Limits and Challenges of Supply Chain Digital Collaboration: A Case Study on Target Corporation's "Store as a Hub" Strategy

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Keywords: Supply Chain Digital Collaboration, Omnichannel Retailing, Operational Resilience, Financial Performance, Strategic Adaptability.

Abstract: This study discusses the effectiveness and limitations of digital collaboration in the supply chain in omnichannel retailing using Target's "Store as Hub" strategic model as an entry point. These utilize inventory systems with real-time conversations, cloud platforms, and decentralized logistics. Digital transformation increased operational resilience by reducing last-mile delivery costs by 60-70%, achieving 95% in-store order fulfillment, and improving inventory record-keeping accuracy to 92%, but failed to deliver sustained financial gains. The data shows that Target's operations have improved. However, revenues are still down from $109.1 billion in 2022 to $106.6 billion in 2024, and earnings per share are down 19% by the end of 2024, underscoring the disconnect between efficiency gains and value realization. External pressures and internal constraints exacerbate the strategic challenges. Moreover, competitors such as Amazon and Walmart undermine Target's differentiation through superior logistics density and technology scalability. The findings suggest that digital collaboration alone does not guarantee competitive advantage, and that success depends on operational upgrades coordinated with dynamic pricing, customer experience design, and organizational capacity building.

1 INTRODUCTION

Driven by both the digital economy and changes in consumer behavior, the retail industry is accelerating its transformation into an omnichannel model. The rise of omnichannel retailing makes it imperative for retailers to move toward inventory visualization, improved fulfillment responsiveness, and a high degree of synergy, including online and offline channels (Hübner, Kuhn, & Wollenburg, 2016). In response to the current dilemma, most companies have started promoting supply chain digital collaboration strategies to integrate multichannel resources, improve supply chain agility, and enhance customer experience (Gallino & Moreno, 2014).

According to Musa, Gunasekaran, and Yusuf (2014), supply chain digital collaboration usually refers to integrated information systems that enable real-time linkage of key aspects such as demand forecasting, inventory management, and order fulfillment across multiple channels. Based on existing research, this type of collaboration mechanism is significantly detrimental in practice but still controversial in terms of the actual overall performance of the enterprise, especially the stability and sustainability of the performance under market uncertainty.

This paper focuses on the limits and challenges of supply chain digital collaboration in an omnichannel context. Specifically, will take Target, a US discount retailer, as a case study to analyze its operational performance after introducing the “Store as a Hub” strategy. Specifically, this paper will take Target, an American discount retailer, as a case study to analyze its achievements and problems in operational resilience and financial performance after introducing the “Store as a Hub” strategy. Although the company has invested heavily in its supply chain system, the reality of its slowing financial growth and intensifying competitive pressures reveals the complexity of the effectiveness of synergistic strategies.

2 LITERATURE REVIEW

The shift to omnichannel retailing has fundamentally reshaped the supply chain structure. According to

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Hübner, Kuhn, and Wollenburg (2016), the traditional retail model with online and offline channels as independently functioning systems has now proven to be unable to meet fragmented consumer demand and increasing expectations for speed of delivery, coolness, accuracy, and consistency of service promptly. Therefore, organizations must integrate and enhance their physical and digital channels to provide a hassle-free experience to users. However, this integrated model puts enormous pressure on supply chain coordination, inventory synchronization, and "last-mile delivery" (Melacini, Perotti, Rasini & Tappia, 2018).

In this context, supply chain digital collaboration enables dynamic collaboration of multi-channel operational data by integrating digital technologies such as real-time inventory visualization systems, cloud-based order management platforms, and intelligent scheduling algorithms (Gallino & Moreno, 2014; Musa et al., 2014). The inventory visualization mechanism has become a key breakthrough for improving supply chain resilience due to its cross-node support and dynamic inventory and demand response configuration in physical stores, regional warehouses, and e-commerce platforms (Swink et al., 2024). Complementary to this strategy is the distributed fulfillment model, which Wollenburg, Holzapfel, Hübner, and Kuhn (2018) confirmed through empirical research that utilizing a network of brick-and-mortar stores for end-of-line order fulfillment has a significant advantage over the traditional centralized warehouse model in terms of lowering the cost of "last-mile" delivery. By reconfiguring the decision-making mechanism of the supply chain, these digital innovations ultimately lead to the triple value effects of increased organizational agility, improved risk tolerance, and optimized customer experience.

However, while existing studies emphasize the advantages of technological empowerment, they overlook obvious theoretical blind spots. Recent studies from a contingency theory perspective point out that dynamic environmental boundaries limit the effectiveness of digital collaboration systems: Ivanov's (2025) simulation model shows that when the macroeconomic volatility index exceeds a threshold, the rigid architecture of a digital supply chain amplifies the transmission effect of demand contraction instead. A longitudinal study based on the resource-based view by Paula and Jabbour (2017) reveals that the marginal contribution of supply chain visibility enhancement to financial performance is attenuated by 58% when firms lack complementary organizational capabilities, such as dynamic pricing mechanisms and flexible production capabilities. These findings challenge the underlying assumptions of technological determinism, suggesting significant weighting conditions for the value realization of digital collaboration.

3 CASE ANALYSIS

3.1 Target's Background

Target is one of the largest general retailers in the U.S., with over 1,900 stores across the U.S. in a wide range of categories, including housewares, apparel, food, and electronics. As a traditional brick-and-mortar retailer, Target has long relied on its store network to attract customer traffic and build brand loyalty. However, Target has had to revisit its operating model with the shift in consumer preference to e-commerce platforms and the rising demand for an omnichannel shopping experience.

Target decided to implement the "Store as a Hub" strategy in 2017, expanding the function of stores from a single point of sale to a local fulfillment center. Under this model, stores are responsible for offline sales and picking, packing, and immediate delivery of online orders, backed by a network of regional sorting centers and last-mile logistics (Target Corporation, 2022). The strategy is designed to reduce fulfillment time, improve inventory visibility, and optimize fulfillment costs, and is at the heart of Target's omnichannel supply chain collaboration.

Target has invested significantly in digital infrastructure to support this strategy, including deploying a real-time inventory management system, a cloud-based order management platform, and enhanced store picking capabilities. As of 2023, stores or store-related logistics systems fulfill approximately 95% of online orders (Target Corporation, 2023). In addition, Target is looking to enhance its “last-mile delivery” capabilities by acquiring Ship to strengthen its same-day delivery capabilities.

3.2 Target's Supply Chain Digital Collaboration

Target's supply chain transformation is centered on its "Store as a Hub" strategy, a digital initiative that aims to reposition the company's more than 1,900 brick-and-mortar stores as distribution nodes in an integrated omnichannel logistics system. The model no longer views stores and warehouses as separate entities, but instead supports store picking, packing,

and distribution of online orders. The system's heart is real-time inventory visibility, thanks to RFID tags, a cloud-based order management system, and an in-store digital interface. These technologies enable customers and internal systems to access up-to-date inventory levels and trigger automated order routing based on location proximity and item availability (Gallino & Moreno, 2014; Musa et al., 2014).

To facilitate the decentralized model, Target has established urban sorting centers that collect packages from neighboring stores and integrate them through partners such as Shipt and Uber for "last-mile" delivery. This infrastructure reduces delivery times and improves routing efficiency. According to Target's 2023 annual report, more than 95% of digital orders are fulfilled through in-store inventory and labor (Target Corporation, 2023). The company also invested in employee training and a mobile picking system to improve the accuracy and speed of order fulfillment at the store level. The model embodies a deeply embedded digital collaboration that enables customer-facing interfaces and back-end systems to access real-time inventory data and automatically trigger order workflows. It aligns operational mechanisms with strategic goals and enhances horizontal coordination and process transparency across the supply chain.

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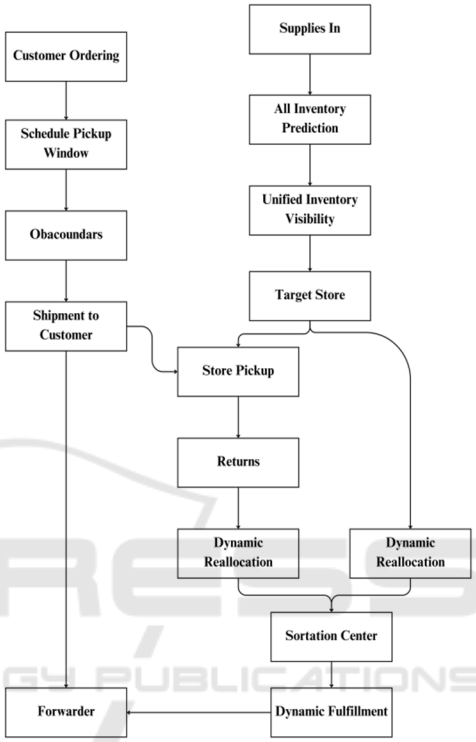

Figure 1: Target's store-as-a-hub fulfillment model (Picture credit : Original).

3.3 Operational Improvement Outcomes

The shift to a digitally coordinated store fulfillment model has yielded significant efficiency, responsiveness, and scalability gains. First, Target has reduced "last mile" delivery costs by utilizing stores geographically closer to customers rather than centralized distribution centers. Industry data suggests that store fulfillment, supported by real-time digital systems, can reduce delivery costs by 30% to 40% (Melacini et al., 2018). This enhances Target's ability to provide same-day and next-day delivery in most U.S. metropolitan areas.

In addition to cost savings, inventory visibility significantly improves order accuracy and reduces out-of-stocks. Customers can view inventory at the

store level before placing an order, which enhances the credibility of Target's omnichannel platform. Store-level order fulfillment also improves flexibility during peak holidays and major promotions. By decentralizing order fulfillment to hundreds of locations, Target can respond to surges in demand without burdening centralized logistics facilities. Overall, these improvements confirm findings in the literature on the link between digital collaboration and supply chain agility and customer responsiveness (Wollenburg et al., 2018).

These improvements confirm the literature's findings on the link between digital collaboration and supply chain agility. Table 1 directly compares the centralized and store-based fulfillment models.

Table 1: Centralized vs. Store-based fulfillment comparison table

Metric	Centralized Fulfillment	Store-Based Fulfillment
Average Last-Mile Cost	$7.50	$5.10
Delivery Time	2–3 days	Same-day / Next-day
Inventory Accuracy	~83%	>92%
Order Processing Flexibility	Medium	High
Infrastructure Investment	High upfront	Leverages existing stores

3.4 Continuing Challenges and Limitations

Despite its many operational strengths, Target struggles to translate supply chain improvements into broader financial success. While digital collaboration has improved distribution speeds and inventory visibility, external economic pressures present the company with serious challenges. Figure 2 visualizes the quarterly changes in Target's revenue and earnings per share, reinforcing the disconnect between operational advancement and financial outcomes.

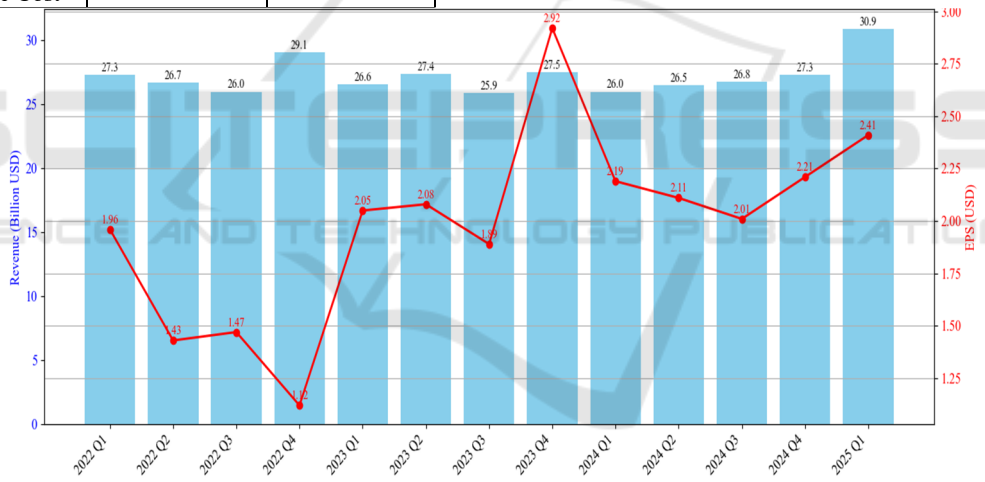

Figure 2: Target's Quarterly Revenue and EPS (2022 Q1–2025 Q1) (Picture credit : Original).

As shown in Figure 2, quarterly trends in revenue and EPS illustrate the growing disconnect between operational advancement and financial outcomes over the FY2022-2025 period. Also, between FY2022 and FY2024, the company's annual revenue declined from $109.1 billion to $106.6 billion, with a further decline of 3.15% in the first quarter of FY2025 (Target Corporation, 2025). Earnings per share also declined from $2.98 in the fourth quarter of 2023 to $2.41 in the fourth quarter of 2024 (Target Corporation, 2024). These data highlight the limitations of digital collaboration in the face of external market factors such as inflation, consumer uncertainty, and declining demand for non-essential goods. In addition to these external factors, declining financial performance may reflect internal constraints on companies' ability to extract value from their digital investments. For example, the costs associated with upgrading store infrastructure, deploying real-time systems, and retraining employees may not be fully offset by proportional profitability or revenue growth gains. While digital collaboration has operational enhancements, it must be more closely aligned with pricing strategy, category planning, and transformation of the long-term business model to realize sustainable financial returns.

On the other hand, competitors like Walmart and Amazon have replicated or surpassed Target's logistics capabilities, eroding its strategic advantage. Walmart's dense logistics network and Amazon's high-speed last-mile system outperform Target in terms of coverage and responsiveness, thus eroding the competitive differentiation of store delivery (Syed, 2024).

Internally, stores are used for customer service and logistics operations, bringing structural complexity. Picking operations are labor-intensive, and high employee turnover risks consistency and service quality. Balancing store retail and back-of-store logistics can lead to capacity conflicts and increased operating costs. These organizational pressures are consistent with previous research that suggests digital systems must be matched with sustainable human and process capabilities to achieve long-term results (Paula & Jabbour, 2017).

4 DISCUSSION

This paper analyzed Target's "Store as Hub" model, the current digital collaboration mechanisms, actual profitability performance, and current challenges and limitations, and provide a sample of an omnichannel retailer's supply chain collaboration structure. According to Target's financial statements in recent years, Target has made significant operational improvements, such as inventory visibility, fulfillment timeliness, and responsiveness. However, these strengths have not consistently translated into improved financial performance. Against the backdrop of high levels of digital integration, Target's revenue is expected to decline in fiscal 2022-2024, while earnings per share (EPS) are expected to decline by more than 19% from the fourth quarter of 2023 to the fourth quarter of 2024. This demonstrates the disconnect between operational capability and value realization and shows that digital synergy alone is insufficient to ensure the company's continued competitiveness in the dynamic retail industry.

The importance and necessity of supply chain agility and visibility in the context of modern retail fulfillment systems are also confirmed by Gallino and Moreno (2014) and Ivanov (2025). Target's implementation of digital synergies between inventory systems, fulfillment nodes, and last-mile logistics is a good fit. However, it also exposes an overlooked structural mismatch between operational digitization and value realization. While the assumptions in the existing literature are mainly based on the assumption that improved visibility equals improved performance, the Target case shows that without relevant pricing strategies, customer experience design, and strategic direction alignment, digitization may only lead to improved performance. Strategic direction alignment and digitization may only lead to data affluence rather than profit transformation. In addition, the increased labor intensity, organizational complexity, and structural burdens associated with using stores as both sales and fulfillment nodes are parts of the equation that existing theories have not adequately explained.

From the perspective of marketing management practice, the "Store as Hub" model is not a universal solution, and it is more suitable for retailers with a dense network of stores and sophisticated information systems with high execution capabilities. If the model is implemented in sparsely populated areas or retailers with a weak IT foundation in Cyber, the marginal benefits of the model may shrink rapidly. At the same time, the transformation of profits relies on implementing the system and needs comprehensive organization of staff training, suitable incentives, and a synergistic governance system construction. Otherwise, digital synergy may lead to management CREEP rather than measurable customer or financial value.

The limitations of this study still exist, so in the future, multiple case study comparisons can be made to explore the heterogeneity of omnichannel fulfillment strategies further. For example, Target's "Store as Hub" model contrasts with Amazon's emphasis on centralized automation and high-density logistics robotics (Amazon, 2024). There is a stark difference. On the other hand, Walmart offers a hybrid model that leverages its physical presence in regional fulfillment centers and active last-mile partnerships (Walmart, 2023). While comparing these models raises questions about how digital collaboration scales in low-breed environments, it also allows for a more nuanced understanding of which digital collaboration mechanisms perform best under specific organizational and environmental conditions. It can also help researchers identify environmental enablers that influence the success of digital fulfillment strategies.

5 CONCLUSION

The study examines the effectiveness and limitations of digital supply chain collaboration by analyzing Target Corporation's "Store as a Hub" model. The findings show that while Target realized operational improvements, such as faster order fulfillment, better

inventory visibility, and increased responsiveness, these results did not directly lead to sustained financial gains. This highlights the gap between operational digitization and value realization, especially considering changing consumer demands and competitive pressures. The study also shows that store-based fulfillment is not a one-size-fits-all solution. Its effectiveness depends on store density, staff capacity, and IT infrastructure. Without strong coordination, the model can add complexity and cost.

The future of the digital supply chain requires not only technology upgrades but also better coordination of systems, strategies, and customer needs. Retailers must continually adapt to a rapidly changing marketplace, and models like Target provide valuable lessons but must be carefully evaluated and adapted. Future research could explore how digital collaboration works across business models, market conditions, and organizational structures.

REFERENCES

Amazon, 2024. Supply chain by amazon. Sell on Amazon.

Deloitte, 2024. Driverless delivery and last-mile coverage | deloitte global. Deloitte.

Gallino, S., & Moreno, A., 2014. Integration of online and offline channels in retail: The impact of sharing reliable inventory availability information. Management Science, 60(6), 1434-1451.

Hübner, A., Wollenburg, J., & Holzapfel, A., 2016. Retail logistics in the transition from multi-channel to omni-channel. International Journal of Physical Distribution & Logistics Management, 46(6/7), 562-583.

Ivanov, D., 2025. What network and performance indicators can tell us about supply chain and sourcing resilience (and what they cannot). Journal of Purchasing and Supply Management, 101014.

Melacini, M., Perotti, S., Rasini, M., & Tappia, E., 2018. Efulfilment and distribution in omnichannel retailing: a systematic literature review. International Journal of Physical Distribution & Logistics Management, 48(4), 391-414.

Musa, A., Gunasekaran, A., & Yusuf, Y., 2014. Supply chain product visibility: Methods, systems and impacts. Expert Systems with Applications, 41(1), 176-194.

Paula, & Jabbour, 2017. Information systems and sustainable supply chain management towards a more sustainable society: Where we are and where we are going. International Journal of Information Management, 37(4), 241-249.

Swink, M., Sant'Ana Gallo, I., Defee, C., & Silva, A. L., 2024. Supply chain visibility types and contextual characteristics: A literature-based synthesis. Journal of Business Logistics, 45(1).

Syed, 2024. Supply chain news: Walmart and amazon by the numbers 2024.

Walmart, 2023. Product supply chain sustainability. Walmart.