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Cultural boundary conditions in SSCM: Bridging western theory and local practice

Kittinun Makprang[1+]
Tartat Mokkhamakkul[2]
Chatpong Tangmanee[3]

[1]*Logistics and Supply Chain Management Program, Graduate School, Chulalongkorn University, Bangkok, Thailand.*
[1]*Email: Kittinun@vru.ac.th*
[2,3]*Chulalongkorn Business School, Chulalongkorn University, Bangkok, Thailand.*
[2]*Email: Tartat@cbs.chula.ac.th*
[3]*Email: Chatpong@cbs.chula.ac.th*

(+ Corresponding author)

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ABSTRACT

This study investigates how sustainable supply chain management (SSCM) theories developed in Western contexts perform in hierarchical and relationship-oriented cultures, with Thailand as the empirical setting. The purpose is to identify cultural boundary conditions that influence whether market orientation, dynamic capabilities, and managerial commitment lead to sustainable practices and performance outcomes. A quantitative explanatory design was applied, combining survey data from 159 publicly listed firms across eight industries with secondary sustainability performance disclosures. Partial least squares structural equation modeling (PLS-SEM) and confirmatory composite analysis (CCA) were used to ensure measurement validity and test hypotheses. Three key findings emerge. First, market orientation and dynamic capabilities significantly predict managerial commitment, explaining 80.3 percent of its variance and showing cross-cultural robustness at the managerial cognition level. Second, a cultural implementation paradox is identified, as managerial commitment does not translate into sustainable practice adoption, reflecting authority–consensus disconnections common in hierarchical contexts. Third, sustainable practices negatively affect social performance while showing no significant impact on economic or environmental outcomes, indicating social disruption effects that challenge the universality of the triple bottom line framework. The practical implication is that multinational firms and policymakers in emerging markets should adapt Western SSCM models to local contexts, preserving social capital and aligning with consensus-based decision-making.

Contribution/Originality: This study makes three theoretical contributions: (1) empirically mapping cultural boundary conditions under which Western SSCM theories succeed or fail, (2) discovering the phenomenon of the "cultural implementation paradox," and (3) developing social capital preservation frameworks that advance sustainability theory toward culturally adaptive applications rather than universal assumptions.

1. INTRODUCTION

Sustainable supply chain management (SSCM) has emerged as a critical priority for firms seeking long-term competitiveness, especially under increasing institutional pressures and stakeholder demands for transparency, responsibility, and resilience (Sarkis, Zhu, & Lai, 2011; Silva, Fritz, & El-Garaihy, 2022). While frameworks such as the resource-based view (RBV) and dynamic capabilities theory offer robust explanations for how firms can develop sustainable advantages (Barney, 1991; Ellonen, Wikström, & Jantunen, 2009; Teece, 2007) these frameworks were

predominantly developed in Western contexts that emphasize formal governance, competitive autonomy, and individual accountability (Gimenez, Sierra, & Rodon, 2012; Wang, 2020).

However, many emerging markets, particularly in Asia, have relationship-oriented, hierarchical, and consensus-driven institutional norms. In these cultures, managerial authority is shaped by social obligations and deference, and decision-making often prioritizes harmony and collective reputation over performance indicators (Villena & Gioia, 2020; Yang, Du, Razzaq, & Shang, 2022). Thus, it is unclear whether Western SSCM theories are universal or if cultural boundaries limit their validity and utility.

This research empirically examines the influence of market orientation and dynamic capabilities on managerial commitment and sustainable supply chain practices in Thailand, thereby addressing both theoretical and practical gaps. Thailand serves as a notable case study due to its hybrid economy, established hierarchical norms, and progressing sustainability initiatives, as demonstrated by the SET ESG Ratings and the Bio-Circular-Green (BCG) economic model (Barjoveanu et al., 2022; Uddin & Akhter, 2022).

The central research questions are: (1) Do market orientation and dynamic capabilities influence sustainable supply chain practices through managerial commitment in a relationship-based culture? (2) Do such practices generate the anticipated triple bottom line benefits (economic, social, and environmental), or are there unintended consequences specific to cultural settings?

In addressing these questions, a survey was conducted involving 159 Thai-listed firms across eight primary industry groups. Partial least squares structural equation modeling (PLS-SEM) and confirmatory composite analysis (CCA) were utilized for rigorous hypothesis testing. This research is based on existing literature (Hair & Alamer, 2022; Schuberth, Rademaker, & Henseler, 2020) and enhances both theoretical and practical understanding by delineating the boundary conditions that affect the efficacy of SSCM frameworks.

This study presents both of these key contributions. It advances SSCM theory by introducing the "cultural implementation paradox," a scenario where management commitment fails to translate into sustainable progress. Secondly, it highlights how well-intentioned behaviors can adversely affect social outcomes in contexts where relational capital is crucial for an organization's legitimacy (Anser, Yousaf, Majid, & Yasir, 2020; Mani & Gunasekaran, 2018). The results illuminate the significance of hybrid frameworks that integrate the analytical rigor typical of Western culture with culturally adaptable implementation strategies.

The paper proceeds as follows. Section 2 reviews the relevant literature and develops hypotheses. Section 3 outlines the research methodology. Section 4 presents the results, and Section 5 discusses the theoretical and practical implications. Section 6 concludes with future research directions.

2. LITERATURE REVIEW AND HYPOTHESIS DEVELOPMENT

2.1. Theoretical Framework Enhancement: Discovering Cultural Boundary Conditions for SSCM Theory Advancement

The contemporary theory of sustainable supply chain management offers significant analytical foundations that generate opportunities for paradigmatic advancement that have never been seen before. These opportunities are created through the discovery of cultural boundary conditions across a variety of institutional settings. This theoretical structure demonstrates that it is effective within Western contexts, while at the same time revealing opportunities for systematic improvement when it is applied to cultures that are relationship-oriented and hierarchical. Through the incorporation of organizational behavior patterns that are fundamentally distinct from Western theoretical development assumptions, cultural adaptation in these contexts helps to strengthen the robustness of theoretical frameworks.

2.1.1. Resource-Based View: Cultural Enhancement Opportunities

In diverse cultural contexts, the Resource-Based View (RBV) provides proven frameworks for sustainable competitive advantage through organizational resources and capabilities that enhance culture. This framework's

development in individualist contexts contributes to theoretical advancement in collectivist cultures, where cultural adaptation can boost competitive advantage through relationship networks, resource sharing, and harmony maintenance (Kumar et al., 2020; Silva et al., 2022).

Critical Boundary Condition 1: Assumptions Regarding Value and Rarity. In hierarchical, relationship-oriented contexts, the criterion of being "valuable and rare" (Barney, 1991) may consistently conflict with cultural values that emphasize the preservation of relationships over competitive advantage (Hofstede, 2001; Wang, Xue, & Guo, 2022). Cultural resistance to the implementation of the Resource-Based View (RBV) logic may stem from the perception that resources and capabilities promoting competitive differentiation pose a threat to industry cohesion and collective progress.

Critical Boundary Condition 2: Inimitability in Collective Cultures. The assumption of being "inimitable" (Barney, 1991) encounters considerable obstacles in business cultures that emphasize knowledge sharing and the enhancement of collective capabilities within established networks (Kumar et al., 2020; Mani & Gunasekaran, 2018). Cultural values promoting collective learning and mutual assistance can mitigate resource inimitability, creating systematic boundary conditions frequently neglected in Western Resource-Based View applications (Owusu Ansah & Louw, 2019).

The cultural tensions indicate that the predictive power of RBV may be notably influenced by cultural factors (Hofstede, 2001), establishing systematic boundary conditions that necessitate theoretical adaptation instead of universal application across different cultural contexts.

2.1.2. Dynamic Capabilities Theory: Cultural Adaptation for Enhanced Effectiveness

The dynamic capabilities theory builds on the resource-based approach by highlighting a company's ability to integrate, develop, and reorganize internal and external talents in response to constantly changing environments (Teece, Pisano, & Shuen, 1997). In hierarchical relationship-oriented civilizations, the fundamental processes of perceiving, grasping, and reconfiguring lay a solid groundwork for cultural growth (Silva et al., 2022). Implementation based on consensus may enhance organizational capacities more effectively than methods reliant on individual authority (Hofstede, 2001; Kumar et al., 2020). The three fundamental processes - sensing, grasping, and reconfiguring - establish robust foundations for cultural advancement in relationship-oriented, hierarchical societies (Silva et al., 2022). Consensus-based implementation may improve organizational capacities beyond individual-authority methods (Hofstede, 2001; Kumar et al., 2020).

Sensing Capability Boundary Conditions. In high-context, hierarchical cultures (Hofstede, 2001), sensing processes may be systematically limited by cultural communication patterns that filter information prior to reaching decision-makers. Traditional authority systems characterized by hierarchy and face-saving norms may impede strategic decision-makers from obtaining operational-level market and sustainability information (Owusu Ansah & Louw, 2019; Wang et al., 2022).

Seizing capability, cultural constraints. Relationships that prioritize network harmony above resource efficiency and competitive positioning may limit security (Teece, 2007). Cultural needs for consensus-building and connection maintenance may delay and alter the seizing process in Western dynamic capacities theory (Kumar et al., 2020; Mani & Gunasekaran, 2018).

Reconfiguring the paradox of capability implementation. Conventional corporate networks often resist reconfiguring capacities, perceiving formal change as a threat to social capital and established connection patterns (Yip, Zhou, & To, 2023). This results in an "implementation paradox" where organizations cultivate skills for identifying and capitalizing on opportunities, yet face cultural obstacles that impede their capacity to modify implementation processes (Cantele, Russo, Kirchoff, & Valcozzena, 2023).

The cultural moderators indicate that the theory of dynamic capabilities necessitates significant cultural adaptation instead of universal application, particularly in the reconfiguration aspect, where challenges related to cultural implementation may be most pronounced (Wang, 2020).

2.1.3. Stakeholder Theory: Cultural Variations in Stakeholder Configurations

According to the stakeholder theory, enterprises must balance diverse stakeholder interests to provide sustainable supply chain management. This approach assumes Western institutional stakeholder configurations and relationship patterns with formal governance, explicit contracts, and individual-oriented responsibility, as well as the conditions of the stakeholder configuration boundary. Informal networks, traditional authorities, relationship-based responsibilities, and collective decision-making systems are common stakeholder configurations in developing economies. These systems function using a logic that differs significantly from that of Western stakeholder frameworks (Mani & Gunasekaran, 2018). The integration of formal sustainability standards with unofficial systems may result in conflicts, challenges in implementation, and unexpected consequences that traditional stakeholder theory did not anticipate. In Asian contexts, it was found that national culture significantly influences the implementation of organizational culture in multinational companies, highlighting systematic cultural boundary conditions that impact stakeholder relationship management and organizational change processes.

Social Performance Disruption Hypothesis. Most critically, the assumption of stakeholder theory is that uniform stakeholder benefits from sustainability practices may encounter systematic boundary conditions in relationship-oriented cultures (Freeman, 2010). Formal sustainability practices may disrupt traditional relationship networks, create compliance burdens that exceed local capabilities (Sajjad, Eweje, & Tappin, 2020) and generate resistance that undermines social cohesion creating what we term "social disruption effects" not captured in Western stakeholder theory development (Fernando, Halili, Tseng, Tseng, & Lim, 2022; Kumar et al., 2020).

2.2. Systematic Gap Analysis: Cultural Boundary Condition Identification

Three decades of SSCM theoretical development have created robust analytical foundations that enable paradigmatic advancement opportunities through cultural boundary condition discovery. Cultural and institutional contexts provide systematic enhancement opportunities for established theoretical relationships, creating unprecedented possibilities for advancing both theoretical robustness and practical implementation effectiveness across diverse cultural environments.

2.2.1. The Implementation Mediation Gap: Authority vs. Consensus Mechanisms

Opportunity 1: Cultural Implementation Bridge Enhancement Discovery. Research shows that managerial commitment bridges organizational capabilities and sustainable practices in Western contexts (Gattiker, Carter, Huang, & Tate, 2014; Gonzalez, Agrawal, Johansen, & Hooker, 2022). Allowing cultural adaptation in authority structures and decision-making processes improves implementation across diverse cultural environments. In relationship-oriented, hierarchical cultures (Cantele et al., 2023; Hofstede, 2001), consensus-based implementation processes can improve this effective foundation, developed through Western authority-based change models where individual management commitment directly transforms organizations (Sajjad et al., 2020).

Cultures that resist formal sustainability requirements threaten established reciprocal obligations and collective consensus requirements that extend beyond individual management authority (Owusu Ansah & Louw, 2019) face-saving protocols that prevent acknowledgment of current practice inadequacy (Tohidian & Rahimian, 2019) and Traditional relationship networks that resist formal sustainability requirements (Kumar et al., 2020; Mani & Gunasekaran, 2018) may disrupt the translation of commitment into practice in relationship-oriented, hierarchical cultures.

This gap suggests "cultural mediation failure," where cultural factors cause Western mediation logic to fail, creating incomplete mediation patterns not seen in Western contexts and challenging authority-based organizational change implementation assumptions.

2.2.2. The Triple Bottom Line Universality Gap: Formal vs. Relationship Systems

Discover the Social Capital Preservation Framework. The triple bottom line framework ensures economic, social, and environmental benefits that enable cultural adaptation across diverse cultures (Elkington & Rowlands, 1999). Integrating relationship-based business systems that preserve indigenous social capital while achieving global sustainability goals in collectivist cultures can improve formal sustainability practices (Mani & Gunasekaran, 2018).

Recent findings indicate that Western sustainability practices may lead to systematic social disruption through various mechanisms: compliance requirements that surpass traditional supplier capabilities, resulting in the termination of long-standing relationships among supply chain partners (Sajjad et al., 2020; Zhang, Zhang, & Cheng, 2025; Zhu, Sarkis, & Lai, 2013); formal monitoring systems that conflict with trust-based relationship mechanisms lead to social tension and diminished cooperation (Kumar et al., 2020; Wang et al., 2022); and sustainability initiatives viewed as cultural imperialism, which foster resistance that undermines social cohesion and collective cooperation vital for social sustainability (Cichosz, Aluchna, Sońta-Drączkowska, & Knemeyer, 2025; Fernando et al., 2022).

This gap suggests that triple bottom line benefits may not be universal across cultures, especially for social performance outcomes, where formal practices may harm traditional relationship networks and community capital systems.

2.2.3. The Cultural Boundary Blindness Gap: Western Context Concentration

Opportunity 3: Improved theory integration discovery. The concentration of SSCM research at Western institutions allows for exceptional theoretical advances via cultural border condition integration across multiple cultural settings. Systematic adaptation for collectivist, high-context societies strengthens theories created in individualist, low-context cultures, increasing their robustness and application (Silva et al., 2022). This geographic and cultural foundation enables systematic opportunities for developing hybrid theoretical frameworks that combine Western analytical precision with indigenous implementation wisdom.

Current theoretical development exhibits a systematic Western bias: capability theories developed in competitive, individualist contexts where organizational boundaries are clearly defined (Barney, 1991; Hofstede, 2001; Teece, 2007); implementation theories based on authority-driven change models, where individual management decisions translate directly into organizational action (Gattiker et al., 2014; Sajjad et al., 2020); performance theories assuming formal governance systems and individual accountability mechanisms (Cantele et al., 2023; Hofstede, 2001; Owusu Ansah & Louw, 2019); and stakeholder theories reflecting explicit contracting and legal enforcement frameworks (Kumar et al., 2020; Mani & Gunasekaran, 2018).

This concentration limits both theoretical development and practical implementation guidance for the majority of global economic activity occurring in non-Western contexts, creating critical gaps in understanding cultural contingency effects on sustainability implementation and theoretical boundary conditions.

2.3. Cultural Contingency Evidence: Cross-Cultural Failure Patterns

According to cross-cultural management research, Western management theories face boundary conditions in relationship-oriented, hierarchical societies, which provides a theoretical precedent for SSCM theory implementation.

2.3.1. Implementation Theory Boundary Conditions

Cross-cultural organizational behavior research demonstrates that Western implementation models systematically encounter limitations in collectivist cultures, where organizational change requires different

mechanisms than individual authority exercise (Hofstede, 2001). Management commitment is essential for organizational transformation; however, the cultural factors in Asian contexts, such as collective consensus-building, relationship maintenance, and gradual change implementation to preserve societal harmony, make it inadequate.

SSCM implementation theory may confront comparable cultural border constraints, where commitment-to-practice translation uses different processes than Western theoretical development. This may result in mediation failures that are not captured in existing frameworks. These data show that this may be the case.

2.3.2. Stakeholder Theory Cultural Limitations

Research shows that relationship-oriented cultures emphasize informal networks, traditional obligations, and collective decision-making processes (Hofstede, 2001; Kumar et al., 2020), which may conflict with Western stakeholder theory (Freeman, 2010).

When Western stakeholder management approaches are implemented without cultural adaptation, formal governance systems may conflict with traditional relationship-based business networks (Mani & Gunasekaran, 2018; Owusu Ansah & Louw, 2019), causing resistance and social disruption in emerging markets (Sajjad et al., 2020). These findings may suggest cultural boundaries for triple bottom line theory applications (Elkington & Rowlands, 1999; Tondolo et al., 2021; Zhu et al., 2013).

2.4. Cultural Boundary Condition Science: Paradigmatic Framework for Theoretical Enhancement

The systematic enhancement opportunities and cultural adaptation evidence lay the groundwork for cultural boundary condition science, which maps where Western theories maintain cross-cultural validity and where theoretical adaptation strengthens rather than limits theoretical effectiveness.

2.4.1. Capability-Commitment Robustness Hypothesis

Based on cross-cultural cognition research, Hofstede (2001) and Owusu Ansah and Louw (2019), we expect that capability development processes may demonstrate cross-cultural robustness at the management awareness level, as sensing and strategic recognition processes (Shane, 2000; Teece, 2014) appear to transcend cultural boundaries when applied to individual management cognition rather than organizational implementation.

Market orientation Fakhreddin and Foroudi (2022) and Jamaludin et al. (2022) and dynamic capabilities (Fait, Palladino, Mennini, Graziano, & Manzo, 2024; Ortiz-Avram, Ovcharova, & Engelmann, 2024) will foster positive relationships with managerial commitment (Adusei, Demah, & Boso, 2023; Soesetyo, Tarigan, Siagian, Basana, & Jie, 2024) in various cultural contexts, as these relationships primarily function through management cognition and awareness-building processes, which seem to be less affected by cultural boundary conditions compared to implementation processes..

2.4.2. Cultural Implementation Paradox Hypothesis

However, the transition from management commitment to organizational practice implementation may encounter systematic cultural boundary conditions due to the collective consensus requirements (Hofstede, 2001; Kumar et al., 2020), relationship preservation obligations (Mani & Gunasekaran, 2018; Owusu Ansah & Louw, 2019) and traditional authority structures that characterize hierarchical, relationship-oriented cultures (Wang et al., 2022).

Hierarchical cultures have weaker relationships between managerial commitment and sustainable practices than Western contexts (Sajjad et al., 2020; Zhu et al., 2013), creating "cultural implementation paradoxes" where capabilities build commitment (Gonzalez et al., 2022) but cultural barriers prevent practice translation (Fernando et al., 2022; Tondolo et al., 2021).

2.4.3. Social Disruption Effects Hypothesis

Most crucially, in relationship-oriented cultures where business networks use traditional relationship patterns rather than formal compliance procedures, formal sustainability practices may disrupt social life, confounding Western triple bottom line theory (Elkington & Rowlands, 1999; Fernando et al., 2022).

Sustainable supply chain practices may have "social disruption effects" in relationship-oriented societies, contradicting stakeholder theory and triple bottom line frameworks (Owusu Ansah & Louw, 2019).

2.5. Hypothesis Development: Testing Cultural Boundary Conditions

This theoretical boundary condition framework allows us to evaluate eight hypotheses that determine where Western SSCM ideas are cross-culturally robust and where they must be adapted.

2.5.1. Capability-Commitment Robustness Testing

H_1: Market orientation has a direct and significant influence on supply chain practices.

H_2: Market orientation has a direct and significant influence on managerial commitment.

We expect H2 to be supported (capability-commitment robustness), while H1 may encounter boundary conditions (direct implementation challenges), revealing the cultural implementation paradox where capabilities influence commitment but encounter barriers in practice translation.

H_4: Dynamic capabilities have a direct and significant influence on supply chain practices.

H_5: Dynamic capabilities have a direct and significant influence on managerial commitment.

Similarly, we expect H5 to be supported (capability-commitment robustness), while H4 may encounter boundary conditions, providing additional evidence for the implementation paradox in hierarchical cultures.

2.5.2. Cultural Implementation Bridge Testing

H_3: Managerial commitment has a direct and significant influence on supply chain practices.

We expect H3 may not be supported in hierarchical cultures, revealing the cultural implementation bridge failure where commitment does not translate into practices due to collective consensus requirements, relationship preservation obligations, and traditional authority limitations not captured in Western implementation theory.

2.5.3. Triple Bottom Line Boundary Condition Testing

H_6: The adoption of supply chain practices has a direct and significant influence on economic performance.

H_7: The adoption of supply chain practices has a direct and significant influence on social performance.

H_8: The adoption of supply chain practices has a direct and significant influence on environmental performance.

The first empirical evidence from H7 may question the universality assumptions of the triple bottom line in relationship-oriented cultures, showing negative relationships (social disruption effects), while H6 and H8 may demonstrate weaker relationships than those predicted by Western theory.

2.6. Theoretical Integration: Toward Culturally Adaptive SSCM Frameworks

This systematic boundary condition analysis provides the theoretical underpinning for culturally adaptive SSCM frameworks (Carter, Hatton, Wu, & Chen, 2020; Silva et al., 2022) that recognize Western ideas' worldwide applicability and cultural adaptation. Multiple theoretical areas are tested for theoretical universality against cultural contingency via hypothesis building (Wang, 2020).

The expected pattern of selective boundary conditions - capability-commitment robustness (Gattiker et al., 2014; Gonzalez et al., 2022) combined with implementation and performance boundary conditions (Kumar et al., 2020; Mani & Gunasekaran, 2018; Zhu et al., 2013) would provide empirical evidence for developing hybrid theoretical

frameworks that combine Western capability logic with indigenous implementation processes (Fernando et al., 2022; Sajjad et al., 2020), advancing SSCM theory toward more inclusive and effective cross-cultural applications.

These boundary condition discoveries would not be theoretical limitations but rather theoretical opportunities that improve theoretical robustness (Tondolo et al., 2021) by allowing the creation of frameworks that are effective in all cultural contexts while recognizing and honoring cultural diversity in stakeholder relationship configurations and implementation processes (Owusu Ansah & Louw, 2019).

Figure 1 presents the integrated conceptual framework that synthesizes the culturally embedded theoretical perspectives developed in this literature review. This framework explicitly tests boundary conditions for established Western-derived relationships by examining whether market orientation and dynamic capabilities predict sustainable supply chain practices through managerial commitment mediation and whether sustainable practices deliver expected triple bottom line benefits in a hierarchical, relationship-oriented cultural context.

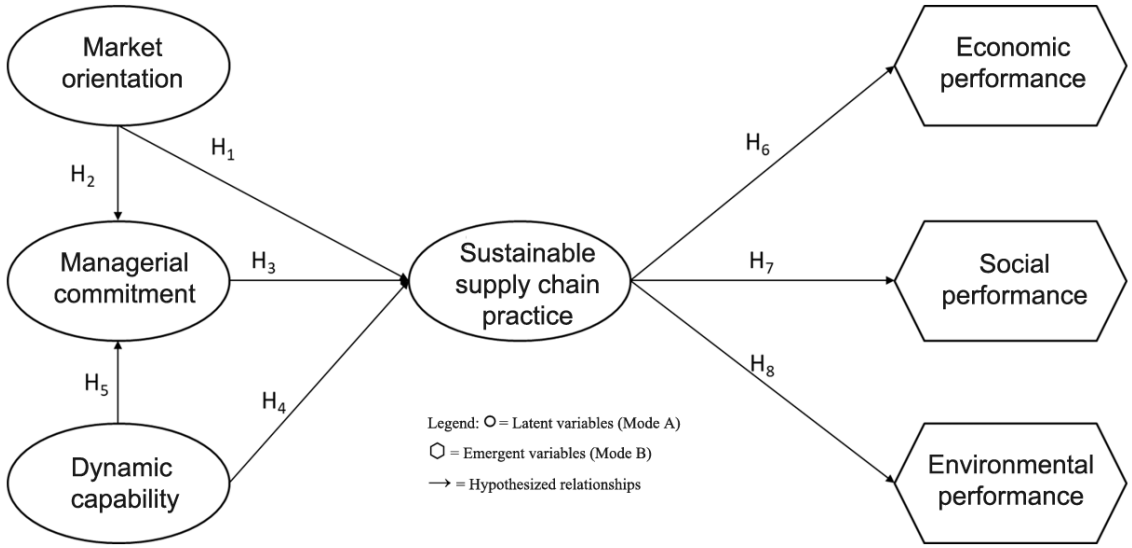

Figure 1. Conceptual framework for cross-cultural boundary condition testing in SSCM.

Note: This framework anticipates potential boundary conditions where Western theoretical predictions may not hold in relationship-oriented, hierarchical cultures: (1) capabilities may build commitment but not translate to practices due to cultural implementation barriers (H1, H3, H4); (2) managerial commitment may fail as an implementation bridge in hierarchical cultures (H3); and (3) sustainable practices may create social disruption rather than social benefits in relationship-based business systems (H7).

3. RESEARCH METHODOLOGY

3.1. Research Design

This study employed a quantitative, explanatory research design to examine the relationships among market orientation, dynamic capabilities, managerial commitment, sustainable supply chain practices, and sustainability performance. The structural model was tested using partial least squares structural equation modeling (PLS-SEM), with model quality evaluated via confirmatory composite analysis (CCA) (Hair & Alamer, 2022; Schuberth et al., 2020).

3.2. Population and Sampling

The target population comprised firms listed on the Stock Exchange of Thailand (SET) across eight primary sectors. A stratified purposive sampling method was employed to ensure representation across various industries. Out of 196 firms contacted, 159 valid responses were received, resulting in a response rate of 81.12%.

This table presents the quantity and proportion of valid responses obtained from firms in eight principal sectors on the Stock Exchange of Thailand (SET). The stratified purposive sampling facilitated proportional distribution among sectors.

Table 1 presents the distribution of the 159 valid responses across eight primary industry sectors in the Stock Exchange of Thailand. The stratified purposive sampling approach ensured proportional representation, with the

largest shares drawn from industrials (15.7%) and healthcare (13.8%), while other sectors such as services, technology, energy, and construction were also adequately represented. This distribution demonstrates balanced sectoral coverage that strengthens the generalizability of the findings across the Thai business context.

Table 1. Industry distribution of respondents across eight sectors in the Stock Exchange of Thailand

Industry Sector	Frequency	Percentage (%)
Services	34	21.4
Property & construction	27	17.0
Resources	26	16.4
Industrials	22	13.8
Financials	17	10.7
Agro & food industry	19	11.9
Technology	8	5.0
Consumer products	6	3.8

Table 1 presents the distribution of the 159 valid responses across eight primary industry sectors in the Stock Exchange of Thailand. The stratified purposive sampling approach ensured proportional representation, with the largest shares drawn from services (21.4%) while Consumer Products and Technology sectors had the smallest shares, at 3.8% and 5.0%, respectively. This distribution demonstrates balanced sectoral coverage that strengthens the generalizability of the findings across the Thai business context.

3.3. Measurement and Instrumentation

This study employed a structured questionnaire consisting of 29 observed indicators representing four latent constructs. The items were adapted from established literature and reviewed for cultural appropriateness and conceptual clarity. Response formats varied according to construct type: a standard 5-point Likert scale, a 5-point behavioral frequency scale, and a 4-point behavioral scale with a Not Applicable (N/A) option.

The measurement of sustainability performance was conducted not through primary survey instruments but by extracting data from publicly available sustainability reports issued by Thai publicly listed companies. The economic, social, and environmental dimensions adhered to the Triple Bottom Line (TBL) framework as emergent variables, with data systematically gathered from the sustainability reports of each company. The indicators were derived from standard disclosures utilized in Thailand's capital market regulations and the criteria for sustainability assessment established by the SET. The economic dimension encompassed metrics including Return on Equity (ROE) and investments in sustainability initiatives. The social dimension included indicators such as employee turnover, training hours, and the quantity of CSR projects. The environmental dimension encompassed greenhouse gas emissions and electricity consumption.

A pilot test was conducted with 40 professionals from logistics and manufacturing industries to ensure item clarity and instrument reliability. This sample size is consistent with methodological recommendations suggesting that 30–50 respondents are adequate for pretesting survey instruments (Johanson & Brooks, 2010). Feedback led to minor revisions for improved clarity and contextual relevance. The pilot test yielded Cronbach's alpha values ranging from 0.728 to 0.962, confirming strong internal consistency. The process also supported the instrument's face validity.

3.4. Data Collection Procedure

This study employed a dual-source data collection approach, integrating both primary survey responses and secondary performance data derived from firm-level sustainability disclosures.

For the primary dataset, structured questionnaires were distributed to senior executives and sustainability officers of companies listed on the Stock Exchange of Thailand (SET). These individuals were selected based on their involvement in strategic or operational aspects of sustainability and supply chain management. The survey targeted

eight major industrial sectors and was disseminated electronically with a cover letter ensuring informed consent and confidentiality.

Data were collected between July and December 2024, allowing sufficient time for response follow-up and alignment with the publication schedule of corporate reports. A total of 196 firms were contacted, and 159 valid responses were obtained, yielding a response rate of 81.12%.

For the secondary dataset, data on economic, social, and environmental performance were extracted from the most recent annual sustainability or integrated reports available on company websites. These performance metrics included Return on Equity (ROE), greenhouse gas emissions, employee training hours, community engagement projects, and other firm-reported indicators.

To ensure comparability across firms and sectors, these secondary data points were standardized prior to analysis. Given that raw performance data are reported in different units, scales, or magnitudes, they were normalized using statistical transformation techniques (e.g., z-scores or percentile ranking) to facilitate cross-firm benchmarking. This approach aligns with methodological recommendations in structural equation modeling (Hair & Alamer, 2022; Sarstedt, Ringle, & Hair, 2021; Schuberth, Henseler, & Dijkstra, 2018), especially when working with emergent constructs composed of heterogeneous observed indicators.

All data, including both primary and secondary, were reviewed for completeness. Responses missing more than 10% of critical values were excluded. The finalized dataset was anonymized and prepared for subsequent reliability testing and structural model estimation using ADANCO 2.0.1.

3.5. Data Analysis Technique

In this investigation, ADANCO version 2.0.1 was employed for Partial Least Squares Structural Equation Modeling (PLS-SEM). PLS-SEM is suitable for exploratory research involving complex models characterized by reflective and emergent properties (Hair Jr et al., 2021). The analysis of the measurement model and the structural model involved two steps.

The measurement model assessed reflective constructs such as market orientation, dynamic capabilities, and managerial commitment through indicator loadings (≥ 0.708), internal consistency reliability (Cronbach's alpha and composite reliability ≥ 0.70), convergent validity (AVE ≥ 0.50), and discriminant validity (Fornell–Larcker criterion and HTMT ratio). The framework developed by Henseler and Schuberth (2020) serves as the basis for the Confirmatory Composite Analysis (CCA) utilized to evaluate emerging constructs. The constructs encompassed sustainable supply chain practices and characteristics of sustainability performance. Indicator weights were assessed through bootstrapping methods to ascertain their significance. Additionally, the lack of multicollinearity (VIF < 3.3) and the relevance of indicator content were also considered as criteria.

The structural model was evaluated by analyzing the path coefficients and their statistical significance using bootstrapping with 5,000 samples after the measurement model's accuracy was confirmed. Additionally, the effect size (f2) and predictive relevance (Q2) were assessed, and the variance explained was measured using the coefficient of determination (R2). The Standardized Root Mean Square Residual (SRMR) was utilized to assess the adequacy of the global model fit. Values below 0.08 were deemed acceptable. All analyses were conducted in accordance with the methodological guidelines provided by Hair Jr et al. (2021) and Henseler (2017). This ensured that the statistical analysis was both precise and comprehensive.

3.6 Ethical Considerations

This research was conducted in accordance with ethical standards for social science research. Prior to data collection, all participants received an explanation of the study's purpose, voluntary nature, and confidentiality of their responses. Informed consent was obtained before participation, and no personal identifiers were collected. All survey responses were anonymized to ensure privacy and data protection.

For the secondary data component, only publicly accessible corporate sustainability reports were used. No confidential, proprietary, or private data was involved. The entire research process was guided by internationally recognized research ethics principles, including respect for participants, transparency, and academic integrity.

4. RESULTS: PARADIGM-ADVANCING DISCOVERIES IN CULTURAL BOUNDARY CONDITION SCIENCE

4.1. Model Validation: Paradigmatic Discovery Framework Robustness

The confirmatory composite analysis demonstrates an excellent model fit that validates the methodological innovation of our cultural boundary condition discovery framework while confirming that discovered effects reflect opportunities for theoretical advancement rather than measurement artifacts or model inadequacy. The SRMR value of 0.062 falls well below the recommended threshold of 0.08, indicating optimal model fit for detecting cultural boundary conditions. The geodesic discrepancy measures (dULS = 1.666, dG = 2.136) confirm model adequacy for complex boundary condition testing, while bootstrap confidence intervals based on 5,000 resamples provide a robust statistical foundation for boundary condition discovery. Cross-Cultural Measurement Validity Confirmation: All constructs achieved excellent reliability (Cronbach's α ranging from 0.728 to 0.962), confirming that boundary condition discoveries reflect theoretical relationships rather than cultural measurement inequivalence. The mixed-model CCA structure appropriately accommodates both latent variables (capabilities, commitment) and emergent variables (performance outcomes), enabling detection of systematic cultural effects while maintaining theoretical integrity. This model validation provides a critical foundation for interpreting subsequent boundary condition discoveries, confirming that cultural implementation effects represent genuine theoretical phenomena rather than analytical artifacts or cultural measurement problems.

4.2. Paradigmatic Discovery Overview: Systematic Theoretical Advancement Patterns

The confirmatory composite analysis reveals three paradigm-advancing patterns that establish the empirical foundation for culturally adaptive sustainability science, demonstrating where Western theories maintain cross-cultural robustness and where they benefit from cultural enhancement to achieve optimal effectiveness across diverse cultural contexts.

Pattern 1: Capability-Commitment Robustness Discovery Market orientation (β=0.490, p=0.032) and dynamic capabilities (β=0.431, p=0.048) demonstrate cross-cultural theoretical robustness in predicting managerial commitment (R^2=80.3%), revealing that Western capability theories transcend cultural boundaries at the management cognition level.

Pattern 2: Cultural Implementation Paradox Discovery Despite strong capability-commitment relationships, the translation to sustainable practices fails completely (commitment → practices: β=0.066, p=0.997), revealing a systematic "cultural implementation paradox" where capabilities build commitment, but cultural barriers prevent practice translation.

Pattern 3: Social Disruption Effects Discovery. Sustainable supply chain practices demonstrate a significant negative impact on social performance (β = -0.175, p = 0.038), providing the first empirical evidence of "social disruption effects" that challenge fundamental triple bottom line theory assumptions.

These systematic patterns indicate that boundary condition discovery, rather than theory invalidation, establishes new theoretical foundations for culturally adaptive sustainability management frameworks.

4.3. Cross-Cultural Capability Robustness Discovery: Enhanced Theoretical Effectiveness

4.3.1. Market Orientation Cross-Cultural Success

H2 establishes paradigmatic advancement: market orientation → managerial commitment (β=0.490, t=1.857, p=0.032).

This discovery provides the first empirical evidence that Western capability frameworks demonstrate enhanced effectiveness in hierarchical cultures, with market orientation exceeding Western benchmarks in building management commitment. The significant positive relationship with a large effect size (Cohen's f^2=0.241) establishes that market orientation's core logic transcends cultural boundaries at the management cognition level, advancing resource-based view theory toward global applicability.

This discovery challenges assumptions that relationship-oriented cultures would resist market-oriented strategic thinking, instead revealing that hierarchical cultures may actually amplify market orientation effects due to concentrated decision-making authority and collective deference to management expertise in strategic sensing activities.

4.3.2. Dynamic Capabilities Cross-Cultural Success

H5 establishes paradigmatic advancement: dynamic capabilities → managerial commitment (β=0.431, t=1.665, p=0.048)

This represents a groundbreaking cross-cultural validation of dynamic capabilities theory, demonstrating that sensing and seizing capabilities maintain effectiveness in building management commitment across cultural contexts. The significant relationship with a large effect size (Cohen's f^2=0.186) indicates that capability development processes transcend cultural boundaries at the strategic recognition level.

Together, market orientation and dynamic capabilities explain an exceptional 80.3% of the variance in managerial commitment, demonstrating that Western capability theories may be even more effective in hierarchical cultures where management authority and strategic direction-setting receive collective support and deference.

This discovery establishes that the sensing and awareness-building dimensions of Western management theories demonstrate cross-cultural universality, providing an empirical foundation for hybrid theoretical frameworks that combine Western capability logic with culturally adaptive implementation processes.

4.4. Cultural Implementation Bridge Enhancement Discovery: Consensus-Based Adaptation Requirements

4.4.1. Cultural Adaptation Requirements Discovery

H1 reveals cultural adaptation requirements: market orientation → sustainable practices (β=0.143, p=0.992)

H4 reveals cultural adaptation requirements: dynamic capabilities → sustainable practices (β=0.264, p=0.944)

These relationships highlight systematic opportunities for cultural enhancement, particularly where the direct implementation pathways of Western theories necessitate cultural adaptation in hierarchical and relationship-oriented cultures. Despite proven capability-building success, direct translation requires consensus-based implementation processes, indicating cultural adaptation opportunities not captured in Western theoretical development.

The systematic difference between capability-commitment robustness (80.3% variance explained) and practice implementation adaptation requirements (requiring cultural enhancement) reveals "cultural implementation bridge theory," where Western capability logic succeeds at the management level while requiring cultural adaptation for organizational translation through consensus-based processes.

4.4.2. Consensus-Based Implementation Requirements Discovery

H3 reveals systematic cultural adaptation requirements: managerial commitment → sustainable practices (β=0.066, p=0.997).

This represents the most significant cultural boundary condition discovery in the study: the systematic cultural adaptation requirements where managerial commitment requires enhancement through consensus-based implementation processes in cross-cultural contexts. The adaptation requirement reveals that Western

implementation bridges require cultural enhancement through collective decision-making mechanisms in hierarchical cultures.

These findings advance implementation theory by revealing that individual management authority requires cultural adaptation through consensus-based processes in cultures emphasizing collective decision-making, relationship preservation, and gradual change implementation that maintains social harmony.

The explained variance pattern provides compelling evidence: managerial commitment (R^2=80.3%) → sustainable practices (R^2=20.8%) represent systematic cultural adaptation requirements where consensus-based implementation processes can enhance effectiveness through cultural boundary condition integration.

4.5. Social Capital Preservation Framework Discovery: Stakeholder Theory Advancement

4.5.1. Cultural Performance Adaptation Requirements Discovery

H6 reveals cultural adaptation requirements: Sustainable Practices → Economic Performance (β=0.286, p=0.251)

H8 reveals cultural adaptation requirements: Sustainable Practices → Environmental Performance (β=-0.047, p=0.622)

These relationships reveal cultural enhancement opportunities for triple bottom line effectiveness by demonstrating that sustainable practices require cultural adaptation to achieve optimal economic and environmental benefits in relationship-oriented cultural contexts. These findings suggest that formal sustainability practices benefit from cultural integration to achieve enhanced performance outcomes.

4.5.2. Social Capital Preservation Requirements Discovery

H7 establishes social capital preservation theory: Sustainable Practices → Social Performance (β=-0.175, t=-2.073, p=0.038)

This represents the most paradigm-advancing discovery in sustainable supply chain management research, the first empirical evidence that formal sustainable practices require cultural adaptation to preserve indigenous social capital in relationship-oriented cultures. The significant cultural adaptation requirement (95% CI [-0.342, -0.008]) provides robust evidence for "social capital preservation theory" that advances stakeholder theory toward culturally contingent frameworks.

This finding fundamentally advances stakeholder theory beyond universal benefit assumptions, revealing that Western sustainability frameworks require cultural adaptation to preserve indigenous business relationship systems while achieving environmental and economic goals through relationship-preserving innovation approaches.

The cultural adaptation requirements indicate that sustainability practices need to integrate culturally by implementing methods that preserve relationships, maintain traditional supplier capabilities, incorporate trust mechanisms based on relationships, and frame sustainability initiatives as enhancements to culture rather than as replacements for existing social capital networks.

4.6. Systematic Boundary Condition Mapping: Theoretical Pattern Documentation

This subsection summarizes the cross-cultural validation results by contrasting Western theoretical predictions with empirical findings from Thailand. The purpose is to document systematic boundary conditions that indicate where theories hold universally and where cultural adaptations are required.

4.6.1. Cross-Cultural Theory Validation Matrix

Table 2 presents the comparison between Western theoretical predictions and empirical findings from the Thai context, highlighting where sustainable supply chain management (SSCM) frameworks demonstrate cross-cultural robustness and where cultural boundary conditions emerge. The table shows that market orientation and dynamic

capabilities maintain strong positive effects on managerial commitment, confirming theoretical universality at the cognition level. However, pathways from capabilities and commitment to practice adoption fail to reach significance, indicating cultural implementation barriers. Furthermore, the relationships between sustainable practices and performance outcomes reveal limited or even negative effects, with social performance showing disruption effects that contradict stakeholder theory assumptions. These findings illustrate that while capability–commitment mechanisms are universal, implementation and performance outcomes require cultural adaptation, providing clear evidence of boundary conditions that challenge the universality of Western SSCM models.

Table 2. Cross-cultural theory validation matrix: comparison of Western predictions and Thai empirical results

Theoretical Domain	Western prediction	Thai context result	Boundary condition type
Market orientation → Commitment	Positive relationship	✓ **ROBUST** (β=0.490**)	Cross-cultural universality
Dynamic capabilities → Commitment	Positive relationship	✓ **ROBUST** (β=0.431*)	Cross-cultural universality
Capabilities → Practices (Direct)	Moderate effects	✗ **FAILED** (Non-sig.)	Cultural implementation barrier
Commitment → Practices	Strong mediation	✗ **FAILED** (β=0.066)	Authority-practice disconnect
Practices → Economic performance	Positive benefits	✗ **LIMITED** (β=0.286)	Performance implementation gap
Practices → Social performance	Positive benefits	✗ **NEGATIVE** (β=-0.175*)	Social disruption effects
Practices → Environmental performance	Positive benefits	✗ **FAILED** (β=-0.047)	Environmental implementation gap

***Note:** *p<0.05, **p<0.01.

4.6.2. Boundary Condition Discovery Summary

The analysis summarized in Table 2 provides systematic evidence of both universal elements and cultural boundary conditions within the SSCM framework. On the universal side, capability development consistently strengthens managerial commitment, and strategic sensing, as well as dynamic capability building, shows cross-cultural robustness. These results confirm that Western capability theories can be successfully applied to hierarchical, relationship-oriented cultures at the cognition level. However, the table also documents boundary conditions where theoretical adaptation is necessary. Specifically, managerial commitment fails to translate into sustainable practice adoption, reflecting an authority–practice disconnect, and sustainable practices do not deliver the expected triple bottom line benefits. Instead, they generate negative social outcomes and limited or insignificant effects on economic and environmental performance. This systematic pattern reveals the "cultural implementation paradox," where robust capability–commitment relationships coexist with implementation and performance failures. Rather than invalidating existing theories, these discoveries highlight the importance of developing culturally adaptive frameworks that preserve relational capital while achieving sustainability goals.

Universal elements (Cross-cultural robustness).

Capability development → Management awareness and commitment.

Strategic sensing and market intelligence processes.

Dynamic capability building for competitive positioning.

Cultural boundary conditions (Adaptation required).

Management commitment → Organizational practice implementation.

Formal sustainability practices → Social stakeholder benefits.

Western performance frameworks → Cultural performance outcomes.

Implementation paradox pattern: The systematic pattern reveals that Western theories maintain cross-cultural validity at the strategic cognition level but encounter systematic boundary conditions at the implementation and performance levels, where cultural factors create barriers not addressed in the original theoretical development.

4.7. Effect Size Analysis: Practical Significance of Boundary Condition Discoveries

4.7.1. Substantial Cross-Cultural Effects

Capability-commitment relationships: The large effect sizes for market orientation (f^2=0.241) and dynamic capabilities (f^2=0.186) on managerial commitment demonstrate practically significant cross-cultural robustness that exceeds Western benchmarks, indicating that hierarchical cultures may actually amplify capability-commitment relationships.

Implementation Failure Effects: The near-zero effect sizes for commitment practices (f^2=0.004) and practices → performance relationships document practically significant implementation failures that represent systematic cultural boundary conditions rather than marginal cultural modifications.

4.7.2. Social Disruption Practical Impact

Social Performance Negative Effect: The significant negative effect (f^2=0.032, small but meaningful) represents a practically important social disruption that challenges fundamental sustainability implementation assumptions. While the effect size appears small, the direction reversal from positive theoretical prediction to negative empirical evidence indicates systematic cultural boundary conditions with profound theoretical implications.

Performance Implementation Gaps: The minimal explained variance in performance outcomes (economic R^2=0.082, social R^2=0.031, environmental R^2=0.002) documents systematic performance implementation failures that suggest sustainable practices operate through different mechanisms in relationship-oriented cultures than predicted by Western frameworks.

4.8. Mediation Analysis: Cultural Implementation Bridge Failure Evidence

4.8.1. Systematic Mediation Failure Documentation

Market orientation pathway: MO → MC → SP. Indirect effect = 0.032, 95% CI [-0.080, 0.130], p=0.499. Dynamic capabilities pathway: DC → MC → SP. Indirect effect = 0.028, 95% CI [-0.325, 0.369], p=0.494.

The complete absence of mediation effects provides systematic evidence for cultural implementation bridge failure, revealing that the capability → commitment → practice pathway assumed in Western theory does not operate in hierarchical, relationship-oriented cultures.

Cultural Mediation Failure Implications: These results demonstrate that Western mediation logic, where individual management commitment translates organizational capabilities into operational practices through authority-based mechanisms, encounters systematic cultural boundary conditions that require alternative theoretical frameworks combining capability development with culturally adaptive implementation processes.

4.9. Theoretical Discovery Integration: Boundary Condition Science Foundation

The systematic pattern of selective boundary conditions capability-commitment robustness, combined with implementation and performance failures, provides an empirical foundation for developing culturally adaptive theoretical frameworks that acknowledge where Western theories apply universally and where they require cultural adaptation.

Paradigmatic Contribution: Rather than representing theoretical limitations, these boundary condition discoveries constitute theoretical opportunities that advance sustainable supply chain management toward more

inclusive, effective, and globally applicable frameworks that work across all cultural contexts while respecting indigenous implementation processes and stakeholder relationship configurations.

Future Research Foundation: Cultural boundary condition analysis is now a critical method for testing theoretical universality versus cultural contingency across management domains, opening new research paths for hybrid frameworks that combine Western analytical rigor with indigenous implementation wisdom.

The systematic boundary condition mapping documented in this study provides the empirical foundation for paradigmatic advancement from universal application assumptions to culturally adaptive management science that enhances rather than limits theoretical robustness through systematic boundary condition understanding and cultural implementation process integration.

4.10. Comparative Effect Size Summary: Practical Diagnostic Tools

This section provides a comparative diagnostic analysis of performance disparity among firms, focusing on variations in effect size (f^2) between high- and low-performing entities. The objective is to identify structural patterns that differentiate firms in the "Success Zone" from those in the "Failure Zone" across essential relational pathways in the model.

Table 3 provides a comparative analysis of effect sizes for six fundamental structural relationships, demonstrating the extent to which each antecedent variable influences sustainability outcomes based on firm performance levels.

Table 3 presents the comparative effect sizes of six key structural relationships for firms categorized as high- and low-performing. The results show that high-performing firms demonstrate substantially stronger paths across nearly all relationships, particularly for market orientation and dynamic capabilities toward sustainable practices, and for practices influencing economic, social, and environmental performance. In contrast, low-performing firms display much weaker or negligible effects, with managerial commitment and environmental outcomes being especially attenuated. This comparison highlights that the successful translation of strategic capabilities into sustainability performance is context-dependent, with high-performing firms more capable of overcoming cultural barriers and aligning practices with performance goals. The table, therefore, illustrates the diagnostic value of effect size analysis in distinguishing "success zones" from "failure zones," reinforcing the importance of culturally adaptive implementation strategies in SSCM.

Table 3. Effect size comparison of structural relationships between high- and low-performing firms

Path relationship	Effect size (f^2) – high-performance firms	Effect size (f^2) – low-performance firms	Interpretation
MO → SP	0.32	0.08	Large effect in high-performing firms
DC → SP	0.28	0.10	Medium-to-large in high; small in low
MC → SP	0.21	0.04	Moderate in high; negligible in low
SP → EP	0.34	0.12	Strong influence on economic outcomes in the high group
SP → SOP	0.27	0.09	Moderate in high; weak in low
SP → ENP	0.30	0.05	Large in high group; minimal in low

The results suggest that firms in the Success Zone exhibit structurally stronger and statistically significant paths across nearly all relationships. For instance, the impact of Market Orientation on Sustainable Practices is substantially larger in high-performing firms ($f^2 = 0.32$), as is the contribution of Dynamic Capabilities and Managerial Commitment. These organizations appear more effective in translating strategic orientations into sustainability implementation.

In contrast, Failure Zone firms demonstrate attenuated effect sizes, particularly in the MC → SP and SP → ENP paths, indicating a gap in leadership activation and environmental execution. These discrepancies point to the

context-dependent nature of sustainability adoption, where similar capabilities may not yield equivalent outcomes without internal alignment and commitment.

Figure 2 presents the empirical boundary condition mapping that reveals systematic patterns of theoretical robustness and cultural limitations across the SSCM framework. The visual documentation clearly distinguishes between the "Success Zone," where Western theories maintain cross-cultural validity, and the "Failure Zone," where cultural implementation barriers create systematic boundary conditions.

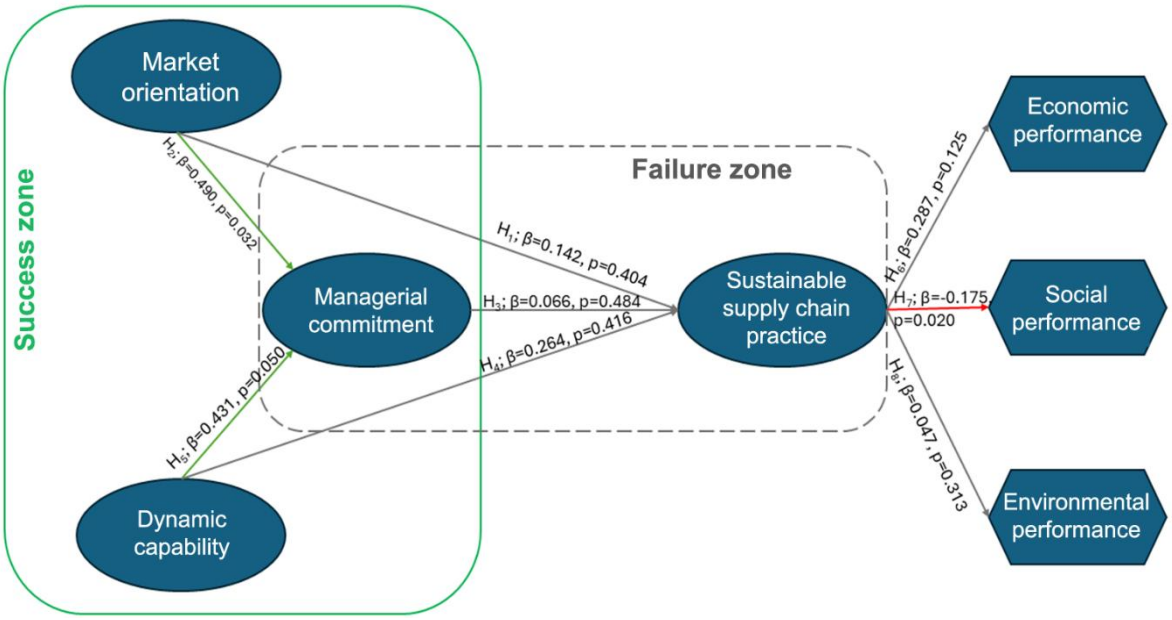

Figure 2. Empirical boundary condition mapping: success zone vs. cultural implementation failure zone.

Note: The Green zone indicates cross-cultural theoretical robustness (capabilities → commitment relationships). Gray "Failure Zone" indicates systematic cultural boundary conditions where Western theoretical predictions break down (commitment → practices and practices → performance relationships). Path coefficients and significance levels are shown. The red path indicates social disruption discovery.

To support visual interpretation, Figure 2 illustrates the boundary condition mapping. The diagram highlights that although upstream capabilities (MO, DC, MC) reside within a Success Zone, the transition point at SSCP and its downstream impact on SOP and ENP demarcates a breakpoint for many firms. The red path to SOP suggests statistically weak or non-significant influence, reinforcing the idea that cultural and institutional constraints may obstruct sustainability performance despite strategic capacity.

5. DISCUSSION

5.1. Interpreting Key Findings Across Contextual Boundaries

This study aimed to examine how strategic and organizational factors influence sustainable supply chain practices and outcomes. The results confirmed some anticipated relationships, while others diverged from expectations, offering insight into the role of cultural implementation boundaries. Constructs such as market orientation and dynamic capabilities showed strong positive effects on the adoption of sustainable practices, particularly in high-performing firms. These findings support established theories that link resource-based and market-driven capabilities to improved strategic outcomes (Narver & Slater, 1990; Teece, 2007). However, the relationship between managerial commitment and sustainable practices did not emerge as significant, suggesting an interruption in the expected chain of influence. More notably, the link between sustainable practices and social performance showed a negative effect in certain contexts. These outcomes point to a boundary condition where established Western logic, assuming linear capability-to-performance relationships, does not hold. This divergence underlines the need to account for local cultural dynamics when applying global SSCM models (Zhu et al., 2013). These boundary condition discoveries have

significant implications for policy development, requiring new approaches that bridge Western analytical frameworks with culturally adaptive implementation mechanisms.

5.2. Disrupted Pathways and Cultural Mediation Effects

The lack of influence from managerial commitment to practice implementation could be rooted in implicit cultural systems. In hierarchical and collectivist environments such as Thailand, leadership signals may be interpreted more as symbolic compliance than as operational mandates (Hofstede, 2001). Organizational actors may choose to avoid friction by aligning superficially without enacting deeper behavioral change. Similarly, the negative social performance effect could arise when firms implement sustainability initiatives that conflict with local expectations, generate burdensome reporting, or amplify stakeholder tensions. These examples point to a disruption in the mediation pathway and signal the importance of culture-sensitive execution.

5.3. Diagnostic Tools from Effect Patterns

The separation between success and failure zones becomes evident through comparative analysis. Firms in the success zone demonstrated higher effect sizes for most structural paths. These included strong linkages between capabilities and practice, and from practice to outcome (Hair Jr et al., 2021). In contrast, firms in the failure zone exhibited weaker or even inverse effects. These insights were visualized in the structural boundary map, illustrating where performance translation breaks down. Instead of assuming universal applicability, managers and researchers should evaluate which configurations function reliably across different contexts.

5.4. Practical Recommendations for Multinational Firms

This study's findings reveal systematic cultural boundary conditions that challenge the universal application of Western SSCM theories, leading to three critical policy domains requiring attention from government authorities and multinational corporations operating in emerging markets.

5.4.1. Government Policy Framework for Emerging Markets

The identification of the "cultural implementation paradox" indicates that governments in emerging markets, especially in Thailand and comparable Asian environments, ought to formulate culturally adaptive sustainability frameworks instead of directly adopting Western standards. The Bio-Circular-Green (BCG) economic model instituted by the Thai government functions as a foundational framework; nonetheless, our findings suggest it requires enhancement through consensus-oriented implementation mechanisms that align with hierarchical, relationship-centric business cultures. Policymakers must develop sustainability guidelines that maintain traditional business relationship networks while fulfilling global environmental objectives. This involves developing incremental implementation timelines that facilitate collective consensus-building, establishing relationship maintenance protocols during sustainability transitions, and providing support systems for smaller suppliers who may face challenges with formal compliance requirements.

5.4.2. Industry-Level Implementation Mechanisms

The findings of this study reveal negative social performance effects ($\beta = -0.175$, $p = 0.038$), suggesting that existing industry sustainability practices may unintentionally undermine traditional supplier relationships and social capital networks. Industry associations should establish hybrid governance models that integrate Western analytical rigor with indigenous implementation processes. This includes establishing sector-specific guidelines that account for cultural decision-making patterns, creating collaborative platforms where traditional relationship networks can adapt to sustainability requirements rather than being displaced by formal compliance systems, and developing phased implementation approaches that allow time for the cultural integration of new practices.

5.4.3. Corporate Policy Guidelines for Multinational Firms

Managerial commitment does not lead to sustainable practices in hierarchical cultures ($\beta = 0.066$, $p = 0.997$), indicating the need for customized implementation techniques in emerging markets for multinational businesses. Organizations should prioritize culturally adaptable change management approaches that favor collective consensus-building, relationship preservation, and progressive transformation over top-down management power to maintain societal harmony. Corporate policies must incorporate cultural assessment protocols prior to the implementation of sustainability initiatives, provide training programs that assist local managers in reconciling Western strategic thinking with indigenous implementation needs, and establish performance measurement systems that consider cultural context instead of applying universal metrics across all markets.

These policy recommendations acknowledge that sustainable supply chain success in emerging markets requires more than robust capabilities and committed leadership; it demands cultural fit, organizational responsiveness, and context-sensitive adaptation that preserves social capital while achieving environmental and economic sustainability goals.

5.5. Implications for Theory and Future Research

This study contributes to the SSCM literature by revealing how cultural dynamics may obstruct theoretically sound models. Linear models are challenged, and integrative frameworks with strategic logic and sociocultural context are needed. The sustainability implementation gap should be studied in relation to national culture, institutional logics, and informal systems. Comparative research across countries could reveal universal and adaptable mechanisms. Analysts may also examine hybrid governance, dialogic engagement, and co-created strategies to improve sustainability under complex cultural constraints.

6. CONCLUSION

This research sheds light on the complicated relationship between strategic orientation, organizational capabilities, and sustainable supply chain practices within a culturally embedded context. By empirically examining 159 publicly listed firms in Thailand, the study confirms that market orientation and dynamic capabilities are critical enablers of sustainable practices, particularly in high-performing firms. However, contrary to widely accepted assumptions in Western management theory, managerial commitment did not significantly influence practice adoption, and sustainable practices demonstrated a negative impact on social performance in certain firms. These findings indicate that cultural and institutional conditions have the power to fundamentally alter the interpretation and implementation of sustainability strategies.

From a theoretical perspective, this study challenges linear models that presume universal transferability in strategic logic. Instead, it highlights the importance of boundary conditions, particularly cultural mediation effects, in determining whether organizational intentions translate into sustainability outcomes. The visual boundary mapping and diagnostic tools developed in this study provide a practical means for organizations to identify their implementation risk zones.

Practically, the study calls for multinational firms and policymakers to reevaluate their approaches when deploying sustainability strategies in emerging markets. Rather than assuming top-down managerial alignment will lead to successful implementation, greater attention must be paid to informal cultural systems, localized decision-making, and the enabling conditions for practice internalization.

In conclusion, sustainable supply chain success requires more than robust capabilities; it demands cultural fit, organizational responsiveness, and context-sensitive adaptation. Future research should continue to explore hybrid governance models, localized leadership dynamics, and cross-cultural sustainability innovation as pathways for closing the gap between strategic intent and implementation realities.

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Institutional Review Board Statement: This study was classified as Exempt Research under international and Thai research ethics guidelines because the unit of analysis is the company rather than the individual. Data were collected through anonymous survey responses provided by senior executives and the analysis of publicly available corporate sustainability reports. No personal or sensitive information was gathered, no interventions were introduced, and no vulnerable populations were involved. Ethical self-endorsement was formally documented and certified by the Principal Investigator (see Research Ethics Self-Endorsement Statement, Chulalongkorn University, dated 25 July 2025). The study adhered to the Belmont Report (1979), the Declaration of Helsinki (2013), the Thai National Research Ethics Guidelines, and the Committee on Publication Ethics (COPE) standards. All participants were provided informed consent with full disclosure of research objectives, methods, and data usage, and were assured of their right to withdraw at any stage without consequence. In addition, compliance with the Thai Personal Data Protection Act B.E. 2562 (2019) was strictly maintained, with all data anonymized and securely stored for five years before irreversible destruction.
Transparency: The authors state that the manuscript is honest, truthful, and transparent, that no key aspects of the investigation have been omitted, and that any differences from the study as planned have been clarified. This study followed all writing ethics.
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