Research on the Advantages of Digitally Transformed Supply Chains over Traditional Models

Jinghan

Abstract. The rapid pace of digital transformation has led to the emergence of new business models. The digital supply chain represents an asset that has been developed over the last several years. This paper reviews the literature on the digital supply chain, and focuses on the advantages of digitally transformed supply chains over traditional models. The research concludes that digitization of traditional supply chains can improve operational efficiency and customization, while reducing operational costs. This research serves as a foundation for understanding the transformation of the supply chain, its benefits, and the challenges of implementing these changes. Additionally, the research serves as a basis for future research on supply chain management under the digital era.

1 Introduction

The Antiquated supply chains, which are based on traditional management and control strategies, have been found to be disadvantageous due to low efficiency and high costs. The traditional model of supply chain management is not sufficient in meeting the expectations of modern market conditions.

2 Literature review

The research in supply chain management has mainly focused on traditional models, while the literature on the digital supply chain is relatively rare. The research on the digital supply chain is primarily focused on the digitization process of traditional supply chains and, to some extent, the effects of digitization on supply chain performance. The literature on the digital supply chain is still in the initial stages, and it is necessary to conduct further research on this theme.
3.1 Integration of elasticity metrics (IEMs) as key terms

\[ \text{IEM} = \frac{\text{N}_{\text{IntegratedParticipants}} \times \text{D}_{\text{DomainSources}} \times \text{C}_{\text{CountrySources}}}{\text{T}_{\text{Timeframe}}} \]

3.2 Selection of customer satisfaction index (CSI)

\[ \text{CSI} = \frac{\sum(\text{Responses}_\text{positive})}{\text{N}_{\text{TotalResponses}}} \]
3.3 Selection of cost-effectiveness ratio (CER)


data, companies can predict future operations, reflecting different possible models of digital transformation, Company A has experienced significant increase in total assets, compared with its traditional model, the digital transformation meets the company's demands of cost efficiency ratio (CER)

\[ CER \approx \frac{\text{Revenue}}{\text{Supply chain operating costs}} \]

4. Results and discussion

3.4 Profile of company A

The integration of AI has been used to achieve a seamless connection of consumers, suppliers, and digital service providers, through a unique model, that proposed a new trend, of digital omnichannel supply chain integration.

Table 1. Profile and performance of company A

<table>
<thead>
<tr>
<th>Integration Timeframe</th>
<th>Customer Satisfaction</th>
<th>Diversity of Domain</th>
<th>Integration Elasticity</th>
</tr>
</thead>
<tbody>
<tr>
<td>(Mean Value)</td>
<td>(Stat. difference)</td>
<td>(Value)</td>
<td>(Stat. difference)</td>
</tr>
<tr>
<td>(59.9%)</td>
<td>+30.9%</td>
<td>12</td>
<td>+148.3%</td>
</tr>
<tr>
<td>(60%)</td>
<td>+34.2%</td>
<td>17.9</td>
<td>+210.0%</td>
</tr>
<tr>
<td>(60.9%)</td>
<td>+30.9%</td>
<td>18.9</td>
<td>+260.0%</td>
</tr>
<tr>
<td>(62%)</td>
<td>+34.9%</td>
<td>21</td>
<td>+342.9%</td>
</tr>
</tbody>
</table>
5. Conclusion

The findings of this study highlight the importance of digital transformation in supply chain operations. It demonstrates that companies that adopt digital solutions and enhance operational responsiveness consistently experience improved business performance metrics such as inventory turnover rate, logistics error rate, order response time, and orders fulfilled percentage. These improvements are indicative of a more agile and efficient supply chain, capable of responding quickly to market demands and customer needs. The study also underscores the role of individualized customer service and supply chain diversity in achieving these improvements.

In conclusion, the digitalization of supply chains not only aids in the enhancement of business performance metrics but also contributes to a sustainable competitive advantage for companies. The strategic integration of digital technologies is thus a key area of focus for companies looking to optimize their supply chain operations and meet the expectations of today’s consumers. The findings of this study provide empirical evidence for the ongoing shift in traditional supply chain management practices towards more digital and customer-centric approaches.
an iterative, emergent body of knowledge: a scholarly and practical interpretation that continues to evolve in response to technology and market dynamics. Nonetheless, this study is obliged to acknowledge the limitations of the research, which may open the way for further research. The selection of the data sample, while comprehensive, may not exhaustively represent the heterogeneity of the industries. This study awaits future researchers to delve deeper into the complexity of industry-specific digital supply chain deployments and their longitudinal impact on economic and relational metrics, thereby expanding the foundational understanding established in this paper.

References

2. T. Li, J. Int. Entrepreneurship 9, 172-174 (2023)
3. J. Yi, ICV, 6, 64-66 (2023)
11. S. P. Xu, United States Securities and Exchange Commission(People’s Republic of China, Beijing, (2023)
12. B. Mihm, IBER, 9, 6 (2010)
15. F. Caro, J. Gallien, OR, 60, 6, 1404-1422 (2012)