The Influence Green Operations on Sustainability Performance Through Service Quality in Banking Services

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Abstract - *This study aims to find out and analyze the influence of Green Operations on Sustainability Performance through Service Quality in Banking Services. The population of this study is PT XYZ employees with a sample of 102 people. The technique used in the distribution of this questionnaire is purposive sampling. This technique is included in the category of non-probability sampling. The data analysis method used the Structural Equation Model-Partial Least Square (SEM-PLS). The results of the study show that Green Operations has a positive effect on Service Quality, Service Quality has a positive effect on Sustainability Performance, Green Operations has a positive and significant effect on Sustainability Performance, and there is an indirect influence of Green Operations on Sustainability Performance through Service Quality. This means that Service Quality acts as a partial mediating variable that strengthens the relationship between green operations and sustainability performance.*

Keywords: Green Operations, Sustainaibility Performance, Service Quality, SEM-PLS.

I. INTRODUCTION

Green banking was officially established in 2003 with the aim of protecting the environment (Mir & Bhat, 2022). Indonesia has committed to Sustainable Finance through the implementation of green banking or in accordance with the sustainable finance roadmap set by the OJK (Financial Services Authority) in December 2014. This regulation is also supported by the regulation outlined in POJK (Financial Services Authority Regulation) No. 51/POJK.03/2017, which is specifically addressed by Financial Services Institutions, "public companies and issuers that are required to implement sustainable finance in their businesses or activities related to the implementation of sustainable finance".

Stakeholder demands are met by sustainability reports, which show the company's transparency and accountability in fulfilling its social and environmental obligations. The company publishes sustainability reports that include information on the company's economic impact and Environmental, Social, and Governance (ESG). In evaluating a company's sustainability and performance, three main factors are ESG. Environmental to observe the company's commitment to the environment and the environment around its business operations, social to observe the company's ability to build positive relationships with employees, suppliers, customers, and society, and governance, as demonstrated by the company's leadership, internal control, and shareholder rights (Nusraningrum et al., 2023).

The company's sustainability performance and impact are effectively communicated through sustainability reports. The Global Reporting Initiative (GRI) guidelines are one of the guidelines for the disclosure of sustainability reports. GRI is a pioneering international organization dedicated to the development of sustainability reports. In 2016, the GRI Standards were officially published. GRI is committed to continuing to develop the framework and guidelines (Akadiati et al., 2023). Companies that prioritize sustainable business operations can increase their value by gaining the support of stakeholders. The success, viability and long-term development of a company depends on the disclosure of effective sustainability reports. Sustainability reports serve a variety of purposes, including as a metric for organizations to evaluate their progress toward their goals. The purpose of sustainability reports for investors is as a control tool to achieve company performance and as a consideration tool for investors when allocating their financial resources. Sustainability reports serve as criteria

to evaluate a company's dedication to environmental and social sustainability to achieve sustainable development for other stakeholders, including government, consumers, academics, and the media (Akadiati et al., 2023).

As a foreign bank, PT XYZ operates in a competitive market and needs to attract local customers through a quality service strategy. This creates research opportunities regarding service quality as a key variable in building customer loyalty. Shinhan Bank often combines an international approach with adapting to the needs of the local market, providing an interesting perspective in comparing the quality of their services with other banks. As part of the global financial group, PT XYZ is committed to sustainability initiatives. Research can examine how this policy is implemented in Indonesia and its effect on customer performance or satisfaction. Shinhan Bank also has a global portfolio in green project financing. This can be used as a reference to understand how they support similar initiatives in Indonesia. Research into foreign banks such as PT XYZ allows for the exploration of different contexts compared to national banks, particularly in terms of service quality, technology adoption, and sustainability. In addition, there has not been much research focused on PT XYZ, so this research can make a new academic contribution in understanding their practice in the Indonesian market.

Performance is positively influenced by sustainability. The results of this study are in line with those who state that sustainability performance has the potential to significantly reduce banking operational inefficiencies (Rehan et al., 2025). The sustainable finance program is designed to enhance the sustainability and competitiveness of Financial Services Institutions (FSIs), while also increasing their financing portfolio. The program's development is based on the assumption that sustainable finance or banking presents new challenges and opportunities for FSIs to continue growing and developing.

H1 Green Operations (X) has a positive influence on Service quality (Y).

Green operations is the process of integrating green practices into business operations to reduce environmental impact and increase efficiency. These implementations include waste management, recycling, the use of renewable energy, and the reduction of carbon emissions (Zhu & Sarkis, 2022). Green operations improve the company's sustainability and create added value for customers by providing services that are more environmentally responsible (Paulraj & Jayaraman, 2021). Service quality is a customer's perception of the extent to which the service received meets their expectations, which is influenced by reliability, responsiveness, assurance, empathy, and physical evidence (Parasuraman, Zeithaml & Malhotra, 2021). In the context of sustainability, service quality also includes ethical and environmental dimensions, where consumers associate service quality with the company's commitment to green practices (Kim & Lee, 2020).

This study found that consistent green operations practices improve the company's image and create a better perception of service quality in the eyes of customers (Zailani et al., 2020). The implementation of green operations has a significant influence on service quality through increasing customer trust, because they see that companies care about sustainability (Chan, et al., 2021).

Green operations not only have an impact on internal efficiency, but also shape customers' positive perception of the company. Service quality is now associated with sustainability and environmental responsibility. Recent empirical studies show that green operations on service quality has a positive and significant influence.

H2 Service quality (Y) has a positive influence on Sustainability Performance (Z).

Service quality is a customer's perception of service excellence and superiority, assessed from the dimensions of reliability, responsiveness, assurance, empathy, and tangibles (Parasuraman, Zeithaml & Malhotra, 2021). High-quality services, especially those that integrate sustainability aspects, increase customer loyalty and provide added value for companies (Kim & Lee, 2020). Sustainability performance includes economic, social, and environmental performance that reflects the long-term sustainability of a company (Hahn et al., 2020). Sustainability performance is the result of integrating business strategies with environmentally friendly initiatives and social responsibility (Kamble et al., 2021).

Good service quality promotes sustainability because companies that care about customers tend to adopt environmentally and socially friendly practices (Siva et al., 2020). Empirical studies have found that service quality contributes to sustainability performance through customer satisfaction and process efficiency (Yusof et al., 2021).

Service quality is not only related to customer satisfaction, but also affects the company's commitment to sustainable practices. Companies with good service quality usually have efficient, resource-efficient, and

socially oriented processes. Recent research supports that service quality on sustainability performance has a positive and significant influence.

H3 Green Operations (X) has a positive influence on Sustainability Performance (Z).

Green operations are the integration of environmentally friendly principles in the company's operational activities to reduce negative impacts on the environment, increase efficiency, and support sustainability (Zhu & Sarkis, 2022). Green operations include waste management, renewable energy use, recycling, and emission reduction that support the company's sustainability (Paulraj & Jayaraman, 2021). Sustainability performance includes economic, social, and environmental dimensions in the company's strategy (Hahn et al., 2020). Sustainability performance is the result of combining environmentally friendly business processes with social responsibility (Kamble et al., 2021).

The implementation of green operations improves the company's sustainability by reducing environmental impact and increasing a positive image (Zailani et al., 2020). Green operations contribute significantly to sustainability performance through resource savings and pollution reduction (Zhu et al., 2021). Empirical studies show that companies that consistently implement green operating practices have better sustainability performance than those that do not (Liu et al., 2022).

Green operations not only reduce environmental impact, but also strengthen the company's image and create long-term sustainability. Many recent studies support the positive influence of green operations on sustainability performance.

H4 Green Operations (X) has a positive influence on Sustainability Performance (Z) through Service Quality (Y).

Green operations are operational practices that integrate environmentally friendly principles to improve efficiency and sustainability, including waste management, renewable energy use, and emission reduction (Zhu & Sarkis, 2022). Service quality is defined as the customer's perception of service excellence, which now includes the sustainability dimension (Parasuraman, Zeithaml, & Malhotra, 2021). Consumers assess the quality of service based on the company's performance in green and ethical practices (Kim & Lee, 2020). Sustainability performance includes achievements in economic, social, and environmental aspects that support long-term sustainability (Hahn et al., 2020).

Service quality can be a mediator between green practices and sustainability performance because consumers respond positively to environmentally friendly services (Siva et al., 2020). Green operations improve the quality of services (e.g. efficiency, transparency, and social responsibility), which in turn impacts sustainability (Chan et al., 2021). Mediation occurs because the implementation of green operations improves processes and increases customer satisfaction, which supports the achievement of sustainability performance (Yusof et al., 2021).

Green operations have a positive effect on sustainability performance directly. Service quality can strengthen this relationship as a mediating variable because green practices improve service perception. Recent research supports the existence of a mediative effect in the context of sustainability.

The research framework is an overview of the relationships between variables that are compiled based on theories and previous research results, and are the basis for hypothesis formulation (Ghozali, 2016). The research framework is a logical and rational flow of thinking that connects theories with the variables being studied (Sugiyono, 2019).
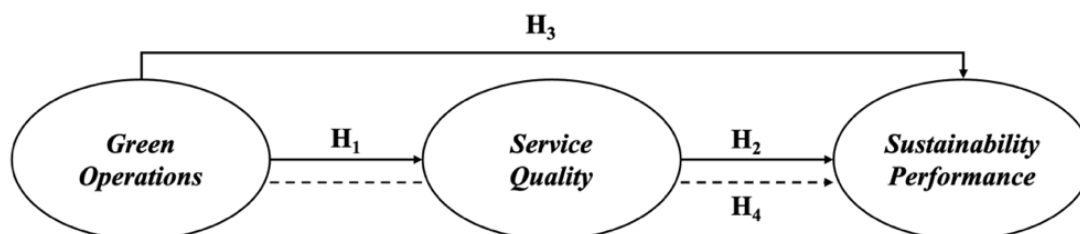

Figure 1. Framework

II. METHOD

Method This research based on its explanation is included in quantitative research with the type of causal associative research**.** The population is all leaders and employees at PT XYZ, with a sample of 100 respondents. The sample of 100 people are employees of PT XYZ who are in departments related to green management, such as General Affair (GA) and Branch Offices/Sub-Branch Offices. Respondents are spread across the head office and sub-business units spread nationally. As in previous studies, this meets the sample requirement required for Structural Equation Model (SEM) analysis, which is a minimum of 100 to 200 samples (Sulistyowati & Purnomo, 2020).

Endogenous (free) variables are the main variables of concern for researchers. This endogenous variable is a variable that is affected or that is a consequence, due to the presence of an independent variable (Sugiyono, 2019). The endogenous variables in this study are service quality and sustainable performance. Exogenous (boundary) variables are variables that positively or negatively affect or cause the emergence of dependent or bound (endogenous) variables. When an exogenous variable is present, the endogenous variable is also present with each unit increase in the exogenous variable, and the endogenous variable will increase or decrease (Sugiyono, 2019). The exogenous variable in this study is Green Operations.

Table 1. Variable Operationalization

o	Variabel	Dimension	Indicator
	Green Operations *Source: (Thomas et al., 2023)*	Use of paperless banking	The use of paperless banking results in a reduction in the carbon footprint of the bank's internal operations and cost savings for banks
		Offers low interest rates	Offering low interest rates to consumers and businesses for the installation of solar energy systems and energy-efficient equipment
		Employee training and environmental awareness	Improve employee training environmental awareness
		Building green buildings	Building green buildings
		Environmentally friendly in terms of emissions and pollution	Environmentally friendly in terms of emissions and pollution
		Waste treatment and utilization management	Waste treatment management & utilization/recycling
	Service Quality *Source: (Mjaku, 2020)*	Customer troubleshooting	Employees can solve each customer's problem.
		High accuracy service	Employees provide services with high accuracy.
		Trustworthy service	Employees are helpful and trustworthy.
		Work effectively	Employees do their jobs effectively.
		High willingness to serve customers	Employees show a high willingness to serve customers.
	Sustainable Performance *Source: (Westerman et al., 2022)*	Financing activities with social and environmental concern	Bank financing and lending activities that include social and environmental concerns
		The bank's commitment to the environment	The bank's commitment to environmentally responsible behavior
		Social development in society	Social development in society
		Maintaining high socio-ethical standards in banks	Maintain high socio-ethical standards in banks through policies towards anti-corruption, appropriate and humane business ethics
		Global sustainability code of conduct and engaging with all stakeholders	Global sustainability code of conduct and engaging with all stakeholders in disclosing the bank's non-financial performance

The data used in this study is primary data using a questionnaire with the help of google form media. The sampling of this study is by purposive sampling technique. The determination of respondents to be used as samples is based on certain criteria, the judge's judgment and does not require randomization of samples (Savitri et al., 2021). This scale is used to assess the attitude of the respondents which is composed of a continuum line

from Point 1 to Point 10 where the lowest value is located on the left (Point 1) while the highest value is located on the right (Point 10).

This study uses a quantitative analysis approach that adopts Partial Least Square (PLS). PLS is a powerful method of analysis because it is not based on many assumptions. The advantage of this PLS method is that the data does not have to be a multivariate normal distribution, the sample size does not have to be large, and the PLS can not only be used to confirm theories, but can also be used to explain the existence or absence of relationships between latent variables (Savitri et al., 2021). The data analysis methods in this study include descriptive statistics, structural equations, measurement model tests (outer model), structural model tests (inner models), and hypothesis tests.

III. RESULT AND DISCUSSION

A. Result

Respondent Characteristics. This study involved 102 employees of PT XYZ as respondents. The respondents' profiles are divided into 5 parts, namely gender, age, company branch, position, and working period.

Table 2. Respondent Characteristics

Characteristics	Category	Frequency	Percentage
Gender	Man	52	51%
	Woman	50	49%
	Total	102	100%
Age	20 – < 25 years old	2	2%
	25 – < 30 years old	12	11,8%
	30 – < 35 years old	34	33,3%
	35 – 40 years old	14	13,7
	< 40 years old	7	6,9%
	> 40 years old	33	32,4%
	Total	102	100%
Branch Office	Head Office	19	18,6%
	Branch Office	54	52,9%
	Sub-Branch Office	19	18,6%
	KPO	10	9,8%
	Total	102	100%
Position	General Manager	6	5,9%
	Manager	13	12,7%
	Officer	54	52,9%
	Senior Manager / SM	6	5,9%
	Sr. Deputy GM/AVP	6	5,9%
	Supervisor	17	16,7%
	Total	102	100%
Tenure	< 5 years	44	43,1%
	5 – < 10 years	58	56,9%
	Total	102	100%

Source: (SmartPLS Data Processing 4, 2025)

Based on the above results, the characteristics of the respondents are dominated by men and women in a balanced proportion, the majority are 30–35 years old or >40 years old, work in branch offices, with the position of Officer, and most have worked for 5–10 years.

Test Measurement Model (Outer Model). The first step taken is to test the feasibility of the measurement model (outer model). The measurement model aims to assess how well the indicators (statement items) used can reflect the constructs (latent variables) measured in this study.
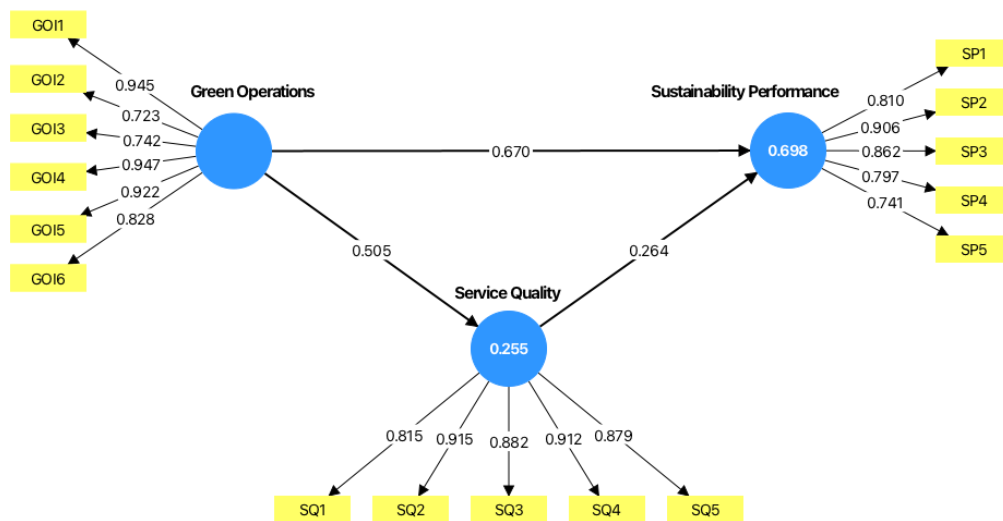
Figure 1. Output SmartPLS 4.1.1.2
Source: (SmartPLS Data Processing 4, 2025)

Validity Test. The two main measures used to assess convergent validity are the loading factor value and the Average Variance Extracted (AVE). Each indicator is said to be convergently valid if it has a loading factor value of ≥ 0.70 and this value shows the contribution of the indicator to the measured construct (Haryono, 2016) and (Savitri et al., 2021).

Table 3. Convergent Validity Test Results – Loading Factor

Variabel	Indicator	Loading Factor Value	Information
Green Operations	GOI_1	0,945	Valid
	GOI_2	0,723	Valid
	GOI_3	0,742	Valid
	GOI_4	0,947	Valid
	GOI_5	0,922	Valid
	GOI_6	0,828	Valid
Service Quality	SQ_1	0,815	Valid
	SQ_2	0,915	Valid
	SQ_3	0,882	Valid
	SQ_4	0,912	Valid
	SQ_5	0,879	Valid
Sustainability Performance	SP_1	0,810	Valid
	SP_2	0,906	Valid
	SP_3	0,862	Valid
	SP_4	0,797	Valid
	SP_5	0,741	Valid

Source: (SmartPLS Data Processing 4, 2025)

All indicators in this study had a loading factor value above 0.70, so it can be concluded that the indicators used met the convergent validity criteria.

The recommended AVE value is ≥ 0.50, which means that at least 50% of the variance of the indicator can be explained by the construct (Haryono, 2016) and (Savitri et al., 2021).

Table 4. Convergent Validity Test Results – AVE

Variabel	AVE Value	Information
Green Operations	0,733	Valid
Service Quality	0,777	Valid
Sustainability Performance	0,680	Valid

Source: (SmartPLS Data Processing 4, 2025)

All constructs in the model have an AVE value above 0.50. Thus, it can be concluded that all constructs in the model have met convergent validity.

Discriminant Test. In SEM-PLS, the discriminant validity test is carried out using three approaches, namely Cross Loading, Fornell-Larcker Criterion, and Latent Variable Correlation Matrix. Discriminant validity is said to be either if the cross loading of a variable indicator > cross loading of another indicator or in other words each indicator has the highest loading on the construct in question, compared to the loading on the other construct (Haryono, 2016) and (Savitri et al., 2021)

Table 5. Discriminant Validity Test Results - Cross Loading

Indicator	Green Operations	Service Quality	Sustainability Performance	Information
GOI1	0,945	0,456	0,738	Valid
GOI2	0,723	0,297	0,607	Valid
GOI3	0,742	0,557	0,691	Valid
GOI4	0,947	0,443	0,727	Valid
GOI5	0,922	0,401	0,717	Valid
GOI6	0,828	0,397	0,621	Valid
SQ1	0,395	0,815	0,463	Valid
SQ2	0,543	0,915	0,615	Valid
SQ3	0,471	0,882	0,528	Valid
SQ4	0,426	0,912	0,526	Valid
SQ5	0,357	0,879	0,502	Valid
SP1	0,679	0,447	0,810	Valid
SP2	0,759	0,512	0,906	Valid
SP3	0,723	0,437	0,862	Valid
SP4	0,554	0,689	0,797	Valid
SP5	0,584	0,404	0,741	Valid

Source: (SmartPLS Data Processing 4, 2025)

All indicators in this study show that the highest loading value is always in their respective original constructs. This indicates that the indicator no longer reflects other constructs, and the discriminant validity has been met through a cross loading test.

The Fornell-Larcker test is carried out by comparing the square root value of AVE of each construct with the correlation between other constructs. To meet the criteria for discriminant validity, the root value of AVE correlates the same construct (variable) > correlation with other constructs (variables) (Haryono, 2016) and (Savitri et al., 2021).

Table 6. Discriminant Validity Test Result - Fornell-Larcker

Indicator	Green Operations	Service Quality	Sustainability Performance	Information
GOI1	0,856			Valid
GOI2	0,505	0,881		Valid
GOI3	0,804	0,603	0,825	Valid

Source: (SmartPLS Data Processing 4, 2025)

The root value of AVE of each construct is higher than the correlation value between other constructs, thus meeting the criteria of discriminant validity according to the Fornell-Larcker Criterion.

The Heterotrait-Monotrait Ratio of Correlations (HTMT) is the ratio between correlations between different constructs (heterotrait-heteromethod) compared to the correlation between indicators in the same construct (monotrait-heteromethod). This is used to ensure that the constructs in the model actually measure things that are different from each other. If the **HTMT value < 0.90,** then the discriminant validity is met (conservative standard), while if the **HTMT value is > 0.90,** then there is most likely a discriminant validity problem (an indication that the two constructs are not sufficiently different from each other) (Haryono, 2016) and (Savitri et al., 2021).

Table 7. Discriminant Validity Test Results - HTMT

Variabel	Green Operations	Service Quality	Sustainability Performance	Information
Green Operations		0,505	0,804	Valid
Service Quality	0,505		0,603	Valid
Sustainability Performance	0,804	0,603		Valid

Source: (SmartPLS Data Processing 4, 2025)

The results of the correlation analysis between latent constructs, all HTMT values between variables < 0.90 and the discriminant validity between constructs were declared good. This means that each construct (green

operations, service quality, and sustainability performance) has a fairly clear concept difference and does not overlap with each other.

Reliability Test. The reliability test aims to ensure that each construct has a level of stability and reliability in measuring the object in question. Constructs are declared reliable if they have a composite reliability value above 0.70 and Cronbach's alpha above 0.70 (Haryono, 2016) and (Savitri et al., 2021).

Table 8. Reliability Test Results

Variabel	Cronbach's Alpha	Composite Reliability	Information
Green Operations	0,924	0,942	Reliabel
Service Quality	0,928	0,945	Reliabel
Sustainability Performance	0,881	0,914	Reliabel

Source: (SmartPLS Data Processing 4, 2025)

All constructs have a composite reliability value above 0.70 and Cronbach's alpha above 0.70. So it can be concluded that the construct has good reliability.

Structural Model Test (Inner Model). This test aims to find out the extent to which the constructs in the model have a significant relationship, as well as to assess the strength and direction of the relationship between latent variables that have been determined in the research hypothesis.

Goodness of Fit (GoF) Test. The evaluation of Goodness of Fit (GoF) is carried out by assessing several model quality indicators structurally, because SEM-PLS emphasizes more on predictive power than on global model suitability. Therefore, the two main measures used in the evaluation of GoF in this study are R-Square (R^2) and Q-Square (Q^2).

The R^2 value is used to measure the ability of independent (exogenous) constructs to explain the variation of dependent (endogenous) constructs. The higher the R^2 value, the greater the proportion of endogenous construct variance that can be explained by the exogenous construct in the model. The standard interpretation according to Chin (1998) includes $R^2 \geq 0.67$ = strong, $R^2 \geq 0.33$ = moderate, and $R^2 \geq 0.19$ = weak (Haryono, 2016) and (Savitri et al., 2021).

Table 9. R-Square (R^2) Test Result

Variabel	R-Square Adjusted	Information
Service Quality	0,247	Weak
Sustainability Performance	0,692	Strong

Source: (SmartPLS Data Processing 4, 2025)

The service quality construct has an R^2 value of 0.247, which shows that the green operations construct is only able to explain 24.7% of the variance of service quality and this value is included in the weak category. Meanwhile, the sustainability performance construct has an R^2 value of 0.692, which shows that the green operations construct is able to explain 69.2% of the variance of sustainability performance and this value is included in the strong category. Thus, it can be concluded that this research model has an explanatory ability that varies depending on the construct being tested. The model has a strong ability to explain sustainability performance, but only has a weak ability to explain service quality. This suggests that other variables outside the model are likely to still contribute significantly to service quality.

The Q^2 value indicates how well the model is able to predict data that is not used in the model's estimation. The standard interpretation according to Chin (1998) includes $Q^2 > 0.35$: strong prediction, $Q^2 > 0.15 – 0.35$: moderate prediction, $Q^2 > 0 – 0.15$: weak prediction, and $Q^2 \leq 0$: no predictability (Haryono, 2016) and (Savitri et al., 2021).

Table 10. Q-Square (Q^2) Test Result

Variabel	Q^2 predict	Information
Service Quality	0,218	Weak Prediction
Sustainability Performance	0,639	Strong Prediction

Source: (SmartPLS Data Processing 4, 2025)

Construct service quality has a Q^2 value of 0.218, which is included in the category of moderate prediction. This means that the model has a fairly good predictive ability of service quality variables. Meanwhile, construct sustainability performance has a Q^2 value of 0.639, which is included in the category of strong prediction. This shows that the model has high predictive power in explaining sustainability performance variables. Thus, it can be concluded that in general, the model built has adequate predictive relevance, especially in explaining sustainability performance. A positive Q^2 value above the threshold indicates that the model is feasible to use for prediction in the context of this study.

Effect Size (f^2) Test. f^2 indicates the degree of importance of an exogenous variable in explaining a particular endogenous variable. The effect size interpretation criteria (Cohen, 1988) were $f^2 \geq 0.35$ = large influence, $f^2 \geq$

0.15 – < 0.35 = moderate influence, f² ≥ 0.02 – < 0.15 = small influence, and f² < 0.02 = insignificant or very small (Haryono, 2016) and (Savitri et al., 2021).

Table 11. Uji Effect Size (f^2) Test Result

Variabel	Service Quality	Sustainability Performance	Information
Green Operations	0,341	1,11	Large Influence
Service Quality		0,173	Moderate Influence

Source: (SmartPLS Data Processing 4, 2025)

Green operations has an f² value of 0.341 for service quality, and 1.11 for sustainability performance. These two values fall into the category of major influences, which shows that green operations make a very strong contribution in influencing both constructs. Meanwhile, service quality to sustainability performance has an f² value of 0.173, which is included in the category of moderate influence. It can be concluded that green operations is the most dominant construct in explaining service quality and sustainability performance in the model. Service quality also has a significant influence on sustainability performance, although not as much as the influence of green operations. These findings show that improving green operations practices directly and strongly contributes to the quality of services and sustainability performance of companies, which supports the importance of integrating environmental aspects in operations and service strategies.

Hypothesis Test. In the SEM-PLS approach, the hypothesis test is carried out by looking at three main components including the path coefficient, the t-statistical value (t-value), and the p-value (probability). The hypothesis testing criteria are accepted if the t-statistic > 1.96 (at a significance level of 5%) and the p-value < 0.05. Direct effect occurs when an independent variable directly affects the dependent variable, without going through another construct. Indirect effects occur when one construct affects another construct through a mediator.

Table 12. Hypothesis Test Results

Hypothesis	Original Sample	T-Statistics	P-values	Information
Green Operations → Service Quality	0,505	4,992	0,000	H1 Significant Accepted
Service Quality → Sustainability Performance	0,264	2,74	0,003	H2 Significant Accepted
Green Operations → Sustainability Performance	0,67	8,543	0,000	H3 Significant Accepted
Green Operations → Service Quality → Sustainability Performance	0,133	2,165	0,015	H4 Significant Accepted

Source: (SmartPLS Data Processing 4, 2025)

All hypotheses in the direct effect model were accepted because they met the criteria of statistical significance (t > 1.96 and p < 0.05). This shows that green operations directly have a significant effect on both service quality and sustainability performance. In addition, service quality also has an important role in supporting sustainability performance, even though the impact is not as big as green operations. These results reinforce the importance of integrating green practices and improving service quality in the company's strategy to achieve sustainability. The hypothesis in the indirect effect model was accepted because it met the criteria of statistical significance (t > 1.96 and p < 0.05). These results indicate that green operations not only have a direct impact, but also indirectly strengthen sustainability performance through improving service quality. Service quality acts as a partial mediator in this relationship, as the direct relationship between green operations and sustainability performance is also significant, and the indirect relationship through service quality is also significant. This shows that the implementation of environmentally friendly operations can improve the quality of services, which ultimately contributes to the company's sustainability performance. Thus, service quality plays an important role as a mediation channel in this model, enriching understanding of the mechanisms of relationships between variables.
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B. Discussion

The study found that green operations have a positive and significant effect on service quality and sustainability performance at PT XYZ. Environmentally friendly initiatives—such as paperless banking, energy-efficient branches, and digital service innovations—enhance both internal efficiency and customer perception, aligning with findings by Rahman (2025), Kumar et al. (2024), and Ratnasari et al. (2021). Service quality also significantly contributes to sustainability outcomes, particularly when supported by reliable, responsive, and sustainability-oriented service delivery (Elsaddai & Wiryakusuma, 2024; Fitriensi, 2019; Khan et al., 2024). Furthermore, green operations influence sustainability performance both directly and indirectly through improved service quality, confirming the mediating role of service quality in this relationship (Ismail, 2023; Rehan et al., 2025). These results emphasize that sustainable strategies must be integrated into service design and delivery to maximize long-term stakeholder value.

From a managerial perspective, PT XYZ is advised to maintain and expand high-performing initiatives such as green building implementation (GOI4) and paperless banking (GOI1), while improving low-performing ones like low-interest green energy financing (GOI2) through better promotion. To strengthen service quality, the company should enhance employee accuracy (SQ2), job effectiveness (SQ4), and problem-solving capabilities (SQ1) through technical training, automation, and structured complaint handling systems. In terms of sustainability performance, a strong commitment to environmental responsibility (SP2) should be sustained, while governance-related aspects such as stakeholder engagement (SP5) and ethical standards (SP4) need to be strengthened through transparent reporting, international code of ethics alignment, and regular employee ethics training. Overall, the findings suggest that PT XYZ is on the right path but must continuously improve internal systems and stakeholder communication to optimize the impact of its sustainability strategy.

IV.　CONCLUSION

Based on the results of data analysis using the SEM-PLS method, it was found that Green Operations has a positive and significant effect on Service Quality at PT XYZ, with a path coefficient of 0.505, t-statistic of 4.992, and p-value of 0.000, indicating a strong and statistically significant relationship at the 5% level. Furthermore, Service Quality significantly influences Sustainability Performance, as shown by a coefficient of 0.264, t-statistic of 2.740, and p-value of 0.003. Green Operations also directly affects Sustainability Performance with a high magnitude (coefficient = 0.670, t-statistic = 8.543, p-value = 0.000), confirming its essential role in driving sustainability outcomes. In addition, Green Operations was found to indirectly influence Sustainability Performance through Service Quality, with an indirect effect value of 0.133, t-statistic of 2.165, and p-value of 0.015. These results demonstrate that Service Quality acts as a partial mediator, strengthening the impact of environmentally responsible practices on sustainability outcomes. Overall, the model confirms that green operational strategies and service excellence are both critical in enhancing the sustainability performance of financial institutions like PT XYZ.

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