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ORIGINAL PAPER

# Structuring Private Sustainability Governance: Combining Rule-Based and Goal-Based Mechanisms

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## Abstract

This study investigates the structuring of private sustainability governance as a critical mechanism for facilitating sustainability transitions. Drawing on 33 semi-structured interviews with manufacturing firms, regulatory bodies, policy associations, auditing firms, and management consultancies, the study examines how firms navigate increasing external governance pressures, including regulatory ambiguity, compliance demands, market expectations, and stakeholder accountability, while simultaneously managing internal governance through organizational restructuring, sustainable performance measurement, data management, human resources, and incentive structures. The findings highlight the importance of integrating rule-based and goal-based private sustainability governance through two key mechanisms: shaping external governance by aligning with and influencing regulatory standards, and adapting internal governance to embed sustainability into core business operations. This study develops a hybrid governance framework that demonstrates how firms leverage both mechanisms in parallel, revealing the tensions inherent in balancing regulatory compliance with strategic sustainability ambitions. We make a further contribution by underscoring the role of ethical change management in fostering transparency, accountability, and proactive sustainability commitments. By examining governance structures in combination with ethical considerations, the study advances the discourse on private sustainability governance, offering both theoretical insights and practical implications for firms navigating the transition toward sustainable systems.

**Keywords** Private sustainability governance · Sustainable systems · Rule-based governance · Goal-based governance

## Introduction

In recent years, the escalating urgency of sustainability transitions has compelled firms to fundamentally re-evaluate their governance structures amid a rapidly evolving regulatory and market landscape (Dai et al., 2021). While previous studies have extensively scrutinized externally imposed, rule-based governance mechanisms, such as those dictated by the Corporate Sustainability Reporting Directive (CSRD) and the EU Taxonomy, as well as internally oriented, goal-based approaches that drive firms to set ambitious targets, a critical gap remains in reconciling these divergent external and internal logics (Blackburn et al., 2023; Hermundsdottir & Aspelund, 2021; Hina et al., 2022). For instance, regulatory frameworks may require manufacturing firms to comply with stringent reporting standards and obtain specific

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non-binding ESG certifications (e.g., ISO 14001, ISO 26000, Cradle to Cradle [C2C], see Ünal & Shao, 2019). However, these same firms have also launched innovative internal initiatives that surpass mere compliance to various levels of regulations by pursuing aspirational goals in areas such as carbon neutrality and sustainable sourcing (Auld et al., 2008; Wittmayer et al., 2017). Overall, firms navigate an environmental, social, and governance "ESG void" characterized by significant regulatory uncertainty and the necessity to oversee ethical change management (Payne et al., 2023; Stolowy & Paugam, 2018; Wickert et al., 2021). In the absence of clear and consistent regulatory frameworks, organizations must establish novel governance mechanisms to align with ESG expectations, while mitigating ethical and operational risks.

The literature often defines such independently established and enforced rules or standards to promote sustainable practices as private sustainability governance (Grabs, 2020; Grabs & Garrett, 2023). More importantly, private sustainability governance operates under a dual imperative: firms must adapt to the complexities of externally driven accountability, both binding and non-binding, marked by evolving legal requirements and standardization efforts. At the same time, they must cultivate internal transformative capabilities to navigate ethical and sustainability challenges (Bocken & Konietzko, 2022; Kern et al., 2019). Thus, private sustainability governance emerges as a critical mechanism for firms operating in an "ESG void," bridging the gap between external compliance pressures and internal strategic adaptation. This challenge is further exemplified by the interwoven nature of organizational transformation efforts aimed at embedding sustainability within core operations and the dynamic pressures of stakeholder engagement and market competition (Kalfagianni, 2014; Klein et al., 2019). For instance, certain manufacturing firms have simultaneously established dedicated sustainability roles and implemented advanced data management systems to drive continuous improvement, while actively engaging in industry alliances to influence regulatory standardization (Grabs & Garrett, 2023; Kern et al., 2019). These practices are not isolated but are mutually reinforcing, demonstrating that external compliance and internal innovation function as interconnected elements within a holistic framework of private sustainability governance (Grabs & Garrett, 2023).

Organizational adaptation has been studied for several decades while guidance through these theories is limited (Howard-Grenville & Lahneman, 2021; Sarta et al., 2021). Against this backdrop, the present study aims to address the research question: How do firms structure private sustainability governance by combining goal-based and rule-based mechanisms at the firm level? To address this challenge, we conduct interviews with Central European manufacturing firms to explore their transition toward sustainable systems and the interplay between their internal and external governance structures. Adopting an interview-based research design, rather than focusing on a single case and its specific mechanisms, enables a broader, more comprehensive understanding of sustainability governance across diverse organizational contexts. Building on these insights, we develop a hybrid governance framework that integrates the structured accountability imposed by external pressures with the transformative potential of internal goal setting (Greenwood & Freeman, 2017; Scordato & Gulbrandsen, 2024). This framework provides a holistic approach for firms seeking to navigate the complex and often conflicting demands of sustainability transitions. It offers both theoretical clarity and practical guidance to align governance structures with long-term sustainability objectives.

## Private Sustainability Governance

Private sustainability governance has emerged as an increasingly prominent area of inquiry as firms navigate environmental and social challenges within a rapidly evolving regulatory and market context. Research has established that private governance mechanisms can function as either complements to or substitutes for traditional state regulation (Falkner, 2003; Grabs, 2020; Grabs & Garrett, 2023). A central distinction in this literature lies between rule-based and goal-based governance approaches, with the former encompassing certifications or alliances and the latter driven by objective-based sustainable performance. Furthermore, policy-making involves ethical tensions, as defining problems and measuring success can lead to contradictions and, therefore, policy paradoxes. Policymakers use these to justify diverse outcomes, making it crucial to navigate them ethically (Wickert et al., 2021). Effective governance is essential for fostering sustainable systems and ensuring that firms uphold their societal responsibilities by generating positive value for society (Greenwood & Freeman, 2017).

### Rule-Based Private Sustainability Governance

Rule-based private sustainability governance is primarily driven by external pressures and the necessity to comply with standardized regulations. Firms encounter a range of regulatory demands, including mandatory reporting, evolving legal requirements, and established certification schemes, all aimed at ensuring transparency, accountability, and a common benchmark for assessing sustainability performance (Dietz et al., 2022). This governance approach has been reinforced by broader global policy trends, wherein incremental regulatory measures seek to balance environmental objectives with economic stability (e.g., Busch & Bain, 2004; Flachsland et al., 2009; Fransen & Kolk, 2007;

Grubb & Neuhoff, 2006; Jaffe et al., 2005). While the prescriptive nature of rule-based systems provides clarity and legitimacy through externally defined guidelines, it has been criticized for its rigidity, which may constrain a firm's ability to tailor sustainability initiatives to its specific operational context, thereby limiting innovation. Rule-based private sustainability governance frequently involves setting ambitious commitments and positioning firms as leaders in sustainability transitions through visible certifications (such as Fairtrade), fostering trust, and reinforcing ethical conduct and transparency (Grabs & Garrett, 2023; Mungai et al., 2020).

### Goal-Based Private Sustainability Governance

Goal-based private sustainability governance prioritizes firms' internal commitment to establishing and achieving ambitious sustainability targets that exceed regulatory requirements. Within this framework, firms embed sustainability into their broader strategic vision by setting self-imposed objectives—such as achieving zero deforestation or net-zero emissions—that function as benchmarks for continuous progress toward sustainable systems (Grabs & Garrett, 2023). This internally driven approach is supported by adaptive performance measurement systems and data management infrastructures, enabling firms to track progress and adjust strategies in response to emerging challenges (e.g., Patagonia). Legitimacy and success in goal-based governance are increasingly evaluated on the ability of firms to meet these self-defined targets rather than merely complying with externally mandated standards (Bjørn et al., 2021). To enhance their ethical commitments, firms proactively refine their goals while simultaneously shaping their external environment through considerable efforts to promote ethical behavior (Kaler, 2000; Rindova & Courtney, 2020; Sudhir & Murthy, 2001). While this model offers the flexibility to tailor sustainability initiatives to specific operational and local contexts, it also presents challenges in seeking to ensure comparability and accountability across organizations.

### Combining Rule-Based and Goal-Based Private Sustainability Governance

Recent theoretical advances challenge the binary distinction between rule-based and goal-based governance, highlighting the emergence of hybrid frameworks that integrate external compliance with internal ambition. Instead of treating these approaches as mutually exclusive, many firms now adopt governance models that leverage the structure of regulatory compliance to ensure accountability while simultaneously pursuing internally driven sustainability targets that foster strategic innovation and continuous performance enhancement. This synthesis reflects a dynamic interplay between outward-facing regulatory obligations and inward-looking organizational transformation (Benischke et al., 2025). Externally imposed rules not only provide firms with a standardized baseline for sustainability performance but also serve as a catalyst for developing internal mechanisms that extend sustainability commitments throughout the value chain, influencing suppliers, business partners, and regulatory actors (Eberlein et al., 2014; Falkner, 2003; Scherer & Palazzo, 2011).

The literature further emphasizes that private sustainability governance is frequently manifested as self-regulation, requiring firms to navigate the balance between achieving internally defined objectives and adhering to collectively established standards (Bowen et al., 2018; Grabs & Garrett, 2023). In this context, firms that successfully integrate rule-based and goal-based governance structures can enhance their credibility by demonstrating both compliance with regulatory frameworks and a proactive commitment to sustainability transformation. However, this dual approach also presents challenges, particularly in harmonizing the rigidity of external standards with the adaptability of firm-specific initiatives. While rule-based mechanisms offer transparency and comparability, they may constrain a firm's ability to tailor sustainability efforts to its unique operational context (Oya et al., 2018). Conversely, goal-based governance fosters innovation and responsiveness but complicates accountability and cross-firm comparability (Grabs & Garrett, 2023). Beyond these considerations, the evolution toward hybrid governance models carries certain ethical implications (Payne et al., 2023). The integration of goal-based and rule-based governance into ethical change management frameworks (Payne et al., 2023) signifies a broader shift in corporate behavior. It compels firms not only to comply with legal requirements but to actively shape and exceed them by embedding ethical considerations into their core strategies and decision-making processes (Arjoon, 2005; Borland et al., 2016). This transition underscores the ethical dimension of sustainability governance, reinforcing the role of businesses as stewards of societal well-being rather than mere market participants (Hockerts & Searcy, 2023; Islam & Greenwood, 2021). Thus, as firms navigate an increasingly complex sustainability landscape characterized as an "ESG void," the convergence of rule-based and goal-based governance represents both an operational necessity and an ethical imperative, fostering accountability, strategic flexibility, and long-term societal impact.

## Methodology

Research on the role of governance in driving transitions toward sustainable systems is expanding quickly and gaining traction (e.g., Howard et al., 2019; Murray et al., 2017).

However, research on implementation practice and theoretical development is scarce. To fill this gap, our study aims to understand the sustainability governance structures of focal manufacturing firms headquartered in central Europe and their shaping and adapting mechanisms. Using a qualitative research design, 33 semi-structured interviews were conducted with different firms of various sizes to explore their governance structures. Interviewees ranged from sustainability managers to C-level executives, covering a broad spectrum of perspectives. The data were analyzed using the Gioia method (Gioia et al., 2013), identifying key themes and patterns to derive a hybrid governance framework stimulated by both rule-based and goal-based mechanisms from qualitative interview data (Gehman et al., 2018). The study's robust approach aims to comprehensively understand the transition toward sustainable systems.

We conducted semi-structured interviews to determine how their shaping and adapting mechanisms navigate the transition toward sustainable systems. Leveraging an interview study approach—rather than focusing on a single case and its specific mechanisms—allowed us to gain a holistic overview of the multifaceted governance structure of a sustainability transition and its impact on firm-level practices in the transition toward sustainable systems driven by ethical considerations (e.g., interactions, influences, behaviors, and cognitions). Semi-structured interviews allowed us to ask specific questions about the development of governance structures and, at the same time, retain the flexibility to more deeply explore the specific influences they face (e.g., CSRD). The interviews were subsequently analyzed using the Gioia method (Gioia et al., 2013). To extend our knowledge of the firms in preparation for the interviews, we read their annual and sustainability reports where available.

This is an appropriate approach for several reasons. First, the manufacturing industry in Europe is traditionally a highly competitive and regulated sector with numerous suppliers, business partners, and external parties. Second, the industry is well established, allowing us to observe modest changes in strategy and behavior and compare them with past states. Interestingly, the CSRD announcement is a landmark that has stimulated the entire contextual business environment, fostering commercial dynamics and driving firms in new directions. Third, the industry is well documented and accessible.

## Context and Sampling

### Context

Central Europe is well suited to this study due to its competitive environment, customer base, and high market density. It is a leading region for sustainable accounting (i.e., internal governance). Moreover, Europe excels in climate legislation, with new and stricter rules for reporting (e.g., CSRD), taxes, and bans on environmental practices (i.e., external governance). For these reasons, we targeted Europe to select our interview participants. However, a few interviews were conducted outside central Europe to provide perspective and evaluate regional differences. The countries represented in the study include Germany, Switzerland, Ireland, Denmark, the United Kingdom, Belgium, Sweden, and the United States.

### Sampling

In response, to examine our research question, we conducted a large-scale interview approach centered on focal manufacturing firms primarily headquartered in central Europe with specific reference to their external governance (i.e., beyond the firm level) and internal governance (i.e., at the firm level) structures (Fig. 1). Our interview samples concentrated on focal manufacturing firms, regulatory bodies, policy associations, auditing firms, and management consulting firms.

In selecting focal manufacturing firms, we focused on firms in the premium segment that intend to transition toward a sustainable system, screening their websites and reports for relevant initiatives such as waste management, energy efficiency, and recycling.

Given our interest in rule-based governance mechanisms, we expanded our sampling to include firms beyond the firm level of our focal manufacturing firms. First, regulatory bodies were identified as relevant partners in stimulating and pressuring the manufacturing business environment (e.g., CSRD) toward sustainability transitions. Second, we interviewed policy-shaping industry associations that were concerned with developing industry standards and policy recommendations. Finally, we interviewed auditing and management consulting firms providing regular guidance on environmental practices and reporting, working with manufacturers to balance human resource and capabilities shortages and develop customized solutions. Thus, we identified four relevant groups of external governance partners outside the focal manufacturing firms and ended our sampling once the sustainability governance structures and dimensions were consistent.

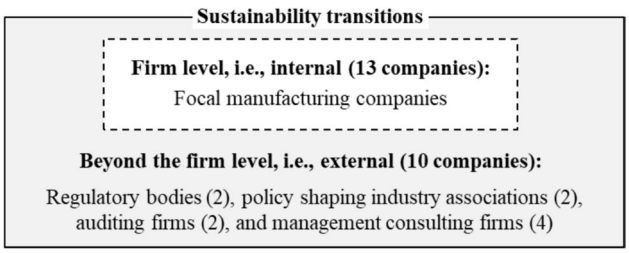


**Fig. 1** External and internal sustainability transitions

Although we cannot provide longitudinal insights for a single firm, this research design allows us to examine private sustainability governance structures across multiple firms, facilitating comparisons and contrasts between focal manufacturers and firms beyond the focal manufacturing level. In our study, firms were explicitly limited to these groups due to either their industry experience or their vast industry knowledge. In order to create a robust database, we were able to test our findings, put statements into perspective, and acquire cross-sector information with the aid of consultants. We employed methods such as providing respondents with a report on the research and cross-checking data with qualified peers (Glick et al., 1990) to mitigate retrospective bias in the interviews (Golden, 1992; Huber & Power, 1985). In selecting interview partners, our study deliberately focused on diverse, large firms ranging in size from 700 to 415,000 employees, diverse market environments such as B2B and B2C, and different firm types, as in the case of public and unlisted firms. Large firms were chosen so that we could investigate the complexities of sustainability governance and understand the multifaceted structure of sustainability transitions within and outside such large organizations. As a result, the study draws on a rich database due to the diversity of nations, firm sizes, firm types, and market environments.

Furthermore, we chose to interview different firm functions to gain more holistic and generalizable insights. We carefully considered what positions respondents should take to mitigate subject bias (Eisenhardt & Graebner, 2007) and to ensure that firm roles and functions covered a broad range of perspectives (Eisenhardt & Bourgeois, 1988). The aim was to provide a balanced dataset on the structuring of private sustainability governance in order to navigate the transition toward sustainable systems in focal manufacturing firms. By interviewing sustainability managers from individual areas up to the head of sustainability and C-level, it was possible to create a dependable database with strategic insights into formal and informal rules and procedures. Different specializations among the sustainability interviewees at the firm level included EU taxonomy, reporting, finance, trade, and procurement. Therefore, this approach gave us a comprehensive understanding of the topic across different capabilities and backgrounds, including their effects on decision making and individual behaviors. All levels were able to provide insights, given that navigating transitions toward sustainable systems impacts the entire firm and requires a holistic analysis.

## Data Collection

In total, we conducted 33 interviews with 23 firms and 30 interviewees over three rounds in the first half of 2023, as shown in Table 1. The first round comprised 23 interviews with 19 interviewees, focusing on focal manufacturing firms to gain a holistic perspective on internal governance structures and to understand their external influences. The second round of seven interviews was conducted with eight interviewees, mainly beyond the firm level of focal manufacturing firms, to examine external governance structures and influences on firm-level structures. The final round, used to validate our findings, consisted of three interviews with three new interviewees who challenged the accuracy of our interpretation and visual data representation. In order to establish a robust synthesis of practice and research over the three rounds, different interviewees were included in the interviews. Coded quotations from interviewees who participated in more than one interview are reported separately in the "quotations coded" column in Table 1. The interviews were carefully documented using both audio recording and transcription.

To further our awareness of the structuring of the private sustainability governance experienced in practice, one author conducted two firm site visits to machine manufacturers (240 min in total), participated in two industry conferences (720 min in total), and three CE-specific networking activities (270 min in total), which were added to the interview data. The site visits enabled us to observe and discuss difficulties at the firm level and to gain insights into the strategy and the risk department's understanding of governing sustainability-related transition practices. For example, we were able to discover how formal and informal rules and procedures influence sustainable decision making, which in turn influences employees throughout the organization to adopt sustainable and ethical practices. These discussions were used to fine tune the interview data format. Thus, informal exchanges and on-site meetings serve a dual purpose (Rowley, 2002). First, the observational approach facilitated the triangulation of interview and archival data from 46 sources, thereby enhancing data accuracy. Second, direct participation promoted trust building, interviewee identification, and interview facilitation. The conferences and related events served as a forum for presenting early trends and discussing future challenges. We investigated archival data, including annual and sustainability reports (14 documents), public records and reports (6 documents), and firm and official websites (23 homepages), to compensate for the information lacking in the interviews and observations. These supplementary insights provided further support in understanding the origins of sustainability-related governance complexities and in contextualizing the focal manufacturing firms' private sustainability governance.

## Analysis, Validity, and Reliability

We conducted a Gioia analysis based on the 33 semi-structured interviews to organize the knowledge and obtain our findings. The Gioia approach is well suited to the study of

**Table 1** Interview data

| No | Internal or external | Description | Market | Role of interviewee | Country | Number of employees | Firm age | Quotations coded | Interview length [min] |
|---|---|---|---|---|---|---|---|---|---|
| First round interviews | | | | | | | | | |
| 1 | Internal | Manufacturing firm | B2B | Corporate sustainability manager (1,2) | Germany | 16′554 | 1923 | 11 + 7 | 58 + 48 |
| 2 | Internal | Manufacturing firm | B2B, B2C | Head of EU taxonomy (1,2) | Germany | 311′000 | 1847 | 8 + 5 | 30 + 30 |
| 3 | Internal | Manufacturing firm | B2C | Board member & professor (1,1) | Germany | 90′640 | 1909 | 10 | 39 |
| 4 | Internal | Manufacturing firm | B2B | Senior manager of sustainability and EHS (1,2) | Germany | 157′549 | 1915 | 8 + 2 | 35 + 24 |
| 5 | Internal | Manufacturing firm | B2B | Sustainability and procurement manager (1,1) | Germany | 35′375 | 1846 | 7 | 45 |
| 6 | Internal | Manufacturing firm | B2B | Operations manager (1,1) | Ireland | 72′327 | 1879 | 5 | 30 |
| 7 | External | Policy shaping association | n/a | Center director of accounting and environmental management (1,1) | United States | n/a | n/a | 6 | 60 |
| 8 | Internal | Manufacturing firm | B2B | Senior manager corporate sustainability (1,1) | Germany | 17′800 | 1896 | 7 | 30 |
| 9 | External | Management consulting | B2B | Sustainability consultant (1,1) | Germany | n/a | 2020 | 8 | 55 |
| 10 | Internal | Manufacturing firm | B2B, B2C | Sustainability manager (1,2) | Germany | 5′600 | 1948 | 7 + 4 | 51 + 44 |
| 11 | Internal | Manufacturing firm | B2B | Head of sustainability (1,3) | Germany | 35′375 | 1846 | 11 + 6 + 0 | 45 + 41 + 32 |
| 12 | Internal | Manufacturing firm | B2C | Corporate strategy sustainable finance (1,1) | Germany | 118′909 | 1916 | 7 | 33 |
| 13 | Internal | Manufacturing firm | B2B | Vice president finance; Global trade manager; Senior advisor industrial cooperation (3,1) | Switzerland | 110′000 | 1988 | 5 | 60 |
| 14 | External | Management consulting | B2B | Senior consultant sustainability strategy & ESG; Manager sustainability (2,2) | Germany | 850 | 1994 | 12 + 5 | 51 + 37 |
| 15 | Internal | Manufacturing firm | B2B | Group sustainability reporting manager (1,1) | Switzerland | 110′000 | 1988 | 1 | 55 |
| 16 | External | Management consulting | B2B | Consultant circularity (1,1) | United States | 38′000 | 1926 | 8 | 56 |
| Second round interviews | | | | | | | | | |
| 17 | Internal | Manufacturing firm | B2B | Sustainability reporting analyst (1,1) | Switzerland | 12′480 | 1860 | 4 | 50 |
| 18 | External | Regulatory body | B2B, B2C | Head of sustainability (1,1) | Germany | 700 | 1861 | 2 | 42 |

**Table 1** (continued)

| No | Internal or external | Description | Market | Role of interviewee | Country | Number of employees | Firm age | Quotations coded | Interview length [min] |
|---|---|---|---|---|---|---|---|---|---|
| 19 | External | Auditing firm | B2B | Head of accounting and process; Head of risk and compliance (2,1) | United Kingdom | 236′000 | 1986 | 1 | 40 |
| 20 | External | Auditing firm | B2B | Partner risk and compliance (1,1) | United Kingdom | 236′000 | 1986 | 2 | 54 |
| 21 | External | Management consulting | B2B | Manager decarbonization and sustainability (1,1) | United States | 38′000 | 1926 | 3 | 52 |
| 22 | External | Management consulting | B2B | Head of green transformation (1,1) | United Kingdom | 415′000 | 1845 | 1 | 46 |
| 23 | Internal | Manufacturing firm | B2B, B2C | Vice president sustainability (1,1) | Denmark | 32′000 | 1982 | 2 | 23 |
| Third round interviews | | | | | | | | | |
| 24 | External | Policy shaping association | n/a | Project manager and academic advisor (1,1) | Sweden | n/a | n/a | – | 51 |
| 25 | External | Regulatory body | n/a | Head of unit (1,1) | Belgium | n/a | n/a | 1** | 46 |
| 26 | External | Management consulting | B2B | Partner sustainability (1,1) | United States | 22′000 | 1963 | – | 35 |

Annual and sustainability reports (14 documents), public records and reports (six documents), firm and official websites (26 homepages)

Two site visits to machine manufacturers (240 min), two industry conferences (720 min), and three CE-specific networking activities (270 min)

Total interviews: 33 interviews; Total interview length: 23 h, 48; Total archival data: 46 sources and 20 h, 30 min; Total quotations codes: 166

Further notes on the columns in the interview data table: Role of interviewee: The numbers in brackets (*x*, *y*) denote x respondents who participated in y interviews. For example, if the column reads (2,1), it denotes that two respondents were interviewed in one interview session; Quotations coded: **research content emerged during the third round of interviews; *n/a* not applicable

qualitative data. It allows for a structured and systematic evaluation to help us fully comprehend the subject and the underlying ideas (Gioia et al., 2013). Initially, the interviews were open coded. We used microanalysis to go through each interview transcript line by line and extract significant first-order quotations. To decide which quotations to use in this paper, we graded them according to their importance. First-order quotations were initially graded and then collected into higher-order, abstract nodes to create first-order dimensions. The interviewees' words were preserved throughout the procedure.

In the second step, parallels among the first-order dimensions were identified. Here, each dimension was iteratively clustered according to a pre-existing or newly formed cluster. Next, we examined each cluster and created descriptions. New dimensions were developed using these descriptions. We were able to obtain disconnected second-order dimensions using this technique.

Finally, to investigate the subject on an abstract level, we sorted the second-order dimensions and consolidated them into four aggregated dimensions. In conclusion, our study began with 166 coded quotations. Then, 22 first-order codes were created from the resulting first-order quotations. These were subsequently grouped into 9 s-order themes and finally into three aggregate dimensions (Fig. 2). We used the topic's aggregated dimensions of "increasing external governance pressure," "managing internal governance," and "structuring private sustainability governance" in the following sections to determine the findings. One of the researchers was deliberately excluded from the previous analysis steps to later check the consolidation of quotations into the three aggregated dimensions. In this way, it was possible to remove

bias from the analysis. The results were unchanged after this final challenge.

## Findings

This section examines the pivotal sustainability governance structures that manufacturing firms grapple with as they navigate the transition toward sustainable systems. We identify external and internal influences and their interconnections, with interviewees emphasizing their symbiosis. Our analysis outlines external governance (e.g., regulations, markets, reporting), internal governance (e.g., restructuring, data, incentives), and private sustainability governance, balancing the shaping of external demands with adaptation of internal structures toward sustainable systems.

### Increasing External Governance Pressure

In pursuing sustainable systems, external sustainability pressure plays an expanding role. Evolving regulations compel firms to align strategies with sustainability goals, while strict reporting and auditing requirements necessitate transparency and adherence to benchmarks. Stakeholder demands call for further shaping of reporting and sustainability transitions. External governance pressure holds firms accountable and connects them to the broader ecosystem, driving collective progress toward sustainability.

#### Growing Regulatory Complexity and Compliance

**Resource and Compliance Requirements** Increasing regulatory guidance profoundly influences the integration of sustainability practices within firms. Beyond the explicit demands of consumers and the ethical imperatives of firms, the rigor of regulatory guidance is an integral force in this narrative. Such guidance seamlessly weaves sustainability into the operational and strategic fabric of firms.

Regulatory frameworks entail significant resource requirements yet, at the same time, they open up opportunities for competitive dynamics. These frameworks are instrumental in nurturing corporate evolution and enhancing transparency in the business ecosystem. As elucidated by a group sustainability reporting manager: "The primary focus of regulators in the EU is on structuring the capital market and depositing the capital market with a certain degree of

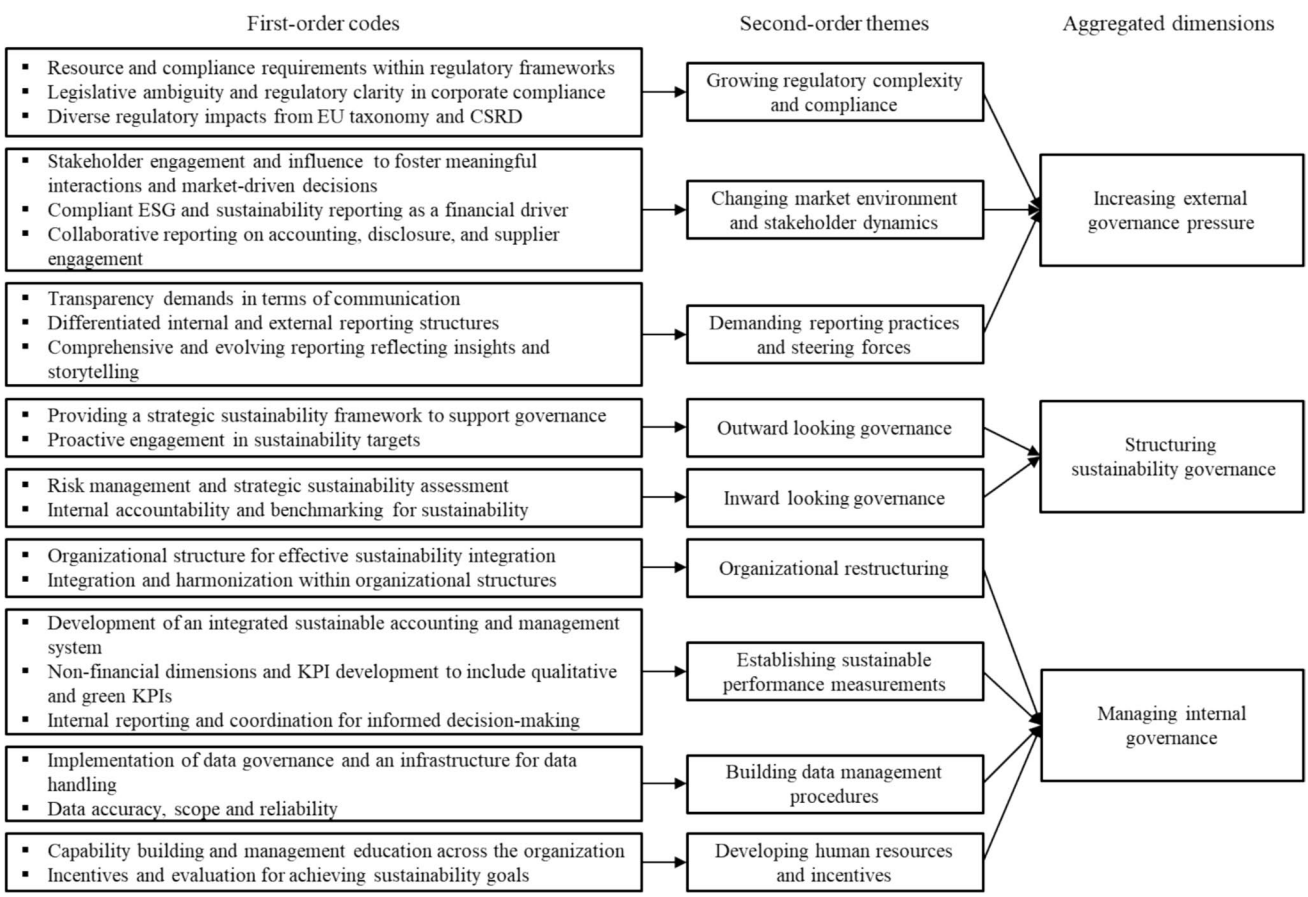


**Fig. 2** Data structure

transparency through obligations" (Table A1—quotation A3).

Nevertheless, the prevailing regulatory environment is marked by significant ambiguity in legal frameworks, intensified by persistent standardization endeavors. This complexity in regulatory dynamics leads to a feeling of uncertainty among firms, creating doubts about the impact and the necessary course of future action. This sentiment of uncertainty is aptly captured by a sustainability manager who remarked: "(…) we are confronted with an immense amount of bureaucracy, and the meaning and purpose has actually passed by so far" (Table A1—quotation A1).

**Legislative Ambiguity and Clarity** The fluidity and ongoing development of legislation create an inherent ambiguity, resulting in lack of clarity and scope for various interpretations. The European Union's (EU) legislation stands out in ensuring enforceability, distinguishing it from other legal systems, such as the United States. This distinction is aptly highlighted by an EU head of unit: "The EU has been a lot more proactive, when it comes to mandating the requirements for specific record reporting, than the United States. In fact, till today, the United States does not mandate any reporting" (Table A1—quotation A18).

**Diverse Regulatory Impacts** Regulatory requirements for external reporting and auditing are pivotal in sculpting business strategies and presenting diverse standards and expectations across countries, firm sizes, and types. A senior manager of corporate sustainability captured the heterogeneous nature of these requirements: "There is no uniform reporting structure, no uniform system where all our [reporting requirements] are included" (Table A1—quotation A25). Specific regulatory mandates, such as the EU Taxonomy and the Corporate Sustainability Reporting Directive (CSRD), exert distinct impacts on firms, influencing their operational and financial disclosures.

The introduction of the CSRD is poised to significantly increase the number of key performance indicators (KPIs) that firms need to monitor. This is highlighted by a senior sustainability consultant's observation: "10 to 20 KPIs, which may be reported or reviewed today. That will grow to over 100 among those that fall under the CSRD" (Table A1—quotation A33). Yet, sustainability auditing is not without its challenges. It emerges as a contested domain marked by diverse perspectives and interpretations. The constraints of resources further complicate the conduct of third-party audits. A corporate sustainability manager conveys this challenge, stating: "(…) we don't have the manpower to study concepts for all [suppliers] (…)" (Table A1—quotation A30).

### Changing Market Environment and Stakeholder Dynamics

**Stakeholder engagement and influence** To leverage the reporting framework effectively, it is crucial to foster meaningful interactions and create closer proximity to stakeholders. Effective communication strategies with stakeholders, especially customers, can catalyze business growth and deepen understanding. This view is reiterated by a senior sustainability manager who noted: "(…) they want to satisfy their stakeholders in the end because they are of course also in competition" (Table A1—quotation B3). Here, the emphasis on sustainability orientation is echoed in this firm's approach to stakeholder dialogues: "We conduct a stakeholder dialogue every two years. Dialogue means we invite stakeholders across all dimensions of sustainability to join us. (…)" (Table A1–B2).

However, price remains the major determinant of significance in these dialogues as mirrored in the quotation by a senior consultant: "(…) customers still focus on the price in particular" (Table A1–B8).

**ESG Compliance as a Financial Market Driver** Ignoring sustainability considerations can have detrimental consequences, as elucidated by a head of sustainability: "(…) we must take ourselves to the next level. The approach we have at the moment is no longer enough, due to business relevance and pressure coming from the market" (Table A1—quotation B10). Beyond the ethical imperatives, ESG compliance emerges as a potent financial driver. Thus, participation in sustainability initiatives and audits carries profound implications for business relationships and financial outcomes.

Sustainability reporting, now almost on a par with financial reporting, offers a holistic view of a firm's endeavors and continued viability. It is a dynamic representation constantly adapting to the changing business environment. The use of storytelling techniques enriches these reports, offering a vivid portrayal of a firm's commitment to sustainability. The group sustainability reporting manager, projecting a future where sustainability reporting occupies a pivotal role, stated: "I see sustainability reporting in its entirety on the same level as financial reporting in the future. We are only in the early stages of this" (Table A1—quotation B16).

**Collaborative Reporting** Effective supplier engagement and sophisticated reporting strategies are of vital importance. However, the pressure on firms to disclose their sustainability practices is nuanced, and it varies across tiers of suppliers and their position in the supply chain. This is outlined by a senior manager ESG services who observed: "Companies like Nestlé are more in the spotlight than an unknown supplier, so their sustainability reports are top-notch, and they invest a lot of money in that. They have a lot of pressure from society" (Table A1—quotation B23).

Despite the varying pressures, the ultimate decision on sustainability practices and reporting hinges on the preferences of customers and investors. This sentiment is reinforced by a sustainability supply chain manager who noted: "Of course, I need the OEM and the supply chain when it comes to evaluating the social impact. It only works as a team" (Table A1—quotation B20).

The collaborative nature of sustainability reporting, often co-developed in partnership with external stakeholders, is further highlighted by the head of EU taxonomy, who stated: "External factors [such as stakeholders] (…) strongly influence internal processes and management accounting [for example, firm's bottom line]" (Table A1—quotation B19).

Amid these challenges, supplier engagement is a pivotal area of focus, particularly given the predominance of scope 3 emissions. As highlighted by a quotation from a senior manager ESG services: "Scope 3 accounts for a rough estimate of 92% of a firm's total $CO_2$ footprint. At [firm name], I think it was even over 99%" (Table A1—quotation B28). And it was further elaborated by a corporate sustainability manager: "And scope 3 [emissions] (…) are scattered around the supply chain and the hardest one to really influence" (Table A1—quotation B26).

#### Demanding Reporting Practices and Steering Forces

**Transparency Demands** Transparency has emerged as a cornerstone of successful stakeholder engagement, fostering robust relationships and facilitating effective communication. This is particularly evident in interactions with pivotal stakeholders, such as investors and customers. A reflection of this sentiment is captured in the observation by a corporate sustainability manager that: "(…) a listed firm, has, of course, completely different target groups with co-financing, with investors, who question this critically" (Table A1—quotation C2).

**Differentiated Reporting Structures** Differentiating between external and internal reporting structures is essential. Firms navigate these nuances by aligning their information disclosure practices with both compliance mandates and stakeholder expectations. As a vice president sustainability articulated: "Internally, we report more than externally. Our decision makers make internal reporting much more relevant than external reporting. And our decisions are based on that (…)" (Table A1—quotation C5).

**Comprehensive and Evolving Reporting** However, emerging reporting practices demand storytelling techniques to comprehensively present a firm's ongoing sustainability efforts and long-term viability as outlined by a head of sustainability: "We need to have both – sustainability reports and the financial statements. The sustainability report needs to be available as a narrative to support the numbers in the financial statement" (Table A1—quotation C11).

### Managing Internal Governance

At the strategic level, firms align their mission and vision with internal governance for sustainable systems. This involves restructuring, performance metrics, and data management, alongside developing human resources and sustainability education. However, traditional firms often struggle to fully integrate these capabilities, while transitioning toward sustainable systems.

#### Organizational Restructuring

*Structure for sustainability:* Establishing an organizational structure offers multiple pathways to integrate sustainable practices effectively. Firms can either lean on the traditional top-down approach or opt for a methodology, where sustainable objectives are crafted in the strategy department and subsequently operationalized in a distinct department. This latter approach optimizes internal capacity allocation and promotes strategic alignment, paving the way for a more cohesive restructuring. Yet, the delineation of responsibilities is often hindered due to overlaps among departments, as one board member and professor of accounting and environmental management pointed out: "And the problem is that neither side [accountants and sustainability directors] understands the other, and they each think it's the other person's job" (Table A1—quotation F1).

The emphasis placed on sustainability differs markedly among firms, largely contingent on the ethos of top-level management. As outlined in a quotation by a sustainability consultant: "If I assign it to a CEO, for example, it has more of this strategic focus and influence on the business model. When I hang it up with the CFO, it of course has this reporting character very strong. (…) When I hang it up with the chief legal officer or chief compliance officer, it is of course very much compliant, and it is a fulfillment of a regulatory obligation" (Table A1—quotation F5).

Interestingly, smaller firms often grapple with constraints in driving transformative changes, especially within the context of sustainability. This disparity underscores the intricate relationship between firm size and the depth of restructuring. As a sustainability manager stated: "There is also a head of sustainability for every business unit. That is not always necessarily someone with 100%." (Table A1—quotation F14). However, a vice president treasury explained that: "There wasn't a big shower of new employees who are now taking care of the issue, but it has grown out of a lot of thought, also out of conviction, but also out of insight" (Table A1—quotation F13).

**Organization Integration** The journey toward sustainability depends on two pivotal components: achieving optimal integration and building a robust governance structure, as a vice president of sustainability emphasized: "And the transformation then includes adjustment of the organization and implementation of processes" (Table A1—quotation F21). However, integral to this pursuit is alignment with esteemed frameworks, such as the Global Reporting Initiative (GRI). Additionally, integration and harmonization with other renowned institutions, such as the International Organization for Standardization (ISO), are essential for both strategic orientation and conformance. Yet, it is worth noting that the evolution of sustainability standards and their organizational integration are still nascent. This sentiment is underscored by a senior sustainability consultant's observation: "Unfortunately, this ISO 50001 has developed certain disadvantages due to various revisions. 90% of the time was spent with documentation, 10% with actual operational improvements" (Table A1—quotation F25).

Comparability is also affected by the flexibility that still exists in sustainability data. One interviewee from the corporate strategy and sustainable finance department explained that, like many others, they have put considerable work into their own analyses, which are not necessarily aligned with international standards: "We have developed our own internal framework for this, which today is simply based on ESG, the whole topic of $CO_2$ reporting and $CO_2$ reduction" (Table A1—quotation F26).

### Establishing Sustainable Performance Measurements

**Sustainable Accounting Development** A senior manager corporate sustainability maintained that: "All topics related to data management are ideally covered via accounting" (Table A1—quotation G4). This emphasizes that the development of a credible sustainability accounting system requires accurate data and advanced analytical methods to achieve standardized results while allowing room for errors. A question raised by a sustainability reporting analyst further highlights this situation: "There must be systems there, there must be internal controls. How do I make sure that the data I report is correct?" (Table A1—quotation G3).

**Non-financial Dimensions and KPI Development** With manufacturing firms, the significance of electricity as a key determinant of emissions has come to the forefront, emphasizing its role in environmental concerns. As firms navigate this evolving landscape, they recognize the importance of diverse KPIs covering areas such as $CO_2$ emissions, pricing structures, educational initiatives, and employee diversity. A senior manager of corporate sustainability observed a "clear trend that financial indicators and non-financial indicators will have a similar focus" (Table A1—quotation G6). This is also underlined by a senior manager ESG services, while noting the yet premature quality of $CO_2$ pricing: "(…) $CO_2$ price is the right control measure. (…) but I think we are a little bit too early for that" (Table A1—quotation G15). A sustainability supply chain manager highlighted this evolution, pointing out that: "there is a certain shift away from pure pricing policy to other indicators. It has always been that price was valued higher than quality. And I think that the issue of sustainability will also become significantly more relevant here in the future" (Table A1—quotation G7).

Furthermore, the investment landscape is changing. While a price-oriented view was predominant in the past, there is currently a clear transition to a broader approach that not only takes financial aspects into account but also includes non-financial dimensions, including qualitative criteria. Yet, this development in investment strategies does not overshadow the continuing influence of key determinants, such as the availability of funding and cost-cutting strategies. The vice president of treasury illustrated this blend of traditional and progressive mindsets, explaining: "We finance our suppliers. Now we want to provide a better interest rate to suppliers who have a better ESG rating" (Table A1—quotation G11).

This shift underscores the need to anticipate and incorporate emerging indicators, such as green KPIs, in order to guide firms toward sustainable systems and proactive sustainable progression as a group sustainability reporting manager emphasized in posing these questions: "(…) what are the indicators of the future that don't even exist today? What data do I need for these indicators (…)?" (Table A1—quotation G20).

**Internal Reporting and Coordination** Internal sustainability reporting is increasingly recognized as a pivotal tool for enhanced long-term management. Instead of exclusively focusing on sustainability expertise, there is a rising emphasis on cultivating adept management skills. As an operations manager insightfully noted: "Good and frequent internal sustainability reporting has always been a proxy for just better long-term management. That's what we always say to people, you know, don't try to make a manager into a sustainability expert. Make them into better managers" (Table A1—quotation G25).

Yet, firms are adopting diverse strategies for internal reporting. Some are gravitating toward regular engagements with their boards, such as quarterly meetings, to discuss key sustainability metrics and delineate future directions. This shift is evident in the remarks of the head of sustainability: "So what we do on a regular basis, approximately every 6 to 8 weeks, is data reporting, which just goes in a segment to the board. We are looking at the figures for $CO_2$, energy, water, waste" (Table A1—quotation G22).

Emphasizing the importance of this trend, a vice president treasury elucidated: "This [internal sustainability reporting] is becoming more and more a top priority for the first or second management level" (Table A1—quotation G31). Such consistent and coordinated reporting ensures that the management board, bearing the overarching responsibility, is equipped with solid data to guide its decisions. The transition toward sustainable systems depends on the board members' informed consensus and agile decision-making capabilities.

### Building Data Management Procedures

**Data Governance and Infrastructure** The success of an organizational transition toward sustainability hinges on the data management procedures, complemented by systematic management of databases and sophisticated technological infrastructures. Despite the availability of advanced solutions, many firms still face challenges with data aggregation and resulting accuracy. The development of a central database management system is a complex task due to its heterogeneity. The senior manager corporate sustainability captured this complexity in his remark: "Getting them all into one system is complex, and centralization of data is a big issue" (Table A1—quotation H8).

**Data Accuracy** Addressing this requires a nuanced approach to harmonize data from varying formats, structures, and semantics to obtain meaningful insights as one operations manager pointed out: "(…) they still work surprisingly often in Outlook and Excel when it comes to compiling some data. But there are already extremely good solutions for tools out there" (Table A1—quotation H13). This sentiment concerning the scarcity of proficient tool providers was also emphasized by a senior manager of corporate sustainability, who stated: "The problem is that there are actually limited tool providers on the market at the moment who are sufficiently competent in terms of content to implement this" (Table A1—quotation H11).

Interestingly, the scope 3 domain frequently requires estimation techniques due to the complexity of the data, thus raising concerns about double accounting. This was noted by the sustainability supply chain manager, who stated: "But we want to supplement this secondary data with primary data, in which we replace our largest emitters – that is, 80% of the $CO_2$ volume – with real data" (Table A1—quotation H16). Yet, it is important to note that much of the current data discourse is skewed, concentrating heavily on negative externalities, such as $CO_2$ emissions. In contrast, positive externalities, such as community benefits, remain largely overlooked. A head of sustainability echoed this point: "Currently, there is a focus on negative externalities [for example, $CO_2$ emissions] (…). In the long term, we also need to look at positive externalities [for example, regional or communal impact] (…)" (Table A1—quotation H14).

### Developing Human Resource and Incentives

**Incentives and Evaluation** Ensuring organizational alignment requires the synchronization of incentives with career progression plans. This integration heightens individual motivation and ensures alignment with broader strategic intentions. By incorporating robust evaluation processes, organizations can set clear benchmarks, facilitating the measurement and improvement of progress, promoting a smooth, sustainable transition.

However, in many corporate structures, incentives related to sustainability remain limited in their reach, often extending only to a select group, such as department heads. As a consultancy partner of sustainability articulated: "This is completely new territory for many employees [for example, sales]" (Table A1—quotation I1). This situation underscores the need for a more intentional alignment of managerial motivations with sustainability objectives, which is not currently the reality, as one senior consultant sustainability expressed: "Managers are not yet getting any sustainability-related goals" (Table A1—quotation I18).

**Capability Building and Education** Consequently, building leadership that promotes sustainable objectives requires a level of influence that breaks through silos to unite efforts for change and transition toward sustainable systems. The observation from a sustainability reporting analyst reiterates this shortcoming: "We do not have $CO_2$ targets in the management bonus, and we do not have others. We now want to give such targets to them so that they have to reach a certain percentage. There are certain social targets in the agreements with managers" (Table A1—quotation I15).

The current state of organizations highlights a marked deficiency in domain-specific knowledge. To drive a successful transition, it is essential to strengthen the expertise of employees. As a senior manager ESG services noted: "I think education is a huge point here (…). Many may still lack certain competencies" (Table A1—quotation I10). Furthermore, an educated board and executive leadership team are paramount. The vice president treasury asserted: "I think having a board and an executive leadership team that are educated on sustainability and understand what that means from a business standpoint is really important" (Table A1—quotation I9).

In tandem with education, incentivization emerges as a cornerstone for ingraining sustainable development goals within the corporate culture. The vice president of sustainability summarized the fact that: "We all know in our hearts that people who are working for a living will only work in return for the incentives that are explicit. I think education

helps and is a very important thing in the context of SDGs" (Table A1—quotation I6). However, in this transformation, it is crucial to recognize the limitations faced by employees. As a board member and professor of accounting and environmental management aptly summarized: "And the hardest part of all is when it comes to which goals the individual employee can actually personally shape and influence" (Table A1—quotation I11).

## Structuring Private Sustainability Governance

The transition of firms toward sustainable systems demands a governance structure capable of proactively looking outward and shaping external demands and pressures while simultaneously looking inward and adapting internal structures. Outward-looking governance involves aligning with and influencing regulatory standards to promote sustainable practices, creating competitive advantages. Inward-looking governance focuses on integrating sustainability into business operations, managing and assessing risks, and ensuring continuous improvement through internal accountability and benchmarks.

### Outward Looking Governance

**Strategic Sustainability Framework** In the pursuit of sustainability, firms are required to establish a strategic framework and delineate their desired level of ambition. However, the allure of the competitive advantage, a typical business phenomenon, often results in a tunnel-visioned approach. This approach is principally inclined toward merely fulfilling existing legal obligations and sidelining the broader facets of sustainability. Such a limited perspective can impede the holistic shaping of sustainable practices. The senior manager of sustainability and EHS analytics encapsulates this dynamic by noting: "We are at the very beginning, and no one can be further than the very beginning because the requirements aren't even clear yet" (Table A1—quotation D9).

**Proactive Engagement** The underlying crux of a firm's drive to shape the transition toward sustainability often hinges on a pragmatic cost–benefit analysis. This perspective is in line with the same senior manager who commented: "You just come up with additional costs and then you have to decide whether that's really necessary. Or whether you have the endurance to do it. In the end, it's what's left over that counts" (Table A1—quotation D1).

Yet, firms are committed to shaping their transition toward a sustainable system in the broader business environment. They are pledged to go beyond simply fulfilling legal obligations and to create a competitive advantage within the context of achieving sustainability, as a vice president of sustainability pointed out: "I think that [broad sustainability reporting] definitely gives us a competitive advantage" (Table A1—quotation D12).

### Inward Looking Governance

**Risk Management and Assessment** In their pursuit of sustainable practices, firms are compelled to strategize and implement measures that mitigate inherent business risks, notably issues such as internal cannibalization. Embracing proactive risk management and cascading influence is not just a safeguard but a crucial aspect that relates to managing and capitalizing on opportunities, encompassing areas such as remanufacturing and recycling activities. An essential facet of this approach is the meticulous examination of sustainable outcomes. Incorporating tools such as dashboards for evaluation further accentuates the rigor of this assessment. As the head of sustainability articulated: "We cannot afford not to do it. We must do it. It is business relevant. This means that sustainability is no longer just a nice thing to have" (Table A1—quotation E1).

A firm not working toward sustainable practices does not have any negative consequences to consider currently. However, as regulations tighten and consumer sentiment toward sustainable products becomes more prevalent, firms failing to adapt to this transition may face consequences in the future. A sustainability reporting analyst put it thus: "(…) it [sustainability] is about managing future risk" (Table A1—quotation E5).

**Internal Accountability and Benchmarks** Here, it is essential for firms to enable organizational structures that support sustainable transitions. Consequently, they must optimize internal efforts before committing to external efforts as echoed by a vice president of sustainability: "(…) you often start internally before you go externally" (Table A1—quotation E7). Such a proactive adaptation of internal governance structures ensures that organizational resources are appropriately deployed to leverage the potential for an accountable strategic transition toward sustainable systems. A senior manager corporate sustainability underlined this requirement: "(…) all topics related to sustainability strategies are ideally covered via accounting functions" (Table A1—quotation E12).

## Governing Sustainability Transitions Toward Sustainable Systems

Given our interest in private sustainability governance structures and the transition toward sustainable systems, we iterated between the literature and our findings to develop a theoretical hybrid governance framework that outlines specific governance structures, recognizing the multifaceted

structure of sustainability transitions. First, we propose three different levels of granularity—*increasing external governance pressure*, *structuring private sustainability governance,* and *managing internal governance*—while analyzing contextual characteristics. Thus, our derived hybrid governance framework gives a holistic overview of the diverse governance landscape in the context of sustainability systems. Second, we develop a nuanced understanding of private sustainability governance as being stimulated by both external shaping and internal adapting mechanisms emerging at the individual firm level. Finally, we disaggregate these structures to the individual agency level, emphasizing that firms can create and enforce their own rules to achieve sustainability goals in their supply chains and business networks. Figure 3 illustrates our emerging framework.

The core contribution of our framework resides in two mechanisms stimulating private sustainability governance. This involves (i) setting ambitious commitments and proactively positioning a firm as an agent of positive change, and (ii) driving sustainable practices and fostering trust in sustainability transitions through a commitment to ethical conduct and transparency.

Consequently, we find that private sustainability governance can create an *external rule-based shaping mechanism* through an *augmenting strategy ambition* and *proactive engagement in collective governance* at the firm level (as indicated by the right bold arrow in Fig. 3). This mechanism relies on proactively aligning with and influencing regulatory and industry standards to foster a business environment conducive to sustainable practices. By establishing a strategic sustainability framework, firms not only ensure compliance with legal requirements but also set ambitious targets that transcend mere obligations. In doing so, firms can shape collective external governance pressures by setting higher standards and demonstrating leadership in sustainability. This forward-thinking approach positions firms to create a competitive advantage. They are able to leverage their commitment to sustainability by shaping external governance structures. They do so in a way that supports and promotes business models aimed at driving collective momentum toward a sustainable future.

> "Regulation is the floor, not the ceiling. And I don't accept using regulation to say this is the minimum, like this is the maximum of what we will do. Our ambition level is not influenced by regulation" (Respondent, vice president of sustainability, Table A1—quotation D11).

In parallel with the external rule-based shaping mechanism, the *internal goal-based adapting mechanism* emerges as an internal steering mechanism based on *risk management and cascading influence* and *internal evaluation and accountability* (as indicated by the left bold arrow in Fig. 3). In doing so, it focuses on integrating sustainability into the core of business operations and strategy in order to manage risks and drive continuous improvement. This requires the implementation of robust risk management and assessment measures to address challenges such as internal cannibalization and resource allocation. By incorporating sustainability into regular evaluation and accountability mechanisms, such as using dashboards to monitor sustainable outcomes, firms can ensure they are responsive to external pressures and are constantly optimizing their sustainability initiatives.

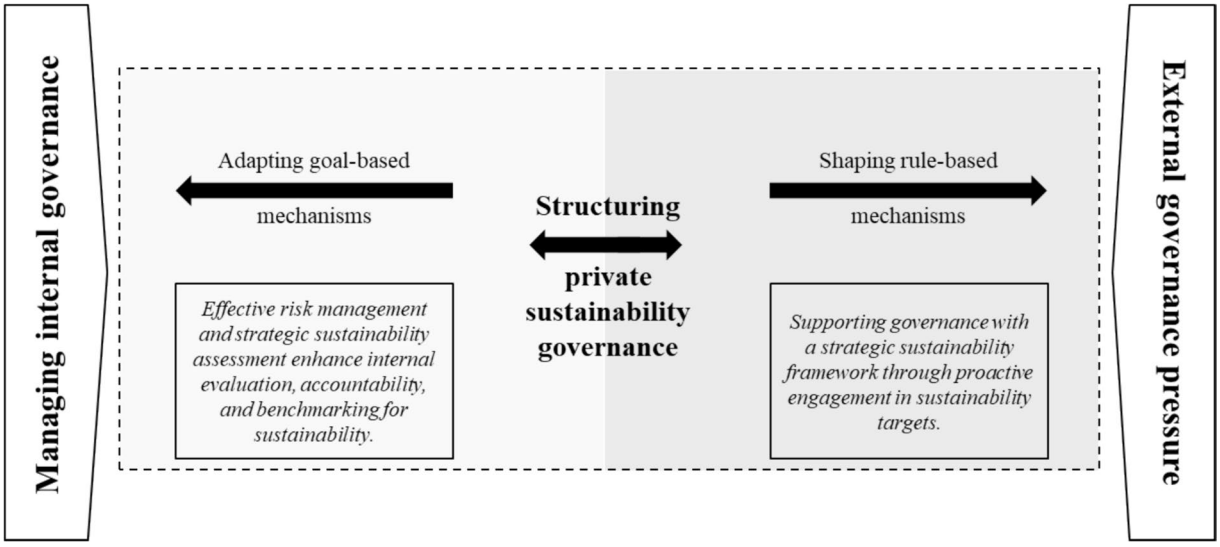


**Fig. 3** A hybrid governance framework to structure transitions toward sustainable systems

> "We have a dashboard where we show quarterly data tracking progress against our key targets and anything that is going in the wrong direction. We talk about corrective action" (Respondent, head of sustainability, Table A1—quotation E13).

However, balancing both mechanisms to achieve optimal performance requires ethical change management, which is closely linked to establishing the firm's strategic sustainability ambitions and aligning them with sustainable practices.

> "I often observe that you prepare a strategy department like this and then operationalize it in another department or set up a new department" (Respondent, consultancy partner, Table A1—quotation F7).

In the context of sustainability, principles of transparency—particularly regarding the quality of information and data shared with internal and external stakeholders—highlight the ethical considerations involved. Yet, senior leaders shape the ethical culture and influence subordinate behavior, creating ethical tensions in the role-modeling process. Consequently, firms have to balance the complex tensions of both mechanisms to navigate the transition toward sustainable systems.

> "Another important topic is how to further roll out EcoDesign and make our people understand the transition toward it. This is a key issue for us. In the sense of defining and highlighting the need for such a shift" (Respondent, board member and professor of accounting and environmental management, Table A1—quotation I5).

In sum, our hybrid framework demonstrates that governing sustainability systems at both the firm level and beyond requires private sustainability governance mechanisms—namely, shaping and adapting mechanisms—while simultaneously creating ethical tensions. Shaping external governance involves aligning with and influencing regulatory standards to promote sustainable business practices and create competitive advantages. In contrast, adapting internal governance focuses on integrating sustainability into business operations, managing risks, and ensuring continuous improvement through internal evaluation and accountability. To conclude, senior leaders cascade the ethical culture and influence subordinate leader behavior through ethical change management. This is substantiated through senior leaders' role-model behavior, ambitious goal setting, and transparency—largely enabled by digitalization.

## Discussion

This study examines the structuring of private sustainability governance, analyzing how firms integrate rule-based and goal-based mechanisms to facilitate sustainability transitions. Our findings highlight the dual pressures of external regulatory requirements and internally driven sustainability ambitions. This chapter situates these findings within the broader theoretical discourse and explores their practical implications for firms navigating sustainability transitions. By aligning compliance with innovation, organizations can develop governance structures that reinforce both regulatory accountability and proactive sustainability commitments. Accordingly, this discussion examines how firms combine rule-based and goal-based mechanisms, emphasizing the interplay between externally imposed frameworks and internally motivated strategic transformation.

### Theoretical Implications

This study advances the literature on private sustainability governance by demonstrating the need to integrate rule-based and goal-based mechanisms. While rule-based governance ensures accountability through compliance with external regulations (Dietz et al., 2022; Grabs & Garrett, 2023), its rigidity can constrain innovation. Goal-based governance, in contrast, fosters internal ambition and strategic flexibility but may lack external legitimacy (Bjørn et al., 2021; Grabs & Garrett, 2023).

A key theoretical contribution is the hybrid governance model, wherein firms navigate both outward-looking compliance with regulatory standards and inward-looking strategic goal setting (Benischke et al., 2025). This model captures how firms establish legitimacy either by aligning with external governance frameworks or by differentiating through ambitious ethical commitments. It reinforces the view that sustainability transitions require firms to shape external governance structures, while simultaneously adapting internal processes (Eberlein et al., 2014; Falkner, 2003), consistent with insights from strategy scholars (Rindova & Courtney, 2020).

Furthermore, this study extends research on policy mixes in sustainability transitions (Kern et al., 2019), showing how firms manage interwoven governance structures to balance regulatory pressures and internal governance demands. Unlike polycentric governance models, which emphasize distributed decision making across ecosystems (Patala et al., 2022), this study focuses on the firm-level interplay between external rule setting and internal transformation. By illustrating how firms dynamically integrate compliance-driven governance with strategic sustainability commitments, this study provides a nuanced perspective on

private sustainability governance, positioning firms as both regulated entities and proactive agents of change in sustainability transitions.

### Practical Implications

The findings provide key insights for firms navigating sustainability transitions by balancing external compliance with internal strategic ambition. First, firms should adopt a hybrid governance model that combines rule-based compliance with goal-based sustainability targets. This allows firms to meet regulatory requirements while also driving long-term innovation and differentiation. Hence, it helps them to overcome and adapt to policy paradoxes balancing profitability, sustainability, and compliance while managing ethical contradictions in shaping public policies. Second, organizational restructuring is essential for embedding sustainability into core business operations. Firms should establish dedicated sustainability roles, improve data management, and develop clear performance metrics to ensure that sustainability becomes a key part of decision making. Strong coordination across departments is crucial to align efforts and create accountability. Third, firms must actively shape external governance rather than simply comply with existing regulations. By participating in industry alliances, policy discussions, and sustainability initiatives, firms can help shape the rules and standards that define their industries. This proactive role strengthens their leadership position and enhances overall sustainability efforts.

Additionally, ethical change management plays a vital role in balancing external compliance with internal sustainability goals. Leaders must set ambitious sustainability commitments, ensure transparency, and embed ethical considerations into decision-making processes. Finally, firms should leverage digital tools, such as sustainability dashboards and AI-driven analytics, to improve transparency, track progress, and enhance accountability. By integrating external rule setting with internal sustainability strategies, firms can create more resilient, effective governance structures that not only meet compliance requirements but also drive meaningful, long-term sustainability progress.

## Conclusion

This study highlights the critical role of private sustainability governance in guiding firms through the transition toward sustainable systems. By examining the interplay between external governance pressures and internal governance adaptations, it provides insights into how businesses can strategically influence regulatory environments, while refining internal processes to achieve sustainability goals. A key contribution is its emphasis on senior leadership, demonstrating how leaders shape external governance and adapt internal governance to foster sustainability transitions. This enables firms to move beyond compliance and become proactive leaders in sustainability, enhancing their competitive position.

Further, our study underscores the importance of aligning strategic ambitions with sustainability goals through structured governance frameworks. By proactively embedding sustainability rather than merely adhering to regulations, firms can build resilience within an "ESG void." The dual focus on external and internal governance effectively channels managerial attention, fostering an ethical role-model effect that influences behavior within and beyond the firm.

Our findings are subject to several limitations. The study focuses on manufacturing firms in the DACH region (Germany, Austria, Switzerland), providing context-specific insights that may not be fully generalizable to other industries and regions. While the research highlights global regulatory differences, it does not conduct a comparative analysis across international regulatory environments. This leaves room for further exploration of how firms navigate sustainability governance under different institutional conditions.

Future research can expand on these findings in several ways. First, a multiple-case study design could explore private versus collective governance tensions by examining a firm's broader environment, including supply chains, business networks, and regulatory bodies, to understand their mutual influence in sustainability transitions. Second, quantitative research could assess the impact of different levels of private sustainability governance on both financial (e.g., investments, cost of capital, sales) and non-financial (e.g., emissions, recycling rates, employee engagement) outcomes. This would provide empirical evidence on the effectiveness of sustainability governance strategies. Finally, further research is needed to develop robust metrics that assess the impact of governance structures on key sustainability performance indicators. Despite these limitations, this study lays the foundation for a deeper understanding of how firms integrate governance mechanisms to navigate sustainability transitions, and it provides a platform for future research on the evolving role of private sustainability governance.

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### Declarations

**Conflict of interest** We are not aware of any conflicts of interest.

**Research Involving Human Participants** We informed all interviewees and informants involved at the beginning of each interview and explained the further processing of the interview data.

**Informed Consent** We have a recorded informed consent from all 33 interviewees listed in the interview data table (see Table 1). In addition, further data of informants who took part in the three company visits, two industry conferences, and industry-specific networking activities were also informed and gave their consent.

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