Functional approaches to *SCOR* Model in the supply Chain Management Processes (Part II)

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Abstract

Under the current knowledge-based society, the SCOR model allows for a complex dynamic relationship of all actors integrated into the Supply Chain Management (SCM). Within this framework, all processes appropriate to the design and implementation of the model are specific to each partner company of an SCM from suppliers to end distributors.

Particularly important for the efficiency of implementing the SCOR model is the managerial aspect of the skills of the staff involved and of the managerial mechanism adopted.

If we first treated the first three processes of the SCOR model in the first published part of our material, we will continue to address two further processes, namely Deliver and Return.

Keywords: *Order management, warehouse management, distribution management, transportation management, products collected reverse flow, SCOR model formula, return process planning*

JEL classification: D 20, D 30, M 10, M 21, M 31
DOI: 10.24818/RMCI.2019.2.171

1. Deliver

Highly relevant here are the appropriate processes related to the supply of the finished goods and services to customers. The emphasis is on the order management, the warehouse management and the transportation management. We are going to address: *the order management; the appropriate activities of an efficient delivery; the warehouse management; the distribution management; the transportation management.*

2. The order management

This system is the main instrument used by customers and sellers to communicate information on orders. Thus, Logistics needs a certain type of information which should be timely and accurate about the firm orders placed by

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customers. To this purpose, the effective management of orders is essential for the operational efficiency and customers' satisfaction.

In the order fulfillment process it is important to understand the itinerary of an order from the customer to the supplier, once it has been placed. Any interruption during the transmission of a command or the emergence of some communication problems will increase its development time (Shaw, Shankar, Yadav & Thakur, 2012) (Figure 1).

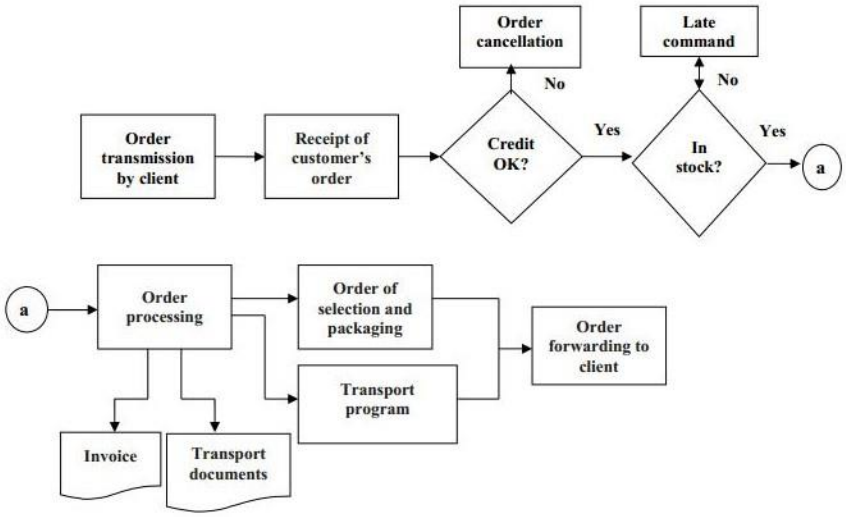

Figure 1. Elements of the trade order management
Source: (Shaw, Shankar, Yadav & Thakur, 2012)

The following are some concepts that come in support of the orders received by the company's customers.

The order lead time means the time between the moment when a customer places a purchase order and that when the product is received by it. Late orders are not acceptable. The journey times are often variable in the order lead time, having as main causes: • the way it is chosen and designed the control system of transmission; • the inventory management policies; • the procedures for processing orders; • the selection of the transportation modes. The rules of priority: they determine the framework in which the customer orders are processed and shipped.

The packaging standards: the additional packaging can result in lower overall logistics costs. The dispatch: the selling products directly to customers and then the direct sending of them to the customers; it is a common practice for companies on the Internet. 3 PL not based on assets: it is a company specialized in providing full information to facilitate the arrangements of the supply-delivery chain.

3 PL based on assets: it is a company that provides logistical services to other companies that need them. The services can be complete (warehousing,

shipping, cross-docking, inventory management, etc.) or just a part of them, to a single type. 3PL may even be a company that distributes its own products, but for rounding up revenue it also provides logistical services to third parties (Bai & Sarkis, 2010).

The appropriate activities of an efficient delivery mainly concern:

- locating facilities in the correct place and the use of an appropriate technology process to reduce the time allotted to production and delivery;
- transporting the right quantity and stock;
- ordering process commands to remove the unnecessary steps;
- ensuring proper controls introductions;
- developing good relationships with reliable transport companies can reduce transit times and increase the number of deliveries made on time;
- adoption of appropriate technologies and implementing innovative material handling processes can increase the flow rate by deposits.

The warehouse management primarily aims at: determining the number and size of warehouses; the main operations performed in a warehouse; the delivery time (the time spent on the order preparation and transportation time).

- The determination of the number and size of warehouses should take into account: the type of goods; the storage period of time; the used packaging (which induce the shape and weight of the shipped objects); the handling and storage equipment.
- The main transactions carried out in a warehouse:

- Reception: the downloading, the compliance awarding, the place allotment, the entry in the inventory (management);
- Handling: the transport of goods in the warehouse, the compliance with safety standards, the product entering the stock availability, the possible management of conditionalities;
- Preparing Orders: the pallets preparing, picking action (the removal of some products from a lot and their inclusion in another one), compiling ordered batches, regrouping of some shipments on areas, packaging, strapping, marking for shipment;
- Dispatching: Grouping the orders in the shipping area, the allocation of transport costs, the completion of the lots of delivery and control, charging, computer recording.

- The delivery time (time spent on the preparation of the order and transportation) generated by the one who gives the command (customer, shareholder) and the type of vehicles used to deliver (time equals distance divided by speed) make possible to calculate the higher permissible distance between two warehouses and, therefore, on a finite area, the total number of warehouses to be built.

The more the delivery times are shorter the more the warehouses are more numerous and as more numerous as they are, the more they will be lower, all the other parameters remaining equal. For example, it is the case of warehouses

intended to supply with spare parts for cars, if there is a delivery contractual term; also, the goods sold in a remote way (mail order sales, via the Internet and selling at home).

The distribution management is a part of a company management field. The objectives of the distribution strategy are integrated into the overall strategic objectives of the firm and they are accomplished through its logistics. Typically, the company has targeted the winning of a stable market share on a long term. The objectives of the distribution vary depending on the product characteristics. The creation of an efficient distribution channel involves determining the market segments to be served and choosing the appropriate channels for each of them (Diabat &Govindan, 2011).

At present, the integrated management of logistics aims to harmonize all the decisions on distribution, which were taken by the company. To this end, for the development of some compatible relations between functions, some firms made permanent logistics committees consisting of managers with responsibilities in the conduct of various activities of physical distribution.

Many companies have a vice president in charge of logistics, whose authority is inter-functional in coordinating the logistics and marketing activities to effectively manage the activities of the supply delivery chain for each product, in order to meet a higher level of customers' needs at a reasonable cost.

The concept of logistics platform has been proposed as an important component of an efficient logistics system, ensuring the reduction of negative impacts of transport of goods for a sustainable development (Vasiliu, 2010). The logistics platform concept was originally proposed in the Netherlands (Bholanath, 2011) and later in Germany (Rusk, 1994).

The logistics platforms are elements of the distribution system in which the operations of the transshipment of goods are realized as well as the storage of goods, selling goods in bulk, packing, sorting and grouping of goods in order to be dispatched to the beneficiaries (Cachon&Fisher, 2000). They are designed to meet all the requirements of an urban logistics system using a complex information system which will allow the programs application for optimal vehicle routing, efficient planning of the vehicles for the achievement of the operations of collection/distribution of products (Vasiliu, 2010).

The location of the logistics platforms is generally made in the connection points between the masterly large capacity transport and the urban transport system (Figure 2).

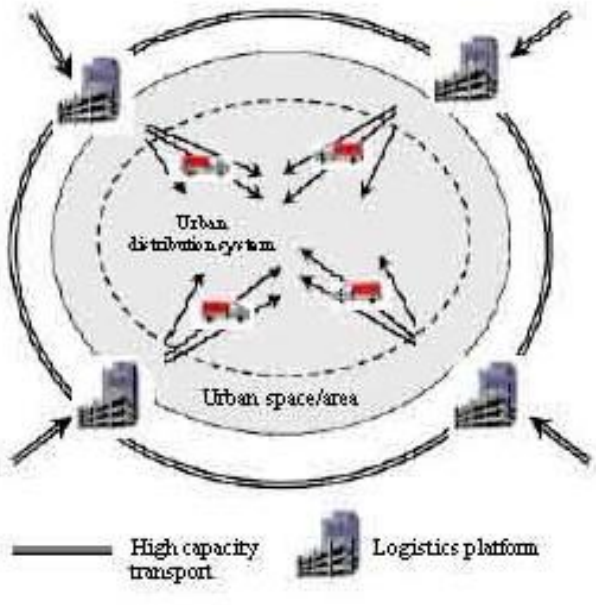

Figure 2. Elements of the system of distribution with logistics platforms
Source: (Vasiliu, 2010).

The results of the use of such a system with logistics platforms are reducing the number of vehicles required to offering at least the same level of quality, increasing the coefficient of transport capacity utilization of vehicles, reducing the journey of the vehicles, both loaded and empty (Cachon & Fisher, 2000).

The transportation management is that complex process that designs and specifies the physical movement of goods and persons in the supply-delivery chain.

Each of the five modes of transport (air transport, road transport, water transport, railway transport, transport via pipelines) are due to some attributes that provide one or more advantages over the other ways of transport. The attractiveness of a particular mode depends on the following attributes: the cost, speed, reliability, capability and flexibility (Bholanath, 2011).

In the US 82% of goods are delivered entirely by trucks as a means of transport. Therefore, the transport and delivery add about 10% to the cost of the products (Baker, 2003).

The inter-modal operations are a combination of modes of transport, such as: the rail and highway carriers (piggyback); aviation and highway carriers (birdyback); water transport and air carriers (fishyback) – in order to improve the services offered to the customers and to achieve cost advantages (Bholanath, 2011).

Currently in Europe, the large companies have deployed SCM or ERP/CRM-based solutions. In practice, the SCM applications are mostly integrated with ERP and B2B packages. The most important companies specialized in providing these systems are: "Ariba, Commerce One", „I2 Technologies",

„JustEnough, Manugistics", „Agile Software", „Baan", „J.D. Edwards", „Oracle" and SAP. They provide modules specific to the supply chain functions, the desirable firms purchasing those packages that are appropriate to their business. Some of the functions mainly include: • collaboration within the supply chain; • collaborative projections; • collaborative achievements; • demand and supply planning; • production planning; • event management in the supply chain; • performance management within the supply chain, etc. The European market leader is SAP AG, which offers the mySAP SCM solution (SCOR, 2010).

Although within large companies a large database has been created using Enterprise Resourse Planning (ERP) systems, an Advanced Planning System (APS) is now being implemented with an ERP interface, at least for the supply chain segment. At present, the greatest focus is on forecasting customers' demand and on the capacity planning for each level in the network. For example, the E-commerce systems with commercial portals or e-procurement are to be seen. For this reason, the IT aspect of SCM aspect is often seen as e-business (Huang & Mak, 2000).

3. Return

The final element of SCOR Model materializes the processes associated with the product returns for any reason and includes the post-delivery customer support. The focus is on the reverse logistics and the client long-term support.

This process contains the management activities on the return of the raw materials surplus or defective materials, the checking of their status, their return or repair program. The aspects of the reverse flow are shown in Figure 3 (Diabat & Govindan, K., 2011).

Figure 2. Worl
Source: [11]

Figure 3. The determinants of the reverse flow within SCM
Source: (Diabat & Govindan, 2011).

The return process ensures that previously sold products are sustained, collected and disposed of according to business policies and agreements with customers and it covers all the activities: from the return authorization, the financial regulation. The primary factors behind the return process vary by industry, but they generally include: the return of the products with errors or unsatisfactory; the maintenance, repair and overhaul services on the basis of agreements; refunds of excess inventory in the channel and recycling/refurbishment/reuse. Various activities can be associated with each of these "types" of returns (Popa, V., 2009).

To be effective, the return process of the company must be integrated with other supply chain processes. For example, by integrating with the planning process, the return shall ensure that the resources needed are available. By integrating with the supply and production processes, the return can provide information about defects and errors to ensure quality supply and production. Returning also provides information to the delivery products to customers and brought up in the vice versa supply chain. For the MRO Articles (maintenance, repair and operations), the returning provides information to the supply, production and delivery for the activities necessary for the implementation of the returns processing agreements with customers (Popa, V., 2009).

The support processes for executing operations in a supply-delivery chain include the following modules:,,•Establish and Manage Rules; •Assess Performance; •Manage Data; • Manage Inventory; •Manage Capital Assets; •Manage Transportation; •Manage Supply Chain Configuration; •Manage Regulatory Compliance; • Process Specific Elements" (SCOR, 2010).

Huang and Mak are of the opinion that the SCOR model is useful but still limited in its applicability because it fails to model the interfaces between commercial partners, even much, because it ignores the product development processes (Huang & Mak, 2000). Saccomano also points out under the same meaning that the members of the Council of the Supply Chain observed that the model registers some problems related to assets recovery, maintenance, repair and customer service areas(Saccomano, A. 1998).

These shortcomings can provide some explanations for the low implementation levels that lately have been reported. Although it is obvious that some large and well-known organizations have accepted the guidelines provided by SCOR, Stedman states that "... the number of companies that have fully implemented the guidelines and have had positive results is relatively small." (Stedman, 2000).

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Based on the above, a systemic approach to the SCOR model can be expressed with the formula below:

SCOR Model = f (P + S + M + D + R)

where:

P = Plan (Planning);

S = Source (Sourcing);

M = Make (Distribution);

R = Return (Return or reverse flow.

The performance (Pf) of each domain of the SCOR can be expressed, from our point of view, in managerial aspect with the following formula:

Pf = Ab x Mo x Rs

where:

Pf = Performance;

Ab = Abilities;

Mo = Motivation;

Rs = Resources (human, material, financial and information) employed.

The abilities (Ab) can be expressed with the relation:

Ab = **Apt** x **(Cu + Dp + Exp).**

where:

Apt = skills;

Cu= knowledge;

Dp = skills;

Exp = experience.

Therefore, the previously mentioned formulas express, on the one hand, a holistic approach to the SCOR model, and, on the other hand, the need to achieve the projected performances according to the standards set for each of the five mentioned areas (SCORs).

4. Conclusions

Experts define and break down all these management processes in three levels of detail. At level one (plan, source, production, supply and return), the performance of the supply chain, delivery can be directly linked to the business objectives of the organization. The process elements of the second and third levels are used to describe more detailed activities to provide a greater perspective on the operations within the supply chain. There is a level of four where companies implement practices specific to the supply chain management to adapt to the changing business conditions, but this is outside the scope of SCOR.

These changes in the managerial process appropriate to the supply chain will allow optimization of specific actions for all SC partners in order to continuously adapt to demand fluctuations. This will ensure the efficiency and transparency of the delivery process throughout SC.

Model SCOR is especially important for SCM to adequately implement specific processes that increase business performance for all partner firms. For this purpose, the managerial conduct adopted by each firm integrated into the SCM is of major importance for the efficient and effective design and application of the appropriate requirements and standards for Model SCOR.

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