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THE INFLUENCE OF VENDOR PERFORMANCE, POLICIES, AND PROCEDURES ON SUSTAINABLE QUALITY CONTROL MEDIATED BY INTERNAL COMMUNICATION IN THE 4G BTS DEVELOPMENT PROJECT IN PAPUA, BAKTI KOMINFO.

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Abstract

This study analyzes the influence of vendor performance, company policies, and operational procedures on sustainable quality control, with internal communication as a mediator, in the 4G Base Transceiver Station (BTS) development project in Papua by BAKTI Kominfo. Using a quantitative approach, data was collected from 150 purposively selected respondents through surveys and structured questionnaires, and then analyzed using Partial Least Squares Structural Equation Modeling (PLS-SEM) version 4.0.The results show that vendor performance has a positive and significant effect on sustainable quality control, supported by significant t-statistics and low P-value. Company policies also have a positive and significant effect on quality control, with high t-statistics. Operational procedures show a positive and significant impact on sustainable quality control. However, vendor performance and operational procedures do not significantly affect internal communication. Company policies positively influence internal communication, while internal communication does not significantly affect quality control. These findings provide valuable insights for quality management and communication strategies in organizations.

Keywords: Vendor Performance, Policy, Procedures, Internal Communication, Quality Control

INTRODUCTION

The development of telecommunication infrastructure plays a critical role in enabling digital transformation, particularly in remote regions such as Papua. The Indonesian government, through BAKTI Kominfo, initiated the BTS 4G construction project to improve connectivity and reduce the digital divide. However, the implementation of this initiative faces significant challenges, including geographical constraints, logistical complexities, and the need for consistent quality control. This study investigates how vendor performance, policy frameworks, and operational procedures influence sustainable quality control, with internal communication examined as a potential mediating factor. Theoretically, the research contributes to the discourse in project and quality management by incorporating internal communication into the analysis of infrastructure project sustainability an area seldom explored in similar contexts. From a practical standpoint, the findings offer actionable insights, including the need for strengthened vendor evaluation mechanisms, optimized procedural systems, and enhanced communication strategies to support project

execution in challenging environments. The novelty of this study lies in its integrated approach, which assesses the interaction among key operational factors and sustainable quality outcomes within the unique setting of infrastructure projects in underserved regions. The results reveal that while vendor performance, policy, and procedures significantly affect sustainable quality control, internal communication does not serve as a meaningful mediator. These outcomes imply that successful project delivery in remote areas requires not only effective internal coordination but also robust policy design, clear operational guidelines, and the engagement of reliable vendor partners

LITERATURE REVIEW AND HYPOTHESIS FORMULATION

This study explores the factors influencing sustainable quality control in infrastructure projects, drawing from contemporary literature published within the last ten years in reputable international and national journals. Vendor performance is identified as a critical element, with researchers such as Kannan and Tan (2019) and Gunasekaran and Ngai (2019) highlighting its impact on quality, delivery, cost, and communication effectiveness. In line with this, Robinson (2017) underscores the importance of vendor reliability in preventing project delays and maintaining service standards. Additionally, company policy and operational procedures provide strategic direction and standardized processes, which Daft et al. (2016) and Kerzner (2018) argue are essential in ensuring project alignment and reducing operational risks, particularly in remote settings like Papua. Internal communication is also emphasized as a key factor in facilitating coordination and timely decision-making. Although Kim et al. (2020) and Pratama and Mulyani (2023) acknowledge the positive influence of communication tools and flows within teams, the mediating role of communication in enhancing quality outcomes remains uncertain and contested. Sustainable quality control itself is framed by Juran and Godfrey (2016) and Griffin (2021) as a continuous improvement process that ensures product and service consistency over time, especially in challenging environments. Saman, Wolor, and Saparuddin (2023) also discuss the role of product quality, promotion, price, trust, and purchase decisions in shaping consumer loyalty, which is relevant for understanding stakeholder dynamics in project management.

After establishing the conceptual foundation, the hypotheses are formulated and written in bold, italicized, and left-aligned format, as shown below. These hypotheses guide the empirical examination in this quantitative study:

H1: Vendor performance has a significant positive effect on sustainable quality control. H2: Company policy has a significant positive effect on sustainable quality control.
H3: Operational procedures have a significant positive effect on sustainable quality control. H4: Vendor performance has a significant effect on internal communication.
H5: Company policy has a significant effect on internal communication.
H6: Operational procedures have a significant effect on internal communication. H7: Internal communication has a significant effect on sustainable quality control.
H8: Internal communication mediates the relationship between vendor performance and sustainable quality control.
H9: Internal communication mediates the relationship between company policy and sustainable quality control.
H10: Internal communication mediates the relationship between operational procedures and sustainable quality control.

RESEARCH METHODS

This section elaborates on the methodological process adopted to carry out the research. The study applied a quantitative approach with a causal-explanatory framework to investigate how vendor performance, organizational policies, and operational procedures influence sustainable quality control, with internal communication acting as a potential mediating factor. The research subjects consisted of individuals directly involved in the implementation of the BTS 4G project in

Papua, including project managers, coordinators, technical teams, and field staff. Using purposive sampling, 150 participants were selected based on their experience and knowledge of the project context. Data were gathered through a structured survey instrument designed with reference to established indicators from relevant prior studies. Before being deployed, the questionnaire was subjected to a pilot test to ensure clarity, consistency, and reliability. Responses were captured using a five-point Likert scale, and the instrument was distributed via both online platforms and physical copies to reach a broader respondent base. Data analysis employed SmartPLS version 4.0, a statistical tool suitable for assessing latent variable models and complex causal paths. As the research did not involve any laboratory-based materials or physical instruments, no material or tool specifications were applicable aside from the analytical software used. In qualitative studies such as case studies, ethnographic research, or classroom-based action research additional methodological components would be essential, including the researcher's role in the field, identification of participants or informants, the site and time span of the research, and rigorous procedures for establishing result credibility, such as data triangulation or peer validation.

RESULTS AND DISCUSSION

This section presents the main findings of the study, focusing on the results derived from the data analysis without displaying detailed statistical procedures. The outcomes of the hypothesis testing are summarized to highlight the relationships among variables within the research model. Overall, the analysis indicates that vendor performance, company policy, and operational procedures each have a significant and positive impact on sustainable quality control. Among these, company policy shows the strongest direct effect. Interestingly, internal communication, which was expected to serve as a mediating variable, does not significantly influence sustainable quality control nor mediate the effect of vendor performance and procedures. However, it does mediate the influence of company policy, albeit partially. These results are further clarified through tables and figures, each of which is accompanied by a brief narrative interpretation to provide context for the numerical outcomes.

In addressing the research questions, the findings directly respond to the formulated hypotheses. It is evident that organizational and operational factors play a crucial role in maintaining long-term quality in telecommunication infrastructure projects, particularly in remote regions like Papua. The results affirm the initial assumptions outlined in the theoretical framework, while also providing new insight into the limited role of internal communication as a mediating factor. This suggests that in highly structured, policy-driven environments, communication may serve more as a formal process than a dynamic facilitator of quality outcomes. The conclusions drawn from each hypothesis are explicitly stated, and the findings are interpreted through relevant theories such as project quality management theory, communication theory, and vendor relationship theory. These theoretical lenses allow for a deeper understanding of why certain variables exert greater influence than others in the studied context.

In connecting the findings to existing literature, this research supports several previous studies that underscore the importance of clear policies and strong vendor partnerships in achieving project quality (Gunasekaran & Ngai, 2019; Kerzner, 2018). However, it challenges the assumption found in some communication studies that internal communication is always a central driver of quality outcomes. Instead, this study proposes a refinement: in infrastructure projects constrained by geography and strict regulations, structural variables like policy and procedure may override the influence of softer variables such as communication. This contributes to theoretical development by confirming aspects of classical quality management models while suggesting that modifications are needed when applied to public sector infrastructure projects in underserved regions. Thus, this study not only reinforces established frameworks but also opens space for new theoretical adjustments specific to high-risk, decentralized development contexts.

CONCLUSION

This study concludes that vendor performance, company policies, and operational procedures have a significant positive effect on sustainable quality control in infrastructure projects, particularly in remote regions such as Papua. Among these, company policy shows the strongest influence, while internal communication expected to mediate these relationships only partially mediates the effect of policy and does not significantly mediate the effects of vendor performance or procedures. These findings imply that formal structures and clear operational frameworks play a more critical role than communication flow in such projects. Practically, organizations should focus on strengthening policy implementation, improving vendor evaluation systems, and optimizing procedural consistency to maintain quality standards in challenging environments. However, this study is limited by its focus on a single government-led project and reliance on cross-sectional, self-reported data, which may not capture the full complexity of internal communication dynamics. Future research should consider using mixed-method approaches, exploring informal communication factors, and expanding the study across different regions or sectors to enhance generalizability and theory refinement.

Equation

The formula used in this calculation is the sample size correction formula for a finite population. Essentially, this formula is employed to determine the required sample size in research when the population size is not very large. The formula used is:

$$n = \frac{N}{1 + Ne^2} = n = \frac{240}{1 + 240x(0{,}05)^2} = \frac{240}{1 + 240x0{,}0025} = \frac{240}{1 + 0{,}06} = \frac{240}{1{,}6} = 150$$

Where N is the population size, e is the margin of error or the desired level of error in decimal form, and n is the sample size calculated after correction. In this calculation, the population size (N) is 240, and the margin of error (e) used is 0.05. The first step is to square the margin of error (0.05^2 = 0.0025), then multiply the result by the population size (240 × 0.0025 = 0.6). Next, the result of the multiplication is added to 1 (1 + 0.6 = 1.6), and the sample size is calculated by dividing 240 by 1.6, which gives 150. In other words, the recommended sample size after correction is 150, which is smaller than the sample size calculated for an unlimited population. This highlights the importance of applying a correction in research with a finite population to ensure that the sample taken remains representative and produces valid results with the specified margin of error.

1. Figures and Tables

Place the table label on top of the table, while the image label is at the bottom of the image. Write down a specific table, such as Table 1, when referencing a table. Examples of writing tables and captions are as follows:

Table 1.Table Hypothesis Test

Variable	T Statistic	P Value	T Table	Result
Vendor Performance → Sustainable Quality Control	3.078	0.002	1.645	Positive And Significant Effect
Company Policy → Sustainable Quality Control	32.475	0.000	1.645	Positive And Significant Effect

Operational Procedure→ Sustainable Quality Control	8.721	0.000	1.645	Positive And Significant Effect
Vendor Performance → Internal Communication	1.853	0.064	1.645	No Effect And Not Significant
Company Policy → Internal Communication	15.186	0.000	1.645	Positive And Significant Effect
Operational Procedure → Internal Communication	0.893	0.372	1.645	No Effect And Not Significant
Internal Communication → Sustainable Quality Control	0.643	0.521	1.645	No Effect And Not Significant

Source: Researcher processed on smart PLS 4. (2025)

The table presents the results of a statistical analysis using the T-Test to assess the relationships between various variables in the study. Each row represents a relationship between two variables, followed by the T Statistic, P Value, T Table, and the conclusion based on the comparison between the T Statistic and T Table.

The relationship between Vendor Performance and Sustainable Quality Control is found to have a positive and significant effect, as the T Statistic (3.078) is greater than the T Table (1.645), and the P Value (0.002) is less than 0.05. Similarly, Company Policy has a positive and significant effect on Sustainable Quality Control (T Statistic = 32.475, P Value = 0.000), as the T Statistic is significantly larger than the T Table and the P Value is very small. The relationship between Operational Procedure and Sustainable Quality Control also shows a positive and significant effect, with a T Statistic of 8.721 and a P Value of 0.000, both indicating a strong and significant influence.

However, the relationship between Vendor Performance and Internal Communication does not show a significant effect, as the T Statistic (1.853) is smaller than the T Table (1.645) and the P Value (0.064) is greater than 0.05, indicating no significant impact. On the other hand, Company Policy has a positive and significant effect on Internal Communication (T Statistic = 15.186, P Value = 0.000), indicating that company policy plays a crucial role in enhancing internal communication. The relationship between Operational Procedure and Internal Communication also shows no significant effect, as the T Statistic (0.893) is smaller than the T Table, and the P Value (0.372) is greater than 0.05. Finally, the relationship between Internal Communication and Sustainable Quality Control also shows no effect, as the T Statistic (0.643) is smaller than the T Table, and the P Value (0.521) is greater than 0.05.

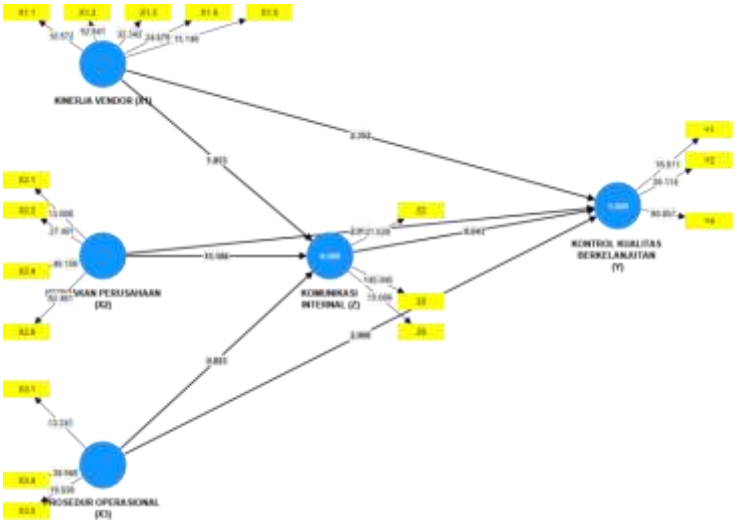

Figure 1. Hypothesis Test

In conclusion, the study finds significant positive effects of Vendor Performance, Company Policy, and Operational Procedure on Sustainable Quality Control, as well as Company Policy on Internal Communication. However, no significant effects are found for the other relationships tested.

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