

# Research & Knowledge

## How can companies effectively use IT to integrate their supply chain?

BY EVELYNE VANPOUCKE

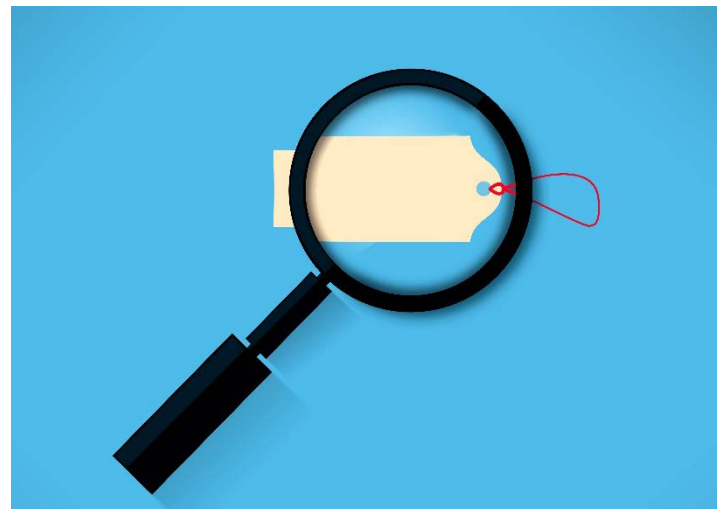
### Supply chain integration

The supply chain is a network of suppliers, plants, distribution centers and retailers through which raw materials are acquired, transformed and delivered to the end customer. To optimize firm performance, firms must operate in an integrated supply chain – i.e. in collaboration with suppliers and customers. However, dynamics of the firm and the market make this difficult: materials do not arrive on-time, production facilities fail or deliver bad quality, workers are ill, customers change or cancel orders, etc. causing deviations from what is planned. In some cases, these deviations may be handled within the firm. In other cases, the problem cannot be solved by the firm, but require adaptations across many firms in the supply chain. Consequently, supply chain teams and tools, such as information systems, must coordinate and integrate these revisions of plans and/or schedules across firms in the supply chain.

### Benefits and costs of integrated supply chains

The most sought-after benefit of supply chain integration are the cost savings resulting from inventory reduction. Inventories can be reduced by reducing safety stocks, but also by increasing the speed at which materials move through the supply chain. Another common benefit of supply chain integration is the reduction in transaction costs. If the number of transactions and/or the cost of each transaction can be reduced, each participant can realize substantial savings. In addition, reducing suppliers can decrease product costs by increasing production levels at remaining suppliers and even further decrease transaction costs. Although this can also increase investment and management burdens on specific suppliers. The costs and risks of integrating and managing a supply chain can be as substantial as the costs of operating a corporation of comparable size. As such, investing in supply chain

integration by installing inter-organizational IT systems requires a careful evaluation of the additional costs and benefits.



### Methodology

To assist managers in this evaluation and to better understand the role of IT in integrated supply chains, Vanpoucke et al. analysed data from the International Manufacturing Strategy Survey (IMSS). This global dataset provides insights into how global companies in the industrial sector manage their operations and supply chains in terms of assets, tools and strategies, as well as data on operational and financial performance of these companies.

## Managerial Findings

Although software providers are supplying firms with multiple supply chain solutions such as cloud platforms, CRM solutions and multi-echelon inventory optimization tools to integrate supply chains, many companies still seem to be struggling to understand the benefits of integration activities with suppliers or customers. This study assists managers in setting expectations for the organization's supply chain integration initiatives and reveals the benefits that can be expected from investing time and resources in specific combinations of integration practices. In particular, this study shows that information exchange is not enough to create operational benefits and that information exchange and operational integration build on each other to create operational benefits. To improve supply chain integration, it is suggested that firms should go beyond mere information exchange and embark on operational integration, i.e., the integration of inventory, planning and forecasting processes. Another key managerial insight is that the effect of information exchange on performance depends on the position of the company in the supply chain. More specifically, this study found that the use of IT for integration with suppliers has a stronger impact on operational performance than for integration with customers. Consequently, investing in supplier integration will potentially bring more operational performance benefits than investing in customer integration. A possible explanation for these larger benefits at the supplier side is that it is far more difficult for the focal firm to convince customers to comply with the use of its information technologies and systems than suppliers, which have a vested interest because they want to keep the business. Consequently, supply chain executives at the focal firm might receive less support from senior management to invest in customer integration than in supplier integration. The evolution of buyers requesting suppliers to comply with IT systems can be observed in the overall evolution of IT adoption in the extended supply chain. While purchasing departments of large retailers first requested key suppliers to invest in and comply with their IT systems to improve operational performance, many of these suppliers in turn requested their suppliers to comply with their IT systems. Wal-Mart, for example, requested its top-100 suppliers to link to its IT systems, creating operational performance improvements for Wal-Mart. Once the benefits for Wal-Mart became obvious, these suppliers posted similar requests to their upstream partners in the supply chain. Procter & Gamble, for example, a top supplier of Wal-Mart, in turn requested its key suppliers to link to its inter-organizational IT systems.

### SOURCE:

[Evelyne Vanpoucke](#), [Ann Vereecke](#), [Steve Muylle](#), (2017) "Leveraging the impact of supply chain integration through information technology", International Journal of Operations & Production Management, Vol. 37 Issue: 4, pp.510-530, <https://doi.org/10.1108/IJOPM-07-2015-0441>



This research can also assist managers in setting priorities. Depending on the focal area of improvement (i.e. costs, flexibility, or quality), this study can guide managers in their choice of appropriate integration tactics. When the focus is on cost improvements, managers will benefit more from pursuing upstream, rather than downstream, operational integration tactics. When the focus is on delivery performance, however, managers will benefit from investing in both supplier and customer integration. While this study also supports the notion that integration initiatives positively impact process flexibility, the use of IT for supply chain integration does not strengthen this impact of operational integration on process flexibility. As such, the results of this study seem to suggest that the use of IT increases speed and accuracy in the supply chain, but not necessarily the agility of the supply chain processes.

This study also justifies the role of IT as an enabler for operation integration in the supply chain. Without IT systems, it is more difficult to create an information platform that enables the coordination of supply chain decisions among partners. If this integration cascades through the chain, it can result, in the long run, in higher profit margins for the partners in the chain. Collectively, these findings create additional insights for managers and can serve as a starting point for discussing the distribution of supply chain gains between supply chain partners.

*Read the paper [here](#)*



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