The evolving role of the Chief Operating Officer (COO): Supply chain performance - Software challenges and opportunities

A report by:

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Executive summary

In today's dynamic business environment, supply chains face extensive and disruptive changes due to trends such as skill shortages, global risk events and digitalisation. These disruptions require supply chains to be highly adaptive and resilient. Supply chain software, designed to support these operations, often poses integration challenges and inefficiencies due to manual interventions. This research aims to explore these challenges and the potential opportunities for supply chain software.

This study developed in collaboration with Oracle and Cranfield University investigates how supply chain software supports and hinders businesses in meeting their challenges. A comprehensive literature review followed by ten in-depth interviews with senior supply chain directors and managers from large UK-based companies/ enterprises supports the findings. These interviews provided insights into how supply chain performance is measured, the impact of business environment changes and the challenges and opportunities associated with supply chain software, along with the type of supply chain softwares used, their future and their advantages in the growing shift towards Software as-a-Service (SaaS) service models.

> **Operational challenges: Integrating new software with existing systems and external supply chain partners is challenging. Organisations struggle with transferring data in different formats and presenting it in a unified, usable format.**

Supply chain performance and evolution

Supply chain performance is commonly measured using key performance indicators (KPIs) from frameworks like the Gartner Hierarchy of Supply Chain Metrics, which focus on supply assurance, customer service, working capital optimisation and cost optimisation. However, strategic KPIs such as flexibility to meet customer needs and the degree of buyer-supplier partnership are often overlooked despite their recognised importance. Additionally, environmental, social and governance (ESG) measures, including carbon emissions and modern slavery, are inconsistently applied across sectors, presenting an opportunity for software to integrate these metrics.

The current business environment necessitates supply chains to become more flexible and resilient. This includes quick decision-making in response to disruptions such as Covid-19 and geopolitical events. Enhancing visibility across supply networks and automating processes, particularly in distribution centres and data analysis, are crucial for managing uncertainties and improving efficiency.

Supply chain software challenges and opportunities

While supply chain software enhances organisational competitiveness through strategic and operational benefits, several challenges persist:

- **Operational challenges:** integrating new software with existing systems and external supply chain partners is challenging. Organisations struggle with transferring data in different formats and presenting it in a unified, usable format.

- **Employee engagement:** resistance to change and the need for extensive training hinder effective software implementation.

- **Financial challenges:** high upfront investments, maintenance costs and the necessity to measure return on investment (ROI) present financial barriers.

- **Partnership and collaboration:** achieving strategic partnerships and collaboration using software is difficult due to misaligned objectives and lack of partner buy-in.

- **External data acquisition and analysis:** issues with data retrieval, GDPR compliance, data security and reliability of acquired information are common.

- **Strategic evolution:** future development of supply chain software faces challenges in data compatibility and interoperability, but there is potential for improving efficiency and monetising resources.

Different sectors face unique challenges with respect to the use of supply chain software. Logistics struggles with integrating SMEs lacking IT skills and the need for comprehensive training. Retail is faced with managing seasonal demands and monetising redundant capacities during off-peak periods. Defence has compatibility issues with legacy systems, powerful partners are reluctant to adopt new software, there are data security concerns and a need for AI-enabled analysis tools. High-tech manufacturing has made significant investments in supply chain software but it's not yielding substantial benefits. Public infrastructure experiences a lack of ownership of business information systems. Textiles is challenged by generational differences in software preferences and skills. Automotive needs to clarify the purposes and outputs of multiple systems and leverage AI and predictive analytics.

> The shift from on-premise to cloud-based models (SaaS), offers multiple benefits where integrating data analytics and sustainability metrics presents opportunities for AI-driven supply chain software to enhance efficiency, visibility and resilience.

Nature, advantages and future evolution of supply chain software

Various software packages are employed for different supply chain processes, with enterprise resource planning (ERP) systems being common across sectors, with warehouse management systems (WMS) and transport management systems (TMS) preferred by retail and logistics sectors. The need for sustainability performance data and data analytics capability is felt across all sectors and there is a growing trend from on-premise towards cloud-based platforms. Cloud-based service models like SaaS offer benefits such as integrated functionality, real-time visibility, cost efficiency, scalability and improved collaboration. However, achieving a single supply chain software package to cover end-to-end supply chain operations remains challenging. The future of supply chain software lies in incorporating data analytics, AI-driven capabilities and sustainability metrics.

> Strategic KPIs such as flexibility to meet customer needs and the degree of buyer-supplier partnership are often overlooked despite their recognised importance.

Concluding remarks

Strategic KPI's like flexibility and buyer-supplier partnerships are often neglected, despite their acknowledged importance, presenting an opportunity for supply chain software. The current business environment is marked by inflation and major global disruptions, which demand higher automation and enhanced visibility across extensive supply networks. Key supply chain software challenges include software integration, employee training, data sensitivity, cyber security, timely data access and data interoperability. ERP software is commonly used for data management and enterprise planning, with the retail and logistics sectors favouring WMS and TMS. There is a growing interest in sustainability performance data and bespoke software that uses AI. The shift from on-premise to cloud-based models (SaaS), offers multiple benefits where integrating data analytics and sustainability metrics presents opportunities for AI-driven supply chain software to enhance efficiency, visibility and resilience.