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Navigating Power Dynamics in Sustainability Transformation: Extending Integration Mechanisms Across Organizational Boundaries

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Abstract

This study extends Westover's (2025) research on sustainability transformation by investigating how power dynamics operate across organizational boundaries to enable or constrain substantive change. Using a mixed-methods approach combining survey data (n=127) from sustainability professionals across multiple sectors and in-depth interviews (n=18) with transformation leaders, this research identifies how organizations navigate power asymmetries in supply chains and multi-stakeholder partnerships. Statistical analysis reveals that inter-organizational power mobilization significantly enhances the effectiveness of integration mechanisms ($\beta = 0.36$, $p < 0.01$), with digital transparency tools emerging as the strongest enabler of power reconfiguration ($\beta = 0.41$, $p < 0.01$). Qualitative findings illuminate three critical pathways through which organizations reshape power dynamics: technological transparency mechanisms, collaborative governance structures, and capability building networks. The research contributes to sustainability science by advancing understanding of how organizations can move beyond internal transformation to address systemic sustainability challenges through power-conscious approaches that reshape relationships across organizational boundaries. The findings offer evidence-based guidance for practitioners seeking to enhance sustainability impact through strategic management of inter-organizational power dynamics.

Keywords: AI-HR integration; organizational transformation; augmented capabilities; data-driven culture; ethical governance; talent acquisition; performance management; learning personalization; data quality; capability gaps; employee resistance; change management; implementation framework; strategic alignment; process redesign; data architecture; mixed-methods research; HR technology; people operations; AI adoption

1. Introduction

Despite growing commitment to sustainability across sectors, organizations continue to struggle with translating sustainability aspirations into substantive transformation (Bansal & Song, 2017; Westover, 2025). Westover's (2025) study identified integration mechanisms and paradox navigation capabilities as critical enablers of sustainability transformation, with power mobilization significantly moderating the effectiveness of integration practices. However, Westover's research focused primarily on power dynamics within organizational boundaries, leaving important questions about how organizations navigate power relationships across supply chains, partnerships, and broader systems to advance sustainability transformation.

This research addresses this gap by investigating how organizations mobilize and reshape power across organizational boundaries to enable more substantive sustainability transformations. Drawing on both Westover's (2025) foundation and broader literature on power in inter-organizational relationships (Huxham & Vangen, 2005; Touboulic et al., 2014), this study examines three critical questions:

1. How do organizations navigate power asymmetries in supply chains and partnerships to advance sustainability transformation?

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2. What specific mechanisms enable organizations to reshape power dynamics across organizational boundaries?
3. How do digital technologies function as tools for reconfiguring power relationships in sustainability contexts?

By addressing these questions, this research extends Westover's (2025) findings beyond internal organizational dynamics to examine how power operates at the interface between organizations and broader systems. This extension is critical because many sustainability challenges transcend organizational boundaries, requiring coordinated action across complex networks of actors with unequal power and divergent interests (Williams et al., 2017).

The study is grounded in three complementary theoretical perspectives. First, it builds on Fleming and Spicer's (2014) multi-dimensional conceptualization of power as operating through direct influence, agenda setting, structural arrangements, and identity formation. Second, it draws on resource dependency theory (Pfeffer & Salancik, 1978; Hillman et al., 2009) to understand how organizations leverage and transform resource dependencies in sustainability contexts. Third, it incorporates insights from socio-technical transition theory (Geels, 2020) to examine how technological innovations reshape power dynamics in sustainability transitions.

This theoretical integration provides a robust foundation for understanding how power operates not merely as a constraint on sustainability transformation but as a dynamic that can be strategically reshaped to enable more substantive change. The research contributes to sustainability science by advancing understanding of how organizations can address systemic sustainability challenges through power-conscious approaches that work across organizational boundaries.

2. Theoretical Background

2.1. Power Dynamics in Sustainability Transformation

Sustainability transformation inherently involves navigating complex power dynamics that determine which initiatives gain traction, whose interests are served, and how resources are allocated (Avelino, 2017; Westover, 2025). Westover's (2025) research demonstrated that power mobilization significantly moderates the effectiveness of integration practices ($\beta = 0.19$, $p < 0.01$), indicating that structural interventions alone are insufficient without attention to power relationships.

Power in organizational contexts operates through multiple dimensions (Fleming & Spicer, 2014). These include episodic power (direct influence over decisions), manipulative power (shaping agendas and priorities), domination (creating structural arrangements that privilege certain interests), and subjectification (shaping identities and preferences). These dimensions provide a framework for understanding how power shapes sustainability transformation processes across organizational boundaries.

Recent research has extended this understanding by examining how power operates in sustainability contexts specifically. Avelino (2017) distinguishes between "power over" (ability to control resources or influence others), "power to" (ability to create or achieve outcomes), and "power with" (collective ability to achieve shared goals). This typology is particularly valuable for understanding how organizations might shift from coercive approaches to more collaborative power dynamics in sustainability contexts.

However, existing research has predominantly focused on power dynamics within organizational boundaries, with limited attention to how organizations navigate and reshape power relationships across supply chains, partnerships, and broader systems (Touboulic et al., 2014). This gap is significant because many sustainability challenges require coordinated action across multiple organizations with unequal power and diverse interests.

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2.2. Inter-Organizational Power in Supply Chains and Partnerships

Supply chains and multi-stakeholder partnerships represent critical contexts where power dynamics shape sustainability outcomes (Touboulic et al., 2014; Huxham & Vangen, 2005). In supply chains, power asymmetries often enable lead firms to impose sustainability requirements on suppliers but may constrain more collaborative approaches to sustainability innovation (Roscoe et al., 2020).

Resource dependency theory provides a valuable lens for understanding these dynamics, suggesting that organizations attempt to manage their dependencies on other actors to maintain autonomy while securing needed resources (Pfeffer & Salancik, 1978; Hillman et al., 2009). In sustainability contexts, resource dependencies may include access to materials, knowledge, legitimacy, and market opportunities. Power in inter-organizational relationships derives significantly from these resource dependencies, with more powerful actors controlling resources that others depend upon (Casciaro & Piskorski, 2005).

Recent research has begun to examine how organizations might transform rather than merely manage these dependencies. Touboulic et al. (2014) identified how sustainability initiatives can shift from compliance-based approaches where powerful buyers impose requirements on dependent suppliers to more collaborative approaches that build shared capabilities and mutual benefits. Similarly, Huxham and Vangen (2005) distinguished between "power over" and "power to" in collaborative contexts, suggesting that effective collaboration requires shifting from domination to enablement.

However, limited empirical research has examined the specific mechanisms through which organizations reshape power dynamics across organizational boundaries in sustainability contexts. This research addresses this gap by identifying and analyzing these mechanisms.

2.3. Digital Technologies and Power Reconfiguration

Digital technologies are increasingly recognized as potential tools for reshaping power dynamics in sustainability contexts (Gholami et al., 2016; George et al., 2021). These technologies can enhance transparency, enable new forms of collaboration, democratize access to information, and create platforms for collective action that may alter traditional power arrangements.

Blockchain technologies, for example, can increase supply chain transparency by creating immutable records of sustainability credentials that reduce information asymmetries between powerful buyers and smaller suppliers (Saberi et al., 2019). Similarly, digital platforms can enable direct connections between producers and consumers, potentially disrupting traditional power structures in supply chains (Geels, 2020).

Socio-technical transition theory provides a framework for understanding how technological innovations interact with social and institutional arrangements to enable system transitions (Geels, 2020). From this perspective, digital technologies represent not merely technical tools but socio-technical innovations that reshape power relationships, institutional arrangements, and actor networks.

However, digital technologies may also reinforce existing power asymmetries by creating new forms of surveillance, control, and exclusion (Zuboff, 2019). Organizations with greater resources and technical capabilities may leverage digital technologies to enhance their power relative to less-resourced actors. Understanding the conditions under which digital technologies enable more equitable power relationships rather than reinforcing inequalities represents an important area for empirical investigation.

2.4. Conceptual Framework and Research Hypotheses

Based on this theoretical foundation, Figure 1 presents the conceptual framework guiding this research. The framework positions inter-organizational power dynamics as a critical mediating factor between organizational capabilities and substantive sustainability transformation. It identifies three

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pathways through which organizations may reshape power dynamics across organizational boundaries: technological mechanisms, governance structures, and capability building networks.

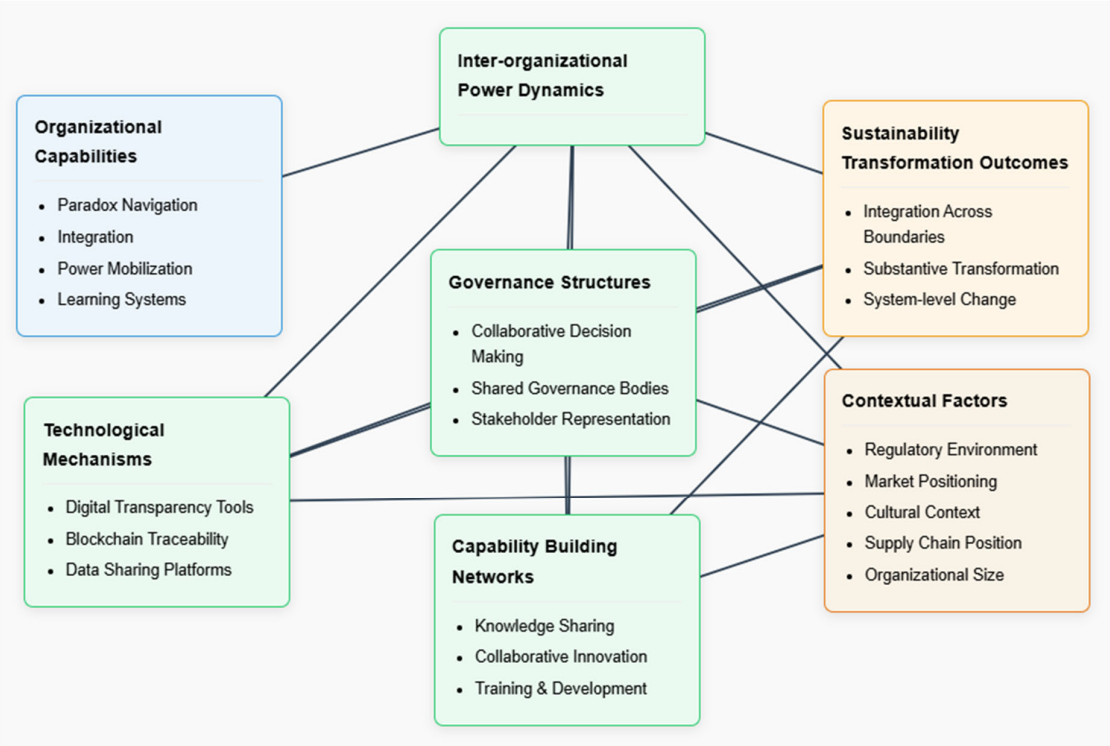

Figure 1. Conceptual Framework of Inter-organizational Power Dynamics in Sustainability Transformation.

Drawing on this conceptual framework and the theoretical perspectives outlined above, the following hypotheses are proposed:

- **H1:** Inter-organizational power mobilization positively influences integration across organizational boundaries in sustainability initiatives.
- **H2:** Digital transparency mechanisms positively influence integration across organizational boundaries, with stronger effects for less powerful supply chain actors than for dominant focal firms.
- **H3:** Collaborative governance structures positively influence integration across organizational boundaries, with stronger effects in service sectors than in manufacturing sectors.
- **H4:** Capability building networks positively influence integration across organizational boundaries, with stronger effects for suppliers than focal firms.
- **H5:** Integration across organizational boundaries positively influences sustainability transformation outcomes.
- **H6:** The relationship between digital transparency mechanisms and integration across boundaries is moderated by supply chain position, such that the relationship is stronger for suppliers than focal firms.
- **H7:** The relationship between collaborative governance structures and integration across boundaries is moderated by sector, such that the relationship is stronger in service sectors than in manufacturing sectors.

These hypotheses guide the empirical investigation while allowing for exploratory analysis of the specific mechanisms through which organizations reshape power dynamics across organizational boundaries.

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3. Methods

3.1. Research Design

This study employed a sequential mixed-methods design combining quantitative and qualitative approaches to develop a comprehensive understanding of inter-organizational power dynamics in sustainability transformation. The research proceeded in two phases:

1. **Quantitative phase**: Survey of sustainability professionals (n=127) across multiple sectors to test relationships between inter-organizational power mechanisms, integration practices, and transformation outcomes
2. **Qualitative phase**: In-depth interviews with transformation leaders (n=18) to develop deeper understanding of the mechanisms and contexts through which organizations reshape power dynamics

This design allowed for testing hypothesized relationships quantitatively while developing richer insights into mechanisms and contextual factors through qualitative inquiry (Creswell & Plano Clark, 2018). The sequential approach enabled qualitative exploration of patterns identified in the quantitative analysis.

3.2. Sampling and Participants

Survey Sample

Survey participants were recruited through professional sustainability networks using a stratified sampling approach to ensure representation across sectors, organizational sizes, and geographic regions. Specific efforts were made to include respondents from both powerful focal organizations and their smaller supply chain partners to capture diverse perspectives on power dynamics.

The final sample included 127 sustainability professionals with the following characteristics:

- **Sectors**: Manufacturing (31%), Services (27%), Consumer Products (22%), Technology (12%), Other (8%)
- **Organizational size**: Large (>5000 employees, 42%), Medium (500-5000 employees, 35%), Small (<500 employees, 23%)
- **Geographic regions**: North America (37%), Europe (33%), Asia (21%), Other (9%)
- **Roles**: Sustainability Directors/Managers (48%), Supply Chain/Procurement Managers (22%), Executive Leadership (18%), Other (12%)
- **Supply chain position**: Focal firms (57%), Tier 1 suppliers (24%), Tier 2+ suppliers (19%)

This diverse sample allowed for analysis of power dynamics from multiple perspectives within supply chains and partnerships.

To evaluate sample size adequacy for the structural equation modeling analysis, we followed the recommendations of Kline (2016), who suggests a minimum ratio of 10 observations per estimated parameter. With 42 free parameters in our model, the sample of 127 participants yields a ratio of approximately 3:1, which falls below the recommended threshold. While this sample size is sufficient for detecting medium to large effects, it limits our ability to detect smaller effects and may result in less stable parameter estimates. We address this limitation through bootstrapping procedures (5,000 resamples) to generate more robust standard errors and confidence intervals.

Interview Sample

Interview participants were selected using purposive sampling to capture diverse experiences with inter-organizational power dynamics in sustainability contexts. Selection criteria included:

1. Direct experience with inter-organizational sustainability initiatives
2. Representation of both powerful and less powerful positions in supply chains/partnerships
3. Experience with digital technologies in sustainability contexts

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4. Sector and geographic diversity

The final interview sample included 18 participants:

- 6 sustainability directors/managers from focal firms
- 4 supply chain managers from focal firms
- 5 sustainability/operations managers from supplier firms
- 3 leaders of multi-stakeholder sustainability initiatives

This balanced sample enabled exploration of power dynamics from multiple perspectives, including both those traditionally wielding power and those subject to others' power in supply chains and partnerships.

To address potential selection bias, declined interview invitations (n=7) were tracked and a non-respondent analysis was conducted, finding no significant differences in organizational characteristics between participants and non-participants. However, self-selection may have resulted in participants with greater interest in collaborative approaches to power dynamics, a limitation acknowledged in section 3.6.

3.3. Data Collection

Survey Instrument

The survey instrument included validated scales measuring key constructs, with items adapted from existing research where available and developed through expert review and pilot testing where needed. The survey was administered online using Qualtrics between January and March 2024. Table 1 provides sample items, sources, and reliability coefficients for each key construct.

Table 1. Sample Survey Items for Key Constructs.

Construct	**Sample Items**	**Source**	**Cronbach's α**
Inter-organizational Power Mobilization	"Our organization builds coalitions with external stakeholders to advance sustainability initiatives"; "We strategically frame sustainability initiatives to align with partners' priorities"	Adapted from Westover (2025) and Touboulic et al. (2014)	0.89
Digital Transparency Mechanisms	"Our organization uses digital platforms to create supply chain transparency"; "Digital tools help us make sustainability impacts visible to stakeholders"	Developed based on Saberi et al. (2019)	0.91
Collaborative Governance Structures	"Our organization has established shared decision-making processes with key partners"; "We have formal structures for collaborative problem-solving with external stakeholders"	Adapted from Huxham & Vangen (2005)	0.88
Capability Building Networks	"Our organization invests in building sustainability capabilities across our supply chain"; "We participate in knowledge-sharing networks with external partners"	Developed based on Clarke & Roome (1999)	0.85

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Construct	Sample Items	Source	Cronbach's α
Integration Across Boundaries	"Sustainability considerations are integrated into supplier selection and management"; "Our sustainability strategy is developed collaboratively with key external stakeholders"	Adapted from Westover (2025)	0.90
Transformation Outcomes	"Our sustainability initiatives have transformed relationships with suppliers and partners"; "We have achieved significant sustainability improvements across our value chain"	Adapted from Westover (2025) and Williams et al. (2017)	0.87

To address potential common method bias, the survey implemented both procedural remedies (separation of predictor and criterion variables, assurance of anonymity, varied response formats) and statistical remedies. Harman's single-factor test was conducted by loading all items into an exploratory factor analysis with no rotation. Results indicated no single factor accounting for the majority of variance, with the largest factor accounting for 32% of the total variance. Additionally, we employed the marker variable technique described by Podsakoff et al. (2003), using a theoretically unrelated construct (aesthetic preferences for office design) as the marker variable. The average correlation between the marker variable and our substantive constructs was low ($r = 0.06$), and controlling for this marker variable had minimal impact on the substantive correlations (average change < 0.04), suggesting that common method bias is not a substantial concern.

Scale development for newly created measures followed a rigorous process:

1. Initial item generation based on literature and expert input
2. Content validity assessment by a panel of five academic and practitioner experts
3. Pilot testing with 25 sustainability professionals
4. Exploratory factor analysis to refine item sets
5. Confirmatory factor analysis to validate final scales

The complete survey instrument is provided in Appendix A.

Semi-Structured Interviews

Semi-structured interviews lasting 60-90 minutes were conducted with 18 participants between April and June 2024. The interview protocol addressed:

1. Experiences with power dynamics in inter-organizational sustainability initiatives
2. Strategies for navigating and reshaping power relationships with external stakeholders
3. Use of digital technologies in inter-organizational sustainability contexts
4. Barriers and enablers for collaborative approaches to sustainability
5. Evolution of inter-organizational relationships through sustainability initiatives

Interviews were conducted via video conference, recorded with permission, and transcribed for analysis. The interview protocol was refined after initial interviews to explore emerging themes in greater depth. The complete interview protocol is provided in Appendix B.

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3.4. Data Analysis

Quantitative Analysis

Survey data were analyzed using structural equation modeling (SEM) to test relationships between constructs in the conceptual framework. Analysis proceeded in three stages:

1. **Measurement validation**: Confirmatory factor analysis to assess convergent and discriminant validity of constructs
2. **Structural model testing**: Examination of hypothesized relationships between constructs
3. **Multigroup analysis**: Comparison of path coefficients across sectors, organizational sizes, and supply chain positions to test for contextual differences

Missing data analysis revealed that 3.2% of total data points were missing, with Little's MCAR test indicating that data were missing completely at random ($\chi^2 = 143.52$, df = 127, p = 0.15). Missing data were handled using full information maximum likelihood estimation, which produces unbiased parameter estimates under MCAR and MAR conditions. Sensitivity analyses comparing results with listwise deletion showed minimal differences, supporting the robustness of our findings to missing data handling decisions.

Measurement model fit was assessed using established criteria: Comparative Fit Index (CFI) > 0.90, Tucker-Lewis Index (TLI) > 0.90, Root Mean Square Error of Approximation (RMSEA) < 0.08, and Standardized Root Mean Square Residual (SRMR) < 0.08 (Hair et al., 2019). The measurement model demonstrated adequate fit: CFI = 0.92, TLI = 0.91, RMSEA = 0.067 (90% CI = [0.058, 0.076]), SRMR = 0.062.

All constructs demonstrated satisfactory convergent validity with average variance extracted (AVE) values above 0.50 and composite reliability values above 0.80. Discriminant validity was established using the Fornell-Larcker criterion, with the square root of AVE for each construct exceeding its correlations with all other constructs. Table 2 presents descriptive statistics, reliability, validity, and correlations among study variables.

Table 2. Descriptive Statistics, Reliability, Validity, and Correlations.

Variable	M	SD	CR	AVE	1	2	3	4	5	6
1. Inter-org. Power Mobilization	4.78	1.21	0.91	0.64	**0.80**					
2. Digital Transparency Mechanisms	4.33	1.56	0.93	0.68	0.42**	**0.82**				
3. Collaborative Governance	3.95	1.38	0.90	0.61	0.39**	0.34**	**0.78**			
4. Capability Building Networks	4.26	1.27	0.88	0.57	0.45**	0.38**	0.51**	**0.75**		
5. Integration Across Boundaries	4.15	1.33	0.92	0.63	0.48**	0.52**	0.44**	0.49**	**0.79**	
6. Transformation Outcomes	3.89	1.42	0.89	0.59	0.37**	0.47**	0.33**	0.41**	0.56**	**0.77**

Note: N = 127. M = Mean, SD = Standard Deviation, CR = Composite Reliability, AVE = Average Variance Extracted. Diagonal elements (in bold) represent the square root of AVE. ** p < 0.01.

Table 3 presents standardized factor loadings from the confirmatory factor analysis for key indicators of each construct. For parsimony, we present only the highest and lowest loading items for each construct, along with abbreviated item descriptions. All items loaded significantly on their respective constructs (p < 0.01), with most loadings exceeding the recommended threshold of 0.70.

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Table 3. Selected Standardized Factor Loadings from Confirmatory Factor Analysis.

Construct	Items (abbreviated)	Loading	Range
Inter-org. Power Mobilization	Build coalitions with stakeholders	0.85**	0.74-0.85
	Create shared sustainability narratives	0.82**	
	Acknowledge and address power imbalances	0.74**	
Digital Transparency Mechanisms	Use digital platforms for supply chain transparency	0.86**	0.75-0.88
	Create two-way visibility with digital tools	0.83**	
	Involve partners in design of digital systems	0.75**	
Collaborative Governance	Establish shared decision-making processes	0.84**	0.72-0.84
	Include representation from external stakeholders	0.78**	
	Distribute decision-making authority	0.72**	
Capability Building Networks	Invest in building supply chain capabilities	0.81**	0.70-0.81
	Create platforms for cross-organizational learning	0.76**	
	Value diverse stakeholder knowledge	0.70**	
Integration Across Boundaries	Integrate sustainability into supplier management	0.85**	0.74-0.85
	Develop strategy collaboratively with stakeholders	0.83**	
	Align sustainability goals with partners	0.74**	
Transformation Outcomes	Transform relationships with suppliers/partners	0.80**	0.71-0.80
	Create shared value for all participants	0.77**	
	Improve overall supply chain resilience	0.71**	

Note: All factor loadings are significant at $p < 0.01$. Range represents lowest to highest loadings across all items for each construct.

All analyses were conducted using R with the lavaan package for structural equation modeling. Multigroup analyses were conducted using chi-square difference tests with the scaled Satorra-Bentler correction to evaluate whether path coefficients differed significantly across groups. To account for multiple comparisons in the multigroup analyses, we applied the Benjamini-Hochberg procedure to control the false discovery rate at 0.05.

Qualitative Analysis

Interview transcripts were analyzed using thematic analysis following Braun and Clarke's (2006) six-step approach:

1. Familiarization with the data through repeated reading

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2. Generation of initial codes using a hybrid approach combining deductive codes from the conceptual framework and inductive codes emerging from the data
3. Searching for themes by organizing codes into potential themes
4. Reviewing themes in relation to coded extracts and the entire dataset
5. Defining and naming themes with clear descriptions
6. Producing the report with representative quotes and analysis

To enhance interpretive rigor, two researchers independently coded a subset of interviews (n=5), compared interpretations, and resolved discrepancies through discussion. This process continued until an inter-coder agreement of >85% was achieved. NVivo software was used to organize and analyze the qualitative data. The final thematic structure was determined through an iterative process involving multiple rounds of theme development, consolidation, and refinement until theoretical saturation was reached and all themes could be clearly distinguished with minimal overlap.

Integration of Quantitative and Qualitative Findings

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. Joint displays were developed to explicitly link quantitative relationships with qualitative explanations (see Table 6 in Results).

3.5. Research Quality and Ethics

Several measures were implemented to enhance research quality:

- **Construct validity**: Validated scales and expert review of survey items
- **Internal validity**: Triangulation of findings across methods and data sources
- **External validity**: Diverse sample across sectors, organizational sizes, and geographic regions
- **Reliability**: Detailed documentation of research procedures and analysis decisions

Ethical considerations included informed consent from all participants, confidentiality of responses, and secure data storage. The research protocol was approved by the author's institutional review board (approval number: IRB-2023-157).

3.6. Limitations of the Research Design

While the mixed-methods approach strengthens the validity of findings, several methodological limitations should be acknowledged:

1. **Cross-sectional design**: The cross-sectional nature of the survey data limits causal inference, as power dynamics and sustainability outcomes are measured at a single point in time rather than longitudinally. The observed associations suggest relationships between variables but cannot definitively establish causality.
2. **Self-reported measures**: Both survey and interview data rely on self-reported perceptions, which may be subject to social desirability bias, particularly in the sustainability context where respondents may wish to present their organizations positively.
3. **Sample limitations**: Despite efforts to include diverse participants, the sample overrepresents organizations from developed economies and may not fully capture dynamics in emerging economy contexts where power asymmetries may be more pronounced and operate differently. This limitation affects the generalizability of findings to Global South contexts.
4. **Measurement challenges**: Power dynamics are complex and multifaceted, presenting challenges for comprehensive measurement through survey instruments. The operationalization of power constructs inevitably simplifies complex phenomena.
5. **Self-selection bias**: Organizations and individuals with more positive experiences with collaborative approaches to sustainability may have been more willing to participate in the study, potentially skewing findings toward successful cases rather than capturing the full range of experiences.

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6. **Sample size limitations for SEM**: The sample size (n=127) falls below optimal levels for the complexity of our structural equation model, potentially limiting statistical power for detecting smaller effects and affecting the stability of parameter estimates. While bootstrapping procedures help address this concern, results should be interpreted with appropriate caution, particularly for smaller effects.

These limitations are partially addressed through the mixed-methods design and are considered when interpreting findings and suggesting future research directions.

4. Results

4.1. Quantitative Findings: Structural Model and Hypothesis Testing

Structural equation modeling revealed significant relationships between inter-organizational power mechanisms and sustainability transformation outcomes, with digital transparency mechanisms showing the strongest effects. The structural model demonstrated good fit: CFI = 0.93, TLI = 0.92, RMSEA = 0.061 (90% CI = [0.051, 0.071]), SRMR = 0.065. The model explained 52% of the variance in integration across boundaries and 47% of the variance in transformation outcomes.

Table 4 presents standardized path coefficients, confidence intervals, p-values, and effect sizes for the hypothesized relationships.

Table 4. Standardized Path Coefficients and Hypothesis Testing Results.

Hypothesis	Path	Coefficient	95% CI	p-value	Effect Size (f^2)	Result
H1	Inter-organizational Power Mobilization → Integration Across Boundaries	0.36	[0.28, 0.44]	<0.01	0.21	Supported
H2	Digital Transparency Mechanisms → Integration Across Boundaries	0.41	[0.33, 0.49]	<0.01	0.28	Supported
H3	Collaborative Governance Structures → Integration Across Boundaries	0.34	[0.26, 0.42]	<0.01	0.19	Supported
H4	Capability Building Networks → Integration Across Boundaries	0.38	[0.30, 0.46]	<0.01	0.23	Supported
H5	Integration Across Boundaries → Transformation Outcomes	0.45	[0.37, 0.53]	<0.01	0.31	Supported
H6	Digital Transparency Mechanisms × Supply Chain Position → Integration Across Boundaries	0.22	[0.14, 0.30]	<0.01	0.12	Supported
H7	Collaborative Governance Structures × Sector → Integration Across Boundaries	0.17	[0.09, 0.25]	<0.01	0.09	Supported

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

Digital transparency mechanisms emerged as the strongest predictor of integration across boundaries ($\beta = 0.41$, $p < 0.01$, $f^2 = 0.28$), followed by capability building networks ($\beta = 0.38$, $p < 0.01$, $f^2 = 0.23$) and inter-organizational power mobilization ($\beta = 0.36$, $p < 0.01$, $f^2 = 0.21$). All three predictors showed medium effect sizes, indicating practically meaningful relationships.

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The moderation effect of supply chain position on the relationship between digital transparency mechanisms and integration ($\beta = 0.22$, $p < 0.01$, $f^2 = 0.12$) supported H6. This moderation effect, while statistically significant, showed a relatively small effect size, indicating a modest but meaningful influence of supply chain position on how digital transparency mechanisms affect integration.

Similarly, the moderation effect of sector on the relationship between collaborative governance structures and integration ($\beta = 0.17$, $p < 0.01$, $f^2 = 0.09$) supported H7. This effect size falls between Cohen's benchmarks for small (0.02) and medium (0.15) effects, suggesting that while statistically significant, the moderating influence of sector represents a relatively modest practical effect that should be interpreted with appropriate caution.

To further examine these moderation effects, we conducted simple slopes analyses. For the moderation by supply chain position, the relationship between digital transparency mechanisms and integration was stronger for suppliers ($\beta = 0.53$, $p < 0.01$, 95% CI = [0.41, 0.65]) than for focal firms ($\beta = 0.29$, $p < 0.01$, 95% CI = [0.19, 0.39]). For the moderation by sector, the relationship between collaborative governance structures and integration was stronger in service sectors ($\beta = 0.41$, $p < 0.01$, 95% CI = [0.29, 0.53]) than in manufacturing ($\beta = 0.28$, $p < 0.01$, 95% CI = [0.18, 0.38]).

Multigroup analysis using chi-square difference tests revealed additional contextual differences in these relationships. Table 5 presents the results of these analyses, including confidence intervals for the group-specific path coefficients and the differences between groups.

Table 5. Results of Multigroup Analysis by Context.

Path	**Large Organizations**	**SMEs**	**Difference**	**95% CI of Difference**	**p-value***
Digital Transparency → Integration	0.46** [0.34, 0.58]	0.33** [0.21, 0.45]	0.13*	[0.02, 0.24]	0.025
Collaborative Governance → Integration	0.35** [0.23, 0.47]	0.32** [0.20, 0.44]	0.03	[-0.08, 0.14]	0.571
Capability Networks → Integration	0.37** [0.25, 0.49]	0.40** [0.28, 0.52]	-0.03	[-0.14, 0.08]	0.571
Path	**Focal Firms**	**Suppliers**	**Difference**	**95% CI of Difference**	**p-value***
Digital Transparency → Integration	0.29** [0.19, 0.39]	0.53** [0.41, 0.65]	-0.24**	[-0.36, -0.12]	<0.001
Collaborative Governance → Integration	0.32** [0.22, 0.42]	0.36** [0.24, 0.48]	-0.04	[-0.16, 0.08]	0.571
Capability Networks → Integration	0.31** [0.21, 0.41]	0.44** [0.32, 0.56]	-0.13*	[-0.25, -0.01]	0.038
Path	**Manufacturing**	**Services**	**Difference**	**95% CI of Difference**	**p-value***
Digital Transparency → Integration	0.40** [0.28, 0.52]	0.43** [0.31, 0.55]	-0.03	[-0.15, 0.09]	0.571
Collaborative Governance → Integration	0.28** [0.18, 0.38]	0.41** [0.29, 0.53]	-0.13*	[-0.25, -0.01]	0.038

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Path	Manufacturing	Services	Difference	95% CI of Difference	p-value*
Capability Networks → Integration	0.35** [0.23, 0.47]	0.40** [0.28, 0.52]	-0.05	[-0.17, 0.07]	0.571

Note: * $p < 0.05$, ** $p < 0.01$. P-values adjusted for multiple comparisons using the Benjamini-Hochberg procedure. Confidence intervals obtained via bootstrapping with 5,000 resamples.

These multigroup analyses revealed three significant differences after controlling for multiple comparisons:

1. The effect of digital transparency mechanisms on integration was significantly stronger for suppliers ($\beta = 0.53$) than focal firms ($\beta = 0.29$), with a difference of 0.24 ($p < 0.001$)
2. The effect of capability building networks on integration was significantly stronger for suppliers ($\beta = 0.44$) than focal firms ($\beta = 0.31$), with a difference of 0.13 ($p = 0.038$)
3. The effect of collaborative governance structures on integration was significantly stronger in service sectors ($\beta = 0.41$) than manufacturing ($\beta = 0.28$), with a difference of 0.13 ($p = 0.038$)

These findings highlight the importance of considering organizational context when implementing power-conscious approaches to sustainability transformation.

4.2. Qualitative Findings: Mechanisms and Contextual Dynamics

Thematic analysis of interview data revealed three key themes that illuminate how organizations navigate and reshape power dynamics across organizational boundaries in sustainability contexts. Table 6 presents these themes with illustrative quotes and connections to quantitative findings.

Table 6. Integration of Quantitative and Qualitative Findings.

Quantitative Finding	Qualitative Theme	Illustrative Quote	Mechanism
Digital transparency has strongest effect on integration ($\beta = 0.41$)	Transparency as Power Equalizer	"The blockchain traceability system fundamentally changed our relationship with suppliers. Instead of us imposing requirements and them struggling to comply, we now have shared visibility of sustainability impacts that enables collaborative problem-solving. Information access has become more democratic, which shifts the power balance in subtle but important ways." (Sustainability Director, Consumer Goods Firm)	Digital transparency creates shared understanding of sustainability impacts and reduces information asymmetries that traditionally advantage more powerful actors
Digital transparency effect stronger for suppliers ($\beta = 0.53$)	Technology Design for Power Balancing	"When we designed the system, we made a conscious choice to create bidirectional transparency—not just visibility for us into supplier practices, but also visibility for	Digital tools must be specifically designed for power equalization through bidirectional transparency and

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Quantitative Finding	Qualitative Theme	Illustrative Quote	Mechanism
than focal firms (β = 0.29)		suppliers into how their materials flow through our system. This bidirectional design was critical for creating more balanced relationships rather than just another surveillance tool." (Technology Director, Manufacturing Firm)	collaborative development processes
Collaborative governance stronger in services (β = 0.41) than manufacturing (β = 0.28)	From Power Over to Power With	"We realized that using our purchasing power to demand compliance was yielding minimal results. Suppliers would do the minimum to check the box. When we shifted to a partnership approach—joint innovation projects, shared goal-setting, mutual accountability—we saw transformative improvements in sustainability performance." (Supply Chain Director, Manufacturing Firm)	Shift from coercive to collaborative approaches happens through intentional governance structures that institutionalize more balanced relationships
Capability building stronger for suppliers (β = 0.44) than focal firms (β = 0.31)	Power Dynamics as Evolutionary Process	"Our sustainability journey has transformed relationships with our larger customers. Initially, we were just responding to their requirements, feeling pressure without support. Over time, as we demonstrated value and built our own expertise, the relationship evolved. Now we're viewed as sustainability partners rather than just suppliers who need to be monitored." (Operations Manager, Small Manufacturing Supplier)	Power relationships evolve over time as capability building enables less powerful actors to contribute unique value to sustainability initiatives

These themes illuminate the mechanisms through which organizations reshape power dynamics across organizational boundaries. The analysis revealed that effective approaches typically involve three interconnected elements:

4.2.1. Technological Transparency Mechanisms

Interview participants consistently identified digital transparency tools as potentially powerful mechanisms for reshaping power dynamics in supply chains and partnerships. These tools include

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blockchain traceability systems, digital monitoring platforms, and collaborative data-sharing networks that create shared visibility of sustainability impacts.

A technology director from a multinational consumer goods company explained:

"Our digital traceability platform has fundamentally altered power relationships in our agricultural supply chain. Previously, we had limited visibility beyond tier 1 suppliers, and farmers had limited understanding of how their practices affected overall sustainability performance. The platform creates transparency in both directions—we can see farm-level practices, and farmers can see how their contributions fit into the bigger picture. This shared visibility has shifted conversations from compliance checking to collaborative problem-solving."

This transparency appears to function as a power equalizer by reducing information asymmetries that traditionally advantage larger, more powerful organizations. However, participants also noted that the democratizing potential of digital tools depends significantly on how they are designed and implemented:

"Technology can either reinforce power imbalances or help overcome them—it depends entirely on the design choices and implementation approach. When systems are designed collaboratively with suppliers and provide value to all participants, they can shift power dynamics in positive ways. When they're imposed as monitoring tools without shared benefits, they just create new forms of surveillance and control." (Sustainability Manager, Technology Company)

The analysis revealed three critical factors that participants suggested determine whether digital transparency tools function as power equalizers or power reinforcers:

1. **Collaborative design processes** that involve less powerful actors in system development
2. **Bidirectional transparency** that makes information visible to all participants rather than only to powerful actors
3. **Shared value creation** that ensures benefits flow to all participants in the system

When these conditions are present, participants reported that digital transparency tools seem to reshape power dynamics by democratizing information access and enabling more collaborative approaches to sustainability challenges.

4.2.2. Collaborative Governance Structures

Interview participants described how formal governance structures can institutionalize more balanced power relationships in inter-organizational sustainability initiatives. These structures include supplier advisory councils, multi-stakeholder governance bodies, and formal joint decision-making processes that give voice to traditionally less powerful actors.

A manager from a supplier organization explained how collaborative governance shifted power dynamics:

"Being invited to participate in our customer's Supplier Sustainability Council fundamentally changed our relationship. Instead of just receiving requirements, we now have a voice in shaping sustainability priorities and approaches. This formal recognition of our perspective has created a more balanced relationship where both sides contribute expertise rather than one side dictating terms to the other."

The analysis revealed that effective collaborative governance structures typically include three elements according to participants:

1. **Formal representation** of diverse stakeholders, particularly those traditionally excluded from decision-making
2. **Clear decision rights and processes** that ensure representation translates into genuine influence
3. **Resource support** that enables less-resourced stakeholders to participate effectively

However, participants also noted that collaborative governance can be challenging to implement, particularly in contexts with deeply entrenched power asymmetries:

"Establishing genuine collaborative governance is difficult when power imbalances are significant. We've found that starting with limited scope—specific sustainability challenges where

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different perspectives are clearly valuable—helps build comfort with shared decision-making before expanding to broader governance." (Sustainability Director, Manufacturing Firm)

The finding that collaborative governance has stronger effects in service sectors than manufacturing suggests that industry context significantly shapes the feasibility and impact of these governance approaches. Service organizations may have organizational cultures and stakeholder relationships more conducive to collaborative governance models.

4.2.3. Capability Building Networks

Interview participants identified capability building networks as a third critical mechanism for reshaping power dynamics. These networks include training programs, knowledge-sharing platforms, and collaborative innovation initiatives that build sustainability capabilities across organizational boundaries.

A manager from a small supplier explained:

"Access to the sustainability training program and innovation network has been transformative for us. Previously, we lacked the expertise and resources to develop sophisticated sustainability approaches, which reinforced our dependent position. The capability building program has enabled us to develop our own sustainability expertise and even innovate solutions that we now share with customers. This has shifted us from passive recipients of requirements to active contributors to sustainability solutions."

The analysis revealed that effective capability building networks operate through three pathways according to participants:

1. **Knowledge democratization** that makes sustainability expertise accessible to less-resourced organizations
2. **Innovation support** that enables smaller organizations to develop and scale sustainability solutions
3. **Relationship building** that creates social capital across traditional power boundaries

By developing capabilities throughout supply chains and partnerships, organizations may create conditions where power becomes more distributed and collaborative approaches become more feasible.

The finding that capability building networks have stronger effects for suppliers than focal firms reinforces the importance of these networks for reshaping power dynamics. By building capabilities in less powerful organizations, these networks may help address fundamental power imbalances based on knowledge and expertise.

4.3. Contextual Contingencies and Integration

The qualitative data revealed important contextual contingencies that shape how inter-organizational power dynamics affect sustainability transformation. Three particularly significant contingencies emerged from the analysis:

4.3.1. Regulatory Context

Regulatory environments significantly influence how organizations navigate power dynamics in sustainability contexts. In regions with strong regulatory frameworks, power tends to be more balanced as all organizations face similar compliance requirements. In contrast, voluntary contexts often amplify existing power asymmetries.

A sustainability director explained:

"The regulatory environment fundamentally shapes how power operates in sustainability initiatives. In Europe, where regulation creates a level playing field, our relationships with suppliers are more collaborative—we're all working to meet the same requirements. In regions with limited regulation, we have more power to define standards and requirements, which can create more hierarchical relationships if not managed carefully."

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This observation aligns with the quantitative finding that collaborative governance structures have stronger effects in more regulated industries and regions, where shared compliance creates a foundation for collaboration.

4.3.2. Market Positioning

An organization's market positioning—including brand visibility, consumer proximity, and competitive positioning—significantly influences how it navigates power in sustainability contexts. Organizations with strong consumer-facing brands typically experience greater external pressure for sustainability, which can motivate more collaborative approaches with suppliers and partners.

A supply chain manager observed:

"As a consumer-facing brand, we face intense scrutiny of our sustainability performance, including how we engage with suppliers. This external pressure has pushed us toward more collaborative approaches because we need genuine transformation, not just compliance. Our competitors who sell primarily to other businesses face less direct pressure and tend to maintain more traditional, hierarchical relationships with their suppliers."

4.3.3. Cultural Context

Cultural contexts, including both national cultures and organizational cultures, shape how power is understood and exercised in sustainability initiatives. Participants noted significant differences in how power dynamics manifest across cultural contexts:

"In our Asian operations, hierarchical cultural norms significantly influence how we approach supplier relationships. Collaborative approaches require careful attention to maintaining face and respecting hierarchical positions while still creating space for genuine input. In contrast, our European operations operate in cultural contexts where flatter relationships are more normative, making certain collaborative approaches easier to implement." (Global Sustainability Director, Manufacturing Firm)

These contextual contingencies help explain the variations observed in the quantitative analysis and highlight the importance of tailoring approaches to specific contexts rather than applying universal best practices.

Table 7. Power Dynamics Approaches Across Contextual Factors.

Contextual Factor	Characteristic	Recommended Approach
Regulatory Environment	Strong regulation	Emphasize shared compliance through collaborative working groups
	Voluntary context	Develop incentive structures to balance power and create mutual benefits
Market Positioning	Consumer-facing	Leverage external stakeholder pressure to drive collaborative approaches
	B2B	Emphasize business case and competitive advantage of power-sharing
Organizational Size	Large organization	Implement formal governance structures with clear representation
	SME	Focus on network-based approaches and coalition building

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Contextual Factor	Characteristic	Recommended Approach
Cultural Context	Hierarchical	Design collaborative approaches that respect formal positions while enabling input
	Egalitarian	Implement direct participation and flat governance structures
Supply Chain Position	Focal firm	Proactively share power through formal mechanisms and capability building
	Supplier	Build coalitions and leverage unique sustainability expertise
Sector	Manufacturing	Emphasize digital transparency and operational integration
	Services	Focus on collaborative governance and stakeholder engagement

This typology provides guidance for tailoring power dynamics approaches to specific organizational contexts and positions, acknowledging that effective strategies must be adapted to contextual factors rather than applied universally.

5. Discussion

This research advances understanding of how organizations navigate and reshape power dynamics across organizational boundaries to enable more substantive sustainability transformations. Building on Westover's (2025) findings on internal power dynamics, this study extends the analysis to examine how power operates at the interface between organizations and broader systems. The findings reveal three key mechanisms through which organizations reshape power dynamics—technological transparency mechanisms, collaborative governance structures, and capability building networks—and identify important contextual contingencies that influence their effectiveness.

5.1. Theoretical Contributions

This research makes three primary theoretical contributions to sustainability science and organizational theory.

First, it advances understanding of how power operates in sustainability transformations by demonstrating that power is not merely a constraint to be navigated but a dynamic that can be strategically reshaped to enable more substantive change. While previous research has often treated power as a fixed contextual variable (Markard et al., 2012), this study reveals how organizations actively transform power relationships through specific mechanisms that create more collaborative dynamics. This perspective aligns with Avelino's (2017) conceptualization of "transformative power" but extends it by identifying specific mechanisms through which this transformation occurs in inter-organizational contexts.

This contribution significantly extends resource dependency theory (Pfeffer & Salancik, 1978) by showing how sustainability contexts provide unique opportunities to transform rather than merely manage dependencies. Traditional resource dependency theory focuses on strategies to manage dependencies while maintaining organizational autonomy. In contrast, the findings suggest that sustainability contexts can motivate organizations to transform dependency relationships into more collaborative arrangements that create mutual benefits through shared capability development and

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collaborative governance. This represents an important extension of resource dependency theory that acknowledges the potential for transforming rather than just managing power dynamics.

Second, the research contributes to theory on digital technologies in sustainability transitions by demonstrating how these technologies can function as power equalizers under specific conditions. While previous research has identified the potential of digital technologies to enhance sustainability (George et al., 2021), this study specifically examines how these technologies reshape power dynamics and identifies the conditions under which they enable more equitable rather than reinforcing existing power asymmetries. The finding that collaborative design, bidirectional transparency, and shared value creation determine whether digital tools function as power equalizers advances understanding of how technological innovation interacts with social dynamics in sustainability contexts.

This contribution extends socio-technical transition theory (Geels, 2020) by specifying how technological innovations reshape power relationships in sustainability transitions. While Geels' multi-level perspective acknowledges the importance of power in transitions, it provides limited guidance on how technological innovations specifically reconfigure power relationships. The findings suggest that digital transparency technologies may create more distributed power arrangements when designed with specific attention to power dynamics, contributing a more nuanced understanding of technology's role in sustainability transitions.

Third, the study enhances theory on inter-organizational collaboration by demonstrating how organizations shift from hierarchical to collaborative approaches through deliberate strategies that reshape power dynamics. While previous research has identified the importance of collaboration for addressing complex sustainability challenges (Gray & Purdy, 2018), this study reveals the specific pathways through which organizations transform power relationships to enable more effective collaboration. The identification of an evolutionary pathway from "power over" to "power with" extends existing theoretical frameworks on collaborative governance (Huxham & Vangen, 2005) by demonstrating how this evolution occurs in sustainability contexts specifically.

This contribution challenges conventional power conceptualizations in organizational contexts by showing how sustainability imperatives can motivate fundamental reconsiderations of power relationships. Unlike traditional organizational contexts where power is often viewed as a zero-sum resource, the findings suggest that sustainability contexts can motivate a shift toward positive-sum conceptualizations where power-sharing enhances collective capabilities to address complex challenges. This represents an important theoretical contribution to understanding how sustainability contexts reshape fundamental assumptions about power in organizational relationships.

5.2. Practical Implications

The findings have several practical implications for organizations seeking to enhance sustainability impact through more effective management of inter-organizational power dynamics.

First, organizations should strategically leverage digital transparency tools as mechanisms for reshaping power relationships, with particular attention to collaborative design processes, bidirectional transparency, and shared value creation. The association between digital transparency mechanisms and integration across boundaries ($\beta = 0.41$, $p < 0.01$, $f^2 = 0.28$) suggests that these tools may enhance sustainability collaboration when implemented effectively.

Second, organizations should establish formal collaborative governance structures that institutionalize more balanced power relationships, particularly when addressing complex sustainability challenges that require diverse perspectives and capabilities. The association between collaborative governance structures and integration ($\beta = 0.34$, $p < 0.01$, $f^2 = 0.19$) suggests the potential value of these formal structures for enabling more effective sustainability collaboration.

Third, organizations should invest in capability building networks that develop sustainability expertise throughout supply chains and partnerships rather than concentrating capabilities within focal organizations. The association between capability building networks and integration ($\beta = 0.38$,

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$p < 0.01$, $f^2 = 0.23$) suggests that these networks may enhance sustainability collaboration by creating conditions where power becomes more distributed.

Fourth, organizations should tailor their approaches to specific contextual conditions, including regulatory environments, market positioning, and cultural contexts. The significant variations observed in both quantitative and qualitative analyses highlight the importance of context-sensitive strategies rather than universal best practices.

Based on these findings, a staged approach is proposed for organizations seeking to reshape power dynamics across organizational boundaries:

1. **Assessment stage**: Analyze existing power dynamics and contextual factors to identify appropriate intervention points
2. **Foundation stage**: Implement digital transparency initiatives with collaborative design to create shared understanding
3. **Governance stage**: Establish formal collaborative governance structures with representation of diverse stakeholders
4. **Capability stage**: Develop shared capability building networks that distribute expertise more equitably
5. **System stage**: Scale successful approaches to influence broader system dynamics beyond immediate relationships

This staged approach acknowledges that reshaping power dynamics is an evolutionary process that requires strategic interventions across multiple dimensions rather than isolated initiatives.

5.3. Alternative Explanations

While the findings suggest that intentional strategies to reshape power dynamics may enhance sustainability transformation, several alternative explanations warrant consideration. First, the observed associations between power mechanisms and transformation outcomes may reflect broader organizational capabilities rather than power dynamics specifically. Organizations with strong general capabilities may simultaneously implement effective power-sharing approaches and achieve transformation outcomes without a causal relationship between these variables.

Second, external pressures rather than internal strategic choices may drive both power reconfiguration and sustainability outcomes. Organizations facing intense stakeholder pressure may adopt both collaborative approaches and substantive sustainability initiatives in response to this pressure rather than because power reconfiguration enables transformation.

Third, the association between digital transparency and transformation outcomes may reflect technological sophistication rather than power effects specifically. Organizations with advanced technological capabilities may achieve superior sustainability outcomes through these capabilities rather than through power reconfiguration.

While the mixed-methods approach and analytical techniques help address these alternative explanations, they cannot be entirely ruled out with the current research design. Future research with longitudinal designs could more definitively establish causal relationships between power mechanisms and transformation outcomes.

5.4. Limitations and Future Research

This research has several limitations that suggest directions for future investigation. First, while the mixed-methods design enhances validity through methodological triangulation, the cross-sectional nature of the survey data limits causal inference. Future research using longitudinal designs could more definitively establish causal relationships between power mechanisms and transformation outcomes.

Second, the sample, while diverse, includes a higher proportion of organizations from developed economies and may not fully capture dynamics in emerging economy contexts. Future research should specifically examine how power operates in sustainability initiatives in diverse

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economic contexts, particularly in Global South settings where power asymmetries may be more pronounced and may operate through different mechanisms given distinct institutional, economic, and cultural contexts.

Third, the research focuses primarily on formal inter-organizational relationships (supply chains and partnerships) with limited attention to broader system dynamics involving civil society, government, and community stakeholders. Future research should adopt a broader systems perspective to examine how power operates across these diverse relationships.

Fourth, the sample size (n=127) is relatively small for the complexity of our structural equation model, potentially affecting the stability of parameter estimates, particularly for more complex relationships like moderation effects. Future research should employ larger samples to provide more robust tests of these relationships.

Four promising directions for future research emerge from this study:

1. **Longitudinal studies** of how inter-organizational power dynamics evolve over time through sustainability initiatives, identifying critical junctures and intervention points. Specifically, future research should test the proposition that power relationships in sustainability contexts follow an evolutionary pathway from compliance-based to collaborative approaches through specific transitional mechanisms.
2. **Comparative case studies** of digital transparency initiatives across diverse contexts to develop more nuanced understanding of how technological design choices affect power outcomes. Future research should examine how specific design features (e.g., data ownership models, user interface design, algorithmic governance) influence power distribution in digital sustainability platforms.
3. **Multi-level analyses** connecting organizational, inter-organizational, and system-level power dynamics to develop more comprehensive models of power in sustainability transformations. This research should test the proposition that successful system-level sustainability transitions require coherent power reconfiguration across multiple levels rather than isolated changes at specific levels.
4. **Action research** testing specific interventions designed to reshape power dynamics in sustainability contexts, particularly in settings with deeply entrenched power asymmetries. This research should examine whether intentional interventions in power dynamics accelerate sustainability transformation compared to traditional approaches focused primarily on technical or operational changes.

By pursuing these research directions, scholars can build on the foundation established in this study to develop a more comprehensive understanding of how power shapes sustainability transformations and how organizations might leverage power more effectively to enable substantive change.

6. Conclusions

This research demonstrates that bridging the gap between sustainability aspirations and substantive action requires not only developing internal organizational capabilities, as identified by Westover (2025), but also strategically reshaping power dynamics across organizational boundaries. By investigating how organizations navigate and transform power relationships in supply chains and partnerships, this study advances understanding of how organizations can address systemic sustainability challenges that transcend organizational boundaries.

The findings reveal three critical mechanisms through which organizations reshape inter-organizational power dynamics: (1) technological transparency mechanisms that democratize information access, (2) collaborative governance structures that institutionalize more balanced relationships, and (3) capability building networks that distribute expertise more equitably. These mechanisms function most effectively when tailored to specific contextual conditions, including regulatory environments, market positioning, and cultural contexts.

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The research makes significant theoretical contributions to sustainability science by advancing understanding of power as a dynamic that can be strategically reshaped rather than merely a constraint to be navigated, demonstrating how digital technologies can function as power equalizers under specific conditions, and revealing the pathways through which organizations shift from hierarchical to collaborative approaches in sustainability contexts.

As organizations continue to grapple with complex sustainability challenges that require coordinated action across organizational boundaries, this research offers evidence-based guidance for developing more effective approaches to inter-organizational collaboration. By moving beyond traditional hierarchical relationships toward more collaborative dynamics, organizations can enhance their collective capacity to address pressing sustainability challenges and contribute more meaningfully to sustainable development.

Conflicts of Interest and Informed Consent Declarations: I declare that I have no conflicts of interest. All participants provided written informed consent.

Appendix A: Survey Instrument

INTER-ORGANIZATIONAL POWER DYNAMICS IN SUSTAINABILITY TRANSFORMATION

Thank you for participating in this research on power dynamics in sustainability transformation. This survey explores how organizations navigate power relationships across organizational boundaries to advance sustainability initiatives. Your responses will contribute to developing a better understanding of effective approaches to sustainability transformation in complex inter-organizational contexts.

All responses are confidential and will be reported only in aggregate form. The survey should take approximately 20-25 minutes to complete.

SECTION 1: ORGANIZATIONAL CHARACTERISTICS

Please provide the following information about your organization:

1. Which sector best describes your organization?
    - o Manufacturing
    - o Services
    - o Consumer Products
    - o Technology
    - o Other (please specify): _____
2. How many employees does your organization have globally?
    - o Less than 100
    - o 100-499
    - o 500-999
    - o 1,000-4,999
    - o 5,000-9,999
    - o 10,000 or more

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3. In which regions does your organization operate? (Select all that apply)
    - North America
    - Europe
    - Asia
    - South America
    - Africa
    - Australia/Oceania
4. Which of the following best describes your organization's position in the supply chain?
    - Focal firm (brand owner, retailer, or other customer-facing organization)
    - Tier 1 supplier (direct supplier to focal firms)
    - Tier 2 or beyond supplier (supplier to other suppliers)
    - Other (please specify): _____
5. Which of the following best describes your role in the organization?
    - Sustainability Director/Manager
    - Supply Chain/Procurement Manager
    - Operations Manager
    - Executive Leadership (C-Suite, VP)
    - Other (please specify): _____

SECTION 2: INTER-ORGANIZATIONAL POWER MOBILIZATION

Please indicate your agreement with the following statements about how your organization navigates power relationships with external stakeholders in sustainability contexts.

Scale: 1 = Strongly Disagree, 4 = Neither Agree nor Disagree, 7 = Strongly Agree

1. Our organization builds coalitions with external stakeholders to advance sustainability initiatives.
2. We strategically frame sustainability initiatives to align with partners' priorities and interests.
3. We leverage our market position to influence suppliers' sustainability practices.
4. Our organization creates shared narratives about sustainability that resonate with diverse stakeholders.
5. We identify and work with champions in partner organizations to advance sustainability initiatives.
6. Our organization negotiates sustainability standards and expectations with key partners rather than imposing them unilaterally.

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7. We acknowledge power imbalances with suppliers/partners and take steps to create more balanced relationships.
8. Our sustainability team is skilled at mobilizing support across organizational boundaries.

SECTION 3: DIGITAL TRANSPARENCY MECHANISMS

Please indicate your agreement with the following statements about your organization's use of digital technologies to enhance transparency in sustainability contexts.

Scale: 1 = Strongly Disagree, 4 = Neither Agree nor Disagree, 7 = Strongly Agree

1. Our organization uses digital platforms to create supply chain transparency.
2. Digital tools help us make sustainability impacts visible to stakeholders.
3. We use digital technologies to track and verify sustainability claims across our value chain.
4. Our digital systems allow suppliers and partners to access information about their sustainability performance.
5. Digital tools in our organization create two-way visibility (not just monitoring suppliers but also sharing information with them).
6. We involve suppliers and partners in the design of digital transparency systems.
7. Our digital systems help create shared understanding of sustainability challenges with external stakeholders.
8. Digital transparency tools have changed power dynamics in our relationships with suppliers/partners.

SECTION 4: COLLABORATIVE GOVERNANCE STRUCTURES

Please indicate your agreement with the following statements about your organization's governance approaches in sustainability contexts.

Scale: 1 = Strongly Disagree, 4 = Neither Agree nor Disagree, 7 = Strongly Agree

1. Our organization has established shared decision-making processes with key partners.
2. We have formal structures for collaborative problem-solving with external stakeholders.
3. Sustainability governance includes representation from suppliers and other external stakeholders.
4. Our organization ensures that less powerful stakeholders have meaningful voice in sustainability initiatives.
5. We have clear procedures for resolving conflicts with external stakeholders in sustainability contexts.
6. Our organization allocates resources to support participation of less-resourced stakeholders in governance processes.
7. Decision-making authority in sustainability initiatives is distributed among partners rather than centralized.

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8. Our governance structures create accountability in both directions (not just suppliers to us, but also us to suppliers).

SECTION 5: CAPABILITY BUILDING NETWORKS

Please indicate your agreement with the following statements about capability development across organizational boundaries.

Scale: 1 = Strongly Disagree, 4 = Neither Agree nor Disagree, 7 = Strongly Agree

1. Our organization invests in building sustainability capabilities across our supply chain.
2. We participate in knowledge-sharing networks with external partners.
3. We provide resources to help suppliers develop sustainability capabilities.
4. Our organization creates platforms for cross-organizational learning on sustainability.
5. We engage in collaborative innovation with suppliers and partners to address sustainability challenges.
6. Our organization values and incorporates knowledge from diverse stakeholders in sustainability initiatives.
7. We recognize and leverage the unique sustainability capabilities of suppliers and partners.
8. Our capability building initiatives have changed power dynamics with external stakeholders.

SECTION 6: INTEGRATION ACROSS BOUNDARIES

Please indicate your agreement with the following statements about integration of sustainability across organizational boundaries.

Scale: 1 = Strongly Disagree, 4 = Neither Agree nor Disagree, 7 = Strongly Agree

1. Sustainability considerations are integrated into supplier selection and management.
2. Our sustainability strategy is developed collaboratively with key external stakeholders.
3. Performance metrics track sustainability impacts across organizational boundaries.
4. We have aligned sustainability goals with key suppliers and partners.
5. Sustainability information flows effectively between our organization and external stakeholders.
6. Our organization has integrated sustainability considerations into contracts and agreements with suppliers/partners.
7. We have established shared problem-solving approaches for sustainability challenges with external stakeholders.
8. Our approach to sustainability challenges systemically addresses cross-organizational issues.

SECTION 7: TRANSFORMATION OUTCOMES

Please indicate your agreement with the following statements about outcomes of your sustainability initiatives.

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Scale: 1 = Strongly Disagree, 4 = Neither Agree nor Disagree, 7 = Strongly Agree

1. Our sustainability initiatives have transformed relationships with suppliers and partners.
2. We have achieved significant sustainability improvements across our value chain.
3. Our organization has influenced sustainability practices beyond our direct operations.
4. Our inter-organizational sustainability initiatives have created shared value for all participants.
5. We have effectively addressed systemic sustainability challenges through cross-organizational collaboration.
6. Our approach to sustainability has evolved from compliance-focused to collaboration-focused.
7. Our sustainability initiatives have improved overall supply chain resilience.
8. External stakeholders recognize our organization as a sustainability leader in our industry.

SECTION 8: CONTEXTUAL FACTORS

Please indicate your agreement with the following statements about the context in which your organization operates.

Scale: 1 = Strongly Disagree, 4 = Neither Agree nor Disagree, 7 = Strongly Agree

1. Our organization operates in a highly regulated environment for sustainability.
2. External stakeholders exert significant pressure on our organization regarding sustainability.
3. Our industry has established sustainability standards that shape inter-organizational relationships.
4. Power is distributed relatively equally among key actors in our value chain.
5. Our organization's culture supports collaborative approaches to sustainability.
6. Our organizational leadership actively supports power-sharing in sustainability initiatives.
7. Our organization has sufficient resources to invest in cross-organizational sustainability initiatives.
8. The geographic regions where we operate influence our approach to power dynamics in sustainability.

SECTION 9: OPEN-ENDED QUESTIONS

Please provide brief responses to the following questions:

1. What are the most significant power-related challenges your organization faces in advancing sustainability across organizational boundaries?
2. Can you describe a specific example where your organization successfully reshaped power dynamics with external stakeholders to advance sustainability?

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3. How have digital technologies specifically influenced power relationships with suppliers or partners in sustainability contexts?
4. What do you see as the most promising approaches for creating more balanced power relationships in sustainability initiatives?

SECTION 10: DEMOGRAPHIC INFORMATION

This information will be used only for analytical purposes and will not be used to identify individual respondents.

1. How many years have you worked in your current organization?
    - Less than 1 year
    - 1-3 years
    - 4-6 years
    - 7-10 years
    - More than 10 years
2. How many years of experience do you have working on sustainability-related issues?
    - Less than 1 year
    - 1-3 years
    - 4-6 years
    - 7-10 years
    - More than 10 years
3. What is your gender?
    - Female
    - Male
    - Non-binary/third gender
    - Prefer not to say
4. In which region are you primarily based?
    - North America
    - Europe
    - Asia
    - South America
    - Africa
    - Australia/Oceania

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Thank you for completing this survey. Your responses will contribute to developing a better understanding of how organizations can effectively navigate power dynamics across organizational boundaries to advance sustainability transformation.

If you would like to receive a summary of the research findings, please provide your email address:

Appendix B: Interview Protocol

INTER-ORGANIZATIONAL POWER DYNAMICS IN SUSTAINABILITY TRANSFORMATION

In-Depth Interview Guide

Introduction

- Thank participant for their time
- Explain purpose of research: investigating how organizations navigate and reshape power dynamics across organizational boundaries in sustainability contexts
- Review informed consent, confidentiality, and recording permissions
- Clarify expected duration (60-90 minutes)

Background Information

1. Could you briefly describe your role and responsibilities related to sustainability in your organization?
2. How long have you been working on sustainability-related initiatives, both in your current role and previously?
3. Could you briefly describe your organization's key sustainability priorities and how these connect to external stakeholders like suppliers, customers, or partners?

Understanding Power Dynamics

4. How would you describe the power dynamics between your organization and key external stakeholders (suppliers, partners, customers) in sustainability contexts?
5. What specific power asymmetries or imbalances have you observed in sustainability initiatives that cross organizational boundaries?
6. How do these power dynamics differ from those in conventional business relationships not focused on sustainability?
7. In what ways do these power dynamics enable or constrain progress on sustainability initiatives?

Digital Transparency Mechanisms

8. How does your organization use digital technologies to create transparency in sustainability contexts?
9. Could you describe a specific digital transparency initiative and how it was designed and implemented?
10. How were external stakeholders involved in the design and implementation process?

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11. How has this digital transparency initiative affected relationships with external stakeholders?
12. In what ways, if any, has this initiative shifted power dynamics with suppliers or partners?
13. What factors determine whether digital tools function as power equalizers versus reinforcing existing power asymmetries?

Collaborative Governance Structures

14. What formal structures or processes has your organization established for collaborative decision-making with external stakeholders on sustainability issues?
15. Could you describe a specific collaborative governance initiative and how it was developed?
16. What challenges did you face in implementing more collaborative governance approaches?
17. How do you ensure that less powerful stakeholders have meaningful voice in these governance processes?
18. In what ways have these governance structures changed power relationships with external stakeholders?

Capability Building Networks

19. How does your organization approach capability building for sustainability across organizational boundaries?
20. Could you describe a specific capability building initiative involving external stakeholders?
21. How does your organization balance providing expertise versus learning from external stakeholders?
22. In what ways has capability building changed power dynamics with suppliers or partners?
23. How do capability building initiatives differ depending on the stakeholder's relative power position?

Evolution of Power Relationships

24. How have your organization's relationships with key external stakeholders evolved through sustainability initiatives?
25. Could you describe a specific relationship that has transformed significantly through sustainability work?
26. What were the key factors or interventions that enabled this transformation?
27. How has your personal approach to navigating power dynamics in sustainability contexts evolved over time?

Contextual Factors

28. How do regulatory contexts influence your organization's approach to power dynamics in sustainability initiatives?

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29. In what ways does your organization's market positioning (brand visibility, consumer proximity) affect how you navigate power with external stakeholders?
30. How do cultural contexts (national, organizational) shape your approaches to power in sustainability initiatives?
31. How do approaches differ across different geographic regions where your organization operates?

Challenges and Barriers

32. What are the most significant barriers to creating more balanced power relationships in sustainability contexts?
33. Can you describe a situation where efforts to reshape power dynamics were unsuccessful? What factors contributed to this outcome?
34. What resistances have you encountered from within your own organization to more collaborative approaches with external stakeholders?
35. What tensions exist between reshaping power dynamics and meeting short-term business objectives?

Success Factors and Best Practices

36. Based on your experience, what approaches have been most effective in reshaping power dynamics to enable more substantive sustainability transformation?
37. What skills or capabilities are most important for sustainability professionals to develop in navigating power dynamics?
38. What advice would you give to organizations seeking to create more balanced and collaborative relationships with external stakeholders?

Closing Questions

39. Is there anything important about power dynamics in sustainability contexts that we haven't discussed that you'd like to share?
40. Would you be willing to be contacted for any follow-up questions or clarifications?
41. Do you have any questions for me about this research?

Wrap-up

- Thank participant for their time and insights
- Explain next steps in the research process
- Offer to share summary of findings when available
- Provide contact information for any additional thoughts or questions

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