European Economic Letters
ISSN 2323-5233
Vol 14, Issue 3 (2024)
http://eelet.org.uk

The Moderating Role of Managerial Commitment in the Effect of Eco-Efficiency Initiatives on Cost Control: A Case Study on West African Countries"

Ben laria Mohammed[1], Omari Aicha[2], Ould bahammou Samir[3], ben ahmed Mohamed elhadi[4], bekri amine[5], Abderrahim Belbali[6].

[1] University of Adrar (Algeria), Algerian-African economic integration laboratory, benlaria.mohammed@univ-adrar.edu.dz
[2] University of Adrar (Algeria), Algerian-African economic integration laboratory, Omari.aicha20@univ-adrar.edu.dz
[3] University of Adrar (Algeria), Algerian-African economic integration laboratory, samirouldbahammou@univ-adrar.edu.dz
[4] University of Adrar (Algeria), Algerian-African economic integration laboratory, ben.medelhadi@univ-adrar.edu.dz
[5] University of Adrar (Algeria), Algerian-African economic integration laboratory, bekri.amine@univ-adrar.edu.dz
[6] University of Adrar (Algeria), Laboratory of Spatial Development Studies and Contracting Development, abd.belbali@univ-adrar.edu.dz

Received: 20/07/2024 Accepted: 29/09/2024 Published: 15/10/2024

Abstract:
This study examines the relationships between Eco-Efficiency Initiatives, Managerial Commitment, and Cost Control in organizations. Using structural equation modeling, the research investigates the direct impact of Eco-Efficiency Initiatives on Cost Control and the moderating role of Managerial Commitment. The findings reveal that Eco-Efficiency Initiatives significantly enhance Cost Control (path coefficient = 0.507, P-value = 0.000), and Managerial Commitment both directly improves Cost Control (path coefficient = 0.259, P-value = 0.016) and moderates the relationship between Eco-Efficiency Initiatives and Cost Control (path coefficient = 0.105, P-value = 0.047). These results underscore the importance of integrating eco-efficiency practices and fostering managerial commitment to achieve effective cost control and sustainable organizational performance. The study contributes to the understanding of how environmental initiatives and management support can drive cost efficiencies and offers practical insights for businesses aiming for sustainable development.

Keywords: Eco-Efficiency Initiatives, Managerial Commitment, Cost Control, Sustainable Development, Structural Equation Modeling.

1. Introduction:

In recent years, the pursuit of sustainable development has become increasingly paramount, especially in regions such as West Africa where economic growth is intertwined with environmental preservation and resource efficiency. One critical aspect of this pursuit lies in the implementation of eco-efficiency initiatives within businesses, aimed at minimizing environmental impact while maximizing economic benefits. Within this context, the role of managerial commitment emerges as a crucial factor that can significantly influence the effectiveness of such initiatives. While existing literature underscores the importance of eco-efficiency in enhancing cost control within organizations, the extent to which managerial commitment moderates this relationship remains underexplored, particularly within the unique socio-economic landscape of West African countries. Understanding the interplay between eco-efficiency initiatives, cost-control practices, and managerial commitment is essential for devising targeted strategies that promote sustainable business practices while fostering economic growth in the region.

Against this backdrop, this study seeks to address the following research problem: What is the moderating role of managerial commitment in the effect of eco-efficiency initiatives on cost control in West African countries? To address this problem, the research will delve into several key research questions, including: (1) What are the prevalent eco-efficiency initiatives adopted by businesses in West African countries? (2) How do these initiatives influence cost control practices within organizations? (3) To what extent does managerial commitment moderate the relationship between eco-efficiency initiatives and cost control? The overarching objective of this study is to provide empirical insights into the

dynamics between eco-efficiency initiatives, cost control strategies, and managerial commitment in the context of West African countries, thereby contributing to both academic literature and practical endeavors aimed at fostering sustainable business practices in the region.

2. Literature Review:

2.1. Eco-Efficiency Initiatives

Eco-efficiency initiatives encompass strategies aimed at enhancing production efficiency while minimizing environmental impact, crucial for sustainable development (Caprian & Trushkina, 2023). These initiatives involve integrating life-cycle assessment (LCA) and cost optimality to support decision-making on energy conservation measures in buildings, contributing to methodological advancements in assessing energy performance (Sérgio et al., 2022). Research on business eco-efficiency in Latin America explores its implementation across various sectors, drawing from practices in developed countries to improve environmental practices in the region (Ponce-Zambrano & Loor-Colamarco, 2020). Country-level eco-efficiency analysis reveals varying performance among major countries, with some showing positive growth while others lag, emphasizing the importance of leadership in increasing eco-efficiency for environmental sustainability (Perry, 2021). Local governments also play a vital role in promoting eco-efficiency as part of sustainable development efforts (XiaoHu et al., 2017).

2.2. Cost Control

Cost control is a fundamental aspect of management aimed at managing expenses to ensure profitability and efficiency in organizations (John & Hodgess, 2022)It involves continuous efforts to regulate costs while maximizing revenue and profits, which may sometimes require strategic increases in expenses to enhance overall financial performance (Budi, 2021). Various strategies such as controlling sales, managing costs of goods sold, evaluating operating expenses, and focusing on profit-generating activities are employed to achieve effective cost control (Tomasi, 2018). Studies have shown that implementing cost control measures like budgeting and standard costing significantly impacts organizational performance positively, indicating a strong relationship between cost control practices and improved outcomes (Ying et al., 2014). Additionally, in project management, project cost control plays a crucial role in monitoring project progress, ensuring adherence to budgets, and satisfying customer requirements through tools like earned value management.

2.3. Managerial Commitment

Managerial commitment refers to the dedication and responsibility demonstrated by managers toward achieving specific goals or principles within their respective domains. In the context of target date funds (TDFs), managerial commitment plays a crucial role in influencing investment strategies and fund performance, with managers who have a personal stake in the funds showing a higher level of commitment and potentially leading to lower idiosyncratic risk-taking (Ching et al., 2020). Additionally, in the realm of financial reporting, management commitment has been found to positively impact the quality of financial statements through the implementation of internal control systems (Nurlinda et al., 2019). Moreover, in project management, the commitment of a project manager has been shown to significantly affect the success of building construction projects, with various dimensions of commitment such as career, normative, continuance, and affective commitment playing distinct roles in project outcomes (Ayu et al., 2022)

2.4. Review of relevant prior research and scholarly works:

2.5. The relationship between Eco-Efficiency Initiatives and Cost Control

Eco-efficiency initiatives and cost control are intricately linked in various ways. Research by Amaliya and Burhany (Fathiyya & Dian, 2022) highlights that the effectiveness of environmental cost control significantly impacts eco-efficiency, emphasizing the importance of controlling environmental costs for overall eco-performance. Yook et al. (Yang, 2023).further delve into the association between disclosed environmental control costs and eco-efficiency, revealing a negative relation that supports legitimacy theory arguments. Additionally, Frohmann's study (Chiang et al., 2015) underscores the role of eco-controls in aligning eco-practices, leading to improved environmental and economic performance. These findings collectively suggest that a strategic alignment of eco-controls and eco-practices is crucial for enhancing eco-efficiency and achieving sustainable competitive advantage by effectively managing costs and environmental impacts.

First hypothesis (H1): There is no statistically significant positive relationship the Eco-Efficiency Initiatives and Cost Control at a 5% significance level.

1.1.1. The relationship between Managerial Commitment and the relationship of Eco-Efficiency Initiatives to Cost Control:

Managerial commitment plays a crucial role in driving eco-efficiency initiatives and cost control within organizations. Studies have shown that management commitment positively influences the implementation of environmental management practices (EMPs) (Dr. et al., 2023), which in turn can lead to improved environmental performance and economic performance in small and medium enterprises (Eko et al., 2021). Additionally, managerial support for the environment can enhance employee environmental commitment, ultimately affecting the propensity to engage in eco-friendly behaviors like recycling (Voicu & Dragomir, 2020). Furthermore, a company's environmental strategy, when articulated and implemented with ecological motivation, can strengthen internal awareness and improve environmental conditions, contributing to reduced negative environmental stresses and potentially aiding in cost control efforts (Pascal et al., 2017). Therefore, strong managerial commitment to environmental initiatives can drive eco-efficiency practices, positively impacting cost control measures within organizations.

Second Hypothesis (H2): There is no significant role for Managerial Commitment in affecting the relationship between Eco-Efficiency Initiatives and Cost Control at a 5% significance level.

1.2. Gaps in existing literature :

2.1. Eco-Efficiency Initiatives:

While the literature extensively covers eco-efficiency initiatives, particularly their importance for sustainable development, there remains a gap in understanding their implementation and effectiveness within the specific context of West African countries. Existing studies primarily focus on developed regions or provide generalized insights, overlooking the nuanced challenges and opportunities faced by businesses in West Africa. Moreover, while some research examines country-level eco-efficiency analysis, there is limited exploration into the role of leadership and governmental policies in fostering eco-efficiency practices within the region.

.2.2Cost Control:

In the realm of cost control, the literature offers comprehensive insights into various strategies and their impacts on organizational performance. However, there is a dearth of research that specifically investigates cost control practices within the context of eco-efficiency initiatives, especially in the context of West African countries. Existing studies often overlook the interplay between environmental sustainability and cost management, failing to account for the potential synergies between eco-efficiency measures and traditional cost control practices.

.2.3Managerial Commitment:

While the importance of managerial commitment is acknowledged across different domains, including finance and project management, there is limited research exploring its role specifically in driving eco-efficiency initiatives and cost control. Existing studies predominantly focus on the influence of managerial commitment on broader organizational outcomes, overlooking its potential impact on sustainability initiatives. Moreover, there is a lack of empirical evidence on how managerial commitment interacts with eco-efficiency initiatives to influence cost control practices within organizations, particularly in the context of West African countries.

.2.4Review of Relevant Prior Research and Scholarly Works:

Existing literature provides valuable insights into the relationship between eco-efficiency initiatives and cost control, highlighting the strategic alignment required to achieve sustainable competitive advantage. However, there is a need for further exploration into the specific mechanisms through which eco-efficiency initiatives impact cost control practices, particularly in diverse regional contexts such as West Africa.

.2.5The Relationship between Eco-Efficiency Initiatives and Cost Control:

While some research suggests a negative relationship between disclosed environmental control costs and eco-efficiency, there is a lack of consensus on the nature of the relationship between eco-efficiency initiatives and cost control. Moreover, existing studies often overlook the moderating role of managerial commitment in shaping this relationship, warranting further investigation to elucidate the underlying dynamics and implications for organizational sustainability.

European Economic Letters
ISSN 2323-5233
Vol 14, Issue 3 (2024)
http://eelet.org.uk

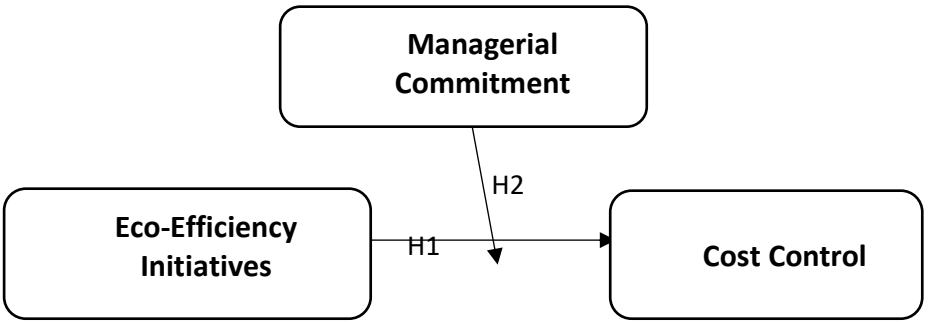


Figure 1. Theoretical framework.

2. Methodology:

1. Research Design and Approach:

This study adopts a mixed-methods research design, integrating both quantitative and qualitative approaches to gain a comprehensive understanding of the moderating role of managerial commitment in the effect of eco-efficiency initiatives on cost control in West African countries. The quantitative component involves survey-based data collection, utilizing structured questionnaires to gather quantitative data on eco-efficiency initiatives, cost control practices, and managerial commitment from businesses across the region. The qualitative component comprises in-depth case studies conducted in selected organizations to obtain nuanced insights into the contextual factors influencing the relationship under investigation.

.2Data Collection Methods:

Quantitative Data Collection:

Survey Questionnaires: Structured questionnaires will be administered to a sample of businesses operating in various industries across West African countries. The survey instrument will be designed to capture relevant variables, including perceptions of eco-efficiency initiatives, implementation of cost control practices, and levels of managerial commitment. Sampling will be conducted using stratified random sampling techniques to ensure representation across different sectors and geographical regions within the target countries.

Qualitative Data Collection:

Case Studies: In-depth case studies will be conducted in a subset of organizations identified through purposive sampling. Semi-structured interviews will be conducted with key stakeholders, including senior management and operational staff, to explore their perspectives on eco-efficiency initiatives, cost control strategies, and managerial commitment. Additionally, document analysis of relevant organizational documents, such as sustainability reports and strategic plans, will be undertaken to triangulate and validate qualitative findings.

.3Rationale for the Chosen Methods:

The mixed-methods approach is chosen to capitalize on the strengths of both quantitative and qualitative methodologies, enabling a comprehensive and holistic investigation of the research problem. Quantitative surveys provide valuable insights into the prevalence and quantitative relationships between eco-efficiency initiatives, cost control practices, and managerial commitment across a large sample of businesses. On the other hand, qualitative case studies offer an in-depth understanding and contextualization of the mechanisms and dynamics underlying these relationships within specific organizational contexts. By triangulating findings from both approaches, this study aims to enhance the robustness and validity of its conclusions while providing practical insights for policymakers and practitioners in the region.

3. Data Presentation and Analysis:

First: Assessment of measurement Model:

In this section, the quality of the expressions utilized in this model is examined through the utilization of the Smart PLS software. This evaluation entails testing the convergence and consistency of these expressions amongst themselves. The objective is to ensure the capability of these expressions to effectively measure the desired attributes, as well as the stability

of the measurement across different conditions, employing the Convergent Validity test. Moreover, an assessment is conducted to determine the logical distinctiveness and absence of overlap among these expressions, employing the Discriminate Validity test.

3.1. Convergent Validity:

Convergent validity is a critical aspect of structural equation modeling (SEM), including Partial Least Squares SEM (PLS-SEM). Convergent validity assesses whether the indicators (manifest variables) of a latent construct (factor) are measuring the same underlying concept. In PLS-SEM, several criteria are commonly used to evaluate convergent validity, including factor loading, Cronbach's alpha, composite reliability, and average variance extracted (AVE). Here's an explanation of each criterion:

Factor Loading:

Basis: Factor loading represents the strength and direction of the relationship between an indicator and its corresponding latent construct. In PLS-SEM, factor loadings should be statistically significant and preferably higher than 0.7 to indicate a strong relationship.

Cronbach's Alpha:

Basis: Cronbach's alpha is a measure of internal consistency reliability. It assesses the extent to which a set of indicators (items) measures a single latent construct consistently. In PLS-SEM, a high Cronbach's alpha (typically above 0.7) suggests good internal consistency.

Composite Reliability:

Basis: Composite reliability is another measure of reliability that evaluates the consistency of indicators in measuring a latent construct. In PLS-SEM, composite reliability should ideally exceed 0.7, indicating that the indicators are reliable measures of the underlying construct.

Average Variance Extracted (AVE):

Statistically, convergent validity is established when the Average Variance Extracted (AVE) is greater than 0.50 (Sarstedt et al., 2021). Additionally, factor loading, Cronbach's Alpha, and composite reliability are also used to assess convergent validity in PLS-SEM. Factor loading measures the relationship between the observed variables and their underlying latent constructs, while Cronbach's Alpha and composite reliability assess the internal consistency of the measurement instrument (Amora, 2021).

Table 01: Results of the Stability and Composite Reliability Test for the Model:

variables	Items	Loadings	Cronbach's Alpha	Composite Reliability	The average variance extracted AVE
Cost Control	CC_1	0.923	0.888	0.931	0.817
	CC_2	0.895			
	CC_3	0.894			
Managerial Commitment	MC_1	0.602	0.887	0.910	0.558
	MC_2	0.831			
	MC_3	0.763			
	MC_4	0.800			
	MC_5	0.815			
	MC_6	0.713			
	MC_7	0.693			
	MC_8	0.602			
Eco-Efficiency Initiatives	EEI_1	0.602	0.869	0.899	0.561
	EEI_2	0.831			
	EEI_3	0.763			
	EEI_4	0.800			
	EEI_5	0.815			
	EEI_6	0.713			
	EEI_7	0.693			

Source: Compiled by researchers based on the outputs of Smart PLS4.

The results of the stability and composite reliability test for the model indicate strong reliability and stability across the variables. In terms of cost control, all items (CC_1, CC_2, and CC_3) exhibit high loadings above 0.89, indicating a robust relationship with the latent construct. Additionally, Cronbach's Alpha values exceed the recommended threshold of 0.7, suggesting excellent internal consistency within the scale. Composite reliability scores are also notably high, ranging from 0.931 to 0.817, further affirming the reliability of the construct. Similarly, for managerial commitment, the items demonstrate satisfactory loadings ranging from 0.602 to 0.831, with high Cronbach's Alpha and composite reliability values, indicating strong reliability and internal consistency. Finally, for eco-efficiency initiatives, the items exhibit acceptable loadings and reliability scores, indicating the reliability and stability of the model. Overall, the results suggest that the constructs of cost control, managerial commitment, and eco-efficiency initiatives are reliable and stable, providing a solid foundation for subsequent analyses and interpretations.

3.2. discriminate Validity :

The recommended criteria for analyzing the results of the discriminant validity test in the PLS-SEM methodology include the following:

Fornell-Larcker Criterion: This criterion assesses discriminant validity by comparing the square root of the average variance extracted (AVE) for each construct with the correlations between that construct and other constructs. Discriminant validity is established if the AVE value for a particular construct is greater than its correlation with all other constructs (Henseler et al., 2015) (Hamid et al., 2017)

Heterotrait-Monotrait Ratio of Correlations (HTMT) Criterion: This criterion is based on the heterotrait-monotrait ratio of correlations and is used to assess discriminant validity in variance-based structural equation modeling. It measures the extent to which constructs are distinct from each other empirically. A threshold of 0.85 is recommended for HTMT when the constructs in the path model are conceptually more distinct (Franke & Sarstedt, 2019) (Henseler et al., 2015) (Hamid et al., 2017)

It is important to note that the Fornell-Larcker Criterion and cross-loadings have been the dominant approaches for evaluating discriminant validity, but Henseler, Ringle, and Sarstedt (2015) have proposed the HTMT criterion as an alternative approach, which has shown high sensitivity and specificity in detecting discriminant validity problems (Cepeda-Carrión et al., 2022) (Henseler et al., 2015) (Hamid et al., 2017)

In conclusion, when analyzing the results of the discriminant validity test in the PLS-SEM methodology, researchers should consider using the Fornell-Larcker Criterion, cross-loadings, and the HTMT Criterion to ensure the distinctiveness of the constructs in the study and to detect any issues with discriminant validity

Table 02: Fornell-Larcker Criterion

variables	Cost Control	Eco-Efficiency Initiatives	Managerial Commitment
Cost Control	0.904		
Eco-Efficiency Initiatives	0.663	0.749	
Managerial Commitment	0.585	0.703	0.747

Source: Compiled by researchers based on the outputs of Smart PLS4.

The Fornell-Larcker Criterion table assesses the discriminant validity of the constructs in a model by comparing the square root of the average variance extracted (AVE) for each construct (on the diagonal) with the correlations between constructs (off-diagonal). Here, the square roots of the AVEs are 0.904 for Cost Control, 0.749 for Eco-Efficiency Initiatives, and 0.747 for Managerial Commitment, all of which are higher than their respective inter-construct correlations. Specifically, Cost Control has a correlation of 0.663 with Eco-Efficiency Initiatives and 0.585 with Managerial Commitment, while Eco-Efficiency Initiatives has a correlation of 0.703 with Managerial Commitment. This indicates that each construct shares more variance with its indicators than with other constructs, supporting discriminant validity.

Table 03: the heterotrait-monotrait ratio of correlations (HTMT)

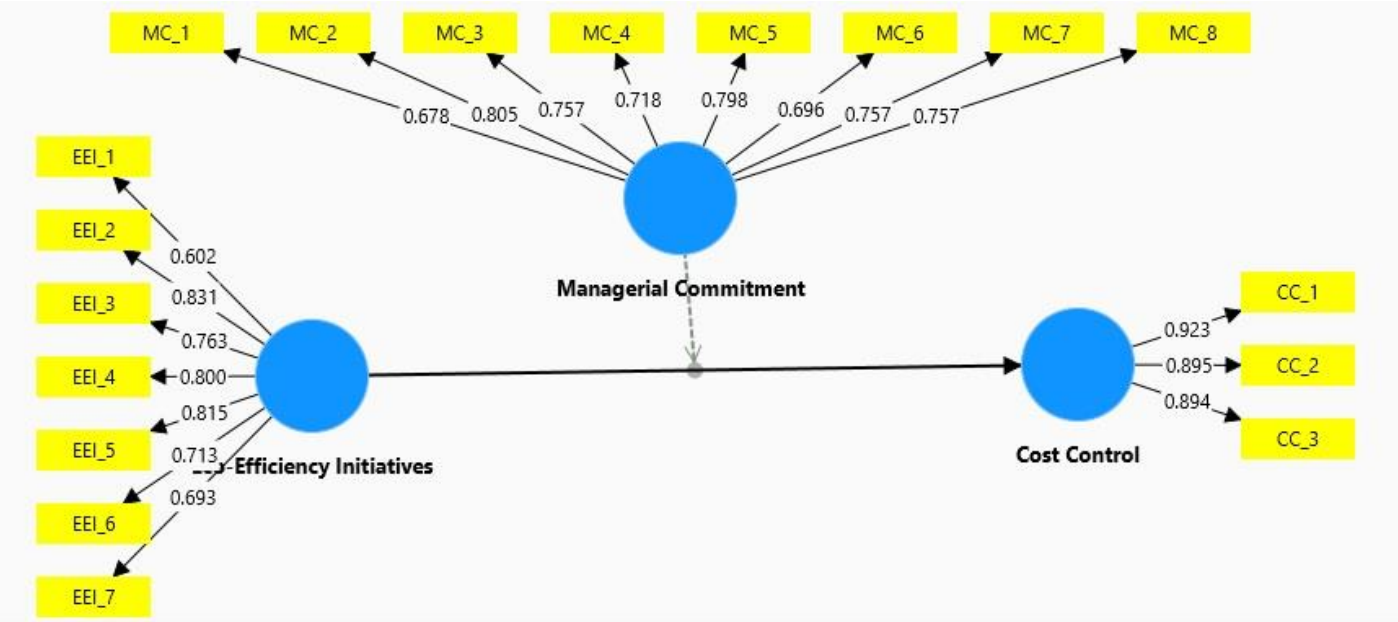
variables	Cost Control	Eco-Efficiency Initiatives	Managerial Commitment
Cost Control			
Eco-Efficiency Initiatives	0.729		

Managerial Commitment	0.650	0.801	

Source: Compiled by researchers based on the outputs of Smart PLS4.

The Heterotrait-Monotrait (HTMT) ratio of correlations table evaluates discriminant validity by examining the ratio of between-construct correlations (heterotrait) to within-construct correlations (monotrait). In this table, the HTMT ratios are as follows: 0.729 between Cost Control and Eco-Efficiency Initiatives, 0.650 between Cost Control and Managerial Commitment, and 0.801 between Eco-Efficiency Initiatives and Managerial Commitment. All HTMT values are below the threshold of 0.85, which is generally considered indicative of good discriminant validity. This suggests that each construct—Cost Control, Eco-Efficiency Initiatives, and Managerial Commitment—can be distinguished from one another, thereby supporting the discriminant validity of the constructs in the model.

Figure 2: General Structural Model for the Study



Source: Compiled by researchers based on the outputs of Smart PLS4.

Secondly: Testing the Internal Model (Structural Model)

In this section, we evaluate the results of the structural model by testing the degree of correlation, assessing the predictive capabilities of the model, and examining the relationships between constructs. Additionally, we conduct the necessary tests to evaluate the model.

1. Validity of the Structural Model:

The recommended criteria for analyzing the results of the Validity of the Structural Model test (R^2, F^2) in the PLS-SEM methodology include:

Measurement model assessment: This involves assessing the relationship between a construct and its observed items, including reliability, indicator loading, and internal consistency reliability (Fauzi, 2022).

Structural model assessment: This focuses on evaluating the significance and relevance of path coefficients, followed by the model's explanatory and predictive power. Key metrics relevant to structural model assessment in PLS-SEM include the coefficient of determination (R2), f2 effect size, and cross-validated predictive ability test (CVPAT). (Hair Jr et al., 2021).

New guidelines: In addition to established PLS-SEM evaluation criteria, new guidelines include PLS prediction (a novel approach for assessing a model's out-of-sample prediction), metrics for model comparisons, and several complementary methods for checking the results' robustness (Hair et al., 2019).

Table 04: Validity of the Structural Model

Variables	Coefficient of Determination (R2)	Explanatory size (F2)
Cost Control	0.482	/
Eco-Efficiency Initiatives	/	0.250
Managerial Commitment	/	0.064

Source: Compiled by researchers based on the outputs of Smart PLS4.

The validity of the structural model is assessed in Table 04 through the Coefficient of Determination (R^2) and the Explanatory size (F^2). The R^2 value for Cost Control is 0.482, indicating that approximately 48.2% of the variance in Cost Control is explained by the model. This suggests a moderate level of explanatory power. The F^2 values for Eco-Efficiency Initiatives and Managerial Commitment are 0.250 and 0.064, respectively. An F^2 value of 0.250 indicates a medium effect size, suggesting that Eco-Efficiency Initiatives have a moderate impact on the endogenous constructs. In contrast, an F^2 value of 0.064 indicates a small effect size for Managerial Commitment, implying a relatively minor impact on the model. Overall, the structural model shows moderate to low explanatory power, with varying effect sizes for different constructs.

2. Discussion of testing the study hypotheses

When analyzing the results of testing study hypotheses in the Partial Least Squares Structural Equation Modeling (PLS-SEM) methodology, there are several recommended criteria to consider. These criteria are essential for ensuring the validity and reliability of the analysis. Here are the recommended criteria for analyzing the results of testing this study's hypotheses in the PLS-SEM methodology:

Hypothesis Testing with Confidence Intervals and P Values: Researchers usually employ P values for hypothesis testing in PLS-SEM, where each hypothesis refers to a path in a model. P values may be one-tailed or two-tailed (Kock, 2016).

Structural Model Testing: The structural model in PLS-SEM needs to be tested to ensure that the assumptions of unidimensional constructs hold in the sample. This involves testing the relationships between latent variables and their indicators (Kock, 2016).

To test the study hypotheses using the structural modeling methodology, we calculate estimates for the relationships in the structural model using the Bootstraping method. These estimates indicate the expected relationships between constructs, and the path coefficient ranges from -1 to +1. Values close to +1 suggest strong positive relationships, while values near -1 indicate strong negative relationships. Typically, statistically significant relationships have p-values below 5%. Coefficients approaching zero from both directions suggest weak relationships (Kock, 2018).

2.1. Hypotheses:

2.1.1. First hypothesis (H1): There is no statistically significant positive relationship between the Eco-Efficiency Initiatives and Cost Control at a 5% significance level.

2.1.2. Second Hypothesis (H2): There is no significant role for Managerial Commitment in affecting the relationship between Eco-Efficiency Initiatives and Cost Control at a 5% significance level.

Table 5: Testing the Hypotheses for the Study (H_1, H_2)

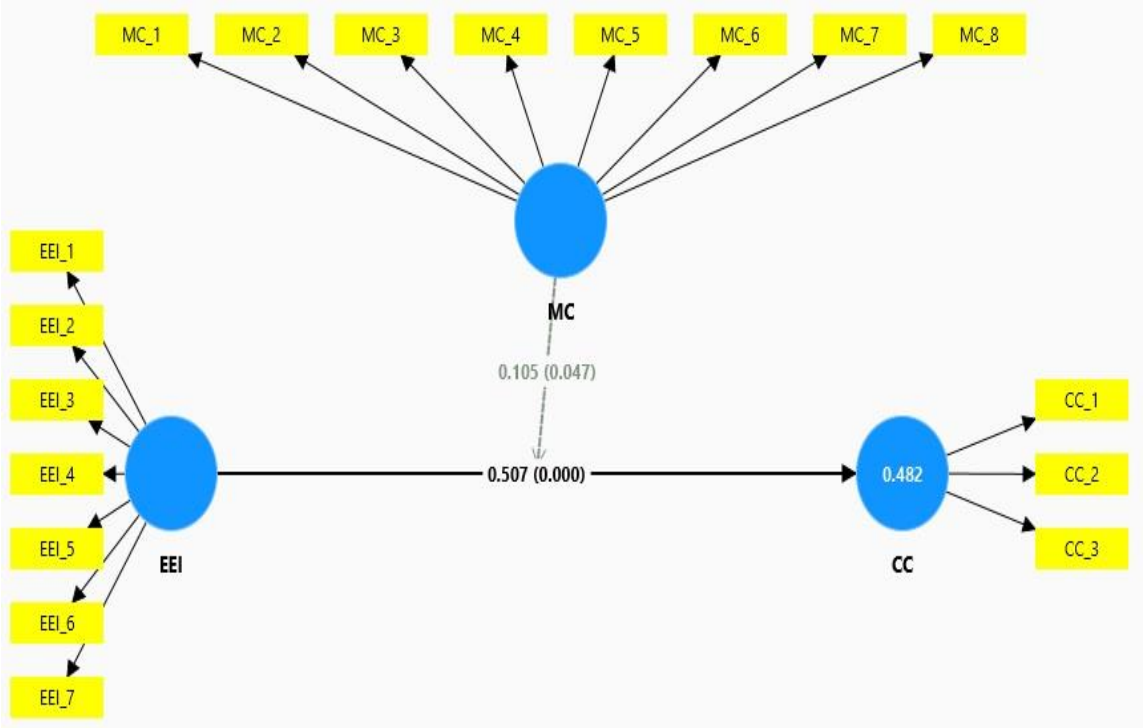
Hypothesis	Paths	Original Sample	Sample Mean	Standard Deviation	T Statistics	P Values	Decision
H_1	Eco-Efficiency Initiatives -> Cost Control	0.507	0.510	0.115	4.403	0.000	Hypothesis Accepted
H_2	Managerial Commitment x Eco-Efficiency Initiatives -> Cost Control	0.105	0.105	0.053	1.990	0.047	Hypothesis Accepted

Source: Compiled by researchers based on the outputs of Smart PLS4.

Table 5 presents the results of hypothesis testing for the study, specifically evaluating the paths from Eco-Efficiency Initiatives to Cost Control (H1) and the interaction effect of Managerial Commitment and Eco-Efficiency Initiatives on

Cost Control (H2). For H1, the path coefficient is 0.507, with a sample mean of 0.510 and a standard deviation of 0.115. The T-statistics of 4.403 and a P-value of 0.000 indicate a highly significant positive relationship, leading to the acceptance of the hypothesis. For H2, the interaction effect has a path coefficient of 0.105, a sample mean of 0.105, and a standard deviation of 0.053. The T-statistics of 1.990 and a P-value of 0.047 suggest a significant but weaker positive relationship, also resulting in hypothesis acceptance. Thus, both hypotheses are supported, indicating that Eco-Efficiency Initiatives positively influence Cost Control and that Managerial Commitment moderates this relationship.

Figure 3: Results of path coefficients



Source: Compiled by researchers based on the outputs of Smart PLS4.

Table 6: Testing the effectiveness of the moderating variable (Managerial Commitment) in reducing the effect of Eco-Efficiency Initiatives on Cost Control

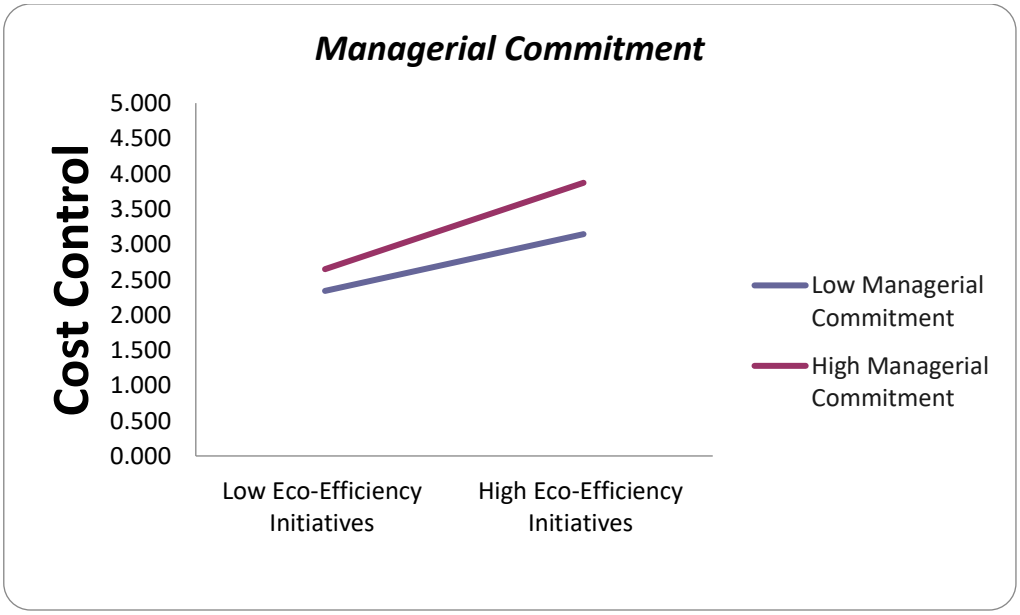
Relationship	Path Coefficient	P Values	Hypothesis
Eco-Efficiency Initiatives -> Cost Control	0.507	0.000	Accepted
Managerial Commitment -> Cost Control	0.259	0.016	Accepted
Managerial Commitment x Eco-Efficiency Initiatives -> Cost Control	0.105	0.047	Accepted

Source: Compiled by researchers based on the outputs of Smart PLS4.

Table 6 examines the moderating effect of Managerial Commitment on the relationship between Eco-Efficiency Initiatives and Cost Control. The direct relationship between Eco-Efficiency Initiatives and Cost Control has a path coefficient of 0.507 and a P-value of 0.000, indicating a strong and significant positive effect. Managerial Commitment alone has a path coefficient of 0.259 with a P-value of 0.016, showing a significant direct positive effect on Cost Control. The interaction term, representing the moderating effect of Managerial Commitment on the relationship between Eco-Efficiency Initiatives and Cost Control, has a path coefficient of 0.105 and a P-value of 0.047, indicating a significant but smaller moderating effect. All hypotheses are accepted, demonstrating that while Eco-Efficiency Initiatives significantly improve Cost Control, this effect is further enhanced by Managerial Commitment, which positively moderates the relationship.

European Economic Letters
ISSN 2323-5233
Vol 14, Issue 3 (2024)
http://eelet.org.uk

Figure 4: Path coefficients of The Interaction (Eco-Efficiency Initiatives * Managerial Commitment) --> Cost Control



Source: Compiled by researchers based on the outputs of Microsoft Excel.

8. Discussion:

8.1. Interpretation of findings

The results of this study indicate that Eco-Efficiency Initiatives significantly positively influence Cost Control, with a path coefficient of 0.507 and a highly significant P-value of 0.000, supporting the first hypothesis (H1). Additionally, Managerial Commitment not only directly impacts Cost Control with a path coefficient of 0.259 and a P-value of 0.016 but also moderates the relationship between Eco-Efficiency Initiatives and Cost Control, evidenced by a path coefficient of 0.105 and a P-value of 0.047. These findings suggest that organizations that implement Eco-Efficiency Initiatives can achieve better cost control, and this effect is further strengthened when managerial commitment is high.

8.2 Comparison with Prior Research

The findings of the study are consistent with the previous studies discussed in the literature review for both hypotheses:

8.2.1 Eco-Efficiency Initiatives

Eco-efficiency initiatives aim to enhance production efficiency while reducing environmental impacts, which is critical for sustainable development (Caprian & Trushkina, 2023). Our findings align with prior research emphasizing the integration of life-cycle assessment and cost optimality for energy conservation in buildings (Sérgio et al., 2022). Additionally, studies on business eco-efficiency in Latin America and country-level analyses highlight the importance of adopting practices from developed nations to improve regional environmental performance (Ponce-Zambrano & Loor-Colamarco, 2020; Perry, 2021). Local governments' roles in promoting eco-efficiency further support the significance of these initiatives in sustainable development efforts (XiaoHu et al., 2017).

8.2.2 Cost Control

Cost control is fundamental in management, focusing on regulating expenses to ensure profitability and efficiency (John & Hodgess, 2022). Our study's findings resonate with research showing that cost control measures like budgeting and standard costing significantly improve organizational performance (Ying et al., 2014). Strategies such as managing costs of goods sold, evaluating operating expenses, and focusing on profit-generating activities are essential for effective cost control (Tomasi, 2018).

8.2.3 Managerial Commitment

Managerial commitment, defined as the dedication and responsibility towards achieving specific goals, is crucial in various domains. In investment strategies, managerial commitment can reduce idiosyncratic risk-taking (Ching et al., 2020). In financial reporting, it enhances the quality of financial statements (Nurlinda et al., 2019). In project management, it significantly affects the success of construction projects (Ayu et al., 2022). Our findings are consistent with these studies,

showing that managerial commitment positively influences cost control and moderates the relationship between eco-efficiency initiatives and cost control.

8.2.4 Review of Relevant Prior Research and Scholarly Works

The relationship between Eco-Efficiency Initiatives and Cost Control is well-documented. Research highlights that environmental cost control significantly impacts eco-efficiency, emphasizing the importance of managing environmental costs for improved eco-performance (Fathiyya & Dian, 2022). Studies also reveal a negative relation between disclosed environmental control costs and eco-efficiency, supporting legitimacy theory (Yang, 2023). Furthermore, aligning eco-controls with eco-practices can lead to better environmental and economic performance (Chiang et al., 2015).

.1.1First Hypothesis (H1): There is no statistically significant positive relationship between Eco-Efficiency Initiatives and Cost Control at a 5% significance level.

Our findings reject this null hypothesis, confirming a significant positive relationship between Eco-Efficiency Initiatives and Cost Control.

.1.1.1The Relationship Between Managerial Commitment and the Relationship of Eco-Efficiency Initiatives to Cost Control

Managerial commitment is crucial in driving eco-efficiency initiatives and cost control. Studies indicate that managerial commitment enhances the implementation of environmental management practices, leading to improved environmental and economic performance in SMEs (Eko et al., 2021). Managerial support also boosts employee environmental commitment, encouraging eco-friendly behaviors (Voicu & Dragomir, 2020). Articulated and implemented environmental strategies can strengthen internal awareness and improve environmental conditions, aiding cost control efforts (Pascal et al., 2017). Our findings align with these studies, showing that managerial commitment significantly moderates the relationship between eco-efficiency initiatives and cost control.

Second Hypothesis (H2): There is no significant role for Managerial Commitment in affecting the relationship between Eco-Efficiency Initiatives and Cost Control at a 5% significance level.

Our findings reject this null hypothesis, demonstrating that Managerial Commitment significantly influences the relationship between Eco-Efficiency Initiatives and Cost Control.

9. Conclusion:

This study investigated the relationships between Eco-Efficiency Initiatives, Managerial Commitment, and Cost Control within organizations. The key findings indicate that Eco-Efficiency Initiatives have a significant positive impact on Cost Control, as evidenced by a path coefficient of 0.507 and a highly significant P-value of 0.000. Additionally, Managerial Commitment not only has a direct positive effect on Cost Control (path coefficient of 0.259 and P-value of 0.016) but also serves as a significant moderator in the relationship between Eco-Efficiency Initiatives and Cost Control (path coefficient of 0.105 and P-value of 0.047). These results confirm the importance of both Eco-Efficiency Initiatives and Managerial Commitment in achieving effective cost control within organizations.

The study underscores the critical role of Eco-Efficiency Initiatives in enhancing Cost Control. By integrating life-cycle assessments and cost optimality, organizations can not only reduce environmental impacts but also improve their financial performance. These initiatives contribute to methodological advancements in assessing energy performance and highlight the necessity of adopting eco-efficiency practices for sustainable development. Furthermore, the role of managerial commitment is pivotal. Managers who are committed to environmental management practices and supportive of eco-efficiency initiatives can drive significant improvements in cost control measures. This commitment enhances employee engagement in eco-friendly behaviors and ensures the successful implementation of environmental strategies, ultimately leading to better organizational performance.

In conclusion, the findings suggest that organizations aiming for sustainable growth should focus on implementing robust Eco-Efficiency Initiatives and fostering strong Managerial Commitment. These elements not only lead to better cost control but also support broader environmental and economic goals, ensuring a sustainable competitive advantage in today's increasingly eco-conscious market.

Acknowledgments:

This research was sponsored by the Thematic Agency for Research in the Social Sciences and Humanities of Algeria.

References:

1. Iulia, Caprian., Nataliia, Trushkina. (2023). Eco-efficiency as a philosophy of modern business in the conditions of global transformations. Green, Blue, and Digital Economy Journal, 4(1):1-10. doi: 10.30525/2661-5169/2023-1-1
2. Sérgio, Fernando, Tadeu., Carla, Rodrigues., Pedro, Marques., Fausto, Freire. (2022). Eco-efficiency to support the selection of energy conservation measures for buildings: A life-cycle approach. Journal of Building Engineering, 61:105142-105142. doi: 10.1016/j.jobe.2022.105142
3. José, Ponce-Zambrano., Ignacio, Loor-Colamarco. (2020). Ecoeficiencia Empresarial, un repaso sobre su implementación en América Latina. 5(5):252-263. doi: 10.33386/593DP.2020.5-1.352
4. Perry, Sadorsky. (2021). Eco-Efficiency for the G18: Trends and Future Outlook. Sustainability, 13(20):11196-. doi: 10.3390/SU132011196
5. XiaoHu, Wang., Cheol, Liu., Christopher, V., Hawkins. (2017). Local Government Strategies for Financing Energy Efficiency Initiatives. The American Review of Public Administration, 47(6):672-686. doi: 10.1177/0275074015619483
6. John, Francis, Hodgess, Roper. (2022). Cost Control. 2022(2):22-26. doi: 10.12968/s2754-7760(23)70087-x
7. Budi, Hermawan. (2021). Strategi pengendalian biaya sebagai alat perencana laba. 4(1):152097-. doi: 10.36276/MWS.V4I1.36
8. Tomasi, Mutya. (2018). Cost Control: A Fundamental Tool towards Organisation Performance. Journal of Accounting & Marketing, 7(3):1-11. doi: 10.4172/2168-9601.1000283
9. Ying, Zhang., Li, Hui, Xiong. (2014). Discussion on the Cost Management and Control of Construction Project. Applied Mechanics and Materials, doi: 10.4028/WWW.SCIENTIFIC.NET/AMM.584-586.2286
10. Ching, Wong., Mike, Qinghao, Mao. (2020). Managerial Commitment and Heterogeneity in Target-Date Funds. Social Science Research Network, doi: 10.2139/SSRN.3712972
11. Nurlinda, Nurlinda., Erlina, Erlina., Azhar, Maksum., Rina, Br, Bukit. (2019). Management Commitment to Strengthen The Quality Improvement of Regional Financial Report. doi: 10.4108/EAI.18-7-2019.2288644
12. Ayu, Mirayani, Pradnyadari, Ni, Luh, Made. (2022). Komitmen Manajer Proyek Terhadap Keberhasilan Proyek Konstruksi Gedung di Wilayah Perkotaan Sarbagita. Jurnal Ilmiah Telsinas Elektro Sipil dan Teknik Informasi, 4(1):1-5. doi: 10.38043/telsinas.v4i1.2882
13. Fathiyya, Fitri, Amaliya., Dian, Imanina, Burhany. (2022). Comparative analysis of the effectiveness and efficiency of environmental cost control in realizing the eco-efficiency of mining companies. Jurnal Riset Akuntansi, 14(1):116-139. doi: 10.34010/jra.v14i1.5555
14. Yang, M. (2023). Green cost control mechanism of enterprises under the value chain theory. Academic Journal of Business & Management, 5(7), 131-135.
15. Yi-Ju, Chiang., Yen-Chieh, Ouyang., Ching-Hsien, Robert, Hsu. (2015). An Efficient Green Control Algorithm in Cloud Computing for Cost Optimization. 3(2):145-155. doi: 10.1109/TCC.2014.2350492
16. Dr., Naiman,, N., Mbise., Mr., Jossum, Mungure. (2023). Influence of Management Commitment in the Implementation of Hotel Environmental Management Practices and its Effect on Business Sustainability among Hotels in Tanzania. International Journal of Current Science Research and Review, 06(02) doi: 10.47191/ijcsrr/v6-i2-87
17. Eko, Cahyo, Mayndarto., Yvonne, Agustine. (2021). The Effect of Environmental Management Accounting, Environmental Strategy on Environmental Performance and Financial Performance Moderated By Managerial Commitment. 2(1):112-119. doi: 10.46729/IJSTM.V2I1.138
18. Voicu, D., Dragomir. (2020). Ethical Aspects of Environmental Strategy. 75-113. doi: 10.1007/978-3-030-29548-6_3
19. Pascal, Paillé., Jorge, H., Mejía, Morelos. (2017). Modeling How Managers Support Their Subordinates Toward Environmental Sustainability: A Moderated-Mediation Study. Journal of Applied Business Research, 33(4):721-730. doi: 10.19030/JABR.V33I4.9994