the performance of infrastructure projects in Islamic higher education institutions funded through *Surat Berharga Syariah Negara* (SBSN) or State Sharia Securities. The analysis does not merely focus on the statistical significance among constructs, but also emphasizes the substantive meaning of project governance dynamics within the context of sharia-based public financing. Through the application of the Partial Least Squares Structural Equation Modeling (PLS-SEM) approach, this study seeks to explain how project planning quality, managerial capability, monitoring and evaluation systems, and stakeholder engagement interact in shaping the performance of Islamic higher education infrastructure projects.

Accordingly, this discussion is significant for understanding the extent to which institutional governance mechanisms are capable of supporting the effective implementation of SBSN-funded projects, while simultaneously strengthening the integration between modern project management principles and the values of accountability in Islamic public finance. This

perspective is consistent with the Islamic principle of responsibility and trustworthiness (*amanah*) in managing public resources. The Prophet Muhammad ﷺ stated: *‘‘Each of you is a shepherd, and each of you is responsible for his flock’’* (Şahih al-Bukhārī, no. 7138; Şahih Muslim, no. 1829). This hadith emphasizes that accountability constitutes a fundamental ethical principle in governance and public management, including in the administration of educational infrastructure development financed through public Islamic instruments.

Evaluation of Measurement Model

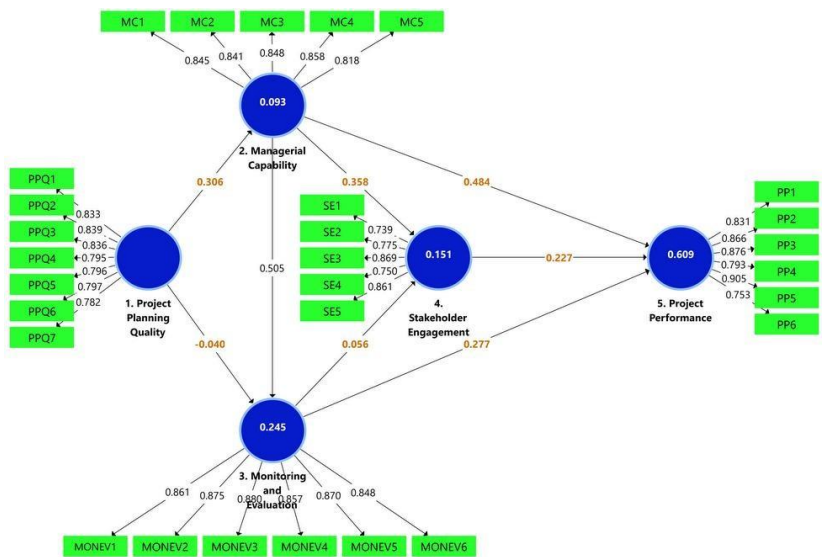


Fig 1: Results of the Measurement Model of the SBSN Project Performance Model

Convergent validity ensures that the indicators used for each latent construct adequately represent the intended concept. In this study, the minimum threshold for factor loading (FL) is 0.70, and for Average Variance Extracted (AVE) is 0.50, both of which are commonly accepted in structural equation modeling. Based on the results, all indicators exceed the minimum FL threshold. The lowest FL value is 0.739, found in SE1 (Campus stakeholders are involved from the planning stage) under the Stakeholder Engagement construct, suggesting that while still valid, this indicator is the least reflective among all. The highest FL is 0.905, recorded in PP5 (End users are satisfied with the project output) under Project Performance, indicating a very strong relationship between the indicator and its construct. As for AVE, all constructs exceed the 0.50 threshold, with the lowest AVE being 0.641 for Stakeholder Engagement and the highest AVE being 0.749 for Monitoring and Evaluation System, showing that this construct explains nearly 75% of its indicator variance. Overall, the convergent validity across all constructs is satisfactory, validating the internal consistency of the measurement model. Figure 1 shows the results of the outer model test.

Consistency reliability examines the internal stability and coherence of the indicators within each construct. According to PLS-SEM standards, the acceptable threshold for Cronbach’s Alpha (CA), rho_A, and Composite Reliability (CR) is greater than 0.70. All constructs in this study surpass this benchmark. The lowest CA value, 0.862, is found in the Stakeholder Engagement construct, while the highest, 0.933, is observed in the Monitoring and Evaluation System. For rho_A, values range from 0.899 (Stakeholder Engagement) to 0.945 (Project Planning Quality), both reflecting a high level of internal consistency. Composite Reliability, which is a more accurate reliability measure in PLS-SEM, ranges from 0.899 to 0.947,

again with Stakeholder Engagement being the lowest and Monitoring and Evaluation the highest. These results confirm that all constructs demonstrate strong internal reliability, meaning the measurement model is robust and capable of producing consistent results across indicators.

Table 1: Convergent Validity dan Reliability

Variables	Constructs	Convergent Validity		Consistency Reliability		
		FL ($\lambda > 0.70$)	AVE (> 0.50)	CA ($\alpha > 0.70$)	rho_A ($\varphi > 0.70$)	CR ($\delta > 0.70$)
1. Project Planning Quality	PPQ1	0.833	0.658	0.915	0.945	0.931
	PPQ2	0.839				
	PPQ3	0.836				
	PPQ4	0.795				
	PPQ5	0.796				
	PPQ6	0.797				
	PPQ7	0.782				
2. Managerial Capability	MC1	0.845	0.709	0.897	0.899	0.924
	MC2	0.841				
	MC3	0.848				
	MC4	0.858				
	MC5	0.818				
3. Monitoring and Evaluation System	MONEV1	0.861	0.749	0.933	0.933	0.947
	MONEV2	0.875				
	MONEV3	0.880				
	MONEV4	0.857				
	MONEV5	0.870				
	MONEV6	0.848				
4. Stakeholder Engagement	SE1	0.739	0.641	0.862	0.906	0.899
	SE2	0.775				
	SE3	0.869				
	SE4	0.750				
	SE5	0.861				
5. Project Performance	PP1	0.831	0.704	0.915	0.915	0.934
	PP2	0.866				
	PP3	0.876				
	PP4	0.793				
	PP5	0.905				
	PP6	0.753				

The Fornell-Larcker criterion is used to assess discriminant validity by comparing the square root of the AVE of each construct with its correlations with other constructs. Discriminant validity is established when a construct's AVE square root (diagonal values) is greater than its correlations with any other construct (off-diagonal values). In this study, all constructs meet this requirement. For instance, the square root of AVE for Project Planning Quality is 0.811, which is higher than its correlation with Managerial Capability (0.306), Monitoring and Evaluation (0.115), Stakeholder Engagement (0.323), and Project Performance (0.255). Similarly, the Project Performance construct has a square root of AVE value of 0.839, which exceeds its highest correlation value, 0.708, with Managerial Capability. These results confirm that each construct is empirically distinct from the others, thereby supporting the discriminant validity of the measurement model using the Fornell-Larcker approach.

Table 2: Discriminant Validity: Fornell-Larcker

Variables	PPQ	MC	MONEV	SE	PP
Project Planning Quality	0.811				
Managerial Capability	0.306	0.842			
Monitoring and Evaluation	0.115	0.493	0.865		
Stakeholder Engagement	0.323	0.386	0.233	0.801	
Project Performance	0.255	0.708	0.568	0.479	0.839

The HTMT ratio is a more conservative and modern method for assessing discriminant validity, particularly suitable for PLS-SEM. HTMT values should be below 0.90 (or 0.85 in stricter models) to confirm that constructs are not too similar to one another. In this study, all HTMT values fall well within the acceptable range. The highest HTMT value is 0.781 between Managerial Capability and Project Performance, which is still under the 0.90 threshold. The lowest HTMT value is 0.121 between Project Planning Quality and Monitoring and Evaluation, indicating low conceptual overlap. These results suggest that each construct measures a unique concept, providing strong evidence of discriminant validity. Therefore, both the Fornell-Larcker and HTMT analyses consistently support the discriminant validity of all constructs in the model.

Table 3: Discriminant Validity: HTMT

Variables	PPQ	MC	MONEV	SE	PP
1. Project Planning Quality					
2. Managerial Capability	0.323				
3. Monitoring and Evaluation	0.121	0.539			
4. Stakeholder Engagement	0.333	0.409	0.246		
5. Project Performance	0.266	0.781	0.615	0.516	

Evaluation of Structural Model

The coefficient of determination (R^2) represents the explanatory power of the exogenous variables toward the endogenous constructs in the model. In this study, the Project Performance (PP) construct shows an R^2 value of 0.609, which means that approximately 60.9% of the variance in project performance can be explained by its predictors: Managerial Capability, Monitoring and Evaluation, and Stakeholder Engagement. Effect size (f^2) measures the impact of each exogenous variable on its corresponding endogenous construct. In this model, the highest effect size is found in the relationship between Managerial Capability and Project Performance ($f^2 = 0.421$), indicating a large effect based on Cohen's criteria. This suggests that managerial capability is a critical determinant of project performance. Conversely, Project Planning Quality to Monitoring and Evaluation shows a very small effect size ($f^2 = 0.002$), suggesting a negligible influence. Regarding predictive relevance (Q^2), all endogenous constructs demonstrate Q^2 values greater than zero, indicating that the model has predictive relevance through the blindfolding procedure. For instance, the Q^2 value for Project Performance is 0.581, which further validates the model's predictive capability for real-world applications. The redundancy and communality values presented also support the internal consistency of the model, confirming that the measurement items collectively provide meaningful predictive content.

Table 5: Inner Model: R^2 , f^2 , and Q^2

Variables	R^2	Effect Size (f^2)				Q^2	
		MC	MONEV	SE	PP	Redundancy	Communality
PPQ	-	0.103	0.002				0.537
MC	0.093		0.306	0.114	0.407	0.063	0.556
MONEV	0.245			0.003	0.148	0.18	0.642
SE	0.151				0.112	0.086	0.466
PP	0.609					0.421	0.581

Hypothesis Testing: Path Analysis

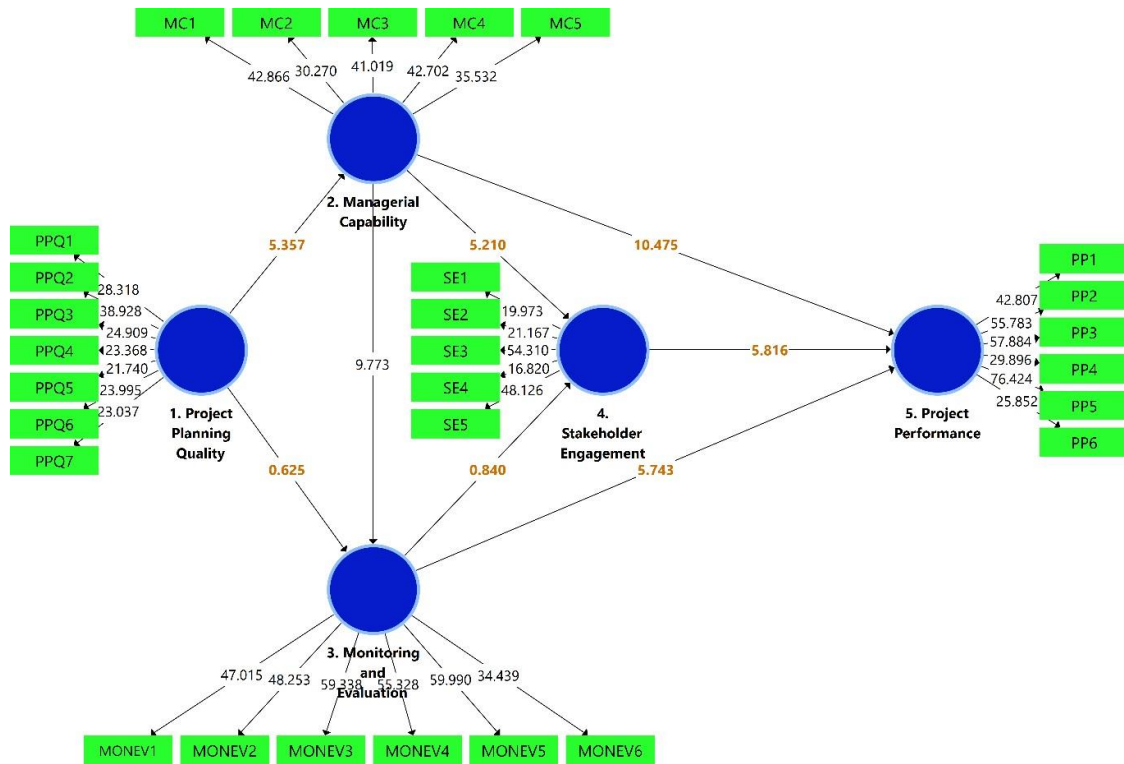


Fig 2: Results of the Structural Model of the SBSN Project Performance Model

Based on the results of the direct hypothesis testing (Direct Effects) in Table 6, H-DIR5, which states that Managerial Capability has a direct effect on Project Performance, shows the highest β value of 0.484 with a T- statistic of 10.475 and a p-value of 0.000, indicating a very strong and significant impact. This shows that the higher the managerial capability in the SBSN project (in terms of experience, decision-making, and reporting systems), the better the project performance produced. The implication is that strengthening the competence of the project management team in universities must be a strategic priority so that SBSN funds produce optimal infrastructure output. On the other hand, H-DIR2, namely the effect of Project Planning Quality on the Monitoring and Evaluation System, is rejected because it has $\beta = -0.04$, $T = 0.625$, and a p-value of 0.532. This shows that the quality of project planning does not directly improve the project monitoring and evaluation system, which may be due to the weak integration between planning documents and the implementation of internal controls in the field. The implication is that even though the SBSN project planning is well-organized, the MONEV system still requires its design and management to run effectively, and cannot rely on the quality of the initial documents. These two findings highlight the importance of managing human factors and organizational structures in the implementation of SBSN projects more seriously than just administrative documents.

Table 6: Hypothesis Testing: Direct and Indirect Effects

Hypothesis	Path Analysis	β -value	T-statistics	q-value	Decision
1. Direct Effects					
2.					

H-DIR1	1. Project Planning Quality -> 2. Managerial Capability	0.306	5.357	0.000	Accepted
H-DIR2	1. Project Planning Quality -> 3. Monitoring and Evaluation	-0.04	0.625	0.532	Rejected
H-DIR3	2. Managerial Capability -> 3. Monitoring and Evaluation	0.505	9.773	0.000	Accepted
H-DIR4	2. Managerial Capability -> 4. Stakeholder Engagement	0.358	5.210	0.000	Accepted
H-DIR5	2. Managerial Capability -> 5. Project Performance	0.484	10.475	0.000	Accepted
H-DIR6	3. Monitoring and Evaluation -> 4. Stakeholder Engagement	0.056	0.84	0.401	Rejected
H-DIR7	3. Monitoring and Evaluation -> 5. Project Performance	0.277	5.743	0.000	Accepted
H-DIR8	4. Stakeholder Engagement -> 5. Project Performance	0.227	5.816	0.000	Accepted
2. Indirect Effects					
H-IND1	PPQ -> MC -> MONEV -> SE -> PP	0.002	0.772	0.440	Rejected
H-IND2	PPQ -> MC -> MONEV -> PP	0.043	3.723	0.000	Accepted
H-IND3	PPQ -> MC -> SE -> PP	0.025	2.893	0.004	Accepted
H-IND4	PPQ -> MC -> PP	0.148	4.156	0.000	Accepted
H-IND5	PPQ -> MONEV -> SE -> PP	-0.001	0.379	0.705	Rejected
H-IND6	PPQ -> MONEV -> PP	-0.011	0.603	0.547	Rejected

Based on the Indirect Effects Hypotheses in Table 6, two hypotheses stand out for interpretation: H-IND2 and H-IND5, as they represent contrasting outcomes, one being statistically significant with a strong pathway, and the other being rejected due to insignificance. H-IND2 posits that Project Planning Quality influences Project Performance through the mediation of Managerial Capability and Monitoring and Evaluation. This hypothesis shows a β -value of 0.043, a T-statistic of 3.723, and a p-value of 0.000, indicating a statistically significant and meaningful indirect effect. The implication is that while planning quality may not directly enhance performance, it contributes indirectly by strengthening managerial practices and monitoring systems, which in turn elevate project outcomes. This supports the importance of integrated project governance, where early-stage planning feeds into stronger execution frameworks. On the other hand, H-IND5, which hypothesizes that Project Planning Quality influences Project Performance through Monitoring and Evaluation and Stakeholder Engagement, is rejected with a $\beta = -0.001$, $T = 0.379$, and $p = 0.705$. The result suggests that this indirect path is not significant and may even have a negligible or negative impact, possibly

due to weak alignment between evaluation mechanisms and stakeholder communication in practice. This finding implies that without strong managerial mediation, planning alone is insufficient to build stakeholder trust or involvement, and highlights the need for a more structured engagement model. Together, these insights reveal that the most effective influence of planning on performance is realized through structured managerial and control systems rather than relying on indirect stakeholder channels.

Discussions

The findings of this study indicate that Managerial Capability exerts the strongest direct effect on Project Performance, making it the most critical determinant within the structural model. This finding is consistent with the study of Normasyhuri et al. (2022), which revealed that the success of public infrastructure projects is highly influenced by leadership style, team experience, and the quality of decision-making processes²¹. Similarly, Latifah (2020) emphasized that the presence of a competent management team significantly enhances the successful implementation of public-private partnership projects²². Indicators such as project team experience (MC1), formal training (MC2), a clear organizational structure (MC3), data-driven decision-making (MC4), and an established internal reporting system (MC5) were identified as essential factors strengthening managerial capability. These competencies enable better coordination, timely project execution, and effective responsiveness to project-related challenges. From an Islamic perspective, managerial capability reflects the principles of *amanah* (trustworthiness) and responsible leadership in managing public resources. The Qur'an emphasizes the importance of entrusting responsibilities to individuals who possess competence and integrity, as stated in Surah Al-Qasas (28:26): "Indeed, the best one you can hire is the strong and trustworthy" (Qur'an 28:26). This verse demonstrates that professionalism (*al-qawwiy*) and honesty (*al-amin*) constitute the primary foundations of organizational governance and project management. Therefore, the effectiveness of SBSN projects should not merely be assessed based on technical completion, but also on the extent to which project managers uphold accountability transparently, professionally, and responsibly in accordance with Islamic public finance principles.

This study also found that Project Planning Quality does not have a significant direct effect on Monitoring and Evaluation, as indicated by the rejection of hypothesis H-DIR2. This finding suggests that well-structured planning documents do not necessarily lead to effective supervisory systems in SBSN-based higher education infrastructure projects. One possible explanation is that project planning processes are often oriented merely toward fulfilling administrative requirements and documentation completeness rather than ensuring continuity in practical implementation. This finding aligns with Inayah et al. (2023), who argued that project planning in the public sector is frequently disconnected from implementation practices, resulting in weak feedback mechanisms and limited adaptability throughout project execution.²³ From an Islamic perspective, planning (*takhtit*) is not merely an administrative activity but a responsibility aimed at achieving public benefit (*maslahah*) and preventing wastefulness (*israf*). Allah states in Surah Al-An'am (6:141): "And do not waste. Indeed, He does not like the wasteful" (Qur'an 6:141). This verse emphasizes that every planning process must be effective, functional, and

²¹ Normasyhuri et al., "Dampak Penerbitan Surat Utang Negara (SUN) Dan Surat Berharga Syariah Negara (SBSN) Pada Pertumbuhan Ekonomi Indonesia Era Pandemi Covid-19."

²² Latifah, "Peran Pondok Pesantren Dalam Meningkatkan Mutu Pendidikan Agama Islam Di Sekolah."

²³ ALFAATIHAH et al., "Peran Sukuk Surat Berharga Syari'ah Negara (SBSN) Dalam Pertumbuhan Pembangunan Ekonomi Di Indonesia."

benefit-oriented. Therefore, a more dynamic integration between planning documents and monitoring systems is required through continuous evaluation, stakeholder feedback, and alignment with field implementation conditions.

The results further demonstrate that Monitoring and Evaluation (MONEV) significantly mediates the indirect relationship between Project Planning Quality and Project Performance through Managerial Capability, as reflected in H-IND2. This finding confirms that MONEV is not merely an administrative reporting instrument but also a strategic mechanism for maintaining project quality, accountability, and adaptive management. In public sector governance theory, monitoring and evaluation are recognized as essential instruments for ensuring both horizontal and vertical accountability, thereby ensuring that project implementers and policymakers remain aligned with established objectives²⁴. This study reinforces the perspective of Zuhdi et al. (2024), who argued that performance measurement systems can promote organizational learning and continuous improvement when integrated into the project management cycle²⁵. Within the Islamic perspective, the concepts of supervision and evaluation are closely associated with the principles of *hisbah* and *mubasabah*, referring to moral accountability over human actions. Allah states in Surah Az-Zalzalah (99:7–8): “So whoever does an atom’s weight of good will see it, and whoever does an atom’s weight of evil will see it” (Qur’an 99:7–8). This verse highlights that every activity, including the management of sharia-based public funds, requires careful and transparent accountability. Accordingly, the MONEV system in SBSN projects should be positioned not merely as an administrative audit instrument but also as a mechanism for organizational learning, quality control, and continuous improvement.

This study also found that Stakeholder Engagement has a significant direct effect on Project Performance, as evidenced in H-DIR8. This finding confirms that the involvement of internal university stakeholders, such as lecturers, students, and facility users, can enhance the success of SBSN-based infrastructure projects. However, the indirect mediation pathway through Project Planning Quality, Monitoring, Stakeholder Engagement, Project Performance sequentially did not demonstrate a significant effect (H-IND5). These results indicate that stakeholder participation often remains symbolic and has not yet been optimally integrated into the overall project cycle. In the higher education context, stakeholders are frequently insufficiently involved from the initial planning stage, leading to discrepancies between user needs and development outcomes.

From an Islamic perspective, collective participation reflects the principle of *shūrā* (consultative decision-making). Allah states in Surah Ash-Shura (42:38) that believers are those “whose affairs are determined by consultation among themselves” (Qur’an 42:38). This principle demonstrates that stakeholder engagement is not merely an administrative necessity but also an ethical value in Islamic governance. Therefore, higher education institutions should establish structured participation mechanisms through user consultations, participatory design, and post-project evaluation to ensure that infrastructure development genuinely addresses institutional needs and generates long-term benefits. The indirect influence pathways identified in this study, namely those linking Project Planning Quality, Managerial Capability, and Monitoring and Evaluation to Project Performance, demonstrate the importance of a systemic approach to higher education infrastructure governance. This finding is consistent with Rofik et al., who emphasized that integration between planning and implementation can enhance project

²⁴ Sangwa and Mutabazi, “Mission-Driven Learning Theory.”

²⁵ Masfiatun and Zuhdi, “Analysis of the Determinants of Financing Risk in Islamic Banks in Indonesia.”

performance in complex environments involving multiple stakeholders²⁶. Alkindi also argued that the success of public sector projects cannot rely solely on planning documents but must be translated into effective managerial structures and evaluation systems²⁷.

From an Islamic perspective, such integration reflects the concept of *itqan*, which refers to performing work professionally, systematically, and with the highest quality standards. The Prophet Muhammad (peace be upon him) said: “Indeed, Allah loves that when one of you performs a task, he perfects it” (Reported by al-Bayhaqi). This hadith emphasizes that good governance requires orderliness, precision, and seriousness in every stage of work. Therefore, strategic planning in SBSN projects should not stop at the preparation of formal documents but must be integrated with managerial capacity, organizational structures, and performance control systems. Such integration enables projects to operate adaptively, measurably, and sustainably, thereby supporting the broader objectives of Islamic public finance in realizing public welfare (*maslahah*) optimally.

CONCLUSION

This study aimed to examine the determinants of project performance in SBSN-funded university infrastructure programs using a PLS-SEM approach. The findings reveal that Managerial Capability plays a pivotal role in directly influencing project performance, while Monitoring and Evaluation and Stakeholder Engagement also contribute significantly, both directly and indirectly. In contrast, Project Planning Quality, although essential, shows limited direct influence unless mediated through managerial and evaluative pathways. These results underscore the importance of integrating planning with strong leadership and continuous performance oversight. The study contributes to the growing body of knowledge on public project governance in the education sector, particularly in Islamic finance-based funding schemes such as SBSN. It also provides a conceptual framework for assessing infrastructure program success based on internal capacity and governance practices in higher education institutions.

Practically, the findings suggest that universities and policymakers should prioritize capacity building in project management, develop robust M&E systems, and ensure early and structured stakeholder involvement to enhance infrastructure performance. However, the study is limited by its cross-sectional design and focus on university-based SBSN projects, which may not fully capture the dynamics in other public sector contexts. Future research could expand by incorporating longitudinal data to observe performance over time, or by employing mixed-method approaches to explore the qualitative aspects of stakeholder dynamics and decision-making. Moreover, additional variables such as regulatory compliance, digital tools, or risk management culture could be integrated to enrich the current model. These extensions would offer a more comprehensive understanding of the governance mechanisms shaping the success of public infrastructure investments.

²⁶ Rofiq and Setiyadi, “Implementasi Anggaran Berbasis Kinerja pada Institusi Pendidikan Tinggi di Indonesia.”

²⁷ Alkindi, “Decision-Making Strategies for Project Management and Financial Planning.”

REFERENCES

- Ab Wahid, Roslina. "Sustaining ISO 9001-Based QMS in Higher Education: A Reality?" *The TQM Journal* 31, no. 4 (2019): 563–77.
- Ahriz, Souad, Hiba Gharbaoui, Nezha Benmoussa, Abdelilah Chahid, and Khalifa Mansouri. "Enhancing Information Technology Governance in Universities: A Smart Chatbot System Based on Information Technology Infrastructure Library." *Engineering, Technology & Applied Science Research* 14, no. 6 (2024): 17876–82.
- ALFAATIHAH, INTAN INAYAH, KHUDIN FASHOLA, and Sumriyah Sumriyah. "Peran Sukuk Surat Berharga Syariah Negara (SBSN) Dalam Pertumbuhan Pembangunan Ekonomi Di Indonesia." *JURNAL RELASI PUBLIK Yudedume.lu: Fakultas Hukum, Universitas Katolik Widya Karya Malang* 1, no. 2 (2023): 263–72.
- Alghail, Adnan, Liu Yao, and Mohammed Abbas. "Will Knowledge Infrastructure Capabilities Elevate the Project Management Maturity? An Empirical Study." *VINE Journal of Information and Knowledge Management Systems* 54, no. 4 (2024): 782–803.
- Alkindi, Saif. "Decision-Making Strategies for Project Management and Financial Planning: UAE's Public Sector Construction Projects." PhD Thesis, Anglia Ruskin Research Online (ARRO), 2026. https://aru.figshare.com/articles/thesis/Decision-making_strategies_for_project_management_and_financial_planning_UAE_s_public_sector_construction_projects/31821199.
- Chikibayeva, Z., U. Shalbolova, and G. Mukhanova. "Analysis of Investments in the Expansion of Social University Infrastructure Facilities and Student Dormitories in Kazakhstan." *Scientific Herald of Uzbekistan University. Series "Physics"* 55, no. 55 (2024). <https://doi.org/10.54919/physics/55.2024.28ya6>.
- Hair, J. F., C. B. Astrachan, O. I. Moisescu, and M. Sarstedt. "Executing and Interpreting Applications of PLS-SEM: Updates for Family Business Researchers." *Journal of Family Business Strategy* 12, no. 3 (2021): 1–14. <https://doi.org/10.1016/j.jfbs.2020.100392>.
- Iqbal, S., K. Moosa, and C. A. B. Taib. "Optimizing Quality Enhancement Cells in Higher Education Institutions: Analyzing Management Support, Quality Infrastructure and Staff Training." *International Journal of Quality & Reliability Management* 41, no. 6 (2024): 1572–93. <https://doi.org/10.1108/IJQRM-01-2021-0007>.
- Latifah, Latifah. "Peran Pondok Pesantren Dalam Meningkatkan Mutu Pendidikan Agama Islam Di Sekolah." *Millab: Journal of Religious Studies*, 2020, 173–94.
- Ma, Junhao, and Xiangjun Li. "Performance Evaluation of Education Infrastructure Public–Private Partnership Projects in the Operation Stage Based on Limited Cloud Model and Combination Weighting Method." *Buildings* 15, no. 11 (2025): 1833.
- Masfiatun, Nur Khayin Muhdlor, and Mohammaad Zuhdi. "Analysis of the Determinants of Financing Risk in Islamic Banks in Indonesia." *Journal of Indonesian Social Sciences* 5, no. 11 (2024): 2845.
- Mochtar, D., and D. Rahayu. "Tanggung Jawab Perusahaan Dalam Investasi Surat Berharga Syariah Negara." *Jurnal Cakrawala Hukum* 12, no. 2 (2021): 150–58.

- Mulazid, Ade Sofyan. "Penyelesaian Sengketa Bisnis Syariah: Penguatan Regulasi Untuk Kepastian Hukum Surat Berharga Syariah Negara Di Indonesia." *Ad-Deenar: Jurnal Ekonomi Dan Bisnis Islam* 5, no. 02 (2021): 213–30.
- Mulazid, Ade Sofyan. "Penyelesaian Sengketa Bisnis Syariah: Penguatan Regulasi Untuk Kepastian Hukum Surat Berharga Syariah Negara Di Indonesia." *Ad-Deenar: Jurnal Ekonomi Dan Bisnis Islam* 5, no. 02 (2021): 213–30.
- Normasyhuri, Khavid, Budimansyah Budimansyah, and Eko Triyadi. "Dampak Penerbitan Surat Utang Negara (SUN) Dan Surat Berharga Syariah Negara (SBSN) Pada Pertumbuhan Ekonomi Indonesia Era Pandemi Covid-19: Tinjauan Ekonomi Islam." *Jurnal Ilmiah Ekonomi Islam* 8, no. 1 (2022): 688–98.
- Ntorukiri, Timothy Barii, Joseph Muriungi Kirugua, and Francis Kirimi. "Policy and Infrastructure Challenges Influencing ICT Implementation in Universities: A Literature Review." *Discover Education* 1, no. 1 (2022): 19. <https://doi.org/10.1007/s44217-022-00019-6>.
- Nurbiyanto, Nurbiyanto, and Yanuar Pribadi. "Surat Berharga Syariah Negara Berbasis Proyek Pada Kementerian Agama: Alternatif Pembiayaan Infrastruktur Pemerintah." *Jesya (Jurnal Ekonomi Dan Ekonomi Syariah)* 3, no. 2 (2020): 320–29.
- Opabola, Eyitayo A., and Carmine Galasso. "Informing Disaster-Risk Management Policies for Education Infrastructure Using Scenario-Based Recovery Analyses." *Nature Communications* 15, no. 1 (2024): 325.
- Putri, Dita Mentari, Hanggoro Iskandar Putra Wijaya, and Tri Susanto. "Flood Risk Assessment of Public Infrastructure in Semarang City from an Insurance Perspective." *Rekayasa Sipil* 19, no. 3 (2025): 348–55.
- Rofiq, Muhammad, and Desi Setiyadi. "IMPLEMENTASI ANGGARAN BERBASIS KINERJA PADA INSTITUSI PENDIDIKAN TINGGI DI INDONESIA." *Journal of Islamic Business Management Studies (JIBMS)* 4, no. 2 (2023): 78–91.
- Sangwa, Sixbert, and Placide Mutabazi. "Mission-Driven Learning Theory: Ordering Knowledge and Competence to Life Mission." *Open Journal of Transformative Education & Lifelong Learning (ISSN: 3105-305X)* 1, no. 1 (2025). <https://journals.openchristian.education/index.php/oj-tell/article/view/9>.
- Sarstedt, Marko, Joseph F. Hair, Christian Nitzl, Christian M. Ringle, and Matt C. Howard. "Beyond a Tandem Analysis of SEM and PROCESS: Use of PLS-SEM for Mediation Analyses?" *International Journal of Market Research* 62, no. 3 (2020): 288–99. <https://doi.org/10.1177/1470785320915686>.
- Sasri, Astrie Anindya. "Tanggung Jawab Profesi Notaris Dalam Penerbitan Sukuk Negara Atau Surat Berharga Syariah Negara (SBSN)." *Sosial Simbiosis: Jurnal Integrasi Ilmu Sosial Dan Politik* 1, no. 3 (2024): 38–48.
- Suhaidi, Rosmalinda, Riadhi Alhayan, and Vita Cita Emia Tarigan. "Implementation of Illegal, Unreported, and Unregulated Fishing Policies in North Sumatera Province." *Cogent Social Sciences* 8, no. 1 (2022): 2086282. <https://doi.org/10.1080/23311886.2022.2086282>.

Yuli, Sri Budi Cantika, and Mochamad Rofik. "Unleashing Open Innovation: A Decomposition Nexus of Sharia-Compliant Financing and Job Creation." *Journal of Open Innovation: Technology, Market, and Complexity* 9, no. 4 (2023): 100162.