

## Chapter 23

# A Telecommunications Approach in Systems for Effective Logistics and Supply Chains

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### ABSTRACT

*Supply Chain Management (SCM) is a multidisciplinary field. The marketing and organizational aspects, aiming at competitiveness, productivity and efficiency commonly call more directly the attention of entrepreneurs, managers and organizations in this area. However, to achieve these goals, several support systems are needed especially Information Systems. Treated as a problem of Information Technology (IT), these systems do not attract much attention of the supply chain managers. Usually, these systems need to collect information stored in various databases in different companies and formats and geographically scattered. To be successful, information systems need the support of efficient telecommunication systems that enable this collection of information with the agility needed in the modern world of business. This chapter highlights the telecommunications systems that support SCM, its features and limitations. It also shows the technological environment, innovations in telecommunications that are already available and future technologies that could directly impact this type of management.*

### INTRODUCTION

Managing business in a dynamic market is an arduous task for management professionals. They must ensure that the information is in the right place at the right time. In other words, the managers responsible for taking the decisions must have the right information at the exact time of their need, in order to give proper direction to the organization's business, sometimes in real time.

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In this context, Information Technology plays a key role in safe storage and in the treatment and availability of such information so essential to modern management of organizations. Considering Supply Chain Management (SCM), the support of information technology is even more crucial since this management involves the interconnection of different systems in different organizations, public and private information services, professionals, companies and markets.

Information technology alone could not connect these different agents without the support of existing telecommunications systems. The computer networks of these agents already use the Internet connections made possible by a complex network of fixed and mobile communication systems using high-speed optical fiber, terrestrial radio and satellite systems and mobile data cellular networks.

Considering a supply chain, telecommunications have even more to offer:

1. Direct interconnection between the information systems of the companies that make up the chain,
2. Monitoring the handling and transport of raw materials operations and products through the chain supplies, and
3. Inventory control in real time.

All of these capabilities are critical to achieving efficiency, productivity and profitability of the supply chain.

However, despite all this importance, the supply chain managers have not given due attention to the telecommunication systems that serve them. The literature on SCM emphasizes its importance but does not discuss their specific aspects and how to get more out of their capacity. The telecommunication is treated as something unlimited, unrestricted and always available. An area in constant evolution, the development of new telecommunication technologies is not systematically monitored and tested for their application in the supply chain.

The aim of this chapter is to present the telecommunications systems serving SCM, discuss their limitations and restrictions, present suggestions for improvement with already available technologies and indicate new ideas that are already under study and discussion and may bring new advances to telecommunication services for supply chain management.

## **BACKGROUND**

The highly competitive and dynamic market leads organizations to Supply Chain Management (SCM) seeking for better results. The interrelationship between industries and partners is directly linked to customer satisfaction. The SCM includes planning and managing activities as supply, purchasing, manufacturing and logistics management (Lavastre, Gunasekaran & Spalanzani, 2014).

According to Seth, Goyal and Kiran (2015), SCM has become important for companies because of globalization and the increasing growth of market's competition. SCM aims to improve the exchange of goods and services from end to end of the chain in order to improve efficiency, effectiveness, productivity and profitability of the process as a whole. Supply Chain Management becomes a critical issue in the search for competitive advantage.

Therefore, it is important to understand the overall operation of the SCM techniques that can smooth expressively this task, together with telecommunications tools and information management.

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