On the role of Purchasing within Supply Chain Management

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There is little doubt that when Supply Chain Management (SCM) is implemented, it will have a large impact on how we do business. More specifically, the goals, activities and organization of all functions within an organization will drastically change. This article will review such changes specifically for the area of purchasing.

It is argued that there are three levels of SCM to be distinguished, namely the alignment of the different functions within a company, the coordination of activities and goals between different business units within one corporation and the coordination of autonomous organizations. For each of these three levels it will be discussed how purchasing in an SCM-environment differs from purchasing in the traditional non-SCM setting.

Introduction

Over the last decades many new management ideas were launched. Some of these turned into hypes but disappeared almost as quickly as they came. However, there is little doubt that Supply Chain Management (SCM) is here to stay. Although not everyone always realizes this, once implemented, SCM will a major impact on all functions within the organization. All too often SCM is seen as a logistics activity only. This however is dead wrong. In Figure 1 the supply chain from the perspective of a single company is given. As can be seen from this graph, the coordination of activities requires the efforts of basically anyone in the organization: Operations & logistics, Marketing & Sales, Administration, Finance and Purchasing.
The question addressed in this article is: “how are the activities and organization of Purchasing affected once the company decides to implement SCM?” In order to answer this question, first SCM will be defined in more detail. It will be argued that in fact there are three levels of SCM. Subsequently, the impact of SCM on each of the three levels on Purchasing will be discussed. In order to focus the article, only primary purchasing is considered, i.e. we will concentrate on getting in those products and services that are required for creating the endproducts of the company.

**Three levels of Supply Chain Management**

In the literature, numerous definitions of SCM are given. In this article a definition that generalizes many others is used, namely: *The coordination of activities and goals between different entities in the supply chain with the goal of reducing waste and creating value.* As can be seen from the definition, the tool that SCM is using to lower waste and increase value is the coordination between several entities. Dependent on whether the entities are departments in a company, business-units within a corporation or separate organizations, we can distinguish three levels of SCM.

The *first level of SCM* refers to the alignment of activities and goals of the different functions (or departments) within a company such as Research and development (R&D), Marketing and sales (M&S), Operations and logistics (O&L) and Purchasing. The basic idea of SCM on this level is that, in order to get the optimal result for the entire company, all functions need to be coordinated. For instance, in the product development process it is desired (or even required) that, next to the R&D department, also O&L, M&S and Purchasing will be a part of the product development team. M&S is needed to make sure that the product is designed with the customer in mind, O&L can give details on what can and what can not be manufactured and Purchasing can be used to find out what type of components and technologies are available on the market. It is important to realize that on this first (internal) level, coordination can be forced upon by making use of hierarchical structures. That is, the organizational structure of the company can be used to force specific behavior from different departments.
The **second level of SCM** refers to the coordination of different business-units (BU’s) within one corporation. Typical examples of companies that feel the need for SCM on this level are Philips and Hewlett-Packard. These companies have several operating units that produce and distribute components (such as computer chips and disk drives) for several products made by internal suppliers and shipped to internal customers. SCM on this level is aimed at optimizing the flow of goods and information as well as the activities and goals between the different business units. SCM usually also aims to present one face to the suppliers, one face to the customer (account management) and optimization of the activities between the different BU’s. Note that SCM on the second level is still about internal optimization only. So again, like at SCM on the lowest level, hierarchical structures can be used to force collaboration and joint optimization.

On the **third level of SCM** the different entities are autonomous organizations. SCM on this level implies that the several organizations work together to improve the results of all of them. This feature is usually referred to as “win-win”. Note that, in contrast to the first two levels of SCM, at this highest level hierarchical control is not possible, simply because a supply chain does not have an owner. So, the companies are autonomous and working together only because they choose to do so. It can be observed that, because of the necessary condition that win-win is achieved and the lack of hierarchy, SCM on the third level is the most difficult one to implement.

Note that the three levels of SCM discussed above are indeed to be considered as “levels”. That is, usually companies consist of several BU’s and BU’s consist of several departments, see Figure 2. The implication is that in order to get into SCM on a higher level, usually a company has to implement SCM on the lower levels first. Generally, SCM on the third level is considered as the only “real” SCM. However, frequently also the first two levels are considered as SCM. With this in mind and since the three levels are in fact implementation steps, in the remainder of this article we will also discuss the first two levels of SCM and their impact on Purchasing.

![Figure 2: Three levels of Supply Chain Management.](image-url)
The impact of SCM at the first level on purchasing

Traditionally, in many companies the perceived function of Purchasing is quite narrow. The key responsibility for Purchasing usually is buying the parts that Operations is needing at the lowest possible price. As a result, frequently Purchasing is concentrating on negotiation and market price. As such, Purchasing is most often a sub-department of Manufacturing or Operations. In an SCM-environment this will drastically change. In fact, when SCM on the first level is implemented, it becomes necessary that Purchasing is a primary function next to other primary functions such as O&L and M&S. Below, this statement and its consequences will be discussed in some detail.

Recall that SCM is all about creating value for the final customer. It is to be realized that an important source of value lies outside the company, namely with the suppliers. Take the example of Dell who are in the business of assembling and selling computers. Needless to say that the performance of a computer heavily depends on its key components such as the hard disk, DVD drive, keyboard, CPU and memory. Rather than developing new components by themselves, Dell is always scanning the market to see what the customer’s whishes are and keeping in touch with all the hardware developers. This allows Dell to always incorporate those technologies that are available and in demand, rather than being enforced to sell the homemade technology to recoup their investments. Other classroom examples of value-creation by Purchasing are department stores and similar retailers. Such companies are basically only re-selling what is bought by Purchasing.

When SCM on the first level is implemented, Purchasing gets responsible for delivering value rather than being considered a cost driver. In order to capture the value, it is necessary that Purchasing is on the same level with for instance O&L and M&S. Instead of O&L and M&S telling Purchasing what to buy, Purchasing now will be on equal foot. They should inform O&L and M&S about what is available on the market, what innovations might be expected and how this might affect the competitive position of the company. In order words, the activities of M&S, O&L are coordinated.

As a consequence of the situation described above, clearly the emphasis of decision making within Purchasing is shifted from the usual short-term and opportunistic (focussed at low price) to integrated, holistic and long-term (creating up-stream value). Furthermore, the Purchasing strategy is no longer a derivative from the Operations strategy but is aligned to the Business strategy very similar to how Operations strategy and Marketing strategy are aligned to the Business strategy.

When SCM on the first level is implemented also the Purchasing activities will be redistributed. In general there are three types of Purchasing activities, namely:

- **Strategic purchasing activities**, i.e. activities focused on delivering strategic value to an organization;
- **Tactical purchasing activities** such as determining the specification (in terms of required quality and quantities) of the goods and services that need to be bought and selecting the most suitable supplier, and
- **Operational activities** including placing the order with the selected supplier and monitoring and control of the order (expediting).

Clearly, in an SCM-environment, the Strategic purchasing activities will be performed by the Purchasing department and will in fact get much more important. One example is
Magnetti Marelli, a manufacturer of fuel injection systems, that is involved in the product development of the Fiat Bravo. The strategic purchasing activity of Fiat here is “scanning the market for new fuel injection technologies and motivating the specific supplier who offers the state-of-the-art technologies to cooperate”. After Fiat’s purchasing function had tracked Magnetti Marelli, this supplier had to be managed so that it was willing to commit to Fiat.

Also the tactical purchasing activities remain to be carried out by the Purchasing department. In an SCM-environment, however, the contents of these activities will shift. For example, selecting a supplier will lead to searching for a “partner” rather than merely a supplier. The evaluation of the different possible suppliers has to be done on different features than in the case of the selection of an “ordinary” supplier. Soft variables, like culture within the supplier’s organization and congruence in goals, are important.

The operational purchasing activities, however, usually will be decentralized and not per se executed by Purchasing. For example, traditionally, if a warehouse manager notices that the level of the inventory is too low, he writes an order coupon and sends it to the Purchasing department. The purchaser will check the order coupon and order the product. Clearly, in the new situation it is much more logical if the warehouse manager is empowered to order the product directly with a supplier as long as the product is listed in the “catalog” and a window contract with the supplier is available. Nowadays, frequently e-purchasing software tools are used to allow decentralizing the operational purchasing activities.

Summarizing, if SCM on the first level is implemented, the position of Purchasing will be upgraded and Purchasing will be on par with functions such as O&L and M&S. Furthermore, the activities of Purchasing will be enriched while operational activities will be decentralized. The result of the coordinated activities within the firm is an increase in value and a decrease in operational cost, exactly what SCM is all about.

**The impact of SCM at the second level on purchasing**

In this section, SCM at the second level, i.e. coordination of Business units within an organization, is considered. Here it is assumed that various BU’s purchase similar goods.

Usually, it is felt that SCM at the second level favors the centralized purchasing structure in order to optimize the coordination, i.e. the emphasis is on “providing one face to the supplier”. This means that in order to exploit the joint buying power, there will be one single purchasing organization that usually is located in the head office. However, this will not necessarily provide the company with an optimal situation. In fact there might be various coordination mechanisms besides centralizing decisions. In other words, centralizing Purchasing is only one way of capturing the benefits of SCM on the second level. In practice there are various combinations of centralized and decentralized Purchasing organizations. One alternative possibility is to centralize the strategic and tactic purchasing activities and decentralize the operational purchasing activities. Also here the aforementioned e-purchasing software is instrumental. IBM adopted a similar structure with their so-called Cross-functional commodity teams. This structure provided a consolidation of needs on components for the whole organizations with one single contact point for the supplier. The needs of the different BU’s were bundled and managed by this team.
Contracting was done centrally on corporate level. However, in all cases the operational purchasing activities were decentralized.

The impact of SCM at the third level on purchasing

In this section, the impact of SCM at the third level, i.e. coordination of independent organizations within a supply chain, on Purchasing is considered. Compared to the previous two sections, the scope will be widened across the company borders. The emphasis here will be on how to coordination the activities of a company with its suppliers. More specifically, the following three issues will be reviewed: “Which type of products will require which type of coordination?”, “Which types of supply chain relations are relevant?” and “How should SCM-relations be managed?”

For each purchased product it has to be decided what type of coordination activities are desired. For this purpose the well-known Kraljic purchasing portfolio matrix is a helpful tool. The matrix differentiates products by two variables: impact on financial result and supplier risk, see Figure 3. Routine products are low-valued and carry little risk because there are various suppliers that are more-or-less exchangeable. One example is office supplies. Leverage products are high-value products that can be delivered by many suppliers. Bottleneck products are low-value products of which the supplier base is small. Strategic products are high-value products of which the supply is dependent on a specific supplier. An example is the engine supplied by Bosch to DAF. In cooperation with Bosch, DAF developed a new engine type. Bosch has brought in the fuel injection knowledge. This product is of high value and it is virtually impossible to replace Bosch since the engine is completely adapted to the specific Bosch fuel injection system.

<table>
<thead>
<tr>
<th>Supplier Risk</th>
<th>Impact on Financial Result</th>
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<tbody>
<tr>
<td>High</td>
<td>High</td>
</tr>
<tr>
<td>Bottleneck products</td>
<td>“Develop”</td>
</tr>
<tr>
<td>Strategic products</td>
<td>“Cherish”</td>
</tr>
<tr>
<td>Routine products</td>
<td>“Neglect”</td>
</tr>
<tr>
<td>Leverage products</td>
<td>“Exploit”</td>
</tr>
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Figure 3: Kraljic matrix.

The optimal level of supply chain integration can be deducted from the Kraljic matrix as follows. Only in case of strategic products a true supply chain partnership makes sense. For these products, the primary role of Purchasing is to secure the timely delivery. Because of the impact on the financial result, the necessary investments in time, effort, IT-systems and so on become feasible. In the case of routine products, extensive integration will not provide many gains and the coordination costs will rise. Consequently, it is not worthwhile to invest
in heavily in supply chain relations with suppliers of routine products. In the case of leverage products, the gains of integration will be higher when compared to routine products. However, since there are many alternative suppliers, it is probably more profitable to use the buying power to “squeeze” the supplier. This is in fact what Lopez did when he was in charge of Volkswagen: “I want 12 quotes for any component to go into a car”. In the case of a bottleneck product the sensible strategy is twofold. On the short-term continuity in supply is to be established. However, on the long-term Purchasing has to internally urge for a redesign of the manufactured product in order to make sure that in the future the bottleneck product is no longer needed.

Frequently, SCM on the third level is associated with so-called supply chain partnerships. Like in a good marriage, partners are supposed to share everything and take each other’s wishes and needs into account always. Unfortunately, but not surprisingly, such partnerships are rare in the business environment. However, this does not imply that SCM does not exist in practice. In fact, in reality, besides a full partnership, there is a wide variety of ways to coordinate the supply chain. In Figure 4 a continuum between a simple supplier-customer and a full supply chain partnership is given.

<table>
<thead>
<tr>
<th>No coordination</th>
<th>Information sharing</th>
<th>Extend number of parameters in contracts</th>
<th>Redistribute ownership</th>
<th>Centralized optimization</th>
</tr>
</thead>
</table>

Figure 4: Continuum of coordination mechanisms.

On the left-hand side in Figure 4, there is a traditional supplier-customer relation with no coordination. On the right hand side there is a full partnership with central optimization, i.e. the companies forming the partnership are considered as operating like a single entity. In-between these two extremes several other coordinating mechanisms are given. The farther on the right side, the more intense, involving and complex the relationship is. It can be observed that a first step towards coordination is to share information between the involved supply chain parties. Moreover, this is also a necessary condition for all other coordination mechanisms. The information might for instance consist of production plans, actual demand or promotion campaigns. A next step would be to add parameters to the contracts such as pay-backs, revenue sharing, quantity discounts or license fees. The rationale behind such contracts is that it allows the decision-makers in the two autonomous companies to strive for their own optimal situation without making the situation worse for their supply chain partners. One step further would lead to situations in which, for example, a supplier would be responsible for managing the inventory of its customer. This is known as Vendor Managed Inventory (VMI) or Consignment inventories.

As a closing remark it is to be mentioned that, obviously, it is Purchasing that is responsible for establishing and maintaining the “right level” of partnership with autonomous suppliers for the “right product”. Quite obviously these purchasing activities are of strategic nature and go way beyond the operational activities performed by Purchasing in the traditional non-SCM company. Such initiatives are known in the automotive industry under the name Co-makership because the suppliers perform an ever-increasing percentage of the primary
manufacturing activities. In other industries similar initiatives are known as “the Extended Supply Chain”: the suppliers are considered as an integrated part of the organization.