Synergy Between Sustainable Leadership and Stakeholder Management Towards Project Performance

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Abstract

Grounded in stakeholder theory, this study seeks to examine the synergy between sustainable leadership and stakeholder management toward project performance. The objectives of the study are to provide empirical evidence supporting the significance of sustainable leadership and stakeholder management in enhancing project performance. To achieve these objectives, cross-sectional data from construction project managers and professionals (N = 320) have been collected through a self-administered survey questionnaire. PLS-SEM has been applied for hypothesis testing using SmartPLS. The results verify that the positive relationship between sustainable leadership and project success is both direct and indirect via effective stakeholder management. Additionally, these results indicate that stakeholder management mediates the relationship between leadership and stakeholder engagement, such that strong leadership promotes greater stakeholder engagement, which, in turn, results in superior project outcomes. The findings offer practical and managerial implication to project managers and policy makers in enhancing project performance through sustainable leadership and stakeholder management.

Keywords: Sustainable Leadership, Stakeholder Management, Project Performance.

Introduction

The complexity and large scale of public infrastructure megaprojects demand a project leadership role that balances project value with stakeholder interest across economic, social, and environmental goals (Damayanti et al., 2021; Mitoula & Papavasileiou, 2023; Wadood et al., 2024). Project success depends largely on sustainable leadership which brings together ethical practices, effective resource utilization, and the creation of lasting business value (Avery & Bergsteiner, 2011; Zada et al., 2024). Stakeholder management, the process of identification, engagement, and collaboration of important groups and parties, in various stages of megaproject development, also contributes significantly to the socio-political performance of megaprojects (Freeman et al., 2018; Mashali et al. 2023). Therefore, for large-scale public projects, its outcomes are strongly influenced by sustainable leadership in conjunction with stakeholder management.

Public infrastructure and construction projects, particularly designed for transportation infrastructure development is characterized by large investments, lengthy periods, and many stakeholders (Li et al., 2022; Flyvbjerg, 2017). It has been shown that these projects commonly suffer from cost and budget issues, schedule delays, uncertainty, management, and environmental issues (Khan 2024; Singh et al. 2022). Bulmer et al. (2022), Jamieson et al. (2022), and Maak and Pless (2006) all propose sustainable leadership that provides a range of practices that will help

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solve these project complexities based on resilient practices and open communication and stakeholder involvement. The combination of sustainable leadership and good stakeholder management results in project trust, reduce risk, and enhance better public acceptance and satisfaction (Yang et al., 2011). Despite being so significant, scarce literature on the symbiosis of sustainable leadership and stakeholder management to project outcomes is document in the literature.

Bus Rapid Transit (BRT) Peshawar Project, a flagship public transportation project in Pakistan, is the prime case study to evaluate sustainable leadership and successful stakeholder management in achieving project success. The project launched in 2017 had a goal to develop a better mass transport system, which would enhance mobility and at the same time alleviate the problem of traffic and pollution (Qazi et al., 2021; Saleem et al., 2022). However, this project also has numerous issues and challenges, including increasing costs, enduring delays, and public dissatisfaction (Khan, et al., 2019; Sohail et al., 2021). These challenges prove that leaders must integrate sustainable practices into their main project goals in order for stakeholder expectations to be positive.

Public construction projects comprise three key dimensions of the economic sustainability and environmental protection and social care model of Hargreaves and Fink (2006). With ethical governance and protecting the environment, leaders in mega projects should not only use the best resource utilization such as costs, budget, and time but also protect the environment and support local communities (Levinthal & Weller, 2023). It also becomes more and more apparent that sustainable leadership is a key driver of project performance, focusing on the planning of complex mega projects that demand long-term vision, ethical governance, and social responsibility. BRT Peshawar projects could have had results way better than before for both the environment and the local communities, had leaders with sustainability values led these projects. Effective leadership in mega projects is found to significantly influence project outcomes through transparency, stakeholder trust, and adaptive decision-making (Evans et al., 2020).

Despite, the significance of sustainable project management, limited studies have analyzed the interplay between sustainable leadership approaches and stakeholder interaction toward better project outcomes including effective risk management and stakeholders' satisfaction with lasting business value (Zaad et al., 2024; Martens & Carvalho, 2017). This research seeks to examine, that how leaders with sustainability values manage project stakeholders and get better project results. The research adopts real-life projects such as the BRT Peshawar project to show what works best and what challenges mega projects face in reaching sustainable results (Misnan et al., 2024).

This research uses a cross-sectional mono-method survey methodology distributed to key stakeholders who work on public construction mega projects. This research design lets us learn about leadership practices and stakeholder relationships by collecting data from a range of professionals involved in project management including engineers, government staff, and project stakeholders. Our research demonstrates sustainable leadership has a substantial impact on stakeholder management processes leading to better project results. The research helps us understand better how sustainable leadership influences the management of stakeholders within massive construction initiatives. The research results enable policy creators to establish lasting project management guidelines and help construction organizations with their project stakeholder engagement development. The research seeks to develop a conceptual model for managing public infrastructure projects by prioritizing stakeholder inclusivity and transparent practices in project management.

Theoretical Framework and Hypotheses Development

Sustainable Leadership

Sustainable leadership integrates classic leadership principles with sustainability concepts from the environmental and social and economic dimensions. Green leadership presents a critical transformation from traditional leadership principles that establishes both long-term priorities and sustainable stakeholder relationships for broad stakeholder value delivery (Bulmer, 2024). This holistic approach acknowledges that environmental, social and economic factors are all interrelated and that the leader plays a central role to reconcile these various demands (Khoiruddin, 2023). Sustainable leaders are effective in fostering a culture of responsibility, transparency, and collaboration, and are leading the decision-making to ethical issues that help innovation to solve complex sustainability challenges (Wang, 2023). Their primary focus is on the long-term well-being of the business and its stakeholders; to generate a sustainable future (Kantabutra, 2012). In contrast to traditional models of leadership in which the short-term profit maximization is often prioritized above all else (Bulmer, 2024), sustainable leaders prioritize the interest of stakeholders. This concept acknowledges the crucial role between leadership behavior and the organizational sustainability outcome (Khoiruddin, 2023).

Stakeholder Management

The management of stakeholders in construction projects is a multi-dimensional process that is based on prescriptive and relational based approaches aim to effectively engage and enhance stakeholders to achieve successful projects. Prescriptive dimension involves the systematic identification, mapping, classification and monitoring of stakeholders in relation to power, legitimacy, and urgency (Mitchell et al., 1997; Olander & Landin, 2005). This structured methodology enables project managers to evaluate, predict and target management strategies in order to minimize risk and conflict, based on their assessment of stakeholder influence. Using tools like stakeholder matrices and influence maps, project teams can keep expectations (or stakeholders) and project outcomes on track.

In contrast, the relational dimension stresses continuous stakeholder involvement, communication and engagement throughout the project lifecycle (Mok et al., 2014; Bourne & Walker, 2005b). The result of this approach is collaborative, trust building and mutual adaptation between the project team and the stakeholders in the making of the decision (Rowlinson & Cheung, 2008). Relational stakeholder management has an impact on improved cooperation and decreased resistance, as well as increased stakeholder satisfaction, which consequently helps to improve project performance. Stakeholder Management is thus enhanced by integrating the prescriptive as well as relational aspects that lead to a dynamic stakeholder process which goes further to mitigate risk and maximize stakeholder contributions in the drive for sustainable and inclusive project development.

Sustainable Leadership and Project Performance

Sustainability principles have been accounted into project management practices due to rising environmental awareness and strengthened regulations and public interest (Maqbool & Sridhar, 2023). Sustainable projects demand sustainable leadership that incorporates ethical choices with enduring value generation and stakeholder inclusivity. Leadership with sustainability orientation focuses on building governance structure with emphasize on environmental and social accountability alongside lasting interest-based partnerships with stakeholders to make sustainability essential at all stages of project-based decisions (Zada et al., 2024). These principal results project risks decrease and process efficiency rises when sustainable leadership approaches

and active involvement of stakeholders thereby optimizing total project results (Pham & Kim, 2019).

Project completions heavily depends primarily on three traditional elements which combine cost-effectiveness with schedule compliance and quality results. However, with increased sustainability awareness; project success evaluation now includes equal priority for sustainability elements. Data shows how sustainable leadership implemented by project managers achieves stakeholder collaboration and resource optimization for projects that efficiently meet their performance targets and sustainability benchmarks (Latiffi & Zulkiffli, 2021). Additionally, sustainable leadership positively enhances knowledge integration leading to better decision making and innovation in project execution (Afzal & Tumpa, 2024). There is support for the linkage between sustainable leadership and project performance from a number of empirical studies. For example, leadership on green construction project has been found to improve team performance and sustainability compliance (Shafique and Mollaolgu, 2019). Furthermore, the leadership styles that focus on achieving orientation and stakeholder involvement are able to contribute to the sustainable project success (Sujana, 2020). Based on the reviewed literature, the following hypothesis is proposed:

H2: Sustainable leadership has a significant effect on project performance.

Sustainable Leadership on Stakeholder Management

Project stakeholder management involves the systematic identification, analysis and engagement of all parties with a stake, or interest, or concern in a project. These stakeholders include end users (government authorities), contractors, suppliers, local communities, investors. Stakeholder management in a project results in the alignment of project objectives with stakeholder expectations in order to minimize conflicts and project sustainability (Klaus-Rosińska & Iwko, 2021).

Managing complex stakeholder relationships in mega construction projects has to be done by leaders while sustainability goals are aligned with financial and operational priorities (Lima et al., 2021). Sustainability leaders draw out trust, support participatory decision making and incorporate stakeholder concerns into project development (Wu et al., 2023). Sustainable leadership is shown to promote stakeholder engagement thus resulting in improved collaboration, fewer disputes and increased project efficiency (Pham & Kim, 2019). In particular, the construction sector, due to its diverse stakeholder interests, has a particularly clear linkage between sustainable leadership and stakeholder management. As Afzal and Tumpa (2024) argue, leaders who prioritize stakeholder well-being advance the cause of stakeholder commitment and ultimately project success. Moreover, responsible leadership approaches augment stakeholder collective performance in bettering the project execution (Lin et al., 2023). Based on the reviewed literature, the following hypothesis is proposed:

H2: Sustainable leadership has a significant effect on stakeholder management.

Stakeholder Management and Project Performance

Effective stakeholder management facilitates more effective communication, risk reduction, and resource optimization resulting in a better project performance (Klaus-Rosińska & Iwko, 2021). The literature demonstrates that stakeholder involvement leads to an increase in project outcomes through building trust (Klaus-Rosińska & Iwko, 2021; Saad, et al., 2022) and reducing project cost (Xue et al., 2018). Whereas, poor stakeholder management resulted in conflict and cost overruns which effect project success and performance (Wu et al., 2023). Xue et al. (2018) argue that effect

management of key stakeholder in projects leads to superior decisions and improved cost and quality outcomes.

The triple constraints of project performance developed by Atkinson 1999; known as iron triangle encompassing time, cost and quality; where researcher argue the requirements and stakeholder's satisfaction as success factor of project outcomes. This further increase the probability of project success with greater amount (Saad et al., 2022). This notion is also supported by PMBOK (PMI 2013) have also acknowledged stakeholder satisfaction as "key project objective" Doloi et al. (2012) highlights the poor coordination with stakeholder as one the most significant factor resulting in project delay and sometime even failure in the context of construction projects.

Literature studies show stakeholder management plays a crucial role in achieving project success due to its critical nature. However, this research framework needs additional empirical investigations to validate the real-world implications of stakeholder management in construction projects. These empirical researches should investigate how stakeholder management methodology contribute delivering measurable improvements to project outcomes. Following these arguments this study hypothesizes:

H3: Stakeholder management has a significant effect on project performance.

Stakeholder Management as Mediator

This study propose that stakeholder management play a significant mediating role in the relationship between sustainable leadership and project performance. The author argue that Sustainable leadership adopts strategic vision along with ethical practices to develop an engagement-based environment which merges specific project goals with broader societal and environmental targets (Lin et al., 2023). Stakeholder management demonstrates potential as the link that connects sustainable leadership to enhancements in project performance. Project stakeholders who effectively participate show better results including enhanced efficiency alongside decreased risks and improved sustainability (Wu et al., 2023).

Research evidence supports sustainable leadership since it builds better stakeholder collaboration which results in enhanced projects outcomes. Project manager focus on stakeholder welfare together with deep stakeholder involvement in project decisions leads to sustainable project environments with greater resilience according to Phung et al. (2022). Research reveals that stakeholder engagement both reduces conflicts and matches project objectives to stakeholders' expectations to maximize performance results (Mashali, et al., 2023). Aboramadan conducted a study in 2023 and highlights knowledge integration functions as the element which explains sustainable leadership translates to sustainable project performance. This study explores knowledge integration but demonstrates that projects need intermediary link such as stakeholder management towards better project outcomes.

Empirical research exploring stakeholder management's role in connecting sustainable leadership to project performance outcomes remains understudied despite recent insights about project performance dynamics. To achieve holistic sustainable projects organizations, need to embed stakeholder engagement practices within their leadership frameworks (Zada et al 2024). The research aims to bridge this knowledge gap through an analytical appraisal of published literature to create a sophisticated comprehension of stakeholder management's role in connecting sustainable leadership to project performance outcomes. Based on these arguments the following hypotheses is proposed:

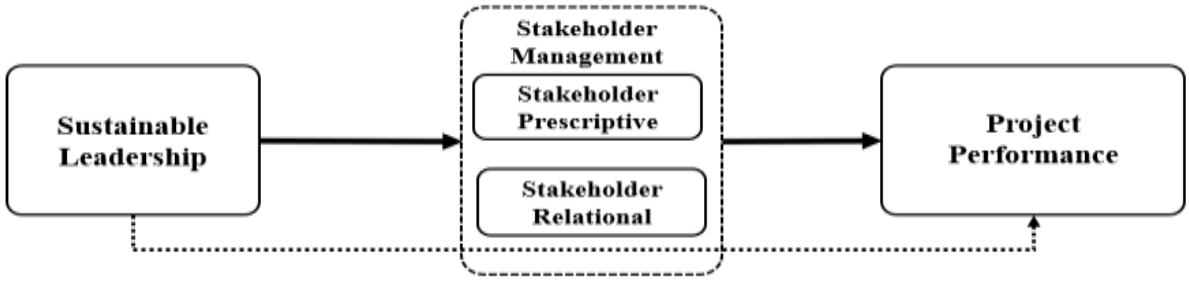
H4: Stakeholder Management significantly mediate the relationship between sustainable leadership and project performance.

Theoretical Framework

The theoretical foundation of this study is Stakeholder Theory, which stresses that relationships with all concerned parties affected by a project must be well managed to succeed in the long run. First articulated by Freeman (1984), Stakeholder Theory states that organizations have to address the interests of various stakeholders, including clients, government agencies, contractors, suppliers, and the local community, to make a project viable and, more crucially, of good quality (Diyagama et al., 2023). The Stakeholder Theory provides exceptional relevance to public construction mega projects because they typically feature multiple stakeholders with competing interests together with difference in power dynamics (Mashali et al., 2022). According to Aladağ and Işık (2020) sustainable leadership drives improved project performance through proactive stakeholder participation that also supports Stakeholder Theory principles. Sustainability-oriented leadership develops stakeholders into active participants who join project planning and implementation and performance evaluation while ensuring both inclusivity and transparency (Evans et al., 2020). The integration of participatory methods helps projects address stakeholder conflicts and build trust resulting in improved project outcomes (Wu et al., 2023).

The essential function of Stakeholder Theory becomes evident through its application in BRT Peshawar public construction mega projects which drive project efficiency. A poor approach to managing stakeholders in the project resulted in excessive costs and project delays together with popular discontent demonstrating the negative impact of insufficient stakeholder involvement. The implementation of well-constructed stakeholder management systems results in better project delivery and resource deployment which leads to superior project results (Xue et al., 2020). The authors expand Stakeholder Theory research by studying how sustainable leadership approaches affect project results through successful stakeholder interaction management. This framework delivers essential strategic insights to practitioners who need help working through project complexities in large-scale construction projects. Based on theoretical framework the following model is proposed:

Figure 1: Conceptual Model



Source: Author

Methodology

Methodology and Procedure

This study uses a quantitative research with a survey approach for measuring the linkage between sustainable leadership, stakeholder management and project performance in public construction projects in Khyber Pakhtunkhwa, Pakistan. The study uses the cross-sectional design where data is collected at one time to examine the patterns and relationships among the variables. The research is deductive, in which established theories are tested with empirical data. The survey questionnaire

is used based on validated scales from previous studies, with content validity and reliability. A pilot study is conducted prior to full scale data collection to refine the instrument.

Population and Sample

This study targets the public construction mega projects in Khyber Pakhtunkhwa, Pakistan with professionals working in the project management, engineering, consultancy and other decision-making roles. Simple random sampling is used by the study to achieve a representative sample and reduce selection bias. Based on Cohen (1992)'s statistical power analysis, a sample size of 320 respondents can guarantee sufficient power to perform structural equation modeling (SEM). The sample size also concurs with the recommended minimum for PLS-SEM analysis where at least 10 respondents per indicator of the most complex construct (Hair et al (2019). The respondents demographic profile is presented in table 1:

Table 1: Demographic Profile of the sample (N = 320)

Variable	Category	Frequency (n)	Percentage
Gender	Male	258	80.7
	Female	62	19.3
Age	20 - 30 years	107	33.4
	31 - 40 years	119	37.2
	41 and above	94	29.4
Education	Diploma	95	29.7
	Bachelor's Degree	133	41.6
	Master's Degree and above	92	28.8
Experience	1 - 5 years	111	34.7
	6 - 10 years	117	36.6
	11 years and above	92	28.8
Designation	Project Manager	85	26.6
	Site Engineer	99	30.9
	Quantity Surveyor	67	20.9
	Construction Supervisor	69	21.6

Measures

A structured questionnaire with the items adapted from existing scales was used for the study.

Sustainable leadership

The McCann and Holt (2010) 15 items scale is used for measuring sustainable leadership. The sample item is "My leadership acts in a sustainable socially responsible manner. Five-point Likert scale is used for measuring sustainable leadership items ranging from 1 for "Not at all" to 5 for "frequently, if not always"

Stakeholder Management

Stakeholder management is measured with two dimensional scales of prescriptive stakeholder management and relational stakeholder management. The prescriptive dimension focus on implementation of methodologies of mapping, identification, classification and monitoring (Olander and Landin, 2005), and the relational dimension deals with stakeholder involvement and

engagement (Mok et al., 2014, Olander and Landin, 2005, Rowlinson and Cheung, 2008). The prescriptive dimension is measured with five items adopted from Olander and Landin (2005) and relational dimension is measured with five items scales adopted from Rowlinson and Cheung (2008) and Mok et al. (2014).

Project Performance

Project performance is measured with multi-dimensional concept of triple constraints encompassing; Schedule Performance having four items; Cost Performance having three items and Quality Performance with three items. These items are adopted from Müller and Turner (2007); Yang et al. (2013); and Berssaneti and Carvalho (2015). The five-point Likert scale of 1= Strongly disagree, 2 = disagree, 3 = neutral, 4 = agree and 5 = Strongly agree is used to rate all the items in order to capture respondents' perceptions effectively.

Data Analysis Techniques

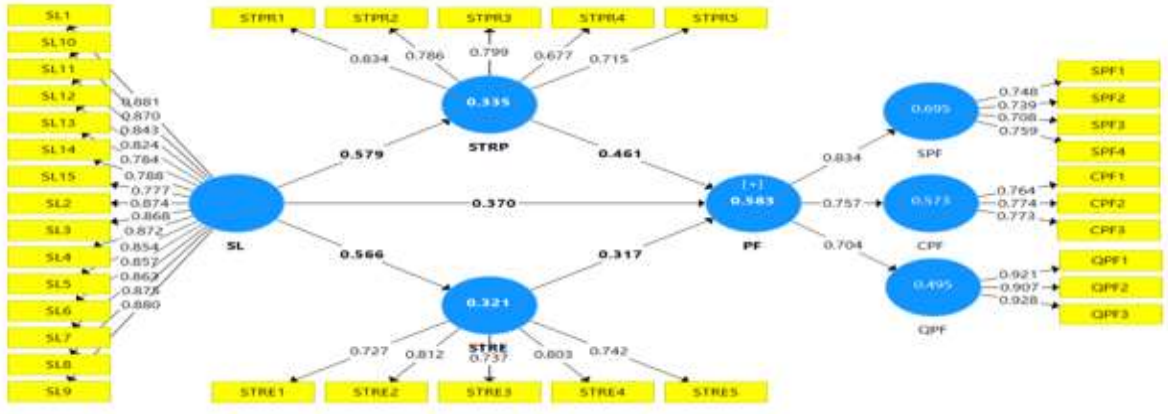
Data analysis is conducted using Partial Least Square Structural Equation Modeling (PLS-SEM) using SmartPLS 3 software. This technique is appropriate for use of analyzing complex relationships in exploratory and theory building research (Hair, et al., 2017). The data analysis process follows a two-stage approach: The first consists of the assessment of the measurement model (reliability, convergent validity and discriminant validity), and the second is the evaluation of the structural model, testing hypotheses in terms of path coefficients, R^2 values and effect sizes (f^2). The statistical significance of the relationships is tested with a bootstrapping technique of 5,000 resamples (Henseler et al., 2016).

Results

Statistical Assumptions and Common Method Bias

Key statistical assumptions were assessed to the validity of the statistical analysis. Skewness and kurtosis values showed that data followed a normal distribution, because both values were within the acceptable range of ±2 (Hair et al., 2019). Further, common method bias (CMB) was tested using Harman's Single Factor Test, which determined that a single factor accounted for 0.34 of the total variances, far below the critical cut-off of 0.50 (Podsakoff et al., 2003).

Figure 2: Measurement Model



Source: Author

This result shows that common method variance does not produce a major threat to the validity of findings, meaning that the relational measures are not contaminated with common response bias.
The reliability and validity of the constructs used in this study are reported in table 2. All constructs have strong internal consistency with Cronbach's Alpha (CA) and Composite Reliability (CR) values higher than 0.70 (Hair et al., 2019). In addition, the Average Variance Extracted (AVE) values are greater than the threshold of 0.50, which is regarded as the acceptable limit of convergent validity (Fornell & Larcker, 1981).
Sustainable Leadership (SL) maintained a good reliability with CA = 0.872 and CR = 0.915 means that it is a good constructed construct. The scale is robust as all indicators present strong factor loadings from 0.777 to 0.881. Further, project performance measured with cost, time and quality performance have an acceptable reliability and meet convergent validity. The reliability of cost performance is (CA = 0.758, CR = 0.814) is acceptable, yet its AVE (0.593) is less than the other constructs, indicating moderate explanatory power. QPF has the highest reliability (CA = 0.908, CR = 0.942) with strong factor loadings (0.907 – 0.928) so that this construct is well measured. Schedule Performance (SPF) has good reliability (CA = 0.723, CR = 0.828), AVE = 0.546, exceeding the required minimum. The two dimensions of stakeholder management, being Stakeholder Prescriptive (STPR) and Stakeholder Relational (STRE), are reliable (CA = 0.820 and 0.822, respectively) and valid (AVE = 0.585), respectively. The results affirm that all constructs are highly reliable and valid and thus ensure robustness in the measurement model (Henseler, Ringle, and Sinkovics, 2015).
Furthermore, the discriminant validity of the model with Fornell-Larcker (1980); confirm the validity of the model. HTMT-Ratios for all the constructs are less than 0.85; indicating good convergent validity of the model.

Table 2: Construct Reliability and Validity

Variable	Indicator	Loading	T Statistics	Cronbach's Alpha	Composite Reliability	AVE
Sustainable Leadership	SL1	0.881	56.979	0.872	0.915	0.719
	SL10	0.87	53.848			
	SL11	0.843	46.318			
	SL12	0.824	34.507			
	SL13	0.784	24.887			
	SL14	0.788	24.615			
	SL15	0.777	24.318			
	SL2	0.874	44.371			
	SL3	0.868	44.32			
	SL4	0.872	52.861			
	SL5	0.854	47.397			
	SL6	0.857	50.53			
	SL7	0.863	53.929			
	SL8	0.875	59.835			
	SL9	0.88	60.867			
Cost Performance	CPF1	0.764	21.744	0.758	0.814	0.593
	CPF2	0.774	26.617			
	CPF3	0.773	23.907			
Quality Performance	QPF1	0.921	87.469	0.908	0.942	0.744

	QPF2	0.907	50.468			
	QPF3	0.928	92.132			
Schedule Performance	SPF1	0.748	22.773	0.723	0.828	0.546
	SPF2	0.739	23.227			
	SPF3	0.708	22.262			
	SPF4	0.759	25.743			
Stakeholder Prescriptive	STPR1	0.834	38.389	0.82	0.875	0.585
	STPR2	0.786	27.397			
	STPR3	0.799	28.444			
	STPR4	0.677	18.379			
	STPR5	0.715	20.766			
Stakeholder Relational	STRE1	0.727	19.761	0.822	0.876	0.585
	STRE2	0.812	32.819			
	STRE3	0.737	21.514			
	STRE4	0.803	36.653			
	STRE5	0.742	20.869			

Structural Model for Hypotheses Testing

Table 3 shows the structural model analysis, where statistic indicates the significance of all hypothesized relationships.

Direct Effects

Sustainable leadership has a significant positive impact on project performance ($\beta = 0.370$, $p = 0.000$); highlighting the importance of leadership with sustainability in project performance in terms of cost, schedule and quality. In the same way, sustainable leadership significantly influences both relational and prescriptive stakeholder management SL → STRE ($\beta = 0.566$, $p = 0.000$) & SL → STRP ($\beta = 0.579$, $p = 0.000$). This suggest that sustainable leaders promote structured stakeholder engagement and collaboration. Both stakeholder management dimensions positively impact project performance STRE → PF ($\beta = 0.317$, $p = 0.000$) & STRP → PF ($\beta = 0.461$, $p = 0.000$); indicating that stakeholder management approaches improve project by reducing cost and schedule, and improve quality outcomes.

Mediation Effects

Stakeholder management (relational and prescriptive) significantly mediates the relationship between sustainable leadership and project performance SL → STRE → PF ($\beta = 0.180$, $p = 0.000$) & SL → STRP → PF ($\beta = 0.267$, $p = 0.000$): indicating that leadership improves project success not just directly but also by fostering better stakeholder engagement.

Table 3: Structural Model Analysis

Path	Coefficient	STDEV	T Statistics	P Values	Confidence Interval		Remarks
					LCI	UCI	
SL -> PF	0.370**	0.046	8.043	0.000	0.132	0.307	Supported
SL -> STRE	0.566**	0.049	11.659	0.000	0.477	0.656	Supported
SL -> STRP	0.579**	0.027	21.600	0.000	0.523	0.625	Supported
STRE -> PF	0.317**	0.061	5.175	0.000	0.192	0.427	Supported
STRP -> PF	0.461**	0.060	7.700	0.000	0.336	0.563	Supported
SL -> STRE -> PF	0.180**	0.040	4.528	0.000	0.108	0.265	Supported
SL -> STRP -> PF	0.267**	0.039	6.830	0.000	0.195	0.346	Supported

Note: **indicates significance; SL = Sustainable Leadership; PF = Project Performance; STRE = Stakeholder Relational; STRP = Stakeholder prescriptive

Discussion

This study finds that sustainable leadership (SL) has a significant impact on project performance (PF) which is consistent with past research on the importance of sustainability driven leadership in enhancing project success. By promoting environmental awareness, ethical governance and value creation over the long term, sustainable leadership can collectively improve on project efficiency and sustainability outcomes (Avery & Bergsteiner, 2011). Similarly, Jayashree, Barachi and Hamza (2022) argue that sustainable leadership is critical for project sustainability by investing stakeholders and integrating environmental, social considerations in project planning and execution. In line with past studies they conclude the significance of sustainable leadership on construction project performance regarding cost efficiency, schedule adherence and quality outcomes (Waqar et al., 2024; Zada et al., 2024), However, some contradictory evidence exists; suggesting that although sustainable leadership is good, its impact on project efficiency can rely on context and external variables including regulatory settings and market situations (Iqbal et al., 2024). Therefore, it implies that simply the sustainable leadership might not be sufficient, other project management factors should also be considered.

In addition, the study shows that sustainable leadership significantly affects stakeholder management (both prescriptive and relational dimension). Stakeholders engaged by such leaders feel transparent, trust the leader, and are able to collaborate and make decisions together (Wu et al., 2023). Lin et al. (2023) contend that responsible leadership increases stakeholder collective performance and thus better aligns stakeholder interests with project goals. In contrast, some studies indicate that leadership influences on stakeholder management could be influenced by stakeholder dynamics and industry specific challenges (Phung et al., 2022). Although the results support the notion that effective leadership helps create a sense of coordination among the stakeholder for better outcomes, reducing conflicts and advancement of project sustainability.

The positive effects of stakeholder management on project performance support existing literature which states that well-structured stakeholder engagement strategies result in better project performance (Jayasuriya et al., 2022). Project risks are minimized through stakeholder collaboration, resources are allocated in the most appropriate manner, and a prompt problem solving environment is created (Saad et al., 2020). Furthermore, Klaus-Rosińska & Iwko (2021) stated that projects with properly managed stakeholder relations have the best probability of meeting sustainability objectives. But some scholars suggest that the fulfillment of the project performance is dependent on the level of stakeholder involvement and willingness to cooperate

(Xue et al., 2018). This indicates the require of tailored stakeholder engagement strategy to achieve positive project outcomes.

The research shows that stakeholder management plays a significant mediating role between sustainable leadership and project performance validating the stakeholder theory which states that effective stakeholder engagement determines project success (Freeman, 1984). Research indicates sustainable leadership mainly works through its capability of building stakeholder relationships to produce superior project results while operating indirectly (Molwus et al., 2017). The work of Jayasuriya et al. (2020) supports this finding by explaining stakeholder involvement as the fundamental method for both managing project risks and ensuring sustainability. The research demonstrates stakeholder management plays an essential role as a mediator but its success rate depends on project factors such as sector regulations and power relations between stakeholders.

Conclusion

This study provides empirical evidence to support the significance of sustainable leadership and stakeholder management in enhancing project performance. The results verify that positive relationship of sustainable leadership with the project success is both direct and indirect via effective stakeholder management. Additionally, these results indicate that stakeholder management mediates the relationship between leadership and stakeholder engagement, such that strong leadership promotes greater stakeholder engagement which, in turn, results in superior project outcomes. The insights corroborate the stakeholder theory in showing how leadership practices and stakeholder dynamics work together to facilitate sustainable project success. Despite this, the study recognizes that contextual factors (including industry regulations and stakeholder power dynamics) may impact these relationships, and so further research is warranted.

Theoretical and Managerial Implications

This study from a theoretical perspective provides contribution to the stakeholder theory by empirically showing the mediating role of stakeholder management in the relationship between sustainable leadership and project performance. Integrating both prescriptive and relational dimensions of stakeholder management, it expands existing literature, and provides a comprehensive framework of leadership stakeholder interactions in construction projects. The findings are practical to project leaders and policymakers as managerially. Leadership development programs must start with investing in organizations with sustainability, ethics and stakeholder engagement. Further, the project managers have to adopt the structured approaches in the stakeholder management to proactively talk with the stakeholder, collaborate, and resolve conflict to maximize the project success. Firms are able to develop more efficient and less risky project construction by aligning leadership practices with stakeholder interests.

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