

Understanding Resilience of Logistics Management in Multinational Corporations

Vedant V. Pandya

Department of Business Administration, M. K. Bhavnagar University, Bhavnagar, Gujarat, India

DOI: <https://doi.org/10.51244/IJRSI.2026.1308000272>

Received: 07 September 2026; Accepted: 12 September 2026; Published: 21 September 2026

ABSTRACT

Multinational corporations (MNCs) operate logistics systems that span heterogeneous regulatory regimes, infrastructure qualities and disruption profiles, making logistics resilience a strategic rather than purely operational concern. This paper reports an integrative, evidence-informed literature review that examines why MNCs must invest systematically in logistics resilience, how logistics resilience is conceptually distinct from vulnerability and from broader supply chain resilience and how resilience can be measured, modelled and governed across cross-border operations. Building on a transparent, protocol-driven search and selection strategy, the review synthesizes interdisciplinary scholarship from resilience theory, organizational studies, supply chain and logistics management, disaster risk reduction and sustainability research and extends this synthesis with recent empirical evidence specifically addressing multinational, cross-border and institutionally heterogeneous logistics contexts. The analysis identifies structural, technological, organizational-relational and external-contextual determinants of resilience; traces the mediating role of information visibility and dynamic capabilities; and shows how institutional environments and regulatory heterogeneity moderate the transferability of resilience strategies across borders. The paper concludes with a phased implementation roadmap, a set of theoretical and practical contributions, an explicit statement of review limitations and a research agenda emphasizing longitudinal, multi-institutional and psychometrically validated inquiry into logistics resilience for MNCs.

Keywords: logistics resilience; supply chain resilience; multinational corporations; cross-border logistics; institutional environment; vulnerability; dynamic capabilities; measurement frameworks; systematic literature review; sustainability integration

INTRODUCTION

Resilience has become central to understanding how complex socio-technical systems perform under stress; for multinational corporations, logistics systems provide the material and informational circulatory infrastructure that sustains global operations (Holling, 1973). Logistics systems including transportation networks, warehousing, customs and border procedures, inventory positioning and information flows, determine a firm's capacity to deliver value across markets and geopolitical boundaries (Christopher, 2016). Recent global shocks have shown that logistical fragility cascades into operational, financial and reputational damage; the COVID-19 pandemic and major port congestions are salient examples that accelerated the framing of resilience as a strategic capability rather than a purely tactical function (Ivanov, 2020; Sheffi, 2007).

Prior syntheses of this literature have tended to remain at the level of general conceptual review, drawing on resilience theory, organizational studies and supply chain management without isolating the conditions distinctive to multinational corporations: cross-border regulatory heterogeneity, differential infrastructure quality across host countries and exposure to geopolitically asymmetric risk. This paper addresses that gap directly. It synthesizes extant literature to develop an evidence-informed argument for why MNCs must invest in logistics resilience, how logistics resilience differs from related constructs such as vulnerability and how resilience can be measured, modelled and governed within multinational contexts (Ponomarov & Holcomb,

2009), while giving explicit and sustained attention to empirical work situated in cross-border logistics networks, multinational supply chains and varying institutional environments.

The review is organized as follows. Section 2 sets out the review methodology, including the search protocol, inclusion and exclusion criteria and synthesis strategy. Sections 3 through 7 develop the conceptual, measurement and determinant-level foundations of logistics resilience. Section 8 presents an analysis of empirical evidence specific to multinational, cross-border and institutionally heterogeneous contexts. Sections 9 through 12 discuss the strategic implications, present an implementation roadmap and set out theoretical and practical contributions. Section 13 states the review's limitations, Section 14 proposes a future research agenda and Section 15 concludes.

METHODOLOGY

This paper is explicitly positioned as an integrative, evidence-informed literature review employing a transparent and systematic search and selection protocol, rather than a statistical meta-analysis. This design choice follows established guidance for developing evidence-informed management knowledge, which recommends applying systematic review principles; explicit protocol, transparent search terms and documented inclusion criteria; to conceptually heterogeneous management literatures where formal meta-analysis is not appropriate (Tranfield, Denyer, & Smart, 2003). The reporting of the search and selection process below is further informed by the PRISMA 2020 guidance on transparent identification, screening and synthesis of literature, adapted here for a narrative-integrative rather than a quantitative synthesis (Page et al., 2021).

Databases and Search Strategy

Literature was identified through structured keyword searches of Scopus, Web of Science, Google Scholar and ScienceDirect, supplemented by forward and backward citation tracking (snowballing) from key sources to capture additional relevant studies not returned by keyword search alone. The core Boolean search string combined three concept blocks: (1) resilience terms; "logistics resilience," "supply chain resilience," "organizational resilience"; (2) organizational-scope terms; "multinational corporation*," "MNC*," "MNE*," "cross-border," "global supply chain"; and (3) disruption/vulnerability terms; "vulnerability," "disruption," "risk." These blocks were combined using AND/OR operators (e.g., ("logistics resilience" OR "supply chain resilience") AND ("multinational*" OR "cross-border") AND (vulnerability OR disruption)).

Inclusion and Exclusion Criteria

Table 1 summarizes the criteria applied during screening.

Criterion	Included	Excluded
Publication type	Peer-reviewed journal articles, scholarly books/book chapters and major institutional or policy reports (e.g., PRISMA statement)	Non-peer-reviewed blogs, opinion pieces, unverified preprints without institutional affiliation
Language	English-language sources	Non-English sources without an available English translation
Topical relevance	Studies addressing resilience, vulnerability, or related constructs in logistics, supply chain, or organizational contexts	Studies where resilience/vulnerability terms appear only incidentally and are not analytically developed
Publication period	Foundational theoretical works (from 1973) plus emphasis on empirical and applied studies from 2015–2026	Superseded editions/duplicate reports of the same study
Organizational scope	Studies addressing firm-level, network-level, or country-level resilience relevant to MNC, cross-border, or multi-institutional contexts, alongside foundational domestic-context studies used for conceptual grounding	Studies with no plausible relevance to logistics, supply chain, or organizational resilience

Screening and Synthesis

Screening proceeded in two stages: an initial title/abstract screen to exclude clearly irrelevant records, followed by full-text assessment of the remaining records against the criteria in Table 1. Reference lists of retained full-text sources were examined for additional eligible studies (backward snowballing) and citing-article searches were used to identify more recent studies building on foundational works (forward snowballing). The retained corpus was synthesized thematically rather than statistically, consistent with the conceptual and methodological heterogeneity of the underlying studies (which range from ecological theory to firm-level econometric analysis). Thematic categories were derived iteratively from the literature itself: conceptual foundations, measurement, existing models and frameworks, determinants, mediators and moderators and empirical evidence specific to multinational and cross-border contexts. This last category, developed in direct response to the need for literature specifically involving MNCs, cross-border logistics networks, multinational supply chains and different institutional environments, is presented separately in Section 8 and supported by a structured comparative table (Table 2) so that the contribution of each empirical study can be assessed independently of the surrounding narrative synthesis. The final reference corpus underpinning the review comprises 34 sources, spanning foundational conceptual works and recent (2021–2025) empirical studies.

Conceptual Foundations

The Concept of Resilience and Its Distinction from Vulnerability

Resilience is a multi-dimensional capacity encompassing abilities to anticipate disruptions, absorb shocks while maintaining critical functions, adapt processes and structures in response to changing conditions and transform when preservation is insufficient (Folke et al., 2010). Holling's foundational ecological formulation frames resilience as the capacity to absorb disturbance and reorganize while retaining the system's essential functions (Holling, 1973). Subsequent literature expanded this to include adaptive capacity and transformability, moving beyond engineering notions of "bounce-back" to social-ecological and organizational perspectives that emphasize learning and cross-scale interactions (Gunderson & Holling, 2002; Folke et al., 2010). Vulnerability, by contrast, denotes the degree to which a system is susceptible to harm when exposed to hazards and emphasizes exposure, sensitivity and deficits in adaptive capacity (Adger, 2006). Vulnerability analysis therefore highlights potential failure points and exposures, while resilience analysis centers on capacities and processes that enable preservation, recovery and learning; comprehensive risk management requires integrating both lenses (Adger, 2006; Folke et al., 2010).

Origins and Evolution of Resilience as a Research Domain and Practice

Resilience originated in ecology and engineering and migrated into disaster risk reduction, urban governance and socio-technical systems research; Holling's early ecological work established the concept's foundation for system-level adaptive cycles (Holling, 1973). Engineering disciplines contributed quantitative measures of recovery for physical infrastructures and disaster risk reduction extended resilience into policy and governance domains (Gunderson & Holling, 2002). Over recent decades, resilience thinking informed organizational studies and supply chain research, integrating network science, complex adaptive systems theory and dynamic capabilities to operationalize resilience for firms and inter-organizational systems (Teece, Pisano, & Shuen, 1997; Ambrosini, Bowman, & Collier, 2009). Practice evolved from continuity planning to strategic resilience frameworks that formalize sensing, redundancy, flexibility and rapidity as managerial capabilities, reflecting a shift from reactive contingency to proactive capability building and institutionalized learning (Sheffi, 2007; Sutcliffe & Vogus, 2003).

Business and Organizational Resilience

Organizational resilience refers to an organization's dynamic capacity to anticipate disturbances, respond effectively to crises and adapt or transform to preserve long-term viability (Vogus & Sutcliffe, 2007). This construct is commonly framed through the dynamic capabilities lens; sensing, seizing and transforming, whereby organizational routines convert environmental information into strategic and operational actions (Teece et al.,

1997; Ambrosini et al., 2009). Organizational resilience integrates structural features such as redundancy and diversity, human and social dimensions including leadership and trust, processes such as incident-response playbooks and cross-functional coordination and technological enablers like visibility platforms and simulation tools (Lengnick-Hall, Beck, & Lengnick-Hall, 2011; Sutcliffe & Vogus, 2003). Organizational resilience scholarship developed from crisis management, business continuity and studies of high-reliability organizations; early management research emphasized contingency planning and robustness as defensive measures (Sheffi & Rice, 2005). The incorporation of complexity theory and dynamic capabilities expanded the field toward multi-level, processual lenses that capture non-linear disruptions, path dependencies and organizational learning (Lengnick-Hall et al., 2011). Empirical research has explored antecedents such as slack resources, leadership and inter-organizational networks, while examining outcomes such as time-to-recovery and post-disruption performance; scholars increasingly call for longitudinal, multi-level designs to capture temporal dynamics and feedback mechanisms in resilience processes (Williams, Gruber, Sutcliffe, Shepherd, & Zhao, 2017).

Logistics Resilience: Conceptualization

Logistics resilience pertains to the capacity of logistics systems including transport networks, warehousing and distribution infrastructures, customs procedures and last-mile delivery to sustain and rapidly restore service levels during and after disruptions (Ponomarov & Holcomb, 2009). It emphasizes operational capacities that enable absorption of shocks through redundancy and robustness, ensure rapid recovery through alternative routing and surge capacity and support adaptive reconfiguration via network redesign and supplier substitution (Christopher & Peck, 2004).

In the literature, logistics resilience is discussed alongside supply chain resilience, transport resilience and distribution network robustness. Supply chain resilience typically encompasses upstream supplier relationships and demand-side flexibility, whereas logistics resilience focuses on the operational layer of material and information flows that connect production and consumption nodes (Christopher, 2016). This distinction clarifies analytical focus and aids MNCs in targeting investments either at broader supply chain governance or specifically at transportation and distribution infrastructures (Tang, 2006). Logistics resilience research evolved from supply chain risk management and transportation studies, gaining momentum after high-impact disruptions such as earthquakes, tsunamis and the COVID-19 pandemic that exposed vulnerabilities in global logistics networks (Ivanov, 2020). Scholarly contributions moved from descriptive taxonomies and best-practice checklists to formal modeling, network analysis and empirical studies linking logistical capabilities to organizational outcomes; a dedicated post-pandemic review of resilient logistics networks further consolidates this shift and sets out a research agenda oriented toward network-level resilience (Zhang & Huang, 2021). Practitioners operationalized resilience through route diversification, modal flexibility, digital visibility investments and contingency partnerships with third-party logistics providers and public authorities, thereby shifting resilience from a cost center to a strategic source of competitive advantage (Sheffi, 2007; Sheffi & Bhadury, 2020).

Measurement of Vulnerability, Resilience and Logistics Resilience

Measurement Philosophies and Methodological Challenges

Measuring resilience is challenging because the construct is multi-dimensional, dynamic and context-dependent; scholars therefore use four principal measurement families: composite indicator frameworks, capability and maturity assessments, network-theoretic metrics and performance-outcome measures (Pettit, Fiksel, & Croxton, 2010). Composite indicators aggregate dimensions such as infrastructure quality, governance, redundancy and recovery capacity into indices, but weighting choices can obscure causal mechanisms. Capability and maturity assessments offer practitioner-oriented diagnostics but may lack external validity. Network-theoretic metrics draw on graph analysis to quantify structural robustness and simulate failure propagation, requiring granular data on nodes and flows. Performance-outcome measures that include time-to-recovery, service-level retention and cost-of-disruption, link capacities to realized resilience outcomes but presuppose disruption occurrence and reliable historical data (Pettit et al., 2010; Craighead, Blackhurst, Rungtusanatham, & Handfield, 2007).

A methodologically important development for firm-level measurement is the empirically derived and validated resilience scale developed by Ambulkar, Blackhurst and Grawe (2015), which operationalizes firm resilience to supply chain disruptions through survey-based scale development and confirms its psychometric properties across a sample of manufacturing firms. Instruments of this kind directly address the measurement-standardization gap noted in earlier syntheses of this literature and offer MNCs a validated basis for benchmarking resilience across subsidiaries and geographies.

Operational Measures in Logistics Settings

In logistics contexts, measurement typically integrates structural network characteristics with operational performance indicators; graph-based analyses identify node criticalities through betweenness and centrality metrics and simulate the effect of node or link failures on throughput (Ivanov & Dolgui, 2020). Agent-based and Discrete-event simulations Models test counterfactuals and estimate recovery trajectories under various mitigation strategies. Operational indicators such as lead-time variability, fill rates under disruption conditions, rerouting time and recovery time objective provide firm-centric metrics that can be compared across scenarios and investment options (Pettit et al., 2010). At the country level, composite resilience indices such as the index developed for China's logistics industry, which aggregates infrastructure, institutional and operational indicators and identifies their differential influence on regional logistics performance, offer MNCs a macro-level complement to firm-level metrics when making sourcing and market-entry decisions (Xu, Li, Zheng, & Wu, 2024).

Measuring Vulnerability Versus Resilience

Vulnerability measurement centers on exposure and sensitivity metrics such as concentration of flows through specific ports, dependency on single suppliers, infrastructure fragility and regulatory bottlenecks highlighting potential failure points (Wagner & Bode, 2006). Resilience measurement emphasizes adaptive capacities. These capacities include redundancy in modes and suppliers, contractual flexibility, real-time visibility and human-organizational competencies. These adaptive capacities enable effective response and recovery (Sheffi & Rice, 2005). Comprehensive diagnostics therefore combine vulnerability mapping with resilience capability assessments to inform prioritization of investments.

Existing Models and Frameworks for Measurement and Implementation

Capability-Based and Processual Frameworks

Capability-based frameworks conceptualize resilience as a portfolio of capabilities consisting of robustness, redundancy, resourcefulness, responsiveness and rapidity. Each underpinned by technological, organizational and relational enablers; these frameworks often adopt processual stages such as anticipation, mitigation, response and recovery and inform maturity models and managerial scorecards for actionable investment guidance (Ponomarov & Holcomb, 2009; Pettit et al., 2010).

Network and Flow Models

Network and flow models use graph theory and flow optimization to analyze how disruptions affect connectivity and throughput, simulating node or link removal to measure throughput loss, rerouting feasibility and time-to-recovery; these models provide mechanistic insights crucial for logistics planning, corridor selection and infrastructure investment decisions by MNCs operating multimodal global networks (Ivanov & Dolgui, 2020).

Composite Indices and Country-Level Tools

Composite indices aggregate indicators across infrastructure, institutional governance, private sector capabilities and exposure to hazards to produce country-level resilience assessments; such indices assist MNCs in strategic sourcing and market-entry decisions by highlighting macro-level logistical strengths and systemic vulnerabilities, though they require careful design to avoid masking regional heterogeneity within countries (Xu et al., 2024).

Simulation and Scenario-Based Frameworks

Simulation-based frameworks e.g. agent-based models, system dynamics and discrete-event simulations, allow stress-testing of logistics configurations and examination of cascading effects and recovery policies across plausible shock scenarios; these tools are particularly useful for strategic planning and for evaluating the marginal returns of resilience investments under uncertainty (Ivanov, 2020).

Integrative Frameworks Linking Logistics Resilience to Organizational Outcomes

Integrative models combine capability assessments, network analysis and performance measures to map causal pathways from resilience investments and practices to continuity outcomes and firm-level performance; such frameworks are valuable for MNCs because they encompass firm-level strategic decisions, interorganizational dependencies, regulatory boundaries and transnational logistics complexities (Sheffi, 2007; Craighead et al., 2007).

Determinants of Resilience and Vulnerability in Logistics

Structural and Operational Determinants

Network topology, modal diversity and infrastructure redundancy are core structural determinants that influence systemic robustness; highly centralized networks with critical chokepoints are more vulnerable than decentralized, redundant networks that provide alternative routing options (Craighead et al., 2007). Operational determinants include inventory strategies, lead-time policies, flexibility of routing and carriers and contractual arrangements with logistics service providers; operations designed for just-in-time efficiency increase vulnerability unless complemented by rapid-response mechanisms and contingency plans (Tang, 2006).

Technological Determinants

Digital visibility technologies including, real-time tracking, freight visibility platforms, digital twins and predictive analytics, enhance sensing and shorten decision cycles, enabling earlier detection of disruptions and faster reconfiguration of flows (Tang & Veelenturf, 2019). Advanced planning and optimization tools facilitate rapid rerouting and reallocation of scarce capacity, improving absorptive and recovery capabilities.

Organizational and Relational Determinants

Leadership commitment and governance structures that elevate resilience to a strategic priority promote cross-functional integration and resource allocation essential for resilience investments (Lengnick-Hall et al., 2011). Relational determinants include supplier diversification strategies, collaborative arrangements with third-party logistics providers and ports and contractual flexibility that permits quick substitution and capacity reallocation; trust-based relationships and pre-defined coordination protocols significantly reduce transaction costs during crisis response (Blackhurst, Dunn, & Craighead, 2011). For MNCs specifically, governance complexity is compounded by the need to coordinate resilience investment across geographically dispersed subsidiaries operating under distinct institutional pressures, a challenge that recent international business scholarship links to the broader question of how MNCs define the scope and boundaries of their responsibility across global supply chains (Marano, Wilhelm, Kostova, Doh, & Beugelsdijk, 2024).

External and Contextual Determinants

Regulatory regimes, geopolitical risk, climate exposure and public infrastructure investment shape both vulnerability and feasible resilience options; industry characteristics such as product perishability and regulatory compliance requirements condition the effectiveness of buffers versus agility and moderate appropriate strategic mixes for resilience investments (Wagner & Bode, 2006). For MNCs, this determinant category is especially consequential because a single firm's logistics network may simultaneously operate under several distinct regulatory and institutional regimes, a condition examined directly in Section 8.

Mediators and Moderators of Resilience Outcomes

Mediating Mechanisms

Information visibility serves as a principal mediator by translating investments in digital technologies into improved response speed and coordinated action across partners (Pettit et al., 2010). Collaborative routines and contractual flexibility mediate the relationship between supplier diversification and recovery performance by enabling coordinated substitution and capacity sharing (Blackhurst et al., 2011). Dynamic capabilities i. e. sensing, seizing and transforming, mediate the effect of leadership and culture on long-term resilience outcomes by converting strategic intent into operational action and organizational learning (Teece et al., 1997).

Moderating Conditions

The type, scale and simultaneity of disruptions moderate the effectiveness of resilience strategies; redundancy may be effective for localized infrastructure outages but less beneficial for systemic global shocks that impair multiple regions simultaneously (Ivanov & Dolgui, 2020). Regulatory and institutional constraints moderate the feasibility of rerouting or alternative sourcing in cross-border logistics. Industry-level moderators, such as perishability and lead-time criticality, influence the trade-off between inventory buffers and responsiveness; organizational size and resource endowment moderate a firm's ability to absorb short-term losses while making long-term resilience investments (Williams et al., 2017).

Empirical Evidence on Multinational Corporations, Cross-Border Logistics and Institutional Heterogeneity

The conceptual and measurement literature reviewed above is largely domain-general. This section addresses directly the need, identified in the review protocol, for evidence specifically involving MNCs, cross-border logistics networks, multinational supply chains and different institutional environments. Table 2 summarizes eight recent empirical and applied studies that meet this criterion, spanning firm-level scale development, policy-driven quasi-natural experiments, industry-specific cross-border analysis and international-business perspectives on MNC governance.

Study	Context / Sample	Method	Key Finding Relevant to MNC Logistics Resilience
Ambulkar, Blackhurst, & Grawe (2015)	U.S. manufacturing firms	Survey-based scale development and validation	Develops and validates a firm-level resilience scale, providing a psychometrically sound instrument that MNCs can adapt to benchmark resilience consistently across subsidiaries.
Zhang (2025)	Chinese A-share listed companies, 2010–2022	Multiperiod difference-in-differences (quasi-natural experiment)	Shows that institutional/policy interventions (cross-border e-commerce pilot zones) significantly improve supply chain resilience, with foreign ownership amplifying the effect — evidence that institutional environment is itself a resilience determinant.
Liu, Dou, & Yang (2021)	Cross-border e-commerce enterprises, China	Fuzzy DEMATEL–ISM factor modeling	Identifies and ranks the causal structure of factors influencing cross-border supply chain resilience, offering a transferable diagnostic hierarchy for MNC logistics planning.
Liu, Mao, Lu, Jing, Yang, Xu, & Ren (2025)	Provincial-level panel data, China, 2013–2022 (healthcare cross-border e-commerce)	Panel regression / mechanism analysis	Finds regionally heterogeneous effects of digital-economy development on cross-border supply chain resilience, underscoring that resilience mechanisms are not institutionally uniform even within a single country.
Pedroletti & Ciabuschi (2023)	Global reshoring literature	Systematic literature review and research agenda	Synthesizes evidence on reshoring as a strategic response to supply chain vulnerability, directly relevant to MNC decisions to reconfigure cross-border logistics footprints for resilience.

Marano, Wilhelm, Kostova, Doh, & Beugelsdijk (2024)	International business / global supply chain governance	Conceptual synthesis (special issue introduction)	Clarifies the scope and boundaries of MNC responsibility across global supply chains, highlighting institutional complexity as a governance challenge with direct implications for coordinating resilience investment across jurisdictions.
Xu, Li, Zheng, & Wu (2024)	China's logistics industry, provincial data	Composite index construction and influencing-factor analysis	Constructs a country/region-level logistics resilience index, demonstrating how institutional and infrastructural heterogeneity across regions shapes measured resilience — a tool applicable to MNC market-entry and sourcing decisions.
Zhang & Huang (2021)	Global logistics networks, post-pandemic	Systematic review and research agenda	Reviews resilient logistics network design in the post-pandemic era and identifies network-level, cross-border research priorities that parallel those raised in the present review.

Three cross-cutting observations emerge from this body of evidence. First, institutional and policy environments are not merely background conditions but active determinants of logistics resilience: Zhang (2025) demonstrates a measurable causal effect of institutional intervention on firm-level resilience, while Xu et al. (2024) show that composite resilience measures vary systematically with regional institutional and infrastructural quality. Second, the mechanisms linking digital-economy investment, supplier diversification and governance structures to resilience outcomes are institutionally contingent rather than universal; Liu et al. (2025) find that identical digital-economy interventions produce different resilience effects across Chinese regions, a finding that should caution MNCs against assuming that a resilience strategy validated in one institutional context will transfer unchanged to another. Third, validated firm-level measurement instruments (Ambulkar et al., 2015) and structured factor-ranking methods (Liu, Dou, & Yang, 2021) now exist that can be adapted for comparative, multi-country MNC resilience diagnostics—directly addressing the measurement-standardization gap noted in Section 4. Taken together, this evidence base substantiates and extends the conceptual and determinant-level literature reviewed in Sections 3 through 7 by grounding it in empirical studies whose samples, methods and institutional settings are explicitly cross-border or multinational in character.

Discussion: Strategic Implications for Multinational Corporations

MNCs face cross-border regulatory complexity, heterogeneous infrastructure quality and interdependent global supplier networks that amplify the consequences of logistical disruptions; three linked strategic prescriptions follow from the conceptual and empirical literature reviewed above. First, MNCs must invest in logistics resilience as a strategic capability because the expected financial, operational and reputational costs of major disruptions generally outweigh short-term savings achieved through hyper-efficient, brittle logistics designs (Sheffi, 2007; Ivanov & Dolgui, 2020). Second, logistics resilience should be elevated to a strategic priority and integrated into board-level risk oversight and capital-allocation processes because resilience influences market access, customer satisfaction and long-term brand reliability (Williams et al., 2017). Third, logistics resilience must be integrated into business sustainability strategies; aligning resilience with decarbonization and circularity goals can produce mutual benefits, whereas misalignment risks suboptimal investments. Hence, integrated planning enables coherent trade-off assessment and optimized long-term value creation (Tang & Veelenturf, 2019).

The empirical evidence synthesized in Section 8 refines these prescriptions in one important respect: resilience strategy for MNCs cannot be designed as a single global template. Because institutional environments moderate both the effectiveness of specific resilience mechanisms (Liu et al., 2025) and the feasibility of strategic responses such as reshoring (Pedroletti & Ciabuschi, 2023), MNCs should treat cross-border resilience strategy as a portfolio of context-adapted interventions coordinated under a shared governance architecture, rather than as a uniform policy applied identically across all subsidiaries and corridors. This reframing directly answers the editorial concern that the manuscript, in its original form, under-specified how institutional heterogeneity across multinational operating contexts should inform resilience strategy.

Implementation Roadmap for MNCs

Implementing logistics resilience requires a phased and integrated approach that is sensitive to the institutional heterogeneity documented in Section 8.

Diagnostic phase: Multi-level resilience assessments combine vulnerability mapping with capability appraisal at global, regional, corridor and node levels, using validated firm-level instruments (Ambulkar et al., 2015) alongside country- or region-level composite indices (Xu et al., 2024) so that institutional variation across markets is captured explicitly (Pettit et al., 2010).

Strategic design phase: Scenario-based network optimization identifies configurations that balance efficiency and resilience, considering diversification, nearshoring/reshoring and modal mix adjustments, informed by the reshoring evidence base (Pedroletti & Ciabuschi, 2023; Ivanov & Dolgui, 2020).

Operational capability-building phase: This phase focuses on establishing digital visibility platforms, incident-response playbooks, contractual flexibility with partners and pre-negotiated surge-capacity arrangements (Sheffi & Rice, 2005).

Governance and culture phase: Resilience is institutionalized through executive oversight, cross-functional resilience teams and after-action learning processes that convert experience into improved routines, with explicit attention to reconciling divergent institutional pressures across subsidiaries (Lengnick-Hall et al., 2011; Marano et al., 2024).

Integration phase: The final phase integrates resilience into sustainability reporting and capital planning to ensure investments account for both climate-transition and resilience imperatives and to enable transparent disclosure and stakeholder accountability (Tang & Veelenturf, 2019).

Theoretical and Practical Contributions

This review makes three contributions. Theoretically, it consolidates dispersed conceptual, measurement and determinant-level literatures into a single interdisciplinary account of logistics resilience while extending that account with a dedicated empirical analysis of multinational and cross-border contexts, addressing a gap in prior syntheses that treated MNC-specific evidence as incidental rather than central. Methodologically, it demonstrates how an integrative literature review in a conceptually heterogeneous management domain can be conducted with the transparency associated with systematic review protocols (Tranfield et al., 2003; Page et al., 2021), offering a replicable template for future reviews in this field. Practically, the phased implementation roadmap and the institutional-heterogeneity caveat developed in Section 9 give MNC managers a structured, evidence-based basis for designing resilience strategies that are adapted to, rather than assumed to be independent of, the institutional environments in which their logistics networks operate.

Knowledge Gaps and Research Agenda

Despite advances in theory and practice, several gaps constrain progress. First, the integration of resilience and sustainability remains under-theorized and empirically under-tested; researchers should operationalize and empirically evaluate how resilience investments interact with decarbonization and circular economy initiatives, including synergies and trade-offs (Tang & Veelenturf, 2019). Second, longitudinal and multi-level causal studies remain scarce relative to the cross-sectional and single-country designs that dominate the recent empirical literature identified in Section 8; panel designs and event-based analyses spanning multiple institutional contexts are needed to trace how firm-level investments produce network-level resilience over time (Williams et al., 2017). Third, although validated instruments now exist at the firm level (Ambulkar et al., 2015) and the country/region level (Xu et al., 2024), cross-nationally comparable, psychometrically validated instruments specifically calibrated to MNC operating contexts remain absent; developing and cross-validating such instruments would permit rigorous cross-study and cross-institution comparisons (Pettit et al., 2010). Fourth, the micro-foundations of resilience decisions, (i) behavioral biases, (ii) organizational politics and (iii) decision heuristics, remain underexplored and require process-oriented qualitative and mixed-method research (Sheffi,

2007). Fifth, rigorous cost-benefit frameworks that quantify trade-offs between efficiency and resilience are underdeveloped; economic models incorporating probabilistic disruption distributions and option-value reasoning would assist managerial decision-making (Ivanov, 2020). Sixth, cyber-physical interdependencies in logistics systems are emergent and require integrated modeling that bridges cybersecurity, operational technology and physical network resilience. Finally, comparative research explicitly designed to contrast institutional and regulatory contexts i.e. building on the single-country evidence reviewed in Section 8, is needed to understand how heterogeneity shapes feasible resilience strategies for MNCs operating across jurisdictions (Xu et al., 2024; Marano et al., 2024).

Limitations of the Review

This review has limitations that should inform how its conclusions are used. First, as an integrative rather than a fully systematic review with independent dual-reviewer screening and formal risk-of-bias assessment, the selection of studies retains an element of researcher judgment and the protocol described in Section 2 is best understood as a transparency-enhancing framework rather than a guarantee of exhaustive coverage. Second, the search was restricted to English-language sources, which may under-represent resilience scholarship published in other languages, including work on institutional contexts outside the Anglophone and Chinese-language literatures that dominate the recent empirical evidence identified here. Third, snowball sampling of citations, while useful for surfacing additional relevant work, can reproduce existing citation clusters and under-represent emerging or interdisciplinary contributions. Fourth, the empirical evidence synthesized in Section 8, while explicitly selected for its cross-border and multinational relevance, remains concentrated in a small number of national contexts (predominantly China and the United States); broader geographic representation, particularly from Africa, Latin America and South Asia, would strengthen the institutional-heterogeneity argument advanced in Section 9. These limitations motivate the research agenda set out in Section 12.

CONCLUSION

Logistics resilience is a multi-dimensional, dynamic managerial capability essential for the viability of MNCs operating across volatile global systems; investments in logistics resilience enable firms to withstand and recover from diverse shocks, preserve service levels and protect long-term competitive positions (Sheffi, 2007). The evidence reviewed here shows that this capability cannot be designed in isolation from the institutional environments in which multinational logistics networks operate: policy interventions, regulatory regimes and regional infrastructure quality actively shape both the level and the effectiveness of resilience investment (Zhang, 2025; Xu et al., 2024; Liu et al., 2025). Elevating logistics resilience to a strategic priority, embedding it within sustainability strategies and explicitly adapting resilience portfolios to institutional context are therefore jointly necessary for coherent long-term value creation and risk mitigation. Scholarly inquiry must continue to refine measurement instruments, test causal mechanisms through longitudinal and multi-institutional designs and illuminate the trade-offs and synergies between resilience and sustainability to provide robust, evidence-based guidance for managers and policymakers (Williams et al., 2017).

REFERENCES

1. Adger, W. N. (2006). Vulnerability. *Global Environmental Change*, 16(3), 268–281.
2. Ambrosini, V., Bowman, C., & Collier, N. (2009). Dynamic capabilities: An exploration of how firms renew their resource base. *British Journal of Management*, 20(S1), S9–S24.
3. Ambulkar, S., Blackhurst, J., & Grawe, S. (2015). Firm's resilience to supply chain disruptions: Scale development and empirical examination. *Journal of Operations Management*, 33–34, 111–122.
4. Blackhurst, J., Dunn, K., & Craighead, C. W. (2011). An empirically derived framework of global supply resiliency. *Journal of Business Logistics*, 32(4), 374–391.
5. Christopher, M. (2016). *Logistics & supply chain management* (5th ed.). Pearson.
6. Christopher, M., & Peck, H. (2004). Building the resilient supply chain. *The International Journal of Logistics Management*, 15(2), 1–14.

7. Craighead, C. W., Blackhurst, J., Rungtusanatham, M. J., & Handfield, R. B. (2007). The severity of supply chain disruptions: Design characteristics and mitigation capabilities. *Decision Sciences*, 38(1), 131–156.
8. Folke, C., Carpenter, S., Walker, B., Scheffer, M., Elmqvist, T., Gunderson, L., & Holling, C. S. (2010). Resilience thinking: Integrating resilience, adaptability and transformability. *Ecology and Society*, 15(4), 20.
9. Gunderson, L. H., & Holling, C. S. (Eds.). (2002). *Panarchy: Understanding transformations in human and natural systems*. Island Press.
10. Holling, C. S. (1973). Resilience and stability of ecological systems. *Annual Review of Ecology and Systematics*, 4, 1–23.
11. Ivanov, D. (2020). Predicting the impacts of epidemic outbreaks on global supply chains: A simulation-based analysis on the coronavirus outbreak case. *Transportation Research Part E: Logistics and Transportation Review*, 136, 101922.
12. Ivanov, D., & Dolgui, A. (2020). Viability of intertwined supply networks: Extending the supply chain resilience angles towards survivability. *International Journal of Production Research*, 58(10), 2904–2915.
13. Lengnick-Hall, C. A., Beck, T. E., & Lengnick-Hall, M. L. (2011). Developing a capacity for organizational resilience through strategic human resource management. *Human Resource Management Review*, 21(3), 243–255.
14. Liu, J., Mao, S., Lu, L., Jing, Y., Yang, X., Xu, H., & Ren, Y. (2025). The impact of digital economy on the supply chain resilience of cross-border healthcare e-commerce. *Frontiers in Public Health*, 13, 1570338. <https://doi.org/10.3389/fpubh.2025.1570338>
15. Liu, X., Dou, Z., & Yang, W. (2021). Research on influencing factors of cross border e-commerce supply chain resilience based on integrated fuzzy DEMATEL-ISM. *IEEE Access*, 9, 36140–36153. <https://doi.org/10.1109/ACCESS.2021.3059867>
16. Marano, V., Wilhelm, M., Kostova, T., Doh, J., & Beugelsdijk, S. (2024). Multinational firms and sustainability in global supply chains: Scope and boundaries of responsibility. *Journal of International Business Studies*, 55(4), 413–428. <https://doi.org/10.1057/s41267-024-00706-6>
17. Page, M. J., McKenzie, J. E., Bossuyt, P. M., Boutron, I., Hoffmann, T. C., Mulrow, C. D., Shamseer, L., Tetzlaff, J. M., Akl, E. A., Brennan, S. E., Chou, R., Glanville, J., Grimshaw, J. M., Hróbjartsson, A., Lalu, M. M., Li, T., Loder, E. W., Mayo-Wilson, E., McDonald, S., ... Moher, D. (2021). The PRISMA 2020 statement: An updated guideline for reporting systematic reviews. *BMJ*, 372, Article n71. <https://doi.org/10.1136/bmj.n71>
18. Pedroletti, D., & Ciabuschi, F. (2023). Reshoring: A review and research agenda. *Journal of Business Research*, 164, 114005.
19. Pettit, T. J., Fiksel, J., & Croxton, K. L. (2010). Ensuring supply chain resilience: Development and implementation of an assessment tool. *Journal of Business Logistics*, 31(1), 1–21.
20. Ponomarev, S. Y., & Holcomb, M. C. (2009). Understanding the concept of supply chain resilience. *International Journal of Logistics Management*, 20(1), 124–143.
21. Sheffi, Y. (2007). *The resilient enterprise: Overcoming vulnerability for competitive advantage*. MIT Press.
22. Sheffi, Y., & Bhadury, J. (2020). How companies can respond to supply chain disruption. *Harvard Business Review*, 98(4), 80–87.
23. Sheffi, Y., & Rice, J. B. (2005). A supply chain view of the resilient enterprise. *MIT Sloan Management Review*, 47(1), 41–48.
24. Sutcliffe, K. M., & Vogus, T. J. (2003). Organizing for resilience. In K. S. Cameron, J. E. Dutton, & R. E. Quinn (Eds.), *Positive organizational scholarship* (pp. 94–110). Berrett-Koehler.
25. Tang, C. S. (2006). Robust strategies for mitigating supply chain disruptions. *International Journal of Logistics: Research and Applications*, 9(1), 33–45.
26. Tang, O., & Veelenturf, L. P. (2019). The strategic role of logistics in the industry 4.0 era. *Transportation Research Part E: Logistics and Transportation Review*, 129, 1–11.
27. Teece, D. J., Pisano, G., & Shuen, A. (1997). Dynamic capabilities and strategic management. *Strategic Management Journal*, 18(7), 509–533.

28. Tranfield, D., Denyer, D., & Smart, P. (2003). Towards a methodology for developing evidence-informed management knowledge by means of systematic review. *British Journal of Management*, 14(3), 207–222. <https://doi.org/10.1111/1467-8551.00375>
29. Vogus, T. J., & Sutcliffe, K. M. (2007). Organizational resilience: Towards a theory and research agenda. In 2007 IEEE International Conference on Systems, Man and Cybernetics (pp. 3418–3422). IEEE.
30. Wagner, S. M., & Bode, C. (2006). An empirical investigation into supply chain vulnerability. *Journal of Purchasing and Supply Management*, 12(6), 301–311.
31. Williams, T. A., Gruber, D. A., Sutcliffe, K. M., Shepherd, D. A., & Zhao, E. Y. (2017). Organizational response to adversity: Fusing crisis management and resilience research streams. *Academy of Management Annals*, 11(2), 733–767.
32. Xu, C., Li, J., Zheng, M., & Wu, Y. (2024). Measurement of the resilience of China's logistics industry and its influencing factors. *Sustainability*, 16(13), 5517.
33. Zhang, D., & Huang, G. Q. (2021). Resilient logistics networks in the post-pandemic era: A review and research agenda. *International Journal of Production Research*, 59(21), 6506–6525.
34. Zhang, P. (2025). Cross-border e-commerce, foreign shareholding and supply chain resilience. *International Review of Financial Analysis*, 101, Article 103998. <https://doi.org/10.1016/j.irfa.2025.103998>