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Original Article

Organizational Learning and Knowledge Management in Driving ESG Performance: A Case Study of an Indonesian Heavy Equipment Services Conglomerate

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Abstract: *This study aims to investigate the factors contributing to the ESG (Environmental, Social, and Governance) performance gap across business units and to identify strategic enablers that can strengthen ESG performance within a multi-entity organization. The research adopts a qualitative approach using a single embedded case study design in one of Indonesia's leading heavy equipment services conglomerates. Data were collected through semi-structured interviews and document analysis, and analyzed using thematic analysis, cross-entity comparison, and pattern matching. The findings reveal that the ESG performance gap is primarily driven by variations in organizational learning (OL) practices and knowledge management (KM) capabilities across entities. Key issues include inconsistent ESG understanding, fragmented knowledge sharing, weak knowledge storage systems, and limited application of ESG-related knowledge in operational processes. Organizational learning plays a critical role in shaping adaptive capacity, while knowledge management acts as a mediating mechanism that translates learning into operational capabilities. This study identifies several strategic enablers, including strengthening shared vision, improving cross-entity knowledge sharing mechanisms, developing integrated ESG data systems, and enhancing knowledge application in decision-making processes. The study contributes to the literature by providing empirical evidence on the OL–KM–ESG relationship in a multi-entity context and offers practical recommendations for improving ESG performance consistency.*

Keywords: *Case Study, ESG Performance, Knowledge Management, Organizational Learning, Sustainability*.

I. INTRODUCTION

Among the various industry transformations plagued by the industrial revolution, there is also one of massive change in the workforce and performance expectations, added with technology, which brings expectations to how organizations perform in this industry 4.0 era of hard construction equipment. However, along with the benefits of internationalism and preparation for future trends, another significant disruption in business has been caused by increasing integration of digital technologies, data-driven systems, and sustainability frameworks that have raised a new level of operational complexity requiring organizations to achieve an economic performance as well as a set standard for Environmental, Social, and Governance (ESG), which was absent before [1]. Since ESG is increasingly becoming an essential aspect of corporate sustainability, organizations need to create structured governance systems as well as provide consistent performance across various operational elements [2].

Within this context, this paper presents a case study of an industry leader within the heavy equipment services conglomerate structured through an integrated multi-entity model. It has developed a comprehensive ESG governance system with central coordination from the corporate level and reflects business unit implementation to integrate sustainability principles into operations. But when an organization is multi-entity, such as in corporate groups, this may create challenges for cross-unit consistency in ESG implementation, data reporting, and performance alignment with governance design on both the unit and group level an important disconnect that needs further attention.

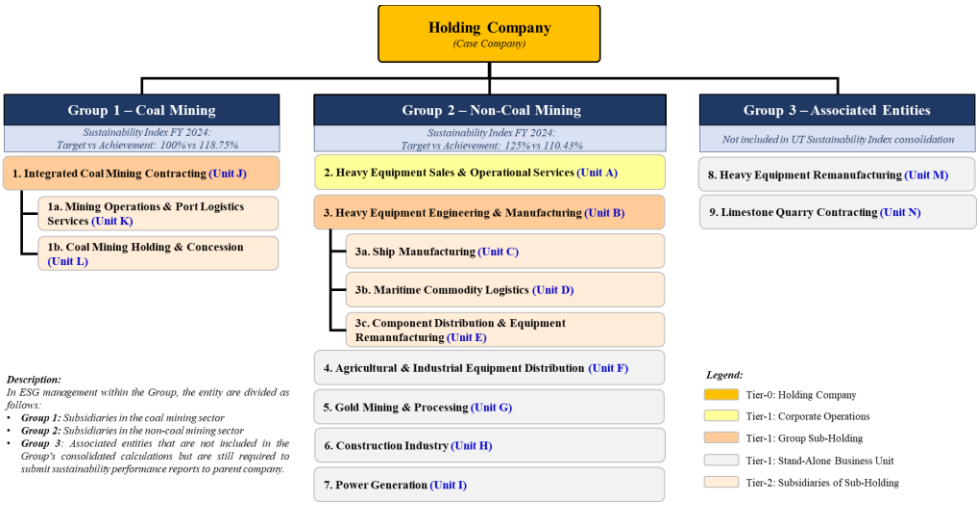

Figure 1. Organizational Structure of ESG Management in the Case Group

Figures 1 and 2 show how ESG is organized within the Case Group. By contrast, it has a multi-entity structure with centralized governance from the corporate level, which enacts strategy across multiple business units. While the holding company is instrumental in setting ESG policies, monitoring, and tracking performance, the actual data consolidation takes place at entities. This lays bare a robust governance structure designed to keep the strategic goals hierarchically aligned with operational deployment. But the very act of coordinating, consolidating data, and executing analytics or customer interaction across these entities could be complex enough to impact consistency and reliability in ESG performance outcomes.

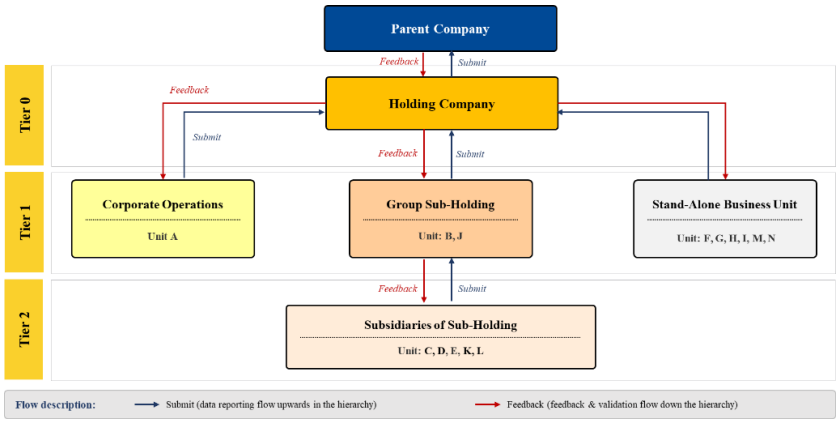

Figure 2. The Group Sustainability Data Reporting Hierarchy

Despite the implementation of a systematic governmental model, ESG performance targets are not routinely met, according to empirical evidence. As shown in Figure 1, the organization targeted 125% on ESG performance and returned only below this level regarding actual performance (stabilized at around 110–111% during the past years) [3]. That indicates a systemic gap, around 14 percentage points, between governance design and operational execution. It is not that the governance structures did not exist, but whether the organisation was able to realise these into practical on-the-ground performance.

This problem is not about developing and writing documentation on how to use the Enterprise App Store bullet point of the approach at all; rather, this gap plays to broader systemic issues within the organization related to organizational learning, knowledge management, etc. Governance offers direction and structural alignment, but it is the way knowledge is generated, shared, and applied across entities that ultimately makes ESG implementation possible. For example, in a complex multi-level organization, a lack of systematic knowledge management systems and fragmented learning processes can create inconsistencies and inefficiencies [4], [5], [6] which will weaken the overall reliability of performance. This is even further compounded by factors such as organizational misalignment, digital systems fragmentation, and disparity of skilled capacity among the various entities that together limit ESG standardization and scalability.

Using the performance gap and organizational context depicted in Figures 1 and 2. The particular contribution of this research is not mere reporting, providing descriptive observations about the distinction between governance and performance,

but rather exploring why that distinction exists; i.e. Differences in ESG practices, data quality, and coordinative mechanisms between entities lead to differences in consolidated outcomes — indicating that ESG performance is less affected by external pressure than it is dependent on internal organizational capabilities [7]. Specifically, in this context, previous studies highlight Organizational Learning (OL) and Knowledge Management (KM) as key internal drivers of sustainability performance [1], [3], [7], [8].

Using a qualitative case study approach, this study aims to address the following research questions:

- Research Question 1 (RQ1): What internal and systemic factors contribute to the ESG performance gap within a multi-entity organization?
- Research Question 2 (RQ2): How do organizational learning and knowledge management shape ESG performance outcomes, and what strategic interventions can be proposed to enhance performance alignment?

II. LITERATURE REVIEW

A) ESG Performance and Sustainable Organizational Performance

Environmental, Social, and Governance (ESG) refers to a set of indicators used to evaluate a company's performance in managing environmental impacts, social responsibilities, and governance practices [9]. ESG has evolved from a reporting requirement into a strategic framework that reflects an organization's ability to manage risks and create long-term value.

Previous studies show that strong ESG performance is associated with better decision-making, improved risk management, and enhanced stakeholder trust [8], [10]. At the same time, companies with higher ESG performance usually attain more stable financial results and greater competitive advantage. A strong performance in ESG can feed a company's innovation capability [10] and, consequently, lead the company to develop its sustainability performance [11]. Governance is essential for accountability, assessability, and correct ESG implementation [12]. The adoption of ESG in Indonesia is strengthened by regulatory measures that essentially call for structured sustainability reporting [13].

Both external and internal factors are part of the driving force behind ESG performance [13]. Notably, while external pressures such as regulations and stakeholder expectations are important [14]. Since the implementation of sustainability strategies within an organizational setting depends, in part, on internal capabilities [4], [15], such capabilities can be particularly important when it comes to making a difference.

B) Organizational Learning (OL)

Organizational learning (OL) refers to the process by which organizations acquire, interpret, and apply knowledge to improve performance and adaptability [27]. OL is essential in dynamic environments, particularly in addressing sustainability challenges that require continuous adaptation and innovation [16].

According to Senge (1990), organizational learning is reflected in five key dimensions: shared vision, personal mastery, team learning, mental models, and systems thinking [17], [18]. These dimensions enable organizations to build a collective understanding and align individual actions with strategic goals.

In the context of ESG, organizational learning supports the development of sustainability-oriented mindsets and enhances the organization's ability to respond to environmental and social challenges. Organizations with strong learning cultures are more capable of integrating ESG into their strategic and operational processes [18]. However, learning alone is not sufficient unless it is systematically managed and translated into organizational practices.

C) Knowledge Management (KM)

Knowledge management (KM) consists of the efforts to manage knowledge within organizations so as to enhance organizational performance and decision-making [19]. KM involves several core processes, which include knowledge acquisition, knowledge sharing, knowledge storage, knowledge transfer, and knowledge application [20].

Knowledge acquisition allows organizations to obtain relevant knowledge from both internal and external sources, including best practices, regulations, or information about emerging trends in the industry [21], [22]. An important concept in OD is knowledge sharing, where information is spread across units that will minimize silos and improve collaboration. Documentation and data consistency, both vital for ESG reporting, are empowered by knowledge storage. Knowledge transfer enables the sharing of best practices across entities, whereas knowledge application ensures that knowledge needs to be applied for it to be utilized in operational and strategic decision-making [18].

In sustainability contexts, KM is very important for the embeddedness of ESG in the organizational structure. The lack of effective KM systems can lead to fragmented information, inconsistent practices, and low data reliability that ultimately harm ESG performance [23].

D) Relationship between OL, KM, and ESG Performance

The relationship between organizational learning, knowledge management, and ESG performance can be understood as a sequential process. Organizational learning acts as a driver that generates knowledge and builds adaptive capacity [24]. Knowledge management functions as a mediating mechanism that captures, distributes, and applies this knowledge within the organization. ESG performance represents the outcome of how effectively these processes are implemented [19].

Empirical studies indicate that organizational learning positively influences knowledge management practices, which in turn enhance sustainability performance [14]. Knowledge management enables organizations to translate learning into concrete actions, such as improving environmental efficiency, strengthening governance systems, and fostering innovation [25].

In multi-entity organizations, this relationship becomes more complex due to differences in capabilities, coordination, and operational contexts across units [26]. Variations in OL and KM practices can lead to inconsistencies in ESG implementation, resulting in performance gaps at the consolidated level.

E) Research Gap

Although previous studies have established the importance of ESG, organizational learning, and knowledge management, several gaps remain [27], [28], [29], [30], [31], [32], [33]. Existing literature predominantly focuses on single organizations and relies heavily on quantitative approaches, thereby limiting a deeper understanding of internal dynamics within multi-entity contexts. Furthermore, there is still limited research examining how knowledge management functions as a mediating mechanism between organizational learning and ESG performance. In addition, empirical evidence from emerging economies on cross-subsidiary ESG dynamics within diversified corporate groups is still scarce.

In response to these gaps, this study examines the role of organizational learning and knowledge management in explaining differences in ESG performance across business units within a multi-entity organization.

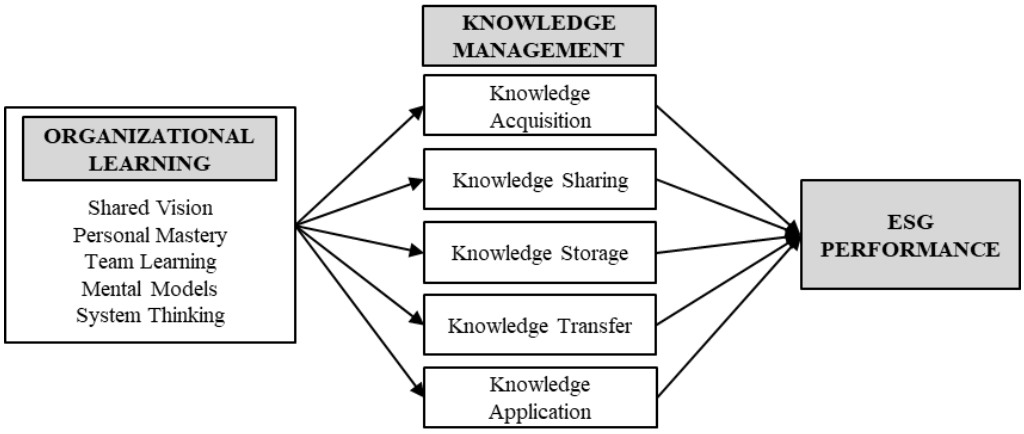

Figure 3. Conceptual Framework

Figure 3 presents the conceptual framework of this study as a comprehensive analytical model that integrates OL, KM, and ESG Performance. Within this framework, organizational learning is treated as the main resource that provides 'the organization's ability to adapt, innovate, and respond to sustainability challenges.

The above dimensions can be analysed based on five elements of organizational learning: shared vision, personal mastery, team learning, mental models, and systems thinking. Taken together, these dimensions empower the organization to create a shared definition of the ESG mission and sustain momentum throughout its business units.

Knowledge Management as a mediating mechanism takes the learnings from organizational to operational. It is composed of five processes: Knowledge Acquisition, Knowledge Sharing, Knowledge Storage, Knowledge Transfer, and Knowledge Application. With these processes, the knowledge from learning activities gets organized, shared, and used throughout the organization.

ESG performance is placed as the dependent variable, which indicates the effectiveness of an organization to implement sustainability measures in these three avenues, i.e., environmental, social, and governance practices. This study considers that the process of knowledge management mediates between organizational learning and ESG performance, based on the premise that stronger organizational learning enhances the quality of knowledge management processes, which leads to enhanced ESG performance.

With multi-entity organizations, there are multiple business units that may have different practices of organizational learning and knowledge management. This framework is then utilized to analyze how the external ESG landscape interacts with internal organizational capabilities affecting long-term ESG outcomes, and to identify whether there are strategic enablers that can be leveraged to enhance consistency of performance.

III. RESEARCH METHODOLOGY

A) Research Approach and Design

This study adopts a qualitative research approach using a single embedded case study design to explore ESG performance dynamics within a multi-entity organization. This approach is suitable for answering "how" and "why" questions and for understanding complex organizational processes in their real-life context.

The embedded case study allows analysis across multiple sub-units within one organization. Two levels of analysis are considered:

- Corporate level, focusing on ESG governance, policy, and performance consolidation
- Operational level, focusing on ESG implementation within business units

This design enables comparison across entities to identify variations in practices and performance.

B) Unit of Analysis and Research Setting

The study is conducted within the Case Group, focusing on the non-coal mining cluster, which exhibits the most significant ESG performance gap (110.43% vs. 125% target).

Two main units of analysis are selected:

- Corporate Level (Holding Company)

Responsible for ESG governance, policy, and consolidation:

- Operational Level (Unit A dan Unit B)

Represents multi-entity implementation complexity:

This dual-level analysis enables the study to examine the gap between strategy (corporate) and execution (operational). In this study, the term *"entity"* refers to a distinct organizational unit within the conglomerate structure, comprising the corporate holding (Holding Company) and its operational subsidiaries (Unit A and Unit B). Accordingly, *"cross-entity"* analysis denotes both cross-level comparison (corporate versus operational) and cross-subsidiary comparison (between operational units), enabling the study to capture systemic patterns that transcend individual organizational boundaries.

C) Data Collection Methods

Data were collected using both primary and secondary sources to ensure triangulation and richness of data.

Primary Data (Interviews):

Primary data were obtained through semi-structured interviews with seven key informants selected using purposive sampling, ensuring relevance and expertise.

Table 1: Informant Profile

Code	Role	Level	Function	Relevance to ESG Process
I1	Sustainability Head	Holding	Governance	Responsible for ESG policy, KPI integration, and group-level oversight
I2	KM Manager	Holding	Knowledge Management	Designs organizational learning and knowledge sharing mechanisms
I3	ESG Data PIC	Holding	Data Consolidation	Ensures ESG data quality, validation, and group-level reporting
I4	SHE Manager	Operational Unit	ESG Implementation	Executes ESG programs at the operational level (HSE & compliance)
I5	ESG Reporting PIC	Operational Unit	Data	Manages the ESG reporting process and data submission
I6	Sustainability Manager	Operational Unit	Strategy	Integrates ESG into business strategy and performance targets
I7	ESG Data PIC	Operational Unit	Reporting	Handles ESG data processing and reporting at the entity level

The informants represent a multi-level perspective, allowing the study to capture ESG dynamics from governance, knowledge management, and operational implementation. This study employed purposive sampling to select seven key informants representing critical roles in ESG governance, knowledge management, data consolidation, and operational implementation across both corporate and business unit levels.

The selection was designed to capture multi-level organizational perspectives and ensure coverage of core ESG processes, rather than relying on a large number of respondents. Each informant was directly involved in ESG-related decision-making, reporting, or implementation, providing rich and relevant insights into the performance gap.

In qualitative case study research, depth of insight and role relevance are prioritized over sample size [34], [35]. The selected informants were considered sufficient to reach theoretical saturation, as recurring patterns and consistent themes emerged across interviews.

Interview Instrument:
Interview questions were structured based on three domains:

- ESG performance gap
- Organizational Learning (OL)
- Knowledge Management (KM)

Table 2: Interview Structure

Domain	Focus	Example
ESG Gap	Performance & Data	Data consistency & challenges
OL	Learning Processes	Training, feedback, knowledge sharing
KM	Knowledge Flow	Storage, transfer, application

D) Data Analysis Techniques

Data analysis was conducted through a systematic process:

- Data transcription and organization
- Initial coding to identify relevant concepts
- Thematic analysis to develop key themes
- Cross-entity comparison to examine differences between units
- Pattern matching to compare empirical findings with the conceptual framework (Organizational Learning → Knowledge Management → ESG Performance)

This approach allows identification of factors contributing to ESG performance gaps and the role of internal capabilities.

Table 3: Data Analysis Process

Stage	Process	Output
1	Data Preparation	Clean transcripts
2	Coding	162 initial codes
3	Thematic Analysis	11 CI Clusters
4	Cross-Entity Comparison	Pattern differences
5	Pattern Matching	Theory validation
6	Synthesis	Final findings

The data analysis in this study was conducted through a systematic multi-stage qualitative procedure designed to ensure rigor, transparency, and alignment with the conceptual framework. This process started with the preparation of data, which involved transcribing and cleaning interview recordings in a structured format for analysis. The next step was the coding phase, where we identified 162 initial codes related to OL, KM, and ESG performance by extracting meaningful units of information. Thematic analysis was then used to combine multiple codes into 11 Composite Indicator (CI) Clusters, defining key patterns across informants and entities. Next, we employed cross-entity comparison to highlight divergences and convergences across organizational units to pinpoint issues rooted in wider culture among those more localized. The analysis was also reinforced by pattern matching of the empirical findings with a conceptual framework that integrated OL, KM, and ESG performance to assess theoretical alignment (this approach is in line with [7]). Lastly, synthesis ended the process, which combined all steps of analysis into cohesive results explaining and delving deeper into the identified mechanisms behind this ESG performance gap. In summary, this structured approach ensures that the analysis is systematic, traceable, and theoretically guided, which enhances the credibility and robustness of research findings.

Coding Framework:
The study uses a multi-level coding structure:

Table 4: Coding Structure

Level	Description
Initial Code	Meaning unit
Sub-theme	Concept grouping
Category	KM / OL / ESG
Parent Code	Cross-dimension
CI Cluster	Final theme

Polarity coding is applied to classify each coded statement based on its analytical orientation. In this study, negative polarity represents findings that indicate gaps, problems, constraints, or systemic weaknesses contributing to the ESG performance gap. Positive polarity captures enablers, strengths, or existing practices that support ESG performance and can be leveraged for improvement. Meanwhile, neutral polarity is used for descriptive or contextual information that does not explicitly indicate either a positive or negative condition but provides supporting background for interpretation. This polarity classification allows the analysis to systematically distinguish between challenges and opportunities, thereby enabling a more balanced and comprehensive understanding of the organizational dynamics.

E) Validity and Reliability

To ensure the credibility and robustness of the findings, this study applies:

- Source triangulation, by comparing data from multiple informants and organizational levels
- Method triangulation, by integrating interview data with documentary evidence

These techniques help ensure consistency, reduce bias, and strengthen the validity of the results.

F) Research Framework

The research is guided by a conceptual framework linking:

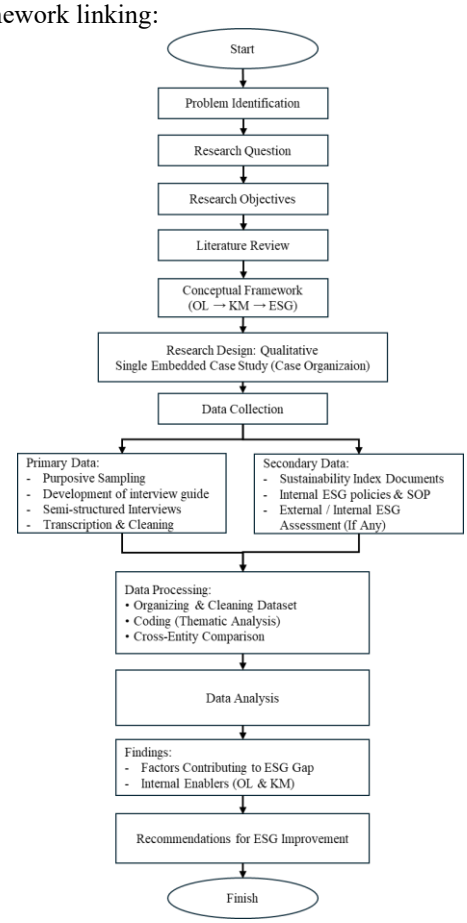

Figure 4. Research Framework

Figure 4 illustrates the overall research flow in a structured and sequential manner, beginning with the identification of ESG performance gaps across business units within the Case Group, which serves as the primary problem statement guiding the study. This initial stage informs the development of research questions and the establishment of a conceptual framework linking organizational learning (OL), knowledge management (KM), and ESG performance. Based on this framework, the study adopts a qualitative single embedded case study design to capture variations across organizational levels and entities. Data collection is then conducted through purposive sampling using semi-structured interviews and supported by relevant internal and external documents to ensure data richness and triangulation. The collected data undergo a multi-stage analytical process, including transcription, coding, thematic analysis, and cross-entity comparison, followed by pattern matching to align empirical findings with the conceptual framework. This systematic flow ensures that the findings are not only grounded in empirical evidence derived from real organizational practices but also theoretically validated through alignment with established OL–KM–ESG relationships, thereby enhancing the robustness and credibility of the research conclusions.

IV. RESULTS AND DISCUSSION

A) Overview of Findings

This study analyses ESG performance dynamics using qualitative data derived from in-depth interviews with seven key informants across three organizational levels. A total of 162 coded statements were generated and grouped into 11 Composite Indicator Clusters (CI Clusters) through thematic analysis.

Table 5: Data Distribution Summary

Dimension	Category	Count	Percentage
Polarity	Negative	97	53%
Polarity	Positive	63	35%
Polarity	Neutral	24	13%
Theory	KM	49	34%
Theory	OL	45	31%
Theory	ESG	45	30%
Theory	Governance	5	3%
Theory	Hybrid (OL–KM)	3	2%

Table 5 indicates that negative polarity dominates 53%, confirming that the dataset is strongly oriented toward identifying systemic problems related to ESG performance gaps. At the same time, the relatively balanced distribution across KM, OL, and ESG dimensions suggests that these constructs are empirically interconnected, supporting the study's integrative framework.

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B) Thematic Structure: Enabler, Gap, and Outcome

To simplify interpretation, the findings are categorized into three overarching themes, namely Enabler, Gap, and Outcome, which collectively explain ESG performance dynamics.

Table 6: Thematic Structure of Findings

Main Theme	Sub-Themes	CI Clusters	Interpretation
Enabler	Governance Structure, Knowledge Transfer	CI-R8	Strong ESG governance as a structural foundation
Gap	KM, OL, Digitalization, Misalignment	CI-R3, R4, R5, R7, R9, R2, R11	Systemic capability gaps
Outcome	Performance Gap, Data Issues	CI-R1, R6	ESG performance inconsistency

Table 6 shows that ESG performance is shaped by the interaction between strong governance (enabler) and operational capability gaps (KM–OL deficiencies). This supports the argument that governance alone is insufficient without supporting knowledge systems.

C) Cluster Summary and Empirical Patterns

The coded data were further aggregated into 11 Composite Indicator Clusters (CI Clusters), representing key thematic patterns across informants and entities.

Table 7: Complete Cluster Summary

Cluster	Codes	Informants	Entities	Positive	Negative	Neutral	Dominant
CI-R8	38	7/7	3/3	27	6	5	Positive
CI-R3	21	6/7	3/3	2	19	0	Negative
CI-R5	19	6/7	3/3	13	6	0	Positive
CI-R7	15	6/7	3/3	2	8	5	Negative

CI-R4	15	6/7	3/3	2	10	3	Negative
CI-R9	14	5/7	3/3	1	12	1	Negative
CI-R1	12	4/7	3/3	1	10	1	Negative
CI-R6	10	4/7	3/3	3	4	3	Negative
CI-R11	9	3/7	2/3	3	5	1	Negative
CI-R2	6	3/7	3/3	0	6	0	Negative
CI-R10	3	3/7	2/3	1	1	1	Mixed

Table 7 reveals a distinct imbalance between governance strength and execution capability of the firm. CI-R8 is the only fully positive and saturated cluster, pointing to the maturity of ESG governance mechanisms such as embedding KPIs, structured forums, or policy oversight at a structural level [48]. This result suggests that the organization struggles not with a lack of formal governance design but rather that it has successfully institutionalized ESG in practice and policy. Nevertheless, the continued presence of mostly negative clusters (in particular CI-R3: KM Gap; CI-R9: Digital Fragmentation and CI-R1 Data Issues) indicates that these governance structures are not sufficiently translated into operational performance.

From a discussion standpoint, this pattern illuminates the governance execution gap, whereby top-down structures are matched by weak bottom-up capabilities. The KM Gap is so prominent precisely because there are no formalised processes to capture, share, or apply knowledge, limiting the organization to scale best practice and draw lessons for experiential learning. Meanwhile, digital fragmentation and data instability indicate that the organization is unable to execute on robust, integrated ESG reporting processes. All this collectively points to the root cause of capability misalignment, where governance is a strategic enabler, but operational systems, knowledge flows, and data processes are still undeveloped.

This finding helps paint a broader picture showing that even if governance frameworks are in place, they alone do not equate to good ESG performance; rather, what matters most is the translation of knowledge and learning into routine. In this case, the ESG performance gap is not from a lack of direction, but rather limited capacity to execute, and more specifically, around how knowledge management, digital systems, and data reliability enable or disable the overall governance structure.

The thematic analysis resulted in 11 clusters with varying levels of saturation and polarity.

Table 8: Summary of Composite Indicator Clusters

Cluster	Description	Codes	Polarity	Key Insight
CI-R8	Governance & KPI	38	Positive	Strong structural enabler
CI-R3	KM Gap	21	Negative	Root cause of inefficiency
CI-R5	Learning Ineffective	19	Mixed	Learning exists, but it is informal
CI-R7	Misalignment	15	Negative	Silo and coordination issue
CI-R4	Person Dependency	15	Negative	Capability gap
CI-R9	Digital Fragmentation	14	Negative	Manual system limitation
CI-R1	Data Instability	12	Negative	Data reliability issue
CI-R6	Performance Pressure	10	Negative	ESG target gap
CI-R11	ESG Mindset	9	Negative	Compliance mentality
CI-R2	Cultural Resistance	6	Negative	Awareness gap
CI-R10	Other	3	Mixed	Minor findings

Table 8 summarizes the 11 Composite Indicator Clusters identified through thematic analysis, highlighting the distribution of codes, dominant polarity, and key insights derived from each cluster. The results show that CI-R8 (Governance & KPI Embedding) is the only cluster with a dominant positive polarity, indicating that governance structures, including KPI integration and ESG oversight mechanisms, serve as strong structural enablers within the organization. In contrast, most clusters are dominated by negative polarity, reflecting systemic challenges that hinder ESG performance. Notably, CI-R3 (KM Gap) emerges as the root cause of inefficiency, indicating the absence of structured knowledge management processes, while CI-R5 (Learning Ineffective) reveals that although learning activities exist, they remain informal and not fully institutionalized. Clusters such as CI-R7 (Misalignment) and CI-R4 (Person Dependency) further highlight organizational fragmentation and reliance on individual capabilities, which weaken consistency and scalability. Meanwhile, CI-R9 (Digital Fragmentation) and CI-R1 (Data Instability) emphasize technical and data-related constraints, particularly the reliance on manual systems and inconsistent data quality. Additional factors such as performance pressure (CI-R6), compliance-driven mindset (CI-R11), and cultural resistance (CI-R2) reinforce the presence of behavioral and structural barriers. Overall, the table demonstrates a clear imbalance between strong governance mechanisms and weak operational capabilities, indicating that ESG performance gaps are primarily driven by deficiencies in knowledge management, organizational learning, and system integration rather than the absence of formal governance structures.

D) Cross-Entity Distribution Analysis

To examine consistency across organizational levels, a cross-tabulation analysis was conducted.

Table 9: Cluster Distribution Across Informants and Entities

Cluster	I1	I2	I3	I4	I5	I6	I7	Holding	Unit A	Unit B	Entity Coverage
CI-R8	7	6	4	5	5	5	6	17	10	11	3/3
CI-R3	0	8	2	3	4	1	3	10	7	4	3/3
CI-R5	1	3	4	2	6	2	1	8	8	3	3/3
CI-R7	3	0	3	2	2	3	2	6	4	5	3/3
CI-R4	1	1	5	2	0	4	2	7	2	6	3/3

The selected informants (I1–I7) hold strategic roles across governance, knowledge management, data consolidation, and ESG implementation, allowing for cross-level analysis between corporate and business unit perspectives. The "Entity Coverage" column indicates the extent to which each cluster appears across organizational entities. A coverage value of 3/3 shows that the cluster is present in all entities (Holding, Unit A, and Unit B), confirming that the observed patterns are systemic rather than entity-specific.

As the cross-entity distribution shown in Table 9 exemplifies, highly repetitive occurrences of core clusters across informants and organizational entities demonstrate systemic issues as opposed to isolated phenomena. Cross-entity saturation: As seen in TC-R3 (KM Gap), we also notice that most clusters, especially CI-R3 (KM Gap), CI-R5 (Learning Ineffective), and CI-R7 (Misalignment), exist across all three entities, as shown in Table 4. This is in line with a pattern observed; knowledge management and learning challenges are not unit- or function-specific issues, but rather problems of how the system itself operates. In addition to this, the more equitable balancing of codes across informants adds confidence to the findings as multiple perspectives converge on similar problems. Notably, the persistent and continuous KM-related gaps across entities point to the absence of a coherent and institutionalized knowledge management framework, whereas a lack of learning or failure mechanisms highlights limitations in how knowledge is mediated into strategy-informed actions. In summary, it is consistent that ESG performance gaps are primarily caused by organization-level capability limitations and will likely require systemic rather than localized solutions.

E) Thematic Analysis of ESG Performance Dynamics in the Case Group

To provide a comprehensive understanding of the ESG performance dynamics, the results of the coding process were further analyzed using a thematic approach by grouping related codes into higher-order patterns based on conceptual similarity, frequency, and cross-entity consistency. This process resulted in a structured framework consisting of three overarching themes: Enabler, Gap, and Outcome, which collectively explain how ESG performance is shaped within the organization. Each theme is further decomposed into sub-themes derived from the Composite Indicator Clusters (CI Clusters), supported by representative codes and empirical evidence from informants. This thematic mapping enables the study to move beyond descriptive analysis by identifying underlying mechanisms and relationships between governance structures, organizational capabilities, and performance outcomes. Table 10 presents the detailed thematic structure, illustrating how each theme is operationalized and linked to the research questions.

Table 10: Thematic Analysis of ESG Performance Dynamics in Case Group

Main Theme	Sub-Theme	Derived from (CI Clusters)	Representative Codes	Strategic Interpretation	RQ	Selected Verbatim Quotes from Informants
ENABLER	Governance Three-Pillar & KPI Embedding	CI-R8	three_pillar_CSD, ESG_KPI_embedded, ESG_target_cascade	ESG governance is built on CSD's three pillars (policy, monitoring, advisory), supported by KPI integration and tiered forums, forming a strong structural foundation	RQ2	Policy/guidelines, monitoring, and advisory are implemented. There are three types of advisory. (I1) | "CLA itself is ten percent in our group." (I6)
ENABLER	Cross-Entity Coordination & Knowledge Transfer	CI-R8, CI-R4	AO_coordination, replication_culture, collaborative_structure	Strong coordination and informal KM transfer across entities through advisory and replication practices	RQ2	What's good at that one point, our other branch sites have no problem immediately emulating it. (I2)

GAP	Unstructured KM without Formal Infrastructure	CI-R3	no_formal_KM_PIC, fragmented_KM_ownership, need_KM_SOP	Absence of a formal KM system, ownership unclear, KM operates implicitly → root cause of failure	RQ1	At Unit A, there's no PIC; it's not written in the structure. (I2) | "We'll have to adapt KM to the conditions of the organizational structure, following... there might be a structure that hinders the KM process a bit." (I2)
GAP	Undocumented & Undistributed Best Practices	CI-R3, CI-R9	undocumented_best_practice, unsystematic_sharing	Best practices exist but are not mapped or distributed → limits replication.	RQ1	We haven't mapped out what best practices can be implemented, a massive mapping. (I3) | "As far as I know, it hasn't been disseminated." (I7)
GAP	Ineffective & Unmeasured Learning	CI-R5	tacit_learning, ad_hoc_training, audit_driven_learning	Learning exists but is informal; no measurement; improvement occurs only partially	RQ1 & RQ2	People don't realize that it's a knowledge management process. (I2) | "Previously, we often transferred data incorrectly, but after an email the following month, there were no more differences." (I3)
GAP	Person Dependency & Capability Gap	CI-R4	knowledge_loss_turnover, uneven_capability, lack_self_validation	High dependency on individuals; weak capability leads to repeated errors	RQ1	There was a case where the PIC changed... so we just treated it like a reset. (I7) | "If the reporting is year-to-date, it's impossible for it to go down... so the fluctuations still happen... even though the PIC can actually validate it themselves." (I4)
GAP	Digital Fragmentation & Manual Reporting	CI-R9	manual_process, disconnected_excel, non_centralized_data	ESG reporting is heavily manual, multi-layer validation → inefficiency and error risk	RQ1	We create a template, email it to each company, the PIC fills it in, and I, as the first layer, check for completeness... then check for formatting... then check the details vs. the summary... then move on to trend analysis. (I4)
GAP	Misalignment Across Units & Levels	CI-R7	silo_behavior, multi_level_reporting	Organizational silo and multi-layer reporting create distortion and coordination complexity.	RQ1	Companies that are still siloed... those like that tend not to achieve their sustainability targets. (I1) | "For quarterly data, we process it into a summary for internal review, and then there's another process to submit the data to Parent Company." (I4)

GAP	Compliance Mindset & Cultural Resistance	CI-R2, CI-R11	low_awareness, superficial_template_use	ESG perceived as an administrative burden → superficial execution and low data quality	RQ1	When filling in data, subsidiaries tend to just follow the template without truly understanding the details. (I4) | "BOD feedback only takes a maximum of five minutes, while Finance feedback can take up to ten minutes." (I7)
OUTCOME	ESG Target Gap & Fatality Impact	CI-R6	target_gap_125, fatality_impact	ESG targets not achieved; operational incidents significantly impact performance	RQ1	Of the 125% target by 2024, we only achieved one hundred and ten percent or one hundred and eleven percent. By 2025, it will drop even further, to below one hundred percent. (I1)
OUTCOME	Data Instability & Reporting Complexity	CI-R1	inconsistent_data, repeated_revision, undetected_errors	ESG data is unreliable due to complexity and system design issues	RQ1	The organization itself doesn't fully trust the data. There are also many discrepancies in the data from the Case Company's subsidiary BUs. (I4) | "For example, if there's an error in Excel, such as an unreadable formula or a crash, it can go undetected." (I4)

The thematic analysis in Table 10 reveals a structured pattern of ESG performance dynamics categorized into three main dimensions: Enabler, Gap, and Outcome. The Enabler dimension highlights that the organization has established a relatively strong governance foundation, particularly through the implementation of a three-pillar Corporate Sustainability Division (CSD) model policy, monitoring, and advisory supported by KPI embedding and tiered ESG forums. In addition, cross-entity coordination mechanisms, including advisory practices and replication of best practices across sites, demonstrate that knowledge transfer capabilities already exist, albeit in an informal and non-institutionalized manner. These findings indicate that, at the structural level, the organization possesses a solid governance architecture that serves as a critical foundation for ESG performance.

The findings reveal a structured yet paradoxical ESG system in which strong governance mechanisms coexist with persistent performance gaps. Within the enabler dimension, ESG governance is found to be institutionally well-established through a three-pillar Corporate Sustainability Division (CSD) framework—policy, monitoring, and advisory—supported by KPI embedding and cascading mechanisms (*three_pillar_CSD*, *ESG_KPI_embedded*, *ESG_target_cascade*). This indicates that governance operates effectively at the formal and structural levels, providing clear direction and performance expectations. In addition, cross-entity coordination mechanisms—reflected in codes such as *AO_coordination*, *replication_culture*, and *collaborative_structure*—demonstrate that knowledge transfer does occur across entities, albeit predominantly through informal advisory practices and experiential replication. These findings suggest that the organization possesses strong governance architecture and emergent knowledge flows, which function as key enablers for ESG implementation.

However, these structural strengths are not sufficient to ensure effective execution, as the analysis identifies a series of interconnected capability gaps that undermine ESG performance. The most fundamental issue lies in the absence of a formalized knowledge management (KM) system, as evidenced by codes such as *no_formal_KM_PIC*, *fragmented_KM_ownership*, and *need_KM_SOP*. This indicates that KM lacks institutional ownership and operates implicitly, resulting in fragmented and non-scalable knowledge processes. Consequently, best practices remain undocumented and undistributed (*undocumented_best_practice*, *unsystematic_sharing*), limiting their replication across entities. This condition constrains the organization's ability to transform localized knowledge into organizational capability, highlighting that the core issue is not the absence of knowledge, but the failure to codify and institutionalize it.

These KM deficiencies further propagate into ineffective organizational learning processes. Codes such as *tacit_learning*, *ad_hoc_training*, and *audit_driven_learning* indicate that learning occurs but remains informal, unstructured, and largely unmeasured. As a result, learning outcomes are not systematically translated into performance improvement, reinforcing a cycle of partial and inconsistent capability development. This fragmentation is exacerbated by high dependency on individuals, as reflected in *knowledge_loss_turnover*, *uneven_capability*, and *lack_self_validation*, where knowledge is embedded at the individual level and lost or reset when personnel change. This reveals a deeper structural vulnerability, in which organizational performance is contingent upon individual competence rather than institutionalized systems.

At the operational level, these capability gaps are amplified by structural and technological constraints. The presence of *manual_process*, *disconnected_excel*, and *non_centralized_data* highlights the fragmentation of digital infrastructure, resulting in inefficient, multi-layered validation processes and increased risk of error. Simultaneously, organizational misalignment—captured through *silo_behavior* and *multi_level_reporting*—introduces both horizontal and vertical fragmentation, creating coordination complexity and information distortion across reporting layers. These challenges are further reinforced by a compliance-driven mindset (*low_awareness*, *superficial_template_use*), where ESG practices are perceived as administrative obligations rather than strategic initiatives, leading to superficial execution and low data quality.

The cumulative effect of these interrelated gaps is reflected in the outcome dimension, where ESG performance targets are consistently unmet, and data reliability remains compromised. Codes such as *target_gap_125* and *fatality_impact*indicate that operational disruptions directly affect ESG performance outcomes, while *inconsistent_data*, *repeated_revision*, and *undetected_errors* demonstrate that ESG reporting systems lack reliability and robustness. Importantly, these findings reveal that ESG performance gaps are not primarily driven by governance deficiencies, but by systemic failures in translating governance into operational capability.

The findings suggest a clear causal mechanism: strong governance provides structural direction, but fragmented KM and OL capabilities prevent effective execution, leading to inconsistent practices and unreliable performance outcomes. This extends existing literature by demonstrating that knowledge management functions as a critical mediating mechanism between organizational learning and ESG performance. Without formalized knowledge processes, learning remains localized and cannot be scaled, thereby limiting the organization's ability to achieve sustainable and consistent ESG performance.

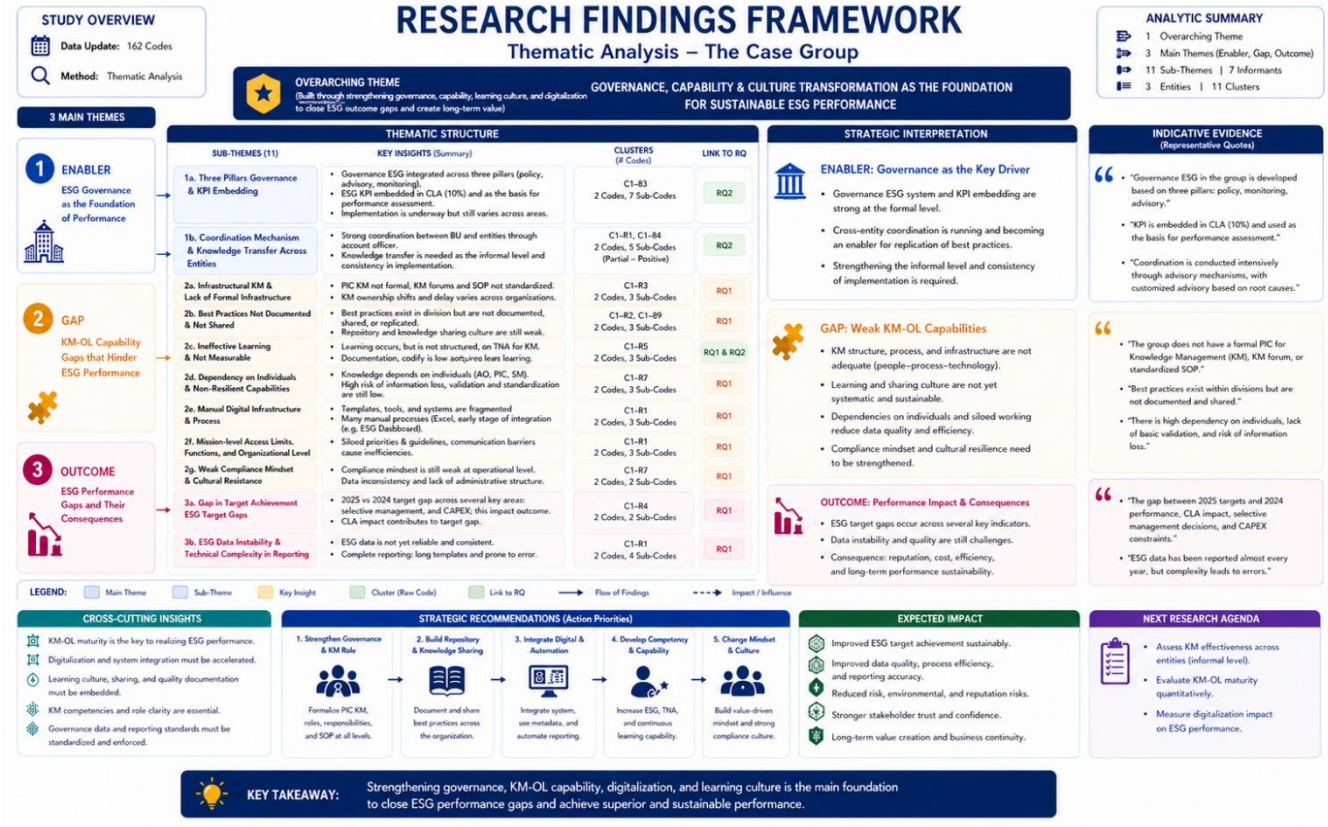

Figure 5. Research Finding Framework

Based on Figure 5, the findings of this study reveal a critical governance execution paradox, where strong ESG governance structures coexist with persistent performance gaps. While the organization has successfully established formal governance mechanisms such as KPI embedding, structured ESG forums, and a three-pillar sustainability framework, these structures do not automatically translate into effective operational outcomes. This indicates that governance by itself is not enough to deliver performance without adequate KM and OL capabilities. This result is consistent with earlier findings that the performance of organizations relies not only on how they are structured but also on their ability to mobilize and utilize knowledge effectively [9], [16].

Predominantly, this study highlights the major mediating role of knowledge management between organizational learning and ESG performance. Formal KM infrastructures, such as the existence of standard processes across entities, clear ownership to ensure consistency, and structured knowledge repositories, are lacking, leading to endemic fragmented flows of knowledge; thus restricting an organization's ability to scale its learning. Learning activities do occur, but they remain, in the main, tacit, informal, and unmeasured, which blocks the transformation of individual learning into capability within an organisation. This reinforces the argument that learning without systematic knowledge management processes, which would lead to codifying, transferring, and applying knowledge, is not sufficient.

Moreover, the study points out that organizational misalignment and structure complexity are just reinforcement factors of inefficiency. The presence of horizontal silos across business units and vertical fragmentation across reporting levels (i.e., branch–head office–holding–group) only strengthens coordination complexity and creates risks for information distortion. This finding contributes to the literature by highlighting that misalignment not only represents a coordination issue but also, and as importantly, at an inter-level, a structural barrier that deters the flow of knowledge and learning integration throughout the organization. Consequently, well-designed governance mechanisms may lack reliability where there is misalignment in an organization.

Another key finding is how digital fragmentation and system design limitations have played a role in ESG performance gaps. The heavy dependence on isolating Excel-based systems, multi-layer manual validation processes, and the lack of a single source of clean and complete data make the process inefficient while increasing the chances that problems exist without detection. Significantly, the research reveals that data unreliability in relation to ESG is attributable not only to human error but also to the complexities surrounding a tool and its curtailments. This expands the current understanding of ESG deployment by addressing data infrastructure and system design as core elements of organizational functionality.

Next to structural and technical aspects, the results also stress the relevance of behavioral and cultural spheres, not least the widespread mindset of compliance at the operational level. Your ESG is seen mainly as an administrative or compliance box-ticking task rather than a strategic imperative, which results in your organization following superficial reporting processes accompanied by inferior quality of data. This indicates that it will take both structured technical improvements as well as changes in the way organizations think and the consciousness of their people to drive improved ESG performance.

The study, however, highlights a number of strategies for improvement, despite these challenges. It also shows evidence of existing strengths that could be further developed with some foundational capabilities like strong governance structures, emerging learning practices, and examples of successful small-scale interventions (e.g., transitions from informal to documented communications). What the above findings convey is that transformative change is not a prerequisite for improvement – even incidental changes in implementation strategy, rather than magnitude, can yield gains, especially regarding formalizing KM processes, enhancing data systems, and orthodonting organizational alignment.

V. CONCLUSION

Our findings suggest that the underlying drivers of the ESG-performance gap within the Case Group reflect internal capabilities more than weaknesses in governance design. The organization has developed ESG governance with a good foundation, but the structured frameworks and KPI embedding are not being translated through execution or consistent operational performance end-to-end by coordinated oversight. The analysis reveals the core systemic causes of this gap, such as a lack of structured KM infrastructure, fragmented OL processes, high dependency on individuals, and misalignment across entities and reporting levels. This is further exacerbated by broken digital systems and a compliance-focused approach to reporting, leading to misaligned ESG practices and inaccurate data across the organization.

The results demonstrate that knowledge management (KM) acts as a fundamental mediating mechanism, transmitting the effects of organizational learning (OL) on ESG performance outcomes. Without formal processes for knowledge capture, codification, transfer, and application, learning continues to be largely tacit & fragmented (limited in scale/effectivity) across organizational entities. This condition limits the organization from translating what it learned into an improvement of performance at scale. However, the relatively mature governance structures and nascent learning practices point towards some basic enablers that could be built upon or leveraged to drive specific capability building. Thus, improving ESG performance

necessitates the establishment of KM systems, a deeper integration vertically and horizontally across the organization, and a culture that values learning. These findings emphasize that while governance design is often positioned as the primary determinant of sustainable ESG performance, effective alignment among organizational capabilities, governance structures, and knowledge processes is necessary for improving ongoing ESG outcomes over time.

Interest Conflicts

The author declares that there are no conflicts of interest regarding the publication of this study. The research was conducted independently, and no financial, commercial, or personal relationships have influenced the results, analysis, or interpretation of the findings.

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