

Chapter 21

Benefits of Information Technology Implementations for Supply Chain Management: An Explorative Study of Progressive Indian Companies

Prashant R. Nair

Amrita University, Coimbatore, India

ABSTRACT

The usage of Information Technology (IT) in organizations across the supply chain has become a determinant of competitive advantage for many corporations. This chapter focuses on the usage of IT tools for Supply Chain Management (SCM). It also highlights the contribution of IT in helping restructure the entire distribution set-up to achieve higher service levels, lower inventory, and lower supply chain costs. An overview and tangible benefits of the existing IT tools, which are widely deployed, is provided with focus on existing configuration considerations, available applications, and deployments in India. The role of existing communication technologies in making IT an enabler of SCM, is highlighted by addressing a range of different point and enterprise solutions in a variety of supply chain settings. Critical IT demonstrations and implementations in SCM are discussed. Fundamental changes have occurred in today's global economy. These changes alter the relationship that we have with our customers, our suppliers, our business partners, and our colleagues. Reflection on the evolving and emerging IT trends like software agents, RFID, web services, virtual supply chains, electronic commerce, and decision support systems, further highlights the importance of IT in the context of increasingly global competition. The rapid adoption of the Internet for communication with all stakeholders, seems to reflect the potential of the new-age communication media. It has also been observed that several progressive Indian companies are extensively using emerging tools like virtual supply chains, web services, RFID, and electronic commerce to shore up their supply chain operations. However, adoption of tools like software agents and decision support systems for supply chain integration by Indian companies, is limited.

DOI: 10.4018/978-1-61520-625-4.ch021

INTRODUCTION TO SUPPLY CHAIN MANAGEMENT

Supply Chain Management (SCM) is the management of a network of interconnected businesses involved in the ultimate provision of product and service packages required by end customers (Harland, 1996). This term was coined by Keith Oliver, a Booz Allen Hamilton executive, in 1982.

SCM spans all movement and storage of raw materials, work-in-process inventory, and finished goods from point-of-origin to point-of-consumption (supply chain). It also encompasses the planning and management of all activities involved in sourcing, procurement, conversion, and logistics management activities. Importantly, it also includes coordination and collaboration with channel partners, which can be suppliers, intermediaries, third-party service providers, and customers. In essence, supply chain management integrates supply and demand management within and across companies. More recently, the loosely coupled, self-organizing network of businesses that cooperates to provide product and service offerings, has been called the extended enterprise (Ross, 2006).

Supply chain management must address the following problems:

- **Distribution Network Configuration:** Number, location, and network missions of suppliers, production facilities, distribution centers, warehouses, cross-docks, and customers.
- **Distribution Strategy:** Including questions of operating control (centralized, decentralized or shared); delivery scheme (e.g., direct shipment, pool point shipping, Cross docking, Direct Store Delivery (DSD), closed loop shipping); mode of transportation (e.g., motor carrier, including truck-load, parcel; railroad; ocean freight; air-freight); replenishment strategy (e.g., pull, push or hybrid); and transportation control

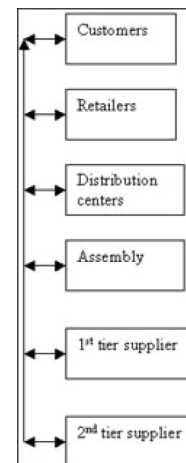
(e.g., owner-operated, private carrier, common carrier, contract carrier, or third party logistics (3PL)).

Supply chain execution is the management and coordination of the movement of material, information, and funds across the supply chain. This movement is bi-directional. The basic elements of the supply chain are:

- **Information:** Integration of processes through the supply chain to share valuable information, including demand signals, forecasts, inventory, transportation, and potential collaboration
- **Inventory Management:** Quantity and location of inventory including raw materials, work-in-progress (WIP), and finished goods
- **Cash Flow:** Arranging the payment terms and the methodologies for fund flow across entities within the supply chain.

Recent development in information technologies enables organizations to avail information easily in their premises. These technologies are helpful to effectively coordinate various supply chain activities. The cost of information is

Figure 1. Integrated supply chain model



19 more pages are available in the full version of this document, which may be purchased using the "Add to Cart" button on the publisher's webpage:

www.igi-global.com/chapter/benefits-information-technology-implementations-supply/42266

Related Content

A Cloud Based Solution for Collaborative and Secure Sharing of Medical Data

Mbarek Marwan, Ali Kartitand Hassan Ouahmane (2018). *International Journal of Enterprise Information Systems* (pp. 128-145).

www.irma-international.org/article/a-cloud-based-solution-for-collaborative-and-secure-sharing-of-medical-data/208149

A Study towards the Relation of Customer Relationship Management Customer Benefits and Customer Satisfaction

Nastaran Mohammadhossein, Mohammad Nazir Ahmad, Nor Hidayati Zakariaand Shidrokh Goudarzi (2014). *International Journal of Enterprise Information Systems* (pp. 11-31).

www.irma-international.org/article/a-study-towards-the-relation-of-customer-relationship-management-customer-benefits-and-customer-satisfaction/111074

EIS for Consumers Classification and Support Decision Making in a Power Utility Database

Juan Ignacio Guerrero Alonso, Carlos León de Mora, Félix Biscarri Triviño, Iñigo Monedero Goicoechea, Jesús Biscarri Triviñoand Rocío Millán (2010). *Enterprise Information Systems and Implementing IT Infrastructures: Challenges and Issues* (pp. 103-118).

www.irma-international.org/chapter/eis-consumers-classification-support-decision/42253

User Acceptance of Flood Risk Visualization and Prediction Information System: An Emerging Economy Perspective

Lory Jean L. Canilloand Alexander Arcenio Hernandez (2021). *International Journal of Enterprise Information Systems* (pp. 16-33).

www.irma-international.org/article/user-acceptance-of-flood-risk-visualization-and-prediction-information-system/282015

Human Resource Information System Use, Satisfaction, and Success

Sonalee Srivastava, Santosh Devand Badri Bajaj (2021). *International Journal of Enterprise Information Systems* (pp. 106-124).

www.irma-international.org/article/human-resource-information-system-use-satisfaction-and-success/268365