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Posted Date: 25 June 2025

doi: 10.20944/preprints202506.2139.v1

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Article

Organizing for Sustainable Futures: Micro and Macro-Institutional Conditions of Transformation: A People-Centric Organizational Perspective

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Abstract

This study advances structuration theory by examining the recursive relationship between micro-level agency and macro-institutional conditions in sustainability transformations. Through a mixed-methods research design combining quantitative survey data (n=234) with qualitative interviews (n=42) and comparative case studies (n=6) across multiple sectors, the researchers develop and test a people-centric framework that specifies the mechanisms through which individual agency both shapes and is constrained by institutional structures. Statistical analysis demonstrates significant relationships between integration practices and transformation outcomes ($\beta=0.42$, $p<0.01$), with power dynamics moderating this relationship. Qualitative findings reveal distinct transformation pathways across organizational contexts, challenging universal prescriptions for sustainability. The research contributes to theory by articulating how paradox navigation capabilities, power mobilization strategies, and multi-level learning systems mediate between structural conditions and transformation outcomes. For practitioners, these findings demonstrate that successful sustainability transformations require simultaneous attention to institutional environments, power structures, and human capabilities—recognizing that transformation emerges from their ongoing interaction rather than from either dimension alone. The quest for sustainability has shifted from a peripheral concern to a central organizing principle for forward-thinking organizations. As climate urgency intensifies and social inequalities persist, organizations face mounting pressure to respond meaningfully—yet many struggle to translate aspiration into substantive action. The gap between sustainability rhetoric and reality remains stubbornly wide for many institutions (Bromley & Powell, 2012). This research examines how organizations can bridge this gap by cultivating conditions conducive to sustainability transformations through a distinctly people-centric approach. The central argument advanced is that successful sustainability transformations emerge from the recursive relationship between structural conditions and human agency—what Giddens (1984) terms "structuration." Transformation occurs neither through structural change alone nor through individual action in isolation, but through their ongoing interaction. By examining this interplay, researchers can develop more nuanced, effective approaches to organizing for sustainable futures. Despite growing recognition of this interplay's importance, empirical research addressing both micro and macro dimensions of sustainability transformation remains limited. Most studies focus either on institutional conditions (Markard et al., 2012) or individual behaviors (Norton et al., 2015), with few examining their interaction. This study addresses this gap through a mixed-methods design that captures both dimensions and their interrelationships across diverse organizational contexts. The research makes three specific theoretical contributions. First, it advances structuration theory by specifying the mechanisms through which agency and structure interact in sustainability transformations, revealing how power dynamics moderate this relationship. Second, it extends paradox theory by empirically demonstrating how organizations' capabilities for navigating sustainability tensions influence transformation outcomes across different contexts. Third, it contributes to institutional theory by identifying how change agents employ specific strategies to reshape institutional arrangements, with differential effectiveness depending on contextual factors.

Keywords: structuration theory; sustainability transformations; micro-level agency; macro-institutional conditions; mixed-methods research; people-centric framework; institutional structures; integration practices; power dynamics; transformation pathways; paradox navigation; power mobilization; multi-level learning systems; organizational contexts

Literature Review and Theoretical Framework

Structuration Theory and Sustainability Transformation

This study is grounded in structuration theory (Giddens, 1984), which conceptualizes social systems as produced and reproduced through the ongoing interaction between human agency and structural conditions. Applied to sustainability transformations, structuration theory suggests that organizational actors both shape and are constrained by institutional structures, with transformation emerging from this recursive relationship (Barley & Tolbert, 1997).

Research in this tradition has demonstrated how sustainability practices emerge through the interaction between individual actions and organizational structures (Busch, 2020). However, most studies focus either on how structures constrain sustainability action or how agents drive change, without fully capturing their mutual constitution. This study addresses this limitation by examining specific mechanisms through which this recursive relationship manifests across diverse organizational contexts.

Institutional Perspectives on Sustainability Transformation

Organizations operate within complex institutional environments that profoundly shape their sustainability ambitions and capabilities. These environments consist of regulatory frameworks, market dynamics, cultural norms, and technological infrastructures that can either catalyze or impede transformation (Scott, 2014). Research consistently demonstrates that macro-institutional conditions significantly influence organizational sustainability performance, often more powerfully than internal factors alone (Delmas & Toffel, 2008).

The concept of "institutional work" captures how organizational actors deliberately work to create, maintain, or disrupt institutions that govern collective behavior (Lawrence et al., 2011). This perspective recognizes that institutional contexts aren't merely constraints to be navigated—they're dynamic fields that organizations actively shape through strategic agency. However, as Slawinski et al. (2021) note, the specific mechanisms through which actors reshape institutional arrangements around sustainability remain undertheorized, particularly regarding how power differentials affect these processes.

Power Dynamics in Sustainability Transformations

Power dynamics fundamentally shape sustainability transformations, determining which initiatives gain traction and whose interests are served (Levy & Scully, 2007). As Fleming and Spicer (2014) argue, power operates through multiple dimensions: episodic (direct influence), manipulative (agenda setting), domination (structural arrangements), and subjectification (identity formation). Each dimension affects how sustainability is conceptualized, prioritized, and implemented.

Recent scholarship by Mahfooz et al. (2022) highlights how sustainability initiatives often face resistance when they challenge established power structures and interests. Resistance may manifest through various mechanisms, including resource withholding, strategic non-compliance, and discursive opposition (Banerjee, 2003). Successful change agents must therefore develop sophisticated political capabilities to navigate these power dynamics (Howard-Grenville et al., 2007).

However, as Avelino (2021) observes, power in sustainability contexts is not merely constraining but also productive—enabling new coalitions, practices, and institutional arrangements. This dual

nature of power requires theoretical frameworks that capture both its constraining and enabling dimensions in sustainability transformations.

Individual Agency and Change Leadership

While macro-institutional conditions establish important parameters for organizational action, sustainability transformations ultimately depend on the agency of individuals working within and across organizations. Research on institutional entrepreneurship illuminates how change agents mobilize resources, leverage positions, and skillfully navigate institutional complexities to advance sustainability agendas (Battilana et al., 2009).

These change agents employ various strategies to overcome resistance and institutionalize more sustainable practices. They frame issues in ways that resonate with diverse stakeholders, build coalitions across organizational boundaries, and create "small wins" that demonstrate feasibility and build momentum (Howard-Grenville et al., 2007). What remains less understood, however, is how these strategies interact with broader power structures and institutional arrangements to produce different transformation outcomes across contexts (Wright & Nyberg, 2017).

Paradox and Tension Navigation

Sustainability inherently involves tensions between competing objectives, timeframes, and stakeholder interests. Rather than treating these tensions as problems to be resolved, paradox theory suggests they are enduring contradictions that must be continuously navigated (Smith & Lewis, 2011). Effective sustainability leadership requires the capability to work productively with these tensions rather than seeking to eliminate them.

Research by Hahn et al. (2018) identifies several recurring sustainability paradoxes:

- **Temporal paradoxes** - Tensions between short-term performance and long-term resilience
- **Spatial paradoxes** - Tensions between local optimization and global responsibilities
- **Stakeholder paradoxes** - Tensions between different stakeholder demands and expectations
- **Domain paradoxes** - Tensions between environmental, social, and economic dimensions of sustainability

Recent work by Slawinski et al. (2021) demonstrates that organizations vary significantly in their approach to these tensions, with some seeking to eliminate contradictions through either/or choices and others developing capabilities for both/and thinking. These differences in paradox navigation capabilities may significantly influence transformation outcomes, though empirical evidence on this relationship remains limited.

Organizational Learning for Sustainability

Another crucial dimension is organizational learning capability. Sustainability challenges are characterized by complexity, uncertainty, and rapid evolution—requiring organizations to continuously adapt their understanding and approaches (Siebenhüner & Arnold, 2007).

Effective learning for sustainability occurs at multiple levels:

- *Individual learning*—building personal knowledge and skills related to sustainability
- *Group learning*—developing shared understanding and collaborative capabilities
- *Organizational learning*—institutionalizing insights through changes to systems and structures
- *Network learning*—exchanging knowledge across organizational boundaries

Building on Argyris and Schön's (1996) distinction between single and double-loop learning, Schaefer and Harvey (2000) argue that sustainability transformations require double-loop learning that questions fundamental assumptions and values. Yet many organizations remain trapped in single-loop learning that adjusts practices without challenging underlying logics. The conditions that enable or constrain double-loop learning for sustainability remain an important area for empirical investigation.

Digital Transformation and Sustainability

Digital transformation increasingly intersects with sustainability transformation in organizations, creating both opportunities and challenges. George et al. (2021) identify three primary intersections between digital and sustainability transformations: digital technologies as enablers of sustainable practices, digital business models that reduce resource intensity, and digital platforms that coordinate collective sustainability action.

Research by Lanzolla et al. (2022) demonstrates how digital technologies enhance transparency and accountability in sustainability initiatives, enabling more effective stakeholder engagement and performance monitoring. Simultaneously, digital transformation raises sustainability concerns regarding energy consumption, electronic waste, and algorithmic bias (Dauvergne, 2020).

The relationship between digital and sustainability transformations remains underexplored, particularly regarding how organizations manage potential tensions between these parallel change processes and how digital capabilities influence sustainability transformation pathways (Kiron & Unruh, 2018).

Critical and Regenerative Perspectives

Emerging critical perspectives challenge whether conventional organizational approaches to sustainability are sufficient to address mounting ecological and social crises. Scholars including Ergene et al. (2018) and Banerjee and Arjaliès (2022) argue that incremental organizational change may reproduce rather than transform unsustainable systems. They advocate more radical approaches that reconceptualize the relationship between organizations and natural systems.

Regenerative perspectives (Hahn & Tampe, 2021; Wahl, 2016) move beyond reducing harm to focus on creating net-positive environmental and social impacts. These approaches emphasize the interconnectedness of social and ecological systems and the need for transformative rather than merely transitional change. While these perspectives offer important critiques and alternatives, empirical research examining their implementation in organizational contexts remains limited.

Integrated Theoretical Framework

To advance understanding of sustainability transformations, this study proposes an integrated theoretical framework that connects micro-level agency with macro-institutional structures through organizational processes and practices (Figure 1). This framework posits that sustainability transformations emerge from the ongoing interaction between institutional conditions and individual agency, mediated by four key mechanisms:

1. **Power mobilization** - How change agents leverage, navigate, and transform power relationships to enable sustainability initiatives
2. **Paradox navigation** - How organizations manage competing demands across sustainability dimensions
3. **Institutional work** - How organizational actors create, maintain, or disrupt institutions
4. **Multi-level learning** - How organizations develop capabilities to respond to sustainability challenges

These mechanisms operate within distinct organizational contexts that vary by sector, size, governance structure, and institutional environment, producing different transformation pathways and outcomes. The framework explicitly recognizes power as both enabling and constraining transformation, with power relationships moderating how other mechanisms influence outcomes.

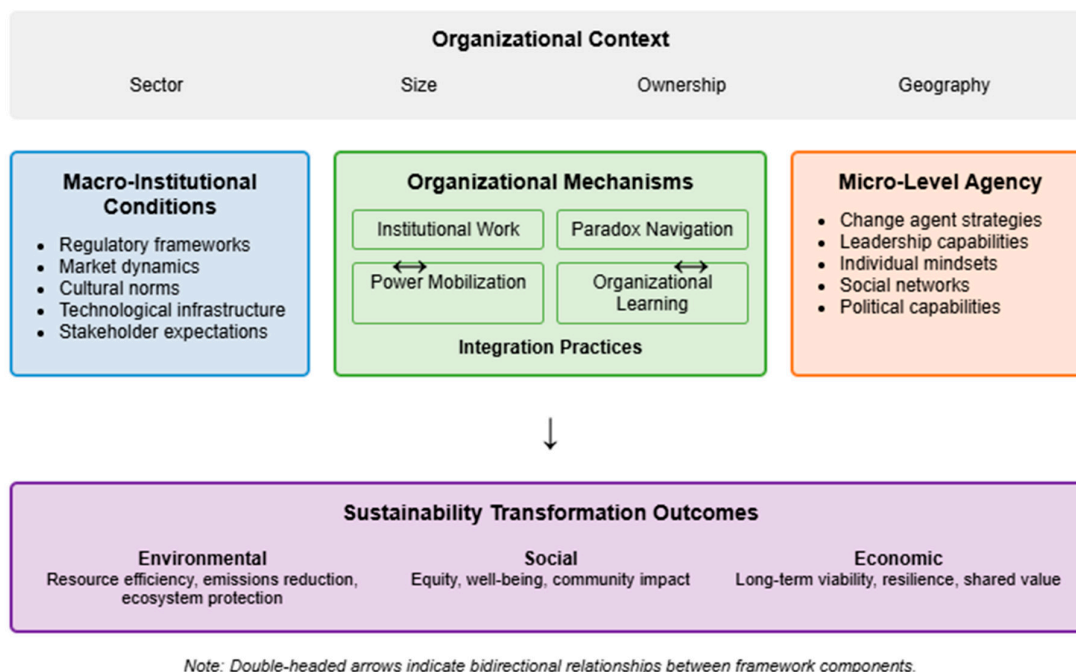


Figure 1. Integrated Framework of Sustainability Transformation.

Research Methodology

Research Philosophy and Approach

This study adopts a critical realist perspective (Bhaskar, 1978), which recognizes that while organizational reality exists independently of our knowledge of it, our understanding is always mediated by social constructions and power relationships. This perspective aligns with structuration theory's emphasis on the recursive relationship between agency and structure, allowing researchers to examine both objective institutional conditions and subjective interpretations of these conditions by organizational actors.

The mixed-methods design reflects this philosophy by combining quantitative measurement of key relationships with qualitative exploration of the mechanisms and meanings that underlie these relationships. This approach enables both theory testing and theory building, recognizing that sustainability transformations involve both measurable outcomes and socially constructed processes.

Research Design

This study employed a sequential mixed-methods design (Creswell & Plano Clark, 2018) with three primary components:

- Quantitative survey** (n=234) of sustainability professionals across multiple sectors
- Semi-structured interviews** (n=42) with organizational change agents and leaders
- Comparative case studies** (n=6) of organizations demonstrating different transformation patterns

This design allowed for testing relationships between key variables quantitatively while developing deeper understanding of mechanisms and contexts through qualitative inquiry. The sequential approach enabled insights from each phase to inform subsequent data collection and analysis, enhancing the integration between methods.

Sampling and Participants

Survey participants were recruited through professional sustainability networks and stratified to ensure representation across sectors (manufacturing, services, public sector, non-profit), organizational sizes, and geographical regions. Table 1 presents the demographic characteristics of survey respondents.

Table 1. Survey Respondent Characteristics.

Characteristic	Category	Percentage
Sector	Manufacturing	32%
	Services	28%
	Public Sector	22%
	Non-profit	18%
Organization Size	<250 employees	24%
	250-1000 employees	31%
	1000-10,000 employees	27%
	>10,000 employees	18%
Geographic Region	North America	38%
	Europe	29%
	Asia	22%
	Other	11%
Respondent Role	C-Suite/Executive	16%
	Sustainability Director/Manager	42%
	Functional Manager	31%
	Other	11%

Interview participants were selected using purposive sampling to capture diverse perspectives on sustainability transformation. Selection criteria included organizational role, transformation experience, and sector representation. The interview sample included sustainability professionals (n=18), senior executives (n=12), middle managers (n=8), and external stakeholders (n=4). These 42 interviews were conducted across multiple organizations, including but not limited to the six case study organizations.

Case study organizations were selected using theoretical sampling (Eisenhardt & Graebner, 2007) to represent maximum variation across key dimensions: transformation approach (incremental vs. radical), institutional context (supportive vs. challenging), organizational type (incumbent vs. entrepreneurial), and sector (manufacturing, services, public, hybrid). Table 2 summarizes the characteristics of the six case organizations.

Table 2. Case Study Organization Characteristics.

Organization	Sector	Size	Transformation Approach	Institutional Context	Geographic Scope
Alpha	Consumer Goods	Large	Strategic Integration	Mixed	Global
Beta	Manufacturing	Medium	Process Innovation	Challenging	Regional
Gamma	Financial Services	Large	Governance Reform	Supportive	Global
Delta	Healthcare	Large	Stakeholder Engagement	Mixed	National
Epsilon	Social Enterprise	Small	Purpose-Driven	Mixed	Regional
Zeta	Public-Private Partnership	Medium	Collaborative	Supportive	National

Data Collection

Survey Instrument: The survey instrument included validated scales measuring key constructs from the theoretical framework, including:

- Institutional conditions (adapted from Delmas & Toffel, 2008)
- Change agency practices (adapted from Battilana et al., 2009)
- Paradox navigation capabilities (adapted from Hahn et al., 2018)
- Organizational learning mechanisms (adapted from Siebenhüner & Arnold, 2007)
- Power mobilization strategies (adapted from Fleming & Spicer, 2014)
- Integration practices (adapted from Eccles et al., 2014)
- Sustainability transformation outcomes (adapted from Eccles et al., 2014)

Each construct was measured using multiple items on 7-point Likert scales. The instrument was pilot-tested with 15 sustainability professionals and refined based on their feedback. Cronbach's alpha for all scales exceeded 0.80, indicating good internal consistency. The complete survey instrument is included in Appendix A.

To address potential common method bias, the researchers employed procedural remedies (Podsakoff et al., 2003) including: psychological separation between predictor and criterion variables, assurance of anonymity to reduce social desirability bias, and counterbalanced question order. Post-hoc statistical tests (Harman's single-factor test) indicated that common method bias was not a significant concern.

Interviews: Semi-structured interviews lasting 60-90 minutes explored participants' experiences with sustainability transformation initiatives. The interview protocol addressed:

- Institutional enablers and barriers to transformation
- Strategies for navigating power dynamics and resistance
- Approaches to managing sustainability tensions and paradoxes
- Learning processes and capability development
- Integration practices and their effectiveness

Interviews were recorded, transcribed, and coded for analysis. The complete interview protocol is included in Appendix B.

Case Studies: For each case organization, multiple data sources were collected using a systematic protocol:

- Interviews with diverse organizational members (6-8 per organization, for a total of 38 case-specific interviews, which were additional to the 42 cross-organizational interviews)
- Internal documentation on sustainability initiatives (strategic plans, meeting minutes, training materials)
- Public sustainability reports and communications (5 years of historical data)
- Observational data from site visits and meetings (10-15 hours per organization)
- Archival data on organizational history and context

This multi-source approach enabled triangulation of findings and reduced reliance on retrospective accounts. Researchers maintained a case study database for each organization, enhancing reliability and creating an audit trail for analysis.

Data Analysis

Quantitative Analysis: Survey data were analyzed using structural equation modeling (SEM) to test relationships between constructs in the theoretical framework. Before hypothesis testing, the researchers conducted:

1. **Measurement validation** - Confirmatory factor analysis (CFA) to assess the validity and reliability of measurement scales. All constructs demonstrated satisfactory fit indices (CFI > 0.95,

RMSEA < 0.06, SRMR < 0.08) and factor loadings (all standardized loadings > 0.70). Convergent validity was established through significant factor loadings and average variance extracted (AVE) values exceeding 0.50. Discriminant validity was confirmed by comparing AVE values with squared correlations between constructs.

2. **Model specification** - The structural model was specified based on the theoretical framework, with direct paths from all independent variables to transformation outcomes and interaction terms to test moderating relationships. Control variables included organization size, sector, and geographical region.
3. **Model estimation** - Maximum likelihood estimation was used to test the structural model, with bootstrapping (5000 samples) to establish confidence intervals for parameter estimates.
4. **Multigroup analysis** - To test for contextual differences, multigroup analysis compared path coefficients across sectors and organizational types. The analysis followed a systematic approach: first establishing measurement invariance across groups, then comparing structural paths using chi-square difference tests to determine if constraints across groups significantly worsened model fit.

Qualitative Analysis: Interview and case study data were analyzed using thematic analysis (Braun & Clarke, 2006) with the following steps:

1. **Initial coding** - Three researchers independently coded a subset of interviews using a preliminary coding scheme derived from the theoretical framework. This resulted in 87 initial codes.
2. **Coding refinement** - Researchers compared their coding, resolving disagreements through discussion and refining the coding scheme. Inter-rater reliability was calculated using Cohen's kappa ($\kappa = 0.84$).
3. **Theme development** - Codes were organized into potential themes and subthemes, creating an initial thematic map of the data.
4. **Theme review** - Themes were reviewed in relation to coded extracts and the entire dataset, leading to refinement and consolidation into five major themes.
5. **Theme definition** - Each theme was clearly defined and named, with representative quotes and examples identified.
6. **Cross-case analysis** - Themes were analyzed across case organizations to identify patterns, similarities, and differences, using both within-case and cross-case analytical techniques (Eisenhardt, 1989).

The coding process combined deductive and inductive approaches, with initial codes derived from theory but allowing for emergent codes from the data. Figure 2 illustrates how the coding scheme evolved during analysis, showing the relationship between initial theoretical concepts and emergent themes.

Figure 2 shows the evolution from initial theoretical codes (left column) to emergent themes (right column) through three analytical stages:

Stage 1: Initial coding based on theoretical framework

- Institutional conditions
- Change agency
- Power dynamics
- Paradox management
- Learning processes
- Integration approaches

- Contextual factors



Figure 2. Evolution of Qualitative Coding Scheme.

Stage 2: Emergent patterns and connections

- Institutional enablers and barriers
- Strategic and political actions
- Power manifestations and strategies
- Tension identification and responses
- Learning types and mechanisms
- Integration dimensions and challenges
- Contextual variations and impacts

Stage 3: Final thematic structure

- Power dynamics in transformation processes
- Integration mechanisms and effectiveness
- Paradox navigation in practice
- Learning systems for sustainability
- Contextual contingencies of transformation

The arrows between columns show how initial codes evolved and combined to form the final themes, with some themes drawing from multiple theoretical concepts.

Integration: Quantitative and qualitative findings were integrated through a connecting approach (Fetters et al., 2013), with qualitative data explaining mechanisms underlying quantitative relationships and illuminating contextual contingencies. Integration occurred at multiple points:

1. **Design integration** - Sequential design allowed survey findings to inform interview protocols
2. **Methods integration** - Complementary data collection strategies addressed different aspects of the research questions
3. **Analysis integration** - Qualitative findings were used to interpret unexpected quantitative results
4. **Interpretation integration** - Conclusions draw on both data sources to develop a comprehensive understanding of the phenomenon

This integration approach enhanced the validity of findings through methodological triangulation while enabling a more nuanced understanding of complex causal mechanisms.

Researcher Positionality and Ethics

The researcher acknowledges that their backgrounds in organizational theory and sustainability practice may influence data collection and interpretation. To mitigate potential biases, the research team included members with diverse theoretical orientations and employed reflexive practices throughout the research process, including regular team discussions about interpretations and maintenance of reflexive journals.

Ethical considerations included informed consent from all participants, confidentiality protections, and member checking of case study reports with organizational representatives. The study received approval from the institutional ethics committee, and participants were given the opportunity to review and comment on their interview transcripts.

Findings

Quantitative Results: Relationships Between Key Constructs

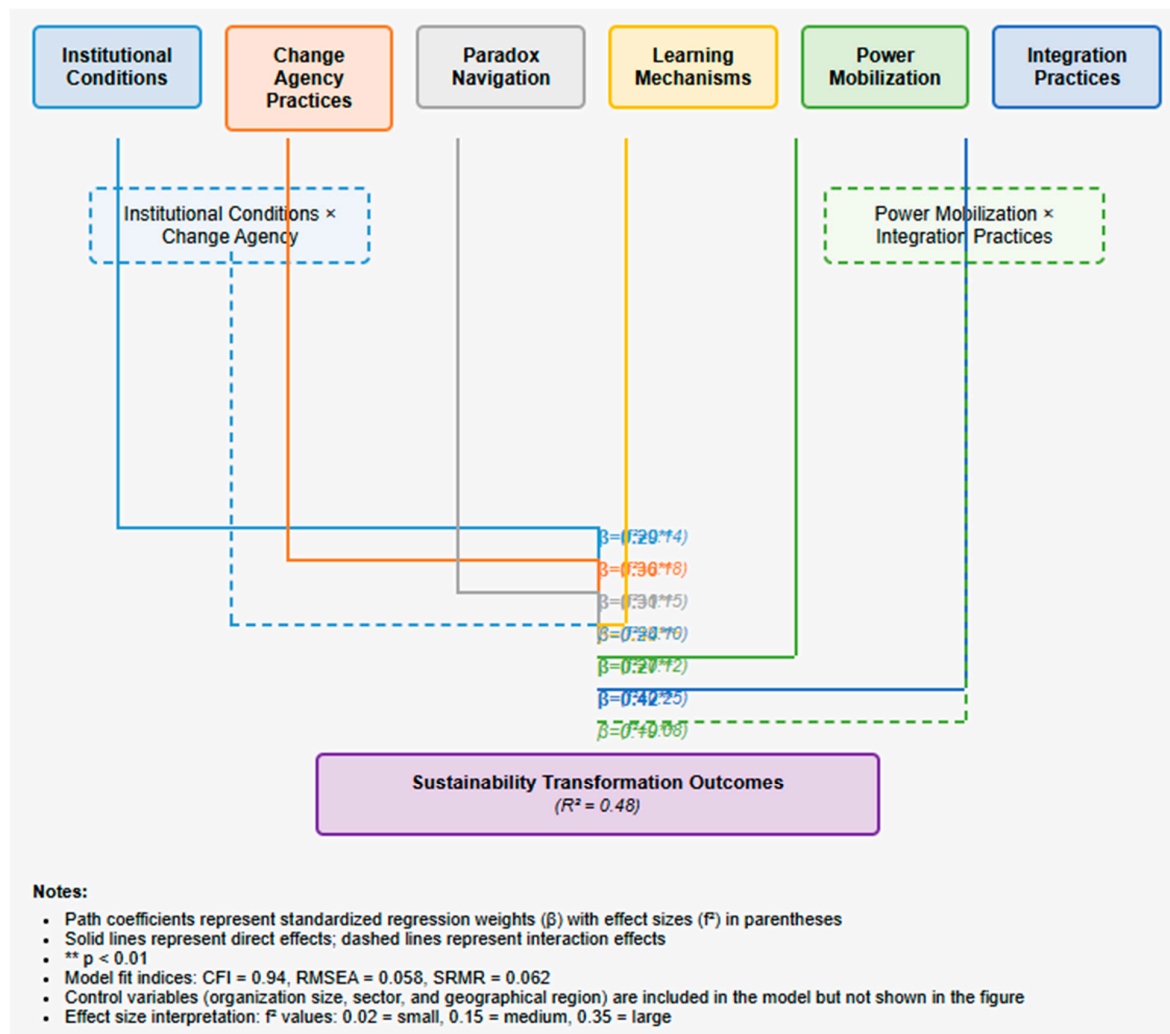
Structural equation modeling revealed significant relationships between key constructs in the theoretical framework (see Table 3 and Figure 3).

Table 3. Standardized Path Coefficients from Structural Equation Model.

Path	Coefficient	95% CI	p-value	Effect Size (f^2)
Institutional Conditions → Transformation Outcomes	0.29	[0.21, 0.37]	<0.01	0.14
Change Agency Practices → Transformation Outcomes	0.36	[0.28, 0.44]	<0.01	0.18
Paradox Navigation → Transformation Outcomes	0.31	[0.23, 0.39]	<0.01	0.15
Learning Mechanisms → Transformation Outcomes	0.33	[0.25, 0.41]	<0.01	0.16
Integration Practices → Transformation Outcomes	0.42	[0.34, 0.50]	<0.01	0.25
Power Mobilization → Transformation Outcomes	0.27	[0.19, 0.35]	<0.01	0.12
Institutional Conditions × Change Agency → Transformation Outcomes	0.24	[0.16, 0.32]	<0.01	0.10
Power Mobilization × Integration Practices → Transformation Outcomes	0.19	[0.11, 0.27]	<0.01	0.08

Note: Effect size f^2 values: 0.02 = small, 0.15 = medium, 0.35 = large (Cohen, 1988).

The model demonstrated good fit (CFI = 0.94, RMSEA = 0.058, SRMR = 0.062) and explained 48% of variance in sustainability transformation outcomes. Notably, integration practices emerged as the strongest predictor of transformation outcomes ($\beta = 0.42$, $p < 0.01$, $f^2 = 0.25$), followed by change agency practices ($\beta = 0.36$, $p < 0.01$, $f^2 = 0.18$). The effect sizes indicate that integration practices have a medium to large practical significance, while most other predictors have medium effects.

**Figure 3.** Structural Equation Model with Standardized Path Coefficients.

Two significant interaction effects were identified:

1. **Institutional conditions × change agency** ($\beta = 0.24$, $p < 0.01$, $f^2 = 0.10$) - Effective change agency became particularly important under challenging institutional conditions. Conversely, favorable institutional conditions partially compensated for weaker change agency capabilities.
2. **Power mobilization × integration practices** ($\beta = 0.19$, $p < 0.01$, $f^2 = 0.08$) - The effectiveness of integration practices was moderated by organizational power dynamics. Integration practices had stronger effects on transformation outcomes when power was more broadly distributed (less centralized) and when sustainability advocates had greater access to decision-making processes.

Multigroup analysis revealed significant contextual differences in these relationships:

1. **Sectoral differences** - The relationship between institutional conditions and transformation outcomes was stronger in manufacturing ($\beta = 0.38$, $p < 0.01$) than services ($\beta = 0.22$, $p < 0.05$), while the relationship between change agency and outcomes was stronger in services ($\beta = 0.44$, $p < 0.01$) than manufacturing ($\beta = 0.29$, $p < 0.01$). Chi-square difference tests confirmed these differences were statistically significant ($\Delta\chi^2 = 7.82$, $p < 0.01$).
2. **Size differences** - Paradox navigation capabilities had stronger effects in larger organizations ($\beta = 0.37$, $p < 0.01$) than smaller ones ($\beta = 0.24$, $p < 0.05$), suggesting that managing competing demands becomes more critical as organizational complexity increases. This difference was statistically significant ($\Delta\chi^2 = 6.45$, $p < 0.05$).
3. **Geographic differences** - The effect of power mobilization on transformation outcomes was stronger in Asian organizations ($\beta = 0.35$, $p < 0.01$) than in North American ($\beta = 0.22$, $p < 0.05$) or European organizations ($\beta = 0.25$, $p < 0.05$), indicating important cultural variations in how power influences transformation processes. These differences were statistically significant ($\Delta\chi^2 = 8.27$, $p < 0.01$).

Qualitative Findings: Mechanisms and Contextual Dynamics

Thematic analysis of interview and case study data revealed five key themes that illuminate the mechanisms underlying the quantitative results. Figure 4 presents a conceptual map of these themes and their interrelationships.

The figure depicts a circular arrangement of the five main themes with bidirectional arrows showing their interrelationships:

1. **Power Dynamics in Transformation Processes**
 - Strategic framing
 - Coalition building
 - Resource mobilization
 - Timing exploitation
2. **Integration Mechanisms and Their Effectiveness**
 - Governance integration
 - Strategic integration
 - Operational integration
 - Performance integration
3. **Paradox Navigation in Practice**
 - Acceptance practices
 - Both/and thinking
 - Creative synthesis
 - Structural support

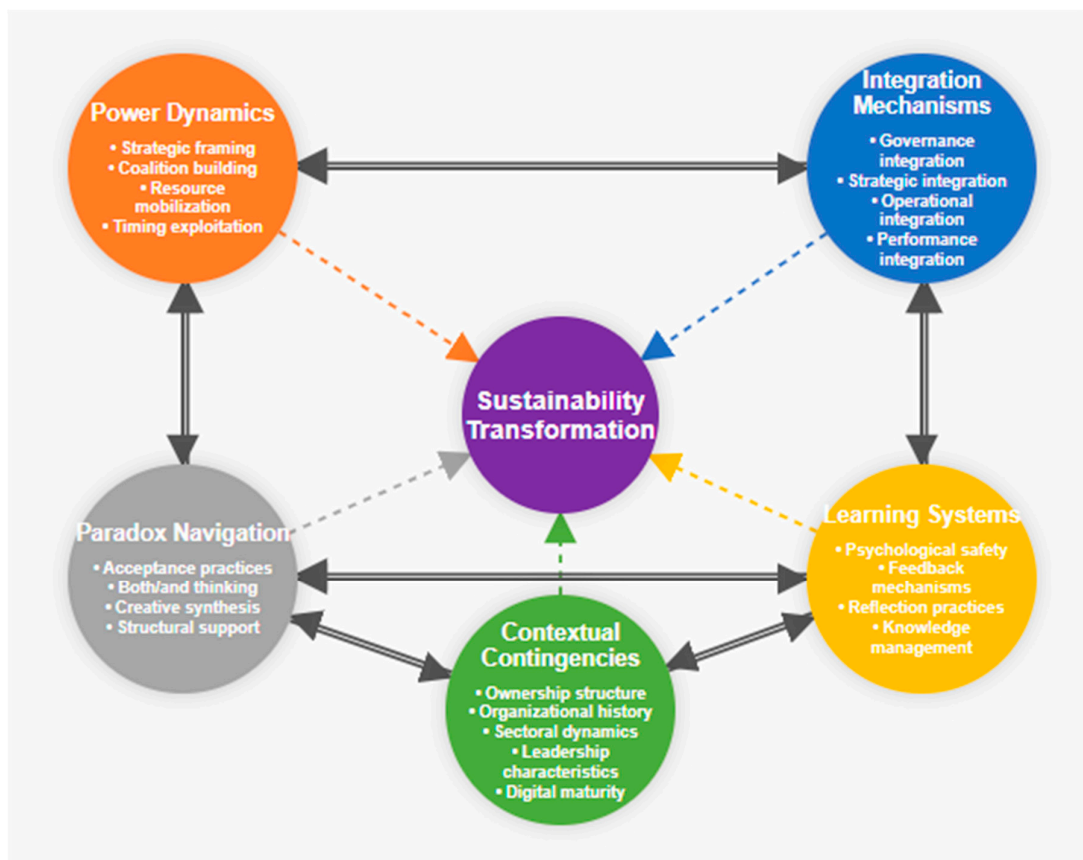


Figure 4. Conceptual Map of Qualitative Themes.

Notes:

- Bidirectional arrows indicate reciprocal relationships between themes
- Dashed lines to the center represent how each mechanism contributes to sustainability transformation
- The circular arrangement emphasizes the interconnected nature of these mechanisms rather than a linear process
- Contextual contingencies influence all other mechanisms, as indicated by its central position at the bottom
- Each circle contains key elements identified through qualitative analysis of interview and case study data

4. Learning Systems for Sustainability

- Psychological safety
- Feedback mechanisms
- Reflection practices
- Knowledge management

5. Contextual Contingencies of Transformation

- Ownership structure
- Organizational history
- Leadership characteristics
- Sectoral dynamics
- Digital maturity

The circular arrangement emphasizes that these themes interact in complex ways rather than following a linear progression. At the center of the circle is "Sustainability Transformation," indicating that these interacting mechanisms collectively contribute to transformation outcomes.

1. Power Dynamics in Transformation Processes

Change agents consistently identified power dynamics as critical to transformation outcomes. As one sustainability director explained:

"Understanding the power landscape is essential. I've learned to map who has decision-making authority, who influences those decision-makers, and who might resist change. This mapping helps me develop targeted strategies for different stakeholders." (Participant 7, Manufacturing)

Successful change agents employed various strategies to navigate power dynamics:

- *Strategic framing* - Articulating sustainability in terms that resonated with powerful stakeholders' priorities
- *Coalition building* - Creating networks of support across organizational boundaries
- *Resource mobilization* - Securing financial, human, and symbolic resources
- *Timing exploitation* - Identifying and leveraging windows of opportunity

These strategies were particularly important in organizations where sustainability values weren't deeply institutionalized:

"In our organization, sustainability isn't yet part of the core business model. I have to be strategic about when and how I introduce sustainability considerations. I've found that connecting them to cost savings, risk reduction, or customer expectations gets much more traction than environmental arguments alone." (Participant 23, Financial Services)

Case study analysis revealed distinct approaches to power across organizations. Alpha (Consumer Goods) established a formal governance structure that gave sustainability executives direct access to decision-making processes, while Beta (Manufacturing) relied more heavily on informal influence networks to advance sustainability initiatives. As a Beta manager explained:

"We don't have the formal authority to mandate changes, so we've built a network of supporters throughout the organization. We identify key decision points and ensure someone from our network is present to raise sustainability considerations." (Beta, Manager)

Delta (Healthcare) demonstrated how external stakeholder power could be leveraged to drive internal change:

"When the government and major insurance providers started requiring sustainability metrics, it transformed our internal conversations. Suddenly sustainability wasn't just a nice-to-have — it became essential to maintaining our relationships with key stakeholders." (Delta, Executive)

The qualitative data also revealed that power dynamics weren't static but evolved throughout transformation processes. As initiatives demonstrated value, sustainability advocates often gained additional influence:

"Five years ago, we were begging for a seat at the table. Now business units come to us proactively because they've seen how sustainability initiatives create value. Success has given us credibility and influence we didn't have before." (Participant 15, Manufacturing)

2. Integration Mechanisms and Their Effectiveness

The qualitative data explained why integration practices emerged as the strongest predictor of transformation outcomes in the quantitative analysis. Organizations achieving substantial transformation embedded sustainability considerations into core business processes rather than treating sustainability as a specialized function:

"The turning point for us was integrating sustainability criteria into our capital allocation process. Previously, sustainability was considered after investment decisions were made. Now

it's a core criterion in every investment decision, alongside financial returns and strategic fit."

(Participant 11, Energy)

Effective integration mechanisms included:

- *Governance integration* - Sustainability oversight at board and executive levels
- *Strategic integration* - Sustainability embedded in strategic planning and goal-setting
- *Operational integration* - Sustainability incorporated into core business processes
- *Performance integration* - Sustainability metrics linked to compensation and advancement

Case study data revealed that these integration mechanisms were most effective when implemented as coordinated systems rather than isolated practices. This was particularly evident in the contrast between Alpha and Beta:

"Alpha implemented a comprehensive integration approach that connected governance, strategy, operations, and performance systems. Sustainability considerations flowed coherently from board-level discussions through strategic planning and into operational decisions. In contrast, Beta implemented sustainability KPIs without changing governance structures or strategic planning processes, resulting in disconnected initiatives that struggled to gain traction." (Case Study Analysis)

The temporal sequence of integration also emerged as important. Gamma (Financial Services) found that beginning with strategic integration created foundation for subsequent operational changes:

"We started by integrating sustainability into our strategic planning process. This created the mandate for operational changes, which then required performance metrics to drive accountability. Trying to implement performance metrics without the strategic foundation didn't work." (Gamma, Executive)

Technological systems played a key role in enabling integration, particularly in larger organizations:

"Our sustainability management software connects to core business systems, making sustainability data visible in everyday decision processes. This technical integration was essential—when sustainability data lives in a separate system, it gets ignored." (Participant 28, Technology)

3. Paradox Navigation in Practice

Interview participants described various approaches to navigating sustainability paradoxes, with successful organizations developing structured processes for paradox engagement rather than avoidance:

"We used to try to resolve tensions between short-term financial performance and long-term sustainability investments by creating separate budgets. Now we explicitly discuss these tensions in our planning meetings and look for integrated solutions that advance both objectives." (Participant 3, Manufacturing)

The most effective paradox navigation approaches included:

- *Acceptance practices* - Acknowledging tensions without attempting to resolve them
- *Both/and thinking* - Rejecting false dichotomies between competing objectives
- *Creative synthesis* - Developing novel approaches that address multiple objectives
- *Structural support* - Creating organizational structures that accommodate complexity

Case study data revealed significant differences in paradox navigation capabilities across organizations. Alpha institutionalized paradox navigation through formal processes:

"Alpha created dedicated 'paradox dialogue' sessions where cross-functional teams explicitly discussed tensions between competing sustainability objectives. These structured conversations transformed how the organization approached sustainability decisions, moving from either/or thinking to both/and innovation." (Case Study Analysis)

In contrast, Beta consistently framed sustainability decisions as either/or choices:

"In Beta's management meetings, sustainability was typically positioned as a trade-off against financial performance. This framing led to oscillation between priorities rather than integrated solutions, with sustainability advancing during profitable periods but being sidelined during financial challenges." (Case Study Analysis)

The case of Epsilon (Social Enterprise) demonstrated how paradox navigation capabilities evolve over time:

"When we started, we saw our social and commercial objectives as fundamentally in tension. Over time, we've developed a more sophisticated understanding of how these objectives can be mutually reinforcing. This evolution required both conceptual shifts in how we frame these relationships and practical experience with initiatives that serve multiple goals." (Epsilon, Founder)

The qualitative data also revealed that effective paradox navigation isn't merely cognitive but requires emotional capabilities:

"The hardest part isn't intellectual—it's emotional. People get uncomfortable with ambiguity and contradictions. We've had to develop emotional capacity to sit with that discomfort rather than rushing to eliminate tensions through premature either/or decisions." (Participant 37, Non-profit)

4. Learning Systems for Sustainability

Organizations with strong transformation outcomes implemented systematic approaches to learning that connected individual, group, and organizational levels:

"We've developed a multi-level learning system for sustainability. Individual employees participate in sustainability training and have personal development goals. Teams have regular reflection sessions to discuss what's working and what isn't. At the organizational level, we have quarterly reviews where we assess overall progress and adjust our approach." (Participant 31, Healthcare)

Effective learning systems included:

- *Psychological safety* - Creating environments where people felt safe discussing failures
- *Feedback mechanisms* - Developing robust approaches to monitoring and assessment
- *Reflection practices* - Institutionalizing regular reflection on experience
- *Knowledge management* - Creating systems to capture and share learning

Delta (Healthcare) demonstrated a particularly robust learning system:

"Delta implemented a formal 'sustainability learning cycle' with quarterly review and reflection processes. Each review examined outcomes against goals, identified barriers to progress, and generated insights for improvement. These insights were documented in a knowledge management system accessible to all employees and incorporated into future planning." (Case Study Analysis)

In contrast, Epsilon struggled with knowledge management despite strong individual learning:

"While Epsilon had passionate employees who individually sought sustainability knowledge, the organization lacked formal mechanisms to capture and share this learning. Knowledge remained

siloes within individuals or teams, limiting organizational learning and leading to repeated 'reinvention of the wheel' with each new initiative." (Case Study Analysis)

The case studies revealed that double-loop learning—questioning fundamental assumptions—was particularly important for transformative change. Gamma (Financial Services) demonstrated this approach:

"When our initial sustainability efforts produced limited results, we didn't just adjust our methods—we questioned our underlying assumptions about the relationship between sustainability and our business model. This deeper reflection led to fundamental changes in how we defined our purpose and strategy, enabling much more significant transformation."
(Gamma, Executive)

Digital technologies increasingly enable learning systems, particularly for organizations with distributed operations:

"Our digital collaboration platform has transformed how we learn. Sustainability teams across different regions share experiences in real-time, allowing us to quickly identify what works and adapt practices to local contexts. This accelerates learning across the entire organization."
(Participant 14, Consumer Goods)

5. Contextual Contingencies of Transformation

The qualitative data revealed significant contextual contingencies that explained variation in quantitative relationships across organizational types and sectors. Table 4 summarizes these contextual patterns based on cross-case analysis.

The qualitative data revealed how these contextual factors shaped transformation approaches. Ownership structure significantly influenced transformation pathways, with publicly traded companies facing distinct challenges:

"As a public company, quarterly earnings pressure creates a constant tension with longer-term sustainability investments. We've had to develop specific approaches to manage this tension, including dedicated innovation funds that protect longer-term initiatives from short-term pressures." (Alpha, Executive)

In contrast, Epsilon's social enterprise structure created different dynamics:

"Our legal structure as a benefit corporation fundamentally shapes our approach to sustainability. It's built into our governance, with directors legally required to consider social and environmental impacts alongside financial returns. This creates institutional support for sustainability that most conventional companies lack." (Epsilon, Director)

Organizational history emerged as another critical contingency:

"The transformation journey looks completely different depending on your starting point. We were founded with sustainability as part of our mission, so we didn't face the same resistance as traditional companies. But we faced different challenges around scaling our impact while maintaining our values." (Participant 18, Social Enterprise)

Sectoral dynamics created distinct transformation pathways. Manufacturing organizations typically emphasized operational efficiency and product innovation:

"In manufacturing, our sustainability transformation focused heavily on resource efficiency, circular material flows, and product redesign. These tangible aspects provided clear business cases that helped overcome resistance." (Beta, Manager)

Table 4. Transformation Patterns Across Organizational Contexts.

Organizational Context	Dominant Transformation Approach	Critical Success Factors	Key Challenges
Large Incumbents	Systematic integration	Executive sponsorship, Formal governance, Resource commitment	Cultural inertia, Competing priorities, System complexity
Entrepreneurial	Purpose-driven culture	Mission alignment, Founder commitment, Stakeholder relationships	Resource constraints, Scaling impact, Maintaining values
Public Sector	Policy-driven change	Political mandate, Stakeholder engagement, Regulatory alignment	Political cycles, Resource constraints, Bureaucratic processes
B2C Sectors	Brand-driven initiatives	Consumer pressure, Reputational concerns, Market differentiation	Authenticity perceptions, Value chain complexity, Measurement challenges
B2B Sectors	Client and regulation-driven	Client requirements, Industry standards, Efficiency gains	Limited market pressure, Technical complexity, Investment horizons
Global Organizations	Centralized strategy with local adaptation	Strong governance, Contextual flexibility, Knowledge transfer	Contextual variation, Competing priorities, Implementation consistency

Service organizations, by contrast, focused more on human capital and digital transformation:

"As a service business, our biggest sustainability impacts relate to our people and our digital infrastructure. Our transformation emphasized employee well-being, inclusive culture, and digital technologies that reduce environmental impact while enhancing service quality."

(Gamma, Director)

Geographic and cultural contexts also shaped transformation approaches:

"In our Asian operations, hierarchical cultural norms significantly influence how sustainability initiatives must be introduced and implemented. Leadership endorsement is essential, and initiatives must respect hierarchical structures while still enabling participation."

(Participant 39, Manufacturing)

Digital transformation emerged as an important contextual factor shaping sustainability approaches:

"Our digital transformation and sustainability transformation have become increasingly intertwined. Digital technologies enable new approaches to sustainability through enhanced transparency, coordination capabilities, and data-driven decision-making. Organizations further advanced in digital transformation often had advantages in implementing certain sustainability practices."

(Case Study Analysis)

Discussion

Theoretical Contributions

This study makes several contributions to understanding sustainability transformations in organizations. First, it advances structuration theory by specifying the mechanisms through which agency and structure interact in sustainability transformations. The findings demonstrate that transformation emerges from the recursive relationship between institutional conditions and individual agency, with power mobilization, paradox navigation, and learning systems mediating this relationship. The significant interaction effects identified in the quantitative analysis confirm that

institutional conditions and change agency are interdependent rather than separate influences on transformation outcomes.

This structuration perspective extends previous research that has typically emphasized either institutional factors (Markard et al., 2012) or individual agency (Norton et al., 2015) by demonstrating how these dimensions mutually constitute each other. As one executive explained:

"It's not either the system or the people that drive transformation—it's how they interact. Our sustainability champions reshape organizational systems, and those systems in turn enable new forms of agency. It's a continuous, dynamic relationship." (Alpha, Executive)

Second, the research advances understanding of power in sustainability transformations. The findings reveal that power operates through multiple dimensions in sustainability contexts—not merely as a constraint but also as a productive force enabling new practices and arrangements. The significant moderating effect of power mobilization on the relationship between integration practices and transformation outcomes demonstrates that structural interventions are insufficient without attention to power relationships.

This contribution extends previous research on power in sustainability contexts (Levy & Scully, 2007; Avelino, 2021) by empirically demonstrating how different power configurations affect transformation processes across diverse organizational contexts. The research reveals specific strategies through which change agents navigate and reshape power relationships to advance sustainability initiatives.

Third, the findings contribute to paradox theory by empirically demonstrating the relationship between paradox navigation capabilities and transformation outcomes. Organizations that develop structured approaches to engaging with sustainability tensions achieve better outcomes than those seeking to eliminate these tensions or force false choices. This finding supports Smith and Lewis's (2011) dynamic equilibrium model of organizing but extends it by identifying specific practices that enable productive engagement with paradoxes in sustainability contexts.

The research also reveals that paradox navigation capabilities vary significantly across organizational contexts, with larger and more complex organizations particularly benefiting from these capabilities. This contextual contingency extends previous research by Hahn et al. (2018) by demonstrating how the value of paradox navigation varies across different organizational types and sectors.

Fourth, this research advances understanding of contextual contingencies in sustainability transformation. The significant differences in relationships across sectors, sizes, and geographic contexts challenge universal prescriptions for sustainability transformation and suggest the need for contextually tailored approaches. The typology of transformation patterns across organizational contexts (Table 4) provides a foundation for more nuanced theoretical models that recognize contextual variation while identifying common principles.

This contribution responds to calls for more contextualized understanding of sustainability transformations (Banerjee & Arjaliès, 2022) by empirically demonstrating how organizational context shapes both the process and outcomes of transformation. The findings suggest that effective sustainability approaches are not universal but must be adapted to specific contextual conditions.

Finally, the research contributes to emerging perspectives on digital sustainability (George et al., 2021) by identifying how digital technologies enable new approaches to sustainability transformation. The findings reveal that digital infrastructure increasingly serves as an important mediating factor between institutional conditions and organizational capabilities, enabling enhanced transparency, coordination, and learning that support sustainability initiatives.

Practical Implications

The findings have several implications for organizations seeking to advance sustainability transformations. First, they suggest that organizations should invest in both institutional engagement and change agency development, recognizing the complementary nature of these approaches. The

significant interaction effect between institutional conditions and change agency indicates that these investments should be calibrated based on specific institutional contexts.

Organizations facing challenging institutional environments should place particular emphasis on developing change agency capabilities, including political skills, coalition building, and strategic framing. As one participant noted:

"When external conditions aren't supportive, internal champions become even more critical. We've invested heavily in developing a network of sustainability advocates throughout the organization who can advance initiatives despite limited external support." (Participant 27, Manufacturing)

Conversely, organizations in supportive institutional contexts should focus on leveraging those conditions through active participation in industry initiatives, policy engagement, and stakeholder collaboration.

Second, this research underscores the importance of integration rather than compartmentalization. Organizations should focus on embedding sustainability considerations into core business processes rather than creating isolated sustainability functions. The strong relationship between integration practices and transformation outcomes ($\beta = 0.42$, $f^2 = 0.25$) suggests this should be a priority for organizations serious about sustainability.

Effective integration requires attention to four dimensions:

1. **Governance integration** - Establish board and executive oversight of sustainability
2. **Strategic integration** - Embed sustainability in strategic planning and goal-setting
3. **Operational integration** - Incorporate sustainability into core business processes
4. **Performance integration** - Link sustainability metrics to compensation and advancement

These dimensions should be implemented as a coordinated system rather than isolated initiatives, with strategic integration typically preceding operational and performance integration.

Third, the findings highlight the value of developing paradox navigation capabilities. Organizations should create processes and structures that enable productive engagement with sustainability tensions rather than seeking to eliminate these tensions or force false choices. Specific approaches include:

- Establish formal dialogue processes that explicitly surface and explore tensions
- Train leaders in both/and thinking and creative approaches to apparent trade-offs
- Create decision frameworks that accommodate multiple criteria rather than forcing artificial prioritization
- Design organizational structures that allow for simultaneous attention to competing demands

These capabilities are particularly valuable in larger and more complex organizations, where competing demands are more prevalent and challenging to manage.

Fourth, this research demonstrates the importance of systematic learning approaches. Organizations should invest in multi-level learning systems that connect individual, group, and organizational learning around sustainability challenges. Effective learning systems include:

- Psychological safety mechanisms that encourage open discussion of challenges and failures
- Regular reflection processes at team and organizational levels
- Knowledge management systems that capture and share learning
- Governance structures that incorporate learning into strategic decisions

Digital technologies can significantly enhance these learning systems, particularly for organizations with distributed operations.

Fifth, the findings suggest that transformation approaches should be tailored to specific organizational contexts. The significant contextual contingencies identified in this research indicate that organizations should adapt transformation strategies based on their sector, size, history, and institutional position rather than adopting generic best practices.

The typology of transformation patterns (Table 4) provides guidance for contextually appropriate approaches. For example, large incumbent organizations should emphasize systematic integration with strong governance mechanisms, while entrepreneurial organizations should focus on purpose-driven culture and stakeholder relationships.

Finally, the research highlights the importance of understanding and working with power dynamics. Sustainability leaders should:

- Map the power landscape to identify key decision-makers, influencers, and potential allies
- Develop tailored influence strategies for different stakeholders
- Build coalitions that enhance collective influence
- Frame sustainability initiatives in ways that align with powerful stakeholders' priorities
- Create structural changes that institutionalize sustainability influence

These power-conscious approaches are essential for translating sustainability aspirations into substantive action.

Limitations and Future Research

This study has several limitations that suggest directions for future research. First, while the mixed-methods approach provides both breadth and depth, the cross-sectional nature of the quantitative data limits causal inference. Future research should employ longitudinal designs to track how sustainability transformations unfold over time, capturing the dynamic interaction between structure and agency as it evolves through successive cycles of structuration.

Second, while the sample includes diverse organizational types and sectors, it overrepresents organizations with explicit sustainability commitments. This selection bias may limit understanding of transformation processes in organizations at earlier stages of sustainability engagement. Future research should examine how sustainability transformations begin in organizations without established commitments, particularly focusing on how initial conditions shape subsequent transformation pathways.

Third, this research focuses primarily on internal organizational dynamics, with limited attention to external stakeholder relationships. Future research should more explicitly examine how stakeholder engagement shapes transformation processes and outcomes, particularly how organizations navigate competing stakeholder demands. Research on multi-stakeholder initiatives could provide valuable insights into how organizations collectively address sustainability challenges that exceed individual organizational capabilities.

Fourth, while this study identifies contextual contingencies, it does not fully theorize how these contingencies shape optimal transformation approaches. Future research should develop more comprehensive contingency frameworks to guide context-specific transformation strategies, possibly employing configurational approaches that identify effective combinations of practices across different contexts.

Fifth, this research examines sustainability transformation broadly rather than focusing on specific dimensions like climate action, circular economy, or social sustainability. Future research should investigate whether transformation dynamics vary across these different sustainability domains, as each may involve distinct institutional conditions, power relationships, and organizational capabilities.

Sixth, while the study touches on digital transformation as a contextual factor, it does not fully explore the relationship between digital and sustainability transformations. Future research should examine how these parallel transformation processes interact, identifying both synergies and tensions between digital and sustainability objectives.

Finally, this study's conceptualization of sustainability is primarily organizational rather than systemic. Future research should engage more deeply with critical and regenerative perspectives that question whether conventional organizational approaches are sufficient to address mounting

sustainability challenges. Research examining more radical transformation approaches could provide valuable insights into alternative pathways toward sustainable futures.

Conclusions

This study advances understanding of sustainability transformations by empirically examining the recursive relationship between micro-level agency and macro-institutional conditions across diverse organizational contexts. Drawing on structuration theory, the research demonstrates that successful transformation emerges from the ongoing interaction between structural conditions and human agency, mediated by power mobilization strategies, paradox navigation capabilities, and multi-level learning systems.

The findings reveal that sustainability transformation is inherently contextual, with optimal approaches varying across organizational types, sectors, and institutional environments. However, certain principles apply broadly: the importance of embedding sustainability throughout organizational systems, developing capabilities to navigate paradoxical tensions, creating robust learning mechanisms, and attending to power dynamics that enable or constrain change.

The research makes theoretical contributions to structuration theory, power theories, paradox theory, and contextual understanding of sustainability transformations. For practitioners, it provides evidence-based guidance for creating conditions conducive to transformative change, emphasizing the need for contextually-appropriate approaches rather than universal prescriptions.

As organizations continue to grapple with mounting sustainability challenges, this people-centric perspective offers a valuable lens for understanding and facilitating the transformations necessary to create more sustainable futures. By recognizing that transformation emerges from the dynamic interplay between institutional structures and human agency, organizations can develop more effective approaches that harness this recursive relationship rather than focusing on either dimension alone.

Appendix A: Survey Instrument

Survey Instrument: Sustainability Transformation in Organizations

Introduction and Consent

Thank you for participating in this research study on organizational sustainability transformation. This survey examines how organizations navigate the challenges of sustainability transitions, with particular focus on the interplay between institutional conditions and individual agency.

The survey will take approximately 20-25 minutes to complete. Your responses will remain confidential and will be reported only in aggregate form. Participation is voluntary, and you may exit the survey at any time.

By proceeding with this survey, you consent to participate in this research study.

Section 1: Demographic Information

1. Which sector best describes your organization?
 - Manufacturing
 - Services
 - Public Sector
 - Non-profit
 - Other (please specify): _____
2. What is the size of your organization?
 - Less than 250 employees
 - 250-1,000 employees

- 1,000-10,000 employees
 - More than 10,000 employees
3. In which region is your organization headquartered?
 - North America
 - Europe
 - Asia
 - Latin America
 - Africa
 - Oceania
 4. Which best describes your role in the organization?
 - C-Suite/Executive
 - Sustainability Director/Manager
 - Functional Manager
 - Sustainability Team Member
 - Other (please specify): _____
 5. How long have you been involved with sustainability initiatives?
 - Less than 1 year
 - 1-3 years
 - 4-7 years
 - 8+ years

Section 2: Institutional Conditions

Please indicate your level of agreement with the following statements about the institutional environment in which your organization operates. (1 = Strongly Disagree, 7 = Strongly Agree)

Regulatory Context

1. Sustainability-related regulations in our industry are stringent.
2. Regulatory compliance related to sustainability is strictly enforced.
3. Regulatory requirements for sustainability reporting are comprehensive.
4. Regulatory frameworks provide clear guidance for sustainability practices.
5. Regulations incentivize proactive sustainability action rather than just compliance.

Market Dynamics

1. Our customers actively demand sustainable products/services.
2. Competitors in our industry are advancing sustainability initiatives.
3. Sustainability performance influences our market position.
4. Investors/funders evaluate our organization on sustainability criteria.
5. Our supply chain partners expect sustainability commitments from us.

Cultural Context

1. The societies in which we operate value environmental protection.
2. Social expectations regarding corporate responsibility are high.
3. Sustainability is viewed as a legitimate business concern in our context.
4. There is public pressure for organizations like ours to address sustainability challenges.
5. Industry associations promote sustainability as a standard practice.

Technical Infrastructure

1. Technical solutions for our sustainability challenges are readily available.
2. Our industry has established sustainability metrics and standards.
3. Knowledge resources about sustainability practices are accessible.

4. Collaborative platforms for sustainability exist in our industry.
5. Technology enables sustainability innovation in our sector.

Section 3: Change Agency Practices

Please indicate how frequently the following activities occur within your organization. (1 = Never, 7 = Very Frequently)

Strategic Framing

1. Sustainability issues are framed in terms of business opportunities.
2. Sustainability initiatives are connected to core organizational values.
3. Sustainability challenges are positioned as innovation opportunities.
4. Sustainability is framed differently for different stakeholder groups.
5. Long-term sustainability vision is connected to short-term actions.

Coalition Building

1. Sustainability champions form alliances across departments.
2. Supporters of sustainability initiatives are strategically identified and engaged.
3. Partnerships with external stakeholders advance internal sustainability goals.
4. Cross-functional teams collaborate on sustainability challenges.
5. Senior leadership support for sustainability initiatives is actively cultivated.

Resource Mobilization

1. Sustainability champions secure dedicated resources for initiatives.
2. External funding sources for sustainability projects are identified and accessed.
3. Existing organizational resources are repurposed for sustainability work.
4. Human resources with sustainability expertise are strategically deployed.
5. Success stories are leveraged to gain additional resource commitments.

Political Strategies

1. Sustainability champions navigate power dynamics to advance initiatives.
2. Resistance to sustainability initiatives is anticipated and addressed.
3. Informal influence networks are activated to support sustainability efforts.
4. Windows of opportunity for advancing sustainability are strategically exploited.
5. Potential opponents to sustainability initiatives are converted or neutralized.

Section 4: Paradox Navigation Capabilities

Please indicate your level of agreement with the following statements about how your organization handles tensions in sustainability work. (1 = Strongly Disagree, 7 = Strongly Agree)

Acceptance Practices

1. Our organization acknowledges tensions between competing sustainability objectives.
2. We recognize that sustainability involves inherent contradictions.
3. Competing stakeholder demands regarding sustainability are openly discussed.
4. Trade-offs between short-term and long-term considerations are explicitly addressed.
5. We accept that not all sustainability tensions can be permanently resolved.

Both/And Thinking

1. Our organization seeks solutions that address multiple objectives simultaneously.
2. We reject the notion that economic and environmental goals are inherently opposed.
3. Our approach integrates social and environmental considerations rather than separating them.
4. We view sustainability tensions as potential sources of innovation.
5. Our decision processes accommodate complexity rather than forcing oversimplification.

Creative Synthesis

1. We develop novel approaches that address seemingly contradictory requirements.
2. Our organization creates innovative solutions to sustainability paradoxes.
3. We reconfigure resources to overcome apparent trade-offs.
4. Our sustainability strategies transcend conventional either/or thinking.
5. We transform tensions into opportunities for differentiation.

Structural Support

1. Our organizational structure accommodates competing sustainability demands.
2. We have formal mechanisms for addressing sustainability tensions.
3. Resources are allocated to explore solutions to sustainability paradoxes.
4. Decision processes allow for consideration of multiple sustainability criteria.
5. Leadership encourages constructive engagement with sustainability tensions.

Section 5: Organizational Learning Mechanisms

Please indicate how frequently the following learning activities occur in your organization. (1 = Never, 7 = Very Frequently)

Individual Learning

1. Employees receive training on sustainability-related knowledge and skills.
2. Sustainability considerations are included in professional development plans.
3. External sustainability expertise is brought in to enhance internal capabilities.
4. Employees are encouraged to experiment with sustainability innovations.
5. Individual sustainability learning objectives are established and tracked.

Group Learning

1. Teams reflect on sustainability challenges and experiences.
2. Cross-functional groups share sustainability knowledge and insights.
3. Sustainability communities of practice operate within the organization.
4. Team-level sustainability goals promote collective learning.
5. Groups engage in structured reflection on sustainability initiatives.

Organizational Learning

1. Sustainability experiences are systematically documented and shared.
2. Formal processes exist to review and learn from sustainability initiatives.
3. Sustainability metrics are used to guide organizational learning.
4. Knowledge management systems capture sustainability insights.
5. Learning from sustainability initiatives influences strategic decisions.

Network Learning

1. Our organization participates in sustainability learning networks.
2. We share sustainability knowledge with external stakeholders.
3. Cross-organizational collaborations enhance our sustainability learning.
4. Industry partnerships advance collective sustainability knowledge.
5. We learn from sustainability leaders outside our organization.

Section 6: Integration Practices

Please indicate your level of agreement with the following statements about how sustainability is integrated in your organization. (1 = Strongly Disagree, 7 = Strongly Agree)

Governance Integration

1. Our board has formal responsibility for sustainability oversight.
2. Sustainability considerations are integrated into risk management processes.
3. Executive compensation is linked to sustainability performance.

4. Sustainability governance includes diverse stakeholder perspectives.
5. Formal accountability mechanisms exist for sustainability performance.

Strategic Integration

1. Sustainability is a core element of our organizational strategy.
2. Strategic planning processes incorporate sustainability considerations.
3. Sustainability goals are aligned with overall business objectives.
4. Long-term sustainability vision guides strategic decisions.
5. Resource allocation reflects strategic sustainability priorities.

Operational Integration

1. Sustainability criteria are embedded in operational decision-making.
2. Core business processes incorporate sustainability considerations.
3. Product/service development integrates sustainability requirements.
4. Procurement decisions include sustainability criteria.
5. Everyday operations reflect sustainability commitments.

Performance Integration

1. Sustainability metrics are integrated with other performance indicators.
2. Performance reviews include sustainability-related objectives.
3. Sustainability performance influences career advancement.
4. Reward systems recognize sustainability contributions.
5. Sustainability targets are cascaded throughout the organization.

Section 7: Sustainability Transformation Outcomes

Please indicate your level of agreement with the following statements about sustainability outcomes in your organization. (1 = Strongly Disagree, 7 = Strongly Agree)

Environmental Outcomes

1. Our organization has significantly reduced its environmental footprint.
2. Resource efficiency has improved substantially.
3. Our products/services have reduced environmental impacts.
4. We have innovated to address environmental challenges.
5. Our environmental performance exceeds regulatory requirements.

Social Outcomes

1. Our organization contributes positively to community well-being.
2. We have improved social conditions in our value chain.
3. Diversity, equity, and inclusion have advanced within our organization.
4. Our products/services create social benefits.
5. We actively address human rights considerations.

Economic Outcomes

1. Sustainability initiatives contribute to financial performance.
2. Our sustainability positioning enhances market opportunities.
3. Sustainability-related innovation creates economic value.
4. We have reduced costs through sustainability improvements.
5. Our business model is evolving to be inherently more sustainable.

Transformative Change

1. Sustainability has fundamentally changed how we define success.
2. Our organizational purpose has evolved to incorporate sustainability.
3. Sustainability considerations have transformed decision-making processes.

4. Our organizational culture increasingly embodies sustainability values.
5. Sustainability has become integral to our organizational identity.

Section 8: Open-Ended Questions

1. What do you consider the most significant institutional barriers to sustainability transformation in your organization?
2. What strategies have been most effective in advancing sustainability in your organizational context?
3. How does your organization navigate tensions between different sustainability objectives?
4. What learning approaches have been most valuable for building sustainability capabilities?
5. What advice would you give to others seeking to advance sustainability transformation in similar organizations?

Appendix B: Interview Protocol

Interview Protocol: Sustainability Transformation in Organizations

Thank you for agreeing to participate in this research study on sustainability transformation in organizations. This interview is part of a broader research project examining how organizations navigate the challenges of sustainability transitions, with particular focus on the interplay between institutional conditions and individual agency.

The interview will take approximately 60-90 minutes. With your permission, I would like to record our conversation to ensure accuracy in capturing your insights. Your responses will be kept confidential, and any quotes used in research publications will be anonymized.

Before we begin, do you have any questions about the research or the interview process?

[Obtain verbal consent for participation and recording]

Background Questions

1. Could you briefly describe your role in the organization and how it relates to sustainability initiatives?
2. How long have you been involved with sustainability work, both in this organization and in your career overall?
3. How would you characterize your organization's overall approach to sustainability?
4. What sustainability initiatives or transformations has your organization undertaken in recent years?

Institutional Context

1. How would you describe the institutional environment in which your organization operates regarding sustainability?
 - a. *Probe: Regulatory pressures*
 - b. *Probe: Market expectations*
 - c. *Probe: Stakeholder demands*
 - d. *Probe: Industry norms*
2. Which external factors have most significantly influenced your organization's sustainability approach?
 - a. *Probe: How these influences have changed over time*
 - b. *Probe: Geographic differences in institutional pressures*
3. Could you describe specific instances where external conditions have either enabled or constrained your sustainability efforts?
 - a. *Probe: How the organization responded to these conditions*

- b. *Probe: Strategies for navigating constraints*
- 4. How has your organization sought to influence the broader institutional environment regarding sustainability?
 - a. *Probe: Involvement in industry associations or standards development*
 - b. *Probe: Policy advocacy*
 - c. *Probe: Market education efforts*
- 5. What collaborative arrangements with external stakeholders have been important for your sustainability work?
 - a. *Probe: Cross-sector partnerships*
 - b. *Probe: Industry collaborations*
 - c. *Probe: Challenges and benefits of these collaborations*

Change Agency and Leadership

1. Who have been the key champions or change agents for sustainability in your organization?
 - a. *Probe: Their positions and sources of influence*
 - b. *Probe: How their approach has evolved over time*
2. What strategies have sustainability champions used to advance initiatives within the organization?
 - a. *Probe: Framing approaches*
 - b. *Probe: Coalition building*
 - c. *Probe: Resource mobilization tactics*
3. Could you describe a specific sustainability initiative and how change agents navigated organizational dynamics to implement it?
 - a. *Probe: Barriers encountered*
 - b. *Probe: Strategies for overcoming resistance*
 - c. *Probe: Critical success factors*
4. How do sustainability champions in your organization navigate power dynamics?
 - a. *Probe: Relationships with key decision-makers*
 - b. *Probe: Strategies for influencing without formal authority*
 - c. *Probe: Building legitimacy for sustainability work*
5. What have been the most effective leadership approaches for advancing sustainability in your context?
 - a. *Probe: Leadership styles*
 - b. *Probe: Communication strategies*
 - c. *Probe: Ways of engaging different organizational members*

Paradox Navigation and Tensions

1. What significant tensions or competing demands has your organization encountered in sustainability work?
 - a. *Probe: Short-term vs. long-term considerations*
 - b. *Probe: Economic vs. environmental/social objectives*
 - c. *Probe: Different stakeholder expectations*
2. Could you describe a specific situation where your organization faced seemingly contradictory sustainability objectives? How was this handled?
 - a. *Probe: Decision-making processes*
 - b. *Probe: Trade-offs made or avoided*

- c. *Probe: Innovative solutions developed*
- 3. How does your organization approach the relationship between financial performance and sustainability objectives?
 - a. *Probe: Integration vs. separation*
 - b. *Probe: How conflicts are resolved*
 - c. *Probe: Evolution of this relationship over time*
- 4. What organizational structures or processes help your organization navigate sustainability tensions?
 - a. *Probe: Governance mechanisms*
 - b. *Probe: Decision frameworks*
 - c. *Probe: Dialogue processes*
- 5. How has your organization's approach to sustainability paradoxes evolved over time?
 - a. *Probe: Learning from experience*
 - b. *Probe: Shifts in mindset or approach*
 - c. *Probe: Increasing comfort with complexity*

Learning and Capability Development

- 1. How does your organization develop sustainability capabilities?
 - a. *Probe: Formal training approaches*
 - b. *Probe: Experiential learning*
 - c. *Probe: Knowledge sharing mechanisms*
- 2. Could you describe how your organization learns from sustainability initiatives, both successful and unsuccessful ones?
 - a. *Probe: Reflection processes*
 - b. *Probe: Knowledge capture mechanisms*
 - c. *Probe: Application of lessons learned*
- 3. What mechanisms exist for sharing sustainability knowledge across the organization?
 - a. *Probe: Communities of practice*
 - b. *Probe: Knowledge management systems*
 - c. *Probe: Cross-functional exchange*
- 4. How does your organization engage with external sources of sustainability knowledge?
 - a. *Probe: Industry networks*
 - b. *Probe: Academic partnerships*
 - c. *Probe: Stakeholder dialogue*
- 5. What sustainability capabilities have been most important to develop in your context?
 - a. *Probe: Technical vs. social capabilities*
 - b. *Probe: Leadership capabilities*
 - c. *Probe: Systems thinking capabilities*

Integration Practices

- 1. How is sustainability integrated into your organization's governance structures?
 - a. *Probe: Board involvement*
 - b. *Probe: Executive accountability*
 - c. *Probe: Formal responsibility structures*
- 2. How does sustainability connect to your organization's strategy and core business?
 - a. *Probe: Strategic planning processes*

- b. *Probe: Business model considerations*
 - c. *Probe: Resource allocation*
3. Could you describe how sustainability considerations are incorporated into key operational processes?
 - a. *Probe: Product/service development*
 - b. *Probe: Supply chain management*
 - c. *Probe: Everyday decision-making*
4. How does your organization's performance management system address sustainability?
 - a. *Probe: Metrics and indicators*
 - b. *Probe: Target setting*
 - c. *Probe: Incentive structures*
5. What have been the most effective approaches for embedding sustainability throughout your organization rather than isolating it?
 - a. *Probe: Structural approaches*
 - b. *Probe: Cultural approaches*
 - c. *Probe: Process integration*

Transformation Outcomes and Reflection

1. How would you characterize the progress your organization has made in sustainability transformation?
 - a. *Probe: Environmental outcomes*
 - b. *Probe: Social outcomes*
 - c. *Probe: Business outcomes*
2. What do you see as the most significant changes in how your organization approaches sustainability?
 - a. *Probe: Mindset shifts*
 - b. *Probe: Cultural changes*
 - c. *Probe: Strategic reorientation*
3. What have been the most challenging aspects of sustainability transformation in your organization?
 - a. *Probe: Persistent barriers*
 - b. *Probe: Unexpected difficulties*
 - c. *Probe: Areas of slow progress*
4. If you were to advise another organization in your sector on sustainability transformation, what key lessons would you share?
 - a. *Probe: Critical success factors*
 - b. *Probe: Common pitfalls*
 - c. *Probe: Sequencing of initiatives*
5. Looking ahead, what do you see as the next frontier in your organization's sustainability journey?
 - a. *Probe: Emerging priorities*
 - b. *Probe: Capability needs*
 - c. *Probe: Institutional changes needed*

Closing

1. Is there anything else about sustainability transformation in your organization that you think is important for us to understand?
2. Do you have any questions about this research or how your insights will be used?

Thank you very much for your time and insights. Your contribution to this research is invaluable. If you think of anything else you'd like to add after our conversation, please feel free to contact me.

Appendix C: Comprehensive Case Study Protocol

1. Introduction

This protocol guides the collection and analysis of case study data for the research project "Organizing for Sustainable Futures: Micro and Macro-institutional Conditions of Transformation." It ensures systematic and consistent procedures across all case organizations while maintaining flexibility to capture context-specific insights. The protocol follows recommendations by Yin (2018) and Eisenhardt (1989) for rigorous case study research.

2. Research Questions

The case studies are designed to address the following research questions:

Primary Research Question:

- How do micro-level agency and macro-institutional conditions interact to enable or constrain sustainability transformations in organizations?

Secondary Research Questions:

- What mechanisms mediate between institutional conditions and individual agency in sustainability transformations?
- How do power dynamics influence sustainability transformation processes?
- How do organizations navigate paradoxical tensions in sustainability initiatives?
- What learning systems enable sustainability transformations?
- How do contextual factors shape transformation approaches and outcomes?

3. Theoretical Framework

The case studies are informed by the integrated theoretical framework outlined in the main study, with specific attention to:

- Structuration theory (Giddens, 1984)
- Institutional theory (Scott, 2014)
- Power theories (Fleming & Spicer, 2014; Avelino, 2021)
- Paradox theory (Smith & Lewis, 2011)
- Organizational learning theory (Argyris & Schön, 1996)

4. Case Selection Criteria

Organizations are selected using theoretical sampling to maximize variation across key dimensions:

Primary Dimensions:

1. Transformation approach (incremental vs. radical)
2. Institutional context (supportive vs. challenging)

3. Organizational type (incumbent vs. entrepreneurial)
4. Sector (manufacturing, services, public, hybrid)

Secondary Dimensions:

1. Size (small, medium, large)
2. Geographic scope (regional, national, global)
3. Ownership structure (public, private, non-profit, hybrid)
4. Sustainability maturity (early-stage, intermediate, advanced)

Case selection is documented using a selection matrix that maps potential cases against these dimensions to ensure appropriate variation.

5. Data Collection Procedures

5.1. Overview of Data Sources

For each case organization, data will be collected from multiple sources:

1. **Interviews:** 6-8 semi-structured interviews per organization with diverse stakeholders
2. **Documentation:** Internal and public documents related to sustainability initiatives
3. **Observation:** Site visits and meeting attendance
4. **Archival records:** Historical data on organizational context and initiatives

5.2. Interview Procedures

Participant Selection:

- Organizational representatives across hierarchical levels (executive, management, operational)
- Functional diversity (sustainability, operations, finance, HR, marketing)
- Tenure diversity (long-term employees and newer hires)
- Include both advocates and skeptics of sustainability initiatives

Interview Process:

- Initial contact through established organizational liaison
- Provision of information sheet and consent form prior to interview
- 60-90 minute semi-structured interviews following the main interview protocol (Appendix B)
- Audio recording with participant permission
- Immediate post-interview field notes capturing context and initial impressions
- Verbatim transcription within two weeks of interview

5.3. Documentation Collection

Types of Documents:

- Sustainability strategy documents
- Board and committee meeting minutes related to sustainability
- Sustainability reports (internal and public)
- Implementation plans for sustainability initiatives
- Performance metrics and evaluation reports
- Training materials related to sustainability
- Internal communications about sustainability
- External communications (press releases, website content, social media)

Documentation Process:

- Request documents through organizational liaison
- Create inventory spreadsheet with document metadata
- Store documents in secure case database with consistent naming convention
- Record context of document creation and use

5.4. Observation Procedures

Observation Settings:

- Sustainability-related meetings (planning, review, implementation)
- Training or workshop sessions
- Operational contexts relevant to sustainability initiatives
- Formal presentations about sustainability

Observation Process:

- Negotiate access through organizational liaison
- Develop observation guide specific to each setting
- Record structured field notes using template
- Include both descriptive and reflective elements
- Document physical environment, participants, activities, interactions, and language
- Transcribe handwritten notes within 24 hours
- Record contextual factors that might influence observed behaviors

5.5. Archival Records Collection

Types of Records:

- Historical sustainability reports and strategies
- Previous organizational structures and governance arrangements
- Industry and regulatory context documents
- Media coverage of organization's sustainability initiatives
- Previous external evaluations or audits

Collection Process:

- Identify relevant time periods based on transformation timeline
- Request records through organizational liaison
- Supplement with public sources (media archives, industry reports)
- Create chronological database of archival materials

6. Data Management

6.1. Case Study Database

A comprehensive case study database will be established for each organization, including:

- Interview transcripts and field notes
- Document inventory and files
- Observation notes
- Archival records
- Audio recordings (secured separately with restricted access)
- Research team memos and analysis notes
- Chain of evidence documentation

6.2. Data Security and Confidentiality

- All data stored on encrypted servers
- Participant identifiers removed from all documents
- Organizational identifiers replaced with pseudonyms
- Access restricted to authorized research team members
- Data backed up weekly on secure server
- Physical documents stored in locked cabinets

7. Data Analysis Procedures

7.1. Within-Case Analysis

Initial Coding:

- Develop preliminary coding scheme based on theoretical framework
- Conduct open coding of first set of data to allow for emergent themes
- Refine coding scheme based on initial analysis
- Code all data sources using NVivo software
- Maintain detailed coding memos

Analytical Techniques:

- Chronological sequencing of key events and decisions
- Process tracing to identify causal mechanisms
- Pattern matching between theoretical predictions and empirical observations
- Explanation building to develop case-specific narrative
- Triangulation across data sources to verify findings

Analytical Products:

- Detailed case narrative
- Visual process maps of transformation journey
- Thematic analysis summary
- Power and stakeholder maps
- Paradox mapping and resolution strategies
- Organizational learning cycles
- Integrated causal mechanism model

7.2. Cross-Case Analysis

Analytical Techniques:

- Structured comparison using dimensions from theoretical framework
- Pattern recognition across cases
- Identification of common mechanisms and context-specific variations
- Configurational analysis of successful and challenging transformation approaches
- Typology development
- Meta-matrices for comparing key dimensions across cases

Quality Assurance:

- Multiple coders for subset of data with inter-coder reliability assessment
- Periodic research team analysis meetings to discuss emerging patterns
- Alternative explanation development and testing

- Negative case analysis for disconfirming evidence
- Member checking with organizational representatives

8. Case Study Protocol for Site Visits

8.1. Pre-Visit Preparation

Two Weeks Before Visit:

- Confirm schedule and participants with organizational liaison
- Review preliminary documentation
- Prepare site-specific interview guides
- Develop observation protocols for scheduled activities
- Brief research team on organizational context and focus areas

Materials to Bring:

- Information sheets and consent forms
- Recording equipment (primary and backup)
- Field notebooks and observation templates
- Interview guides
- Document collection checklist
- Business cards and identification

8.2. Site Visit Structure

Day 1:

- Initial meeting with organizational liaison
- Orientation to site and facilities
- Contextual interviews with leadership
- Document collection
- Team debrief and planning session

Days 2-3:

- Core interviews with diverse stakeholders
- Observation of relevant activities
- Informal conversations with employees
- Ongoing document collection
- Daily team debrief and adjustment of focus areas

Final Day:

- Follow-up interviews to address gaps
- Preliminary feedback session with key stakeholders
- Final document collection
- Comprehensive team debrief and initial analysis
- Next steps planning with organizational liaison

8.3. Post-Visit Procedures

Within 48 Hours:

- Complete and organize all field notes
- Conduct preliminary team debrief
- Identify immediate follow-up items
- Send thank you communications to organization

Within Two Weeks:

- Complete all transcriptions
- Organize collected documents in case database
- Develop preliminary case summary
- Identify gaps requiring follow-up
- Schedule remote follow-up interviews if needed

Within One Month:

- Complete initial coding of all data
- Develop detailed case narrative
- Share preliminary findings with organizational liaison for feedback
- Incorporate feedback and refine analysis

9. Case Study Report Template

Each case study report will follow a consistent structure:

1. *Organizational Context*
 - a. History and background
 - b. Sector and competitive environment
 - c. Organizational structure and governance
 - d. Sustainability journey timeline
2. *Institutional Conditions*
 - a. Regulatory environment
 - b. Market dynamics
 - c. Cultural context
 - d. Technological infrastructure
 - e. Stakeholder expectations
3. *Sustainability Transformation Approach*
 - a. Vision and strategy
 - b. Key initiatives and projects
 - c. Governance and accountability mechanisms
 - d. Resource allocation
 - e. Performance measurement
4. *Key Actors and Power Dynamics*
 - a. Leadership involvement
 - b. Change agents and their strategies
 - c. Resistance and its sources
 - d. Power mobilization approaches
 - e. Evolution of influence patterns
5. *Paradoxical Tensions*
 - a. Primary tensions encountered
 - b. Approaches to paradox navigation
 - c. Structural supports for paradox engagement
 - d. Evolution of paradox capabilities
6. *Learning Systems*
 - a. Learning mechanisms at multiple levels
 - b. Knowledge sharing approaches

- c. Reflection practices
- d. Adaptation based on learning
- 7. *Contextual Contingencies*
 - a. Organization-specific enablers and barriers
 - b. Contextual factors shaping transformation
 - c. Adaptation of approaches to context
- 8. *Outcomes and Impact*
 - a. Environmental outcomes
 - b. Social outcomes
 - c. Economic outcomes
 - d. Transformative change indicators
- 9. *Analytical Insights*
 - a. Key mechanisms identified
 - b. Theoretical implications
 - c. Practical lessons
 - d. Unique case features

10. Quality Criteria and Validation Procedures

10.1. Quality Criteria

The case studies will be evaluated against established quality criteria for qualitative research:

Credibility:

- Prolonged engagement with each organization
- Persistent observation of key phenomena
- Triangulation across data sources
- Peer debriefing within research team
- Member checking with organizational representatives

Transferability:

- Thick description of context and processes
- Purposive sampling across diverse contexts
- Explicit documentation of contextual factors
- Clear delineation of boundary conditions

Dependability:

- Detailed documentation of research procedures
- Maintenance of audit trail
- Consistent application of protocols
- Regular research team review meetings

Confirmability:

- Reflexive journaling by researchers
- Explicit consideration of alternative explanations
- Recognition of researcher positionality
- Data preservation for potential external audit

10.2. Validation Procedures

Member Checking:

- Share case narratives with key organizational representatives
- Conduct validation workshops with participants
- Incorporate feedback while maintaining analytical integrity
- Document areas of agreement and disagreement

Peer Review:

- Regular review of analytical process by research team members not directly involved in specific case
- Presentation of preliminary findings at research seminars
- External expert review of selected case reports

Triangulation:

- Data source triangulation (multiple informants and documents)
- Methodological triangulation (interviews, observation, documents)
- Investigator triangulation (multiple researchers coding and analyzing)
- Theoretical triangulation (multiple theoretical perspectives)

Negative Case Analysis:

- Active search for disconfirming evidence
- Documentation of exceptions to patterns
- Refinement of interpretations to account for contradictory evidence

11. Ethical Considerations

11.1. *Informed Consent*

- Organizational consent obtained before case study begins
- Individual informed consent for all interview participants
- Clear explanation of research purpose and processes
- Explicit discussion of confidentiality provisions
- Right to withdraw at any point

11.2. *Confidentiality and Anonymity*

- Organizational anonymity through pseudonyms
- Individual anonymity in all research outputs
- Removal of identifying details from quotes and examples
- Secure data storage with access controls
- Option for pre-publication review by organization

11.3. *Reciprocity*

- Provision of case study report to organization
- Offer of workshop to discuss findings and implications
- Sharing of cross-case insights relevant to organization
- Access to final research outputs
- Potential for ongoing research relationship

11.4. Risk Management

- Assessment of potential risks to participants and organizations
- Protocols for handling sensitive information
- Procedures for addressing unexpected ethical issues
- Regular ethical reflection by research team
- Compliance with institutional ethical guidelines

12. Case Study Timeline

Weeks 1-2:

- Initial contact and access negotiation
- Preliminary document collection
- Research team preparation

Weeks 3-4:

- Site visit and intensive data collection
- Initial analysis and gap identification

Weeks 5-6:

- Follow-up data collection
- Transcription completion
- Data organization

Weeks 7-9:

- Detailed coding and analysis
- Case narrative development
- Preliminary findings identification

Weeks 10-11:

- Member checking and validation
- Refinement of analysis
- Case report completion

Weeks 12-14:

- Cross-case analysis
- Theoretical integration
- Final report preparation

13. Research Team Roles and Responsibilities

Principal Investigator:

- Overall project oversight
- Access negotiation
- Final approval of case reports
- Cross-case integration

Case Study Lead (assigned to each case):

- Day-to-day management of case
- Primary contact with organization
- Coordination of site visit
- Initial case analysis
- Case report drafting

Research Associates:

- Interview conducting
- Document analysis
- Observation data collection
- Initial coding
- Analytical support

Specialized Analysts (as needed):

- Sector-specific expertise
- Institutional context analysis
- Power dynamics analysis
- Learning systems analysis

Administrative Support:

- Interview scheduling
- Transcription management
- Database maintenance
- Document organization

14. Adaptations for Specific Organizational Contexts

This protocol provides a general framework that will be adapted for each case organization based on:

Sector-Specific Considerations:

- Terminology adaptations for different sectors
- Sector-relevant sustainability metrics
- Industry-specific institutional factors

Size Adaptations:

- Scaled approach for smaller organizations
- More comprehensive sampling in larger organizations
- Adjusted site visit duration based on organizational complexity

Access Variations:

- Modified data collection for organizations with restricted access
- Alternative approaches when certain data sources unavailable
- Virtual methods when site visits not possible

Cultural Adaptations:

- Culturally appropriate interview approaches
- Consideration of language and translation needs
- Sensitivity to organizational and national cultural norms

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