

Challenges of Conducting Case Study Research in the Logistics Sector

Nelisa Mabenge and Zanele Ndaba

Wits Business School, Parktown, South Africa

334663@students.wits.ac.za

Zanele.ndaba@wits.ac.za

Abstract: Case study research has become an increasingly important methodological approach for examining complex and context-dependent phenomena within logistics and supply chain environments. However, the structural characteristics of logistics systems, including commercial sensitivity, multi-actor governance structures, digital interdependence and disruption-prone operating conditions, create distinctive methodological challenges for qualitative researchers. This paper examines the principal challenges associated with conducting case study research within logistics organisations and explores how these conditions shape research design, data collection and methodological rigor. The paper identifies three interrelated methodological challenges: access and gatekeeping, data fragmentation and multi-level complexity, and sector-specific disruptions affecting the research setting. The analysis demonstrates how commercially sensitive operational environments may restrict organisational access, how fragmented and interdependent logistics systems complicate data triangulation and case boundary definition, and how operational disruptions may affect longitudinal consistency during fieldwork. In response, the paper proposes adaptive and context-sensitive research design strategies to strengthen qualitative case study research within logistics environments. These include phased access negotiation, embedded and multi-level case study designs, multi-stakeholder sampling, reflexive documentation practices and structured triangulation frameworks. The paper further argues that logistics should be understood not merely as an empirical setting, but also as a distinctive methodological context that shapes the feasibility, design and rigor of qualitative case study research. By linking logistics-specific operating conditions to broader methodological debates concerning qualitative rigor and adaptive research design, the study contributes to methodological scholarship within logistics and supply chain research while offering practical guidance for researchers undertaking case study research in complex and operationally intensive environments.

Keywords: Case Study Research; Logistics Sector; Qualitative Research Methodology; Research Rigor; Supply Chain Management; Supply Chain Disruptions

1. Introduction

Understanding how logistics systems operate, adapt and respond to disruption has become an increasingly important challenge for researchers in supply chain management. Contemporary logistics networks are characterised by multi-actor governance structures, digitally mediated coordination and high levels of operational interdependence across geographically dispersed actors. These characteristics make logistics environments inherently complex and difficult to examine using traditional research approaches based primarily on aggregated datasets or simplified modelling assumptions (Dubey et al., 2020; Ivanov, 2023; Wieland, 2021).

Consequently, case study research has become an increasingly valuable methodological approach within logistics and supply chain scholarship because it enables researchers to investigate organisational processes and interdependent operational dynamics within their real-world contexts. However, despite its methodological suitability, conducting case study research in logistics environments presents distinctive challenges associated with commercial sensitivity, fragmented data structures, multi-level organisational relationships and operational disruptions (Barratt et al., 2011; Ivanov and Dolgui, 2020).

Although qualitative case study methods are increasingly used within logistics and supply chain research, limited scholarship has systematically examined how the structural characteristics of logistics systems shape methodological design and research rigor. Logistics environments operate within commercially sensitive, digitally mediated and disruption-prone supply networks that may complicate organisational access, data triangulation, case boundary definition and longitudinal consistency. This paper therefore argues that logistics should be understood not merely as an empirical setting, but also as a distinctive methodological context requiring adaptive and context-sensitive case study research designs.

Accordingly, this paper addresses the following research question: What methodological and practical barriers arise when conducting case study research in logistics organisations, and how can researchers respond to these challenges? In response, the study identifies three interrelated methodological challenges: access and gatekeeping, data fragmentation and multi-level complexity, and sector-specific disruptions affecting the research setting. The paper further proposes adaptive research design strategies, including phased access

negotiation, embedded case designs, multi-level stakeholder sampling and structured triangulation frameworks, to strengthen methodological rigor in logistics case study research.

The remainder of the paper examines logistics as a distinctive methodological context, analyses the principal challenges associated with conducting case study research in logistics organisations, and proposes methodological strategies for strengthening research rigor in complex and disruption-prone logistics environments.

2. Logistics as a Distinct Methodological Context

Logistics organisations operate within multi-actor, digitally mediated and disruption-prone supply networks that create a distinctive methodological environment for case study research. Unlike more stable organisational settings, logistics systems involve interconnected actors such as shippers, third-party logistics providers (3PLs), fourth-party logistics providers (4PLs), infrastructure operators, technology platforms and regulators operating across multiple geographic locations and organisational tiers. As logistics operations increasingly depend on outsourcing, inter-organisational coordination and platform-based ecosystems, organisational processes and decision-making responsibilities are frequently distributed across multiple actors rather than concentrated within a single organisation (Mvubu and Naude, 2024).

At the same time, logistics systems are undergoing rapid digital transformation through the adoption of technologies such as real-time tracking systems, warehouse automation, predictive analytics and artificial intelligence-enabled operational platforms. While these technologies improve supply chain visibility and responsiveness, they also increase organisational dependence on proprietary digital infrastructures and commercially sensitive operational data (Ivanov, 2023; Samuels, 2025). Consequently, researchers may encounter restricted access to operational systems, fragmented data structures and confidentiality constraints when conducting case study research within logistics environments.

The increasing platformisation of logistics operations also creates additional methodological complexity for case study researchers. Digital logistics platforms frequently coordinate interactions between multiple supply chain actors while simultaneously controlling access to operational information, communication flows and performance visibility. As a result, observational access is often mediated through platform governance structures rather than direct organisational interaction. Researchers may therefore encounter difficulties in tracing decision-making processes, verifying operational data across organisational tiers and establishing clear case boundaries where multiple actors interact through shared digital infrastructures. These conditions may further complicate triangulation because operational visibility is frequently unevenly distributed across actors within digitally integrated supply networks.

Logistics environments are also characterised by high levels of operational disruption intensity. Disruptions such as infrastructure failures, port congestion, regulatory changes, geopolitical instability and sudden demand fluctuations frequently require organisations to reconfigure operational processes and supply network relationships (Dolgui and Ivanov, 2021; Ivanov and Dolgui, 2020; Moreno-Baca et al., 2025). Because such disruptions may alter organisational structures, operational routines and stakeholder priorities during fieldwork, they create methodological challenges relating to case boundary definition, participant accessibility and longitudinal consistency.

In addition, logistics operations are geographically dispersed and highly interdependent across supply chain tiers. Activities such as procurement, transportation, warehousing and last-mile distribution often occur across multiple operational sites and organisational boundaries. As a result, researchers may struggle to capture the full operational context through single-site or single-function case designs, increasing the risk of partial or siloed perspectives. Inter-organisational interdependence may also complicate the delimitation of the empirical case itself because operational processes, information flows and decision authority frequently extend beyond the boundaries of a single organisation. Consequently, logistics case studies may require researchers to engage with multiple organisational actors simultaneously in order to capture the broader operational dynamics shaping the phenomenon under investigation.

Taken together, these characteristics demonstrate that logistics represents more than a conventional empirical setting. Rather, the sector constitutes a structurally distinctive methodological context in which commercial sensitivity, multi-level governance structures, digital interdependence and operational disruptions shape the feasibility, design and rigor of case study research.

Table 2.1 summarises the principal structural characteristics of logistics environments and their methodological implications for case study research.

Table 1: Methodological Implications of Logistics Characteristics for Case Study Research

Logistics Characteristic	Description Within Logistics Environments	Methodological Implication for Case Study Research
Commercial sensitivity	Logistics firms operate within highly competitive environments where operational data, customer information and performance metrics are strategically sensitive.	Restricted access to operational data, documents and participants may complicate data collection and construct validity.
Multi-actor governance structures	Logistics systems involve interconnected actors such as shippers, 3PLs, 4PLs, infrastructure providers and regulators.	Single-site case designs may be insufficient, creating the need for embedded and multi-level case study designs.
Digital interdependence	Logistics operations increasingly rely on digital platforms, automation systems and real-time data infrastructures.	Researchers may encounter fragmented or restricted access to proprietary operational systems and digital data.
Operational disruption intensity	Logistics environments are frequently affected by disruptions such as port congestion, transport strikes and infrastructure failures.	Case boundaries and organisational processes may shift during fieldwork, creating risks to internal consistency and longitudinal analysis.
Geographic dispersion	Logistics activities frequently occur across multiple operational sites and geographic regions.	Researchers may struggle to observe the full operational context, increasing reliance on partial or site-specific perspectives.
Inter-organisational coordination	Operational activities and decision-making processes are distributed across multiple organisational tiers within supply networks.	Researchers may require cross-tier stakeholder sampling and structured triangulation to capture interdependent organisational dynamics adequately.

3. Case Study Research

Case study research is adopted in this paper as the primary methodological approach for examining complex organisational phenomena within their real-world contexts. The approach involves the in-depth investigation of a bounded system, such as an organisation, process or network, to understand how particular phenomena unfold within natural settings (Gustafsson, 2024; Ratnasari and Sudradjat, 2023; Simmons, 2017). Case study research is particularly appropriate when the boundaries between a phenomenon and its context are not clearly defined and when researchers seek to capture the complexity of organisational interactions and processes (Flyvbjerg, 2001; Creswell and Poth, 2018). Through the use of multiple sources of evidence, including interviews, observations and organisational documents, case study research enables the development of rich and contextualised analysis (Creswell and Poth, 2018; Taylor and Thomas-Gregory, 2015).

Within logistics and supply chain environments, case study research is especially valuable because many operational processes occur across interconnected organisational actors and evolve under dynamic operational conditions. Logistics systems are characterised by distributed decision-making, interdependent relationships and rapidly changing operational contexts, making them difficult to examine using approaches that isolate variables from their broader organisational setting. Consequently, the contextual sensitivity and flexibility of case study research make it well suited to investigating coordination mechanisms, organisational responses and interdependent operational processes within logistics systems (Yin, 2018).

Case study research also supports the use of triangulation by allowing researchers to combine multiple forms of evidence to strengthen analytical depth and credibility. This is particularly important within logistics environments where operational processes frequently span multiple organisational units and supply chain tiers. By incorporating perspectives from different organisational actors and data sources, researchers may develop a

more comprehensive understanding of complex logistics phenomena and their surrounding contextual conditions.

However, despite these methodological strengths, the structural characteristics of logistics environments may also complicate the design and implementation of case study research. The following section therefore examines the principal methodological challenges associated with conducting case study research within logistics organisations.

4. Challenges in Conducting Case Study Research in Logistics

Building on the structural characteristics outlined in Section 2, this section examines the principal methodological challenges associated with conducting case study research in logistics organisations. These challenges relate primarily to organisational access, fragmented data structures and the instability of research settings within disruption-prone logistics environments. Accordingly, the discussion focuses on three interrelated challenges: access and gatekeeping, data fragmentation and multi-level complexity, and sector-specific disruptions affecting the research setting.

4.1 Access and Gatekeeping

Access is widely recognised as a critical determinant of case study feasibility and research rigor (Yin, 2018). Within logistics environments, however, access negotiation is often complicated by the commercially sensitive nature of operational data and the strategic importance of logistics performance information.

Researchers may encounter restricted access to operational metrics, customer information, routing systems and performance reports because such information is frequently treated as commercially confidential. In multi-organisational logistics environments, particularly those involving third-party logistics providers and outsourced supply chain arrangements, firms may be reluctant to disclose operational processes or permit prolonged researcher observation.

Gatekeeping also occurs across multiple organisational levels. While senior management approval may provide formal organisational access, middle managers and operational personnel frequently control day-to-day operational knowledge and participation in interviews or site observations. Consequently, researchers may encounter selective information sharing, restricted participant access or uneven representation of organisational perspectives. These conditions create risks of partial evidence and elite bias within case narratives.

Access challenges may intensify during periods of operational disruption, when managerial attention shifts toward maintaining service continuity and stabilising supply operations. Under such conditions, research participation may become a secondary organisational priority, resulting in postponed interviews, reduced site access and interruptions to data collection activities.

Accordingly, access within logistics case study research should be understood not as a single procedural step, but as an ongoing relational process requiring trust-building, confidentiality safeguards and adaptive engagement throughout the research project.

4.2 Data Fragmentation and Multi-Level Complexity

A second methodological challenge arises from the fragmented and multi-level structure of logistics systems. Operational activities such as procurement, transportation, warehousing and distribution are frequently dispersed across multiple organisational units, supply chain tiers and geographic locations. As a result, researchers may struggle to obtain a comprehensive view of operational processes and inter-organisational relationships.

Data fragmentation is further reinforced by siloed reporting structures and distributed decision-making authority. Different organisational units often maintain separate operational systems, performance metrics and reporting processes, limiting cross-functional visibility. Consequently, researchers relying on single-site or single-function data may capture only partial representations of broader logistics processes.

In outsourced and interdependent supply chain environments, decision-making responsibilities may also be distributed across multiple actors, including logistics providers, suppliers, infrastructure operators and customers. These actors may hold divergent interpretations of operational events, coordination processes and

performance outcomes. Such conditions complicate data triangulation and increase the risk of inconsistent or incomplete case evidence.

These challenges have important implications for case study rigor (Riege, 2003). Fragmented data structures may weaken construct validity by limiting the completeness of operational representations, while inconsistent stakeholder perspectives may complicate internal validity and the interpretation of causal relationships within logistics systems.

4.3 Sector-Specific Disruptions Affecting the Research Setting

A further challenge concerns the disruption-prone nature of logistics environments. Logistics organisations frequently operate under conditions characterised by infrastructure constraints, regulatory changes, transport disruptions, technological transitions and fluctuating demand conditions. Such disruptions may alter operational processes and organisational priorities during the course of fieldwork.

For case study researchers, these changing conditions can create difficulties in maintaining stable case boundaries and consistent longitudinal analysis. Organisational structures, operational routines and supply chain relationships may shift during data collection, resulting in variations between the conditions observed at different stages of the study. Consequently, researchers may encounter challenges in maintaining internal consistency and interpreting organisational processes across time.

Disruptions may also reduce participant accessibility. During periods of operational instability, logistics personnel often prioritise service continuity and operational recovery over research participation. Interviews may be postponed, observational access restricted and document sharing delayed, leading to interruptions in the continuity of data collection.

In addition, rapid operational adjustments may blur the boundaries of the empirical case itself. Changes in routing arrangements, outsourcing relationships or operational configurations may alter the scope of the organisational processes initially selected for investigation. These shifting boundaries create analytical challenges regarding case definition and coherence.

Taken together, these conditions demonstrate how operational disruptions may affect multiple dimensions of methodological rigor, including consistency, reliability and longitudinal interpretation within logistics case study research.

Table 4.1 summarises the relationship between logistics sector characteristics, the methodological challenges they create and the associated risks to case study rigor.

Table 2: Logistics Sector Characteristics, Methodological Challenges and Risks to Research Rigor

Logistics Sector Characteristic	Methodological Challenge	Risk to Case Study Rigor
Commercial sensitivity and proprietary operational data	Access and gatekeeping	Restricted access to participants, operational documents and sensitive data
Multi-actor and multi-level supply networks	Data fragmentation and siloed organisational perspectives	Weak triangulation and incomplete construct representation
Digitally mediated logistics systems	Restricted access to platform and operational system data	Partial visibility of operational processes and information flows
High operational disruption intensity	Changing case boundaries during fieldwork	Reduced internal consistency and temporal instability
Geographic dispersion of logistics operations	Difficulty observing the full operational context	Over-reliance on single-site or single-function perspectives

Logistics Sector Characteristic	Methodological Challenge	Risk to Case Study Rigor
Inter-organisational coordination across supply networks	Divergent stakeholder perspectives and distributed authority	Conflicting interpretations of operational processes

5. Responses to Methodological Challenges

The methodological challenges identified in the previous section require flexible and context-sensitive research design strategies. Because logistics environments are characterised by commercial sensitivity, fragmented operational structures and disruption-prone conditions, researchers must adopt adaptive approaches that strengthen organisational access, data triangulation and methodological consistency.

5.1 Managing Access and Gatekeeping

Researchers should approach organisational access as an ongoing relational process rather than a single procedural step. A phased access strategy may be particularly effective, where initial engagement begins with exploratory interviews or limited site access before progressing to more sensitive operational data. This approach can help establish trust and organisational credibility over time (Barratt et al., 2011; Yin, 2018).

Executive sponsorship may further strengthen access negotiations by legitimising the research project within the organisation and encouraging participation among operational personnel. In commercially sensitive environments, confidentiality agreements and clear communication regarding data protection procedures are also important for reducing organisational concerns regarding reputational or competitive risks.

Because gatekeeping may occur at multiple organisational levels, researchers should engage participants across managerial and operational functions to minimise selective information sharing and uneven representation of organisational perspectives.

5.2 Addressing Data Fragmentation Through Multi-Level Research Design

To address fragmented and distributed logistics systems, researchers should consider embedded and multi-level case study designs capable of capturing interactions across organisational units and supply chain tiers. Embedded designs allow researchers to examine sub-units such as warehouses, transport divisions or logistics partnerships while preserving the coherence of the broader case.

Multi-level stakeholder sampling may further strengthen the completeness and credibility of case evidence. Collecting data from participants occupying different organisational roles and supply chain positions can reduce the risk of siloed perspectives and improve understanding of interdependent operational processes.

Researchers should also employ structured triangulation strategies by combining interviews, organisational documents, operational reports and observational evidence. Such triangulation strengthens construct validity and reduces reliance on single-source data within fragmented logistics environments (Stake, 1995; Yin, 2018).

5.3 Managing Disruptions During the Research Process

Given the disruption-prone nature of logistics environments, researchers should adopt flexible and adaptive fieldwork strategies. Clearly defining case boundaries at the outset of the study is important, while recognising that organisational structures and operational processes may evolve during data collection.

Maintaining reflexive field notes and detailed research logs can help document contextual changes affecting participant access, operational routines and organisational priorities during fieldwork. Such documentation enhances transparency and supports methodological consistency across different stages of the study.

Where feasible, longitudinal elements such as follow-up interviews or multiple rounds of data collection may assist researchers in capturing how organisations adapt to changing operational conditions over time. Flexible scheduling and contingency planning are also important because operational disruptions may temporarily limit participant availability or site access.

Collectively, these strategies strengthen the credibility, transparency and adaptability of case study research within complex and disruption-prone logistics environments.

6. Discussion: Methodological and Practical Implications

This paper examined the methodological challenges associated with conducting case study research in logistics environments and proposed adaptive research design strategies for responding to these challenges. The analysis demonstrates that logistics systems create distinctive methodological conditions shaped by commercial sensitivity, fragmented operational structures, digitally mediated coordination and disruption-prone operating environments. Consequently, logistics should be understood not merely as an empirical setting, but also as a distinctive methodological context that shapes the feasibility, design and rigor of qualitative case study research.

Figure 6.1 summarises the conceptual framework developed in this paper. The framework illustrates how the structural characteristics of logistics environments generate methodological challenges relating to organisational access, fragmented data structures and unstable research settings, while also demonstrating how adaptive research design strategies may strengthen the credibility and robustness of logistics case study research.

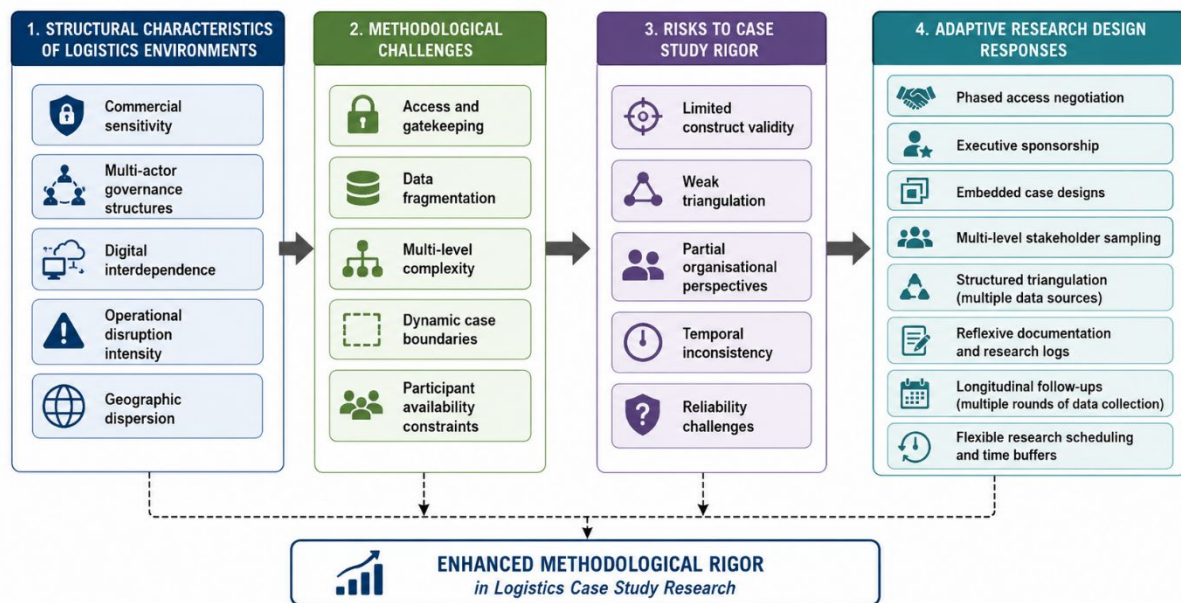


Figure 1: Conceptual Framework for Strengthening Case Study Research in Logistics Environments

In this way, the figure visually summarises the paper's central argument that logistics should be understood not merely as an empirical setting, but as a distinctive methodological context requiring context-sensitive case study research strategies.

The framework reinforces the paper's central argument that methodological rigor in logistics case study research depends not only on the selection of appropriate qualitative methods, but also on the researcher's ability to adapt research design strategies to the structural realities of complex and operationally intensive logistics environments.

The findings of this paper also have broader implications for how qualitative research rigor is understood within operationally intensive and interdependent organisational environments. Traditional approaches to case study rigor frequently emphasise construct validity, triangulation, internal consistency and reliability as relatively stable methodological objectives (Yin, 2018). However, the analysis presented in this study suggests that within logistics environments, these dimensions of rigor may be continuously influenced by shifting operational conditions, fragmented information systems and evolving inter-organisational relationships. Consequently, methodological rigor in logistics case study research should not be understood solely as a procedural outcome achieved through predefined research protocols, but also as an adaptive and context-sensitive process requiring continuous methodological reflexivity throughout the research lifecycle (de Vries, 2020).

This perspective has important implications for qualitative logistics and supply chain research because it positions flexibility, relational access management and dynamic triangulation not as methodological compromises, but as essential components of rigorous research design within complex operational systems. The study therefore contributes to broader methodological discussions concerning how researchers maintain analytical credibility

and contextual coherence in environments characterised by operational instability and distributed organisational authority.

From a methodological perspective, the paper contributes to case study research scholarship by extending discussions of research rigor into logistics-specific environments (Eisenhardt et al., 2016). While established qualitative research frameworks provide guidance regarding construct validity, triangulation and reliability (Yin, 2018), they offer more limited attention to how sector-specific operating conditions influence the practical implementation of case study research. This paper therefore demonstrates how organisational complexity, operational interdependence and disruption intensity may shape the feasibility and execution of qualitative research within logistics systems.

The analysis also highlights the importance of flexible and multi-level research designs in contemporary logistics research. Because logistics operations frequently occur across interdependent organisational networks, traditional single-site or single-function case designs may not adequately capture the complexity of operational relationships and decision-making processes. The study therefore reinforces the value of embedded case designs, multi-level stakeholder sampling and structured triangulation strategies when investigating logistics and supply chain phenomena.

The findings also suggest that future logistics and supply chain research may increasingly require hybrid and adaptive qualitative methodologies capable of responding to digitally integrated and rapidly evolving operational environments. As logistics systems become more dependent on platform-based coordination, artificial intelligence, predictive analytics and real-time data infrastructures, researchers may encounter growing methodological challenges relating to data accessibility, algorithmic visibility and the tracing of inter-organisational decision-making processes. Consequently, future qualitative logistics research may need to integrate traditional case study approaches with digitally enabled forms of data collection, longitudinal monitoring and multi-actor analytical frameworks capable of capturing dynamic operational interactions across complex supply networks.

In this regard, the paper contributes not only to contemporary methodological debates within logistics and supply chain research, but also to broader discussions concerning how qualitative researchers investigate increasingly digitised, interdependent and operationally fluid organisational systems. The study therefore highlights the importance of methodological adaptability as an emerging dimension of research rigor within complex organisational environments.

From a practical perspective, the study provides guidance for researchers undertaking qualitative research within commercially sensitive and operationally intensive environments. Strategies such as phased access negotiation, executive sponsorship, embedded case designs and reflexive documentation practices may assist researchers in strengthening organisational access, improving triangulation and maintaining methodological consistency during periods of operational instability.

These insights may be particularly valuable for doctoral and early-career researchers, who frequently encounter challenges relating to organisational access, fragmented operational systems and changing fieldwork conditions when conducting case study research within logistics and supply chain contexts. Understanding the methodological implications of logistics environments may therefore assist researchers in designing more robust, credible and context-sensitive qualitative research projects.

7. Conclusion

This paper examined the methodological challenges associated with conducting case study research in logistics environments and proposed adaptive research design strategies for addressing these challenges. The analysis demonstrated that logistics systems are characterised by commercial sensitivity, multi-actor governance structures, digital interdependence and high levels of operational disruption intensity, all of which shape the feasibility and rigor of qualitative case study research.

By positioning logistics as a distinctive methodological context rather than merely an empirical setting, the paper contributes to broader methodological debates concerning the design and implementation of case study research within complex organisational environments. The study showed how access and gatekeeping, fragmented data structures and sector-specific disruptions may complicate case study research processes, while also demonstrating how adaptive and context-sensitive research strategies may strengthen methodological rigor.

Despite these contributions, the paper has several limitations. First, the study is conceptual in nature and does not include empirical case evidence demonstrating the practical implementation of the proposed methodological responses. Second, the analysis is based primarily on existing methodological and logistics literature rather than a systematic empirical review of case study projects conducted within the sector. Third, while the findings provide insights relevant to logistics and supply chain research, they may not be fully generalisable to industries characterised by different organisational structures or operational conditions.

Future research could build on this work by examining how researchers apply these methodological strategies within specific logistics contexts, such as digital logistics platforms, third-party logistics providers or sustainability-oriented supply chain initiatives. Additional studies may also explore how emerging technologies, including artificial intelligence, blockchain and advanced analytics, influence both logistics operations and the methodological approaches used to investigate them.

In conclusion, the paper demonstrates the importance of context-sensitive methodological design when conducting case study research in complex and disruption-prone logistics environments. As supply chains continue to evolve in response to digital transformation, sustainability pressures and global disruptions, the need for adaptive and methodologically robust research approaches will become increasingly important for advancing logistics and supply chain scholarship.

Ethics Declaration

This paper is a conceptual methodological analysis based on existing literature and does not involve primary data collection from human participants. Consequently, formal ethical clearance was not required under the institutional research ethics guidelines of the University of the Witwatersrand / Wits Business School.

AI Declaration

Generative AI tools were used only for language editing and clarity improvement during manuscript preparation, and literature searches were conducted using Scopus; the authors reviewed and approved all final content.

References

- Barratt, M., Choi, T.Y. and Li, M. (2011), "Qualitative case studies in operations management: Trends, research outcomes, and future research implications", *Journal of Operations Management*, Vol. 29 No. 4, pp. 329–342, doi: 10.1016/j.jom.2010.06.002.
- Creswell, J.W. and Poth, C.N. (2018), *Qualitative Inquiry and Research Design: Choosing among Five Approaches*, 4th ed., SAGE Publications.
- Dolgui, A. and Ivanov, D. (2021), "Ripple effect and supply chain disruption management: new trends and research directions", *International Journal of Production Research*, Vol. 59 No. 1, pp. 102–109, doi: 10.1080/00207543.2021.1840148.
- Eisenhardt, K.M., Graebner, M.E. and Sonenshein, S. (2016), "Grand Challenges and Inductive Methods: Rigor without Rigor Mortis", *Academy of Management Journal*, Vol. 59 No. 4, pp. 1113–1123, doi: 10.5465/amj.2016.4004.
- Flyvbjerg, B. (2001), *Making Social Science Matter*, Cambridge University Press, doi: 10.1017/CBO9780511810503.
- Gustafsson, J. (2024), "Case Studies", *Advanced Research Methods for Applied Psychology*, Routledge, London, pp. 111–121, doi: 10.4324/9781003362715-11.
- Ivanov, D. (2023), "The Industry 5.0 framework: viability-based integration of the resilience, sustainability, and human-centricity perspectives", *International Journal of Production Research*, Vol. 61 No. 5, pp. 1683–1695, doi: 10.1080/00207543.2022.2118892.
- Ivanov, D. and Dolgui, A. (2020), "Viability of intertwined supply networks: extending the supply chain resilience angles towards survivability. A position paper motivated by COVID-19 outbreak", *International Journal of Production Research*, Vol. 58 No. 10, pp. 2904–2915, doi: 10.1080/00207543.2020.1750727.
- Moreno-Baca, F., Cano-Olivos, P., Sánchez-Partida, D. and Martínez-Flores, J.-L. (2025), "The Bullwhip Effect and Ripple Effect with Respect to Supply Chain Resilience: Challenges and Opportunities", *Logistics*, Vol. 9 No. 2, p. 62, doi: 10.3390/logistics9020062.
- Mvubu, M. and Naude, M.J. (2024), "Digital transformation at third-party logistics providers: Challenges and best practices", *Journal of Transport and Supply Chain Management*, Vol. 18, doi: 10.4102/jtscm.v18i0.1023.
- Ratnasari, A. and Sudradjat, I. (2023), "Case study approach in post-occupancy evaluation research", *ARTEKS: Jurnal Teknik Arsitektur*, Vol. 8 No. 3, pp. 427–434, doi: 10.30822/arteks.v8i3.2584.
- Riege, A. (2003), "Validity and reliability tests in case study research: A literature review with 'hands-on' applications for each research phase", *Qualitative Market Research: An International Journal*, Vol. 6, pp. 75–86, doi: 10.1108/13522750310470055.

- Samuels, A. (2025), "Digital transformation in supply chains: improving resilience and sustainability through AI, Blockchain, and IoT", *Frontiers in Sustainability*, Vol. 6, doi: 10.3389/frsus.2025.1584580.
- Simmons, N. (2017), "Case Study Research", *The International Encyclopedia of Communication Research Methods*, Wiley, pp. 1–5, doi: 10.1002/9781118901731.iecrm0020.
- Stake, R.E. (1995), *The Art of Case Study Research*, Sage Publications.
- Taylor, R. and Thomas-Gregory, A. (2015), "Case study research", *Nursing Standard*, Vol. 29 No. 41, pp. 36–40, doi: 10.7748/ns.29.41.36.e8856.
- de Vries, K. (2020), "Case study methodology", *Critical Qualitative Health Research*, Routledge, pp. 41–52, doi: 10.4324/9780429432774-2.
- Wieland, A. (2021), "Dancing the Supply Chain: Toward Transformative Supply Chain Management", *Journal of Supply Chain Management*, Vol. 57 No. 1, pp. 58–73, doi: 10.1111/jscm.12248.
- Yin, Robert.K. (2018), *Case Study Research and Applications: Design and Methods*, SAGE Publications, Inc.