



ALLOCATION FOR MANUFACTURING COMPANIES

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ABSTRACT. Assuring a high material availability for production is while reducing sourcing costs remains a major logistical challenge for producing companies. Lean economic processes, flexibility and responsiveness - beneficial both for the customer and for the supplier - are characteristics of an excellent customer-supplier relationship. Standard sourcing models offer a field-tested approach for setting up across company boarders processes.

Key words: SCOR, Standard Sourcing, Logistics Models.

INTRODUCTION

Due to the increasing individualization of customer demands and the resulting variant diversity, companies are forced to realize production and sourcing flexibility in regard to fluctuations in demand. As a result, logistics has to be enhanced to across company boarders supply chains in which production and warehouse processes are adjusted to short delivery times and low inventory levels for the entire supply chain. Simultaneously, communication barriers between partners in a supply chain shall be removed. If the across company boarders coordination of the processes succeeds, cost potentials result from the work in process level and inventory level reduction throughout the entire supply chain process.

Background of the standard logistics sourcing models was to get an easy to use decision support system for sourcing. This paper deals with such an improvement of across company boarders coordination by applying standard logistics sourcing models. The sourcing models and the specific opportunities are presented as well as the application of the standard sourcing models in the automotive industry.

STANDARD LOGISTICS SOURCING MODELS

The presented approach uses standard sourcing models for supporting companies in order to establish efficient customer-supplier relationships with little effort and short response times. The standard sourcing models were developed in a worldwide leading company in the electrical industry. Figure 1 presents the main distinguishing features of defined six standard sourcing models inventory sourcing, standard parts management, consignment concept, contract warehouse concept, individual sourcing and synchronized production processes in regard to the stock-keeping party. [Nyhuis, Wriggers, Fronia 2008]

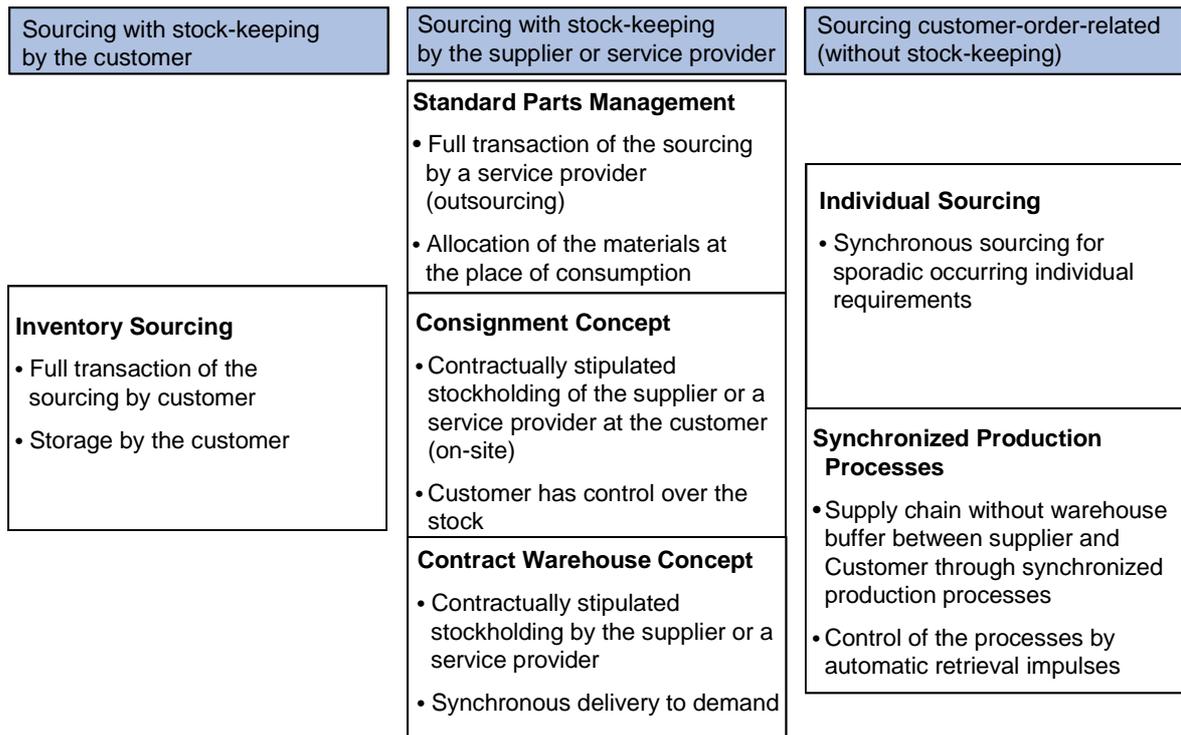


Fig. 1. Main distinguishing features of the standard sourcing models [IFA]
 Rys. 1. Główne cechy charakterystyczne standardowych modeli zaopatrzenia

The sourcing models are based on the SCOR (Supply Chain Operations Reference) model, which is an international and across company borders reference process model for the unitary description of supply chains [Potthast, Baumgarten, 2009, Supply-Chain Council, 2008].

Each of the sourcing models is characterised by main specific features which are described in the following text.

Inventory Sourcing aims at enabling a quantitative and temporal decoupling of sourcing and production. For each individual order the customer determines when, by what extent and by which supplier the delivery is to be carried out. Inventory is stored in the customer's warehouse in order to ensure a high level of availability for the manufacturing processes. At the same time, the customer retains independence of the sourcing market and is thus able to use price fluctuations at the market systematically.

With **Standard Parts Management**, the supplier or service provider handles all of the organizational processes such as operations of storage, the ordering system and the supply of goods. Initiation of the supply of goods results from an automatic message of goods removal (e. g. movement data) or from a visual inventory control within regular patrols by the service provider. Bypassing a central warehouse, the product is delivered directly to the repair shop store or a buffer store near to where the material is needed. The payment is made on the basis of unit billing or collective invoice.

In the **Consignment Concept**, a supplier or a logistic service provider maintains a warehouse (near the production premises) at the customer's company, in which the supplier stores preconcerted inventory levels of a certain product. The supplier has to ensure that a specific pre-defined minimum inventory level is maintained at all times. He remains owner of the inventory until the customer withdraws material for consumption. Only after that point of time, the customer is charged for the material. However, the customer has control of the stock at all times. The conditions of cooperation (e. g. the agreed quantity ordered) are regulated in a frame contract.

With **Contract Warehouse Concept**, a warehouse maintained by a supplier or a logistic service provider is operated in close proximity of the customer. The contract warehouse offers a short-term delivery to the customer in a high frequency (Just In Time delivery). The supplier may, however,

produce consumption decoupled. The material is to be delivered directly to the place of consumption bypassing a central warehouse. The lack of inventory at the customer's company can lead to a significant increase in transport and delivery frequency. In order to avoid related costs and expenses, the contract warehouse can be operated as a freight forwarding warehouse. The deliveries of different suppliers merge in this warehouse and are consolidated regularly (e. g. daily) and then corporately transported to the customer. The warehouse and coordination function are operated by a logistic service provider.

At the **Individual Sourcing** concept, the required products are not purchased until a specific demand - along with a concrete customer order - is at hand. For delivery on schedule, the incoming material is transported to the place of consumption after the goods inward inspection and without intermediate storage. This form of sourcing is particularly used when the sourcing company's production takes place in individual manufacturing.

Synchronized Production Processes are characterized by a supply chain without warehouse buffers between the supplier and the customer so that interim storage is no longer required. The sourcing model is based on the principle of a continuous flow production: the supplier's production is synchronized according to the customer's production demand, amount and time. The model is particularly applied when inventory is unreasonable due to great variant diversity and parts requirements on variation level are not predictable in the short term, whereas the demand on product group level is known in the long term [Nyhuis, Wriggers, Fronia 2008, Nyhuis, Rottbauer 2003, Frühwald, Rieger, Wolter 2005].

ANALYSIS OF SOURCING MODELS

Analysing the properties of each sourcing model of the above textual description is procurable as follows:

- Morphological box: clear illustration of features and their characteristics (type of contract (e.g. outline contract) with or without controlled prices)
- Information, material and value flow: mapping the information, material and money flow between supplier, logistic service provider and customer
- Realisation aspects: recommendation for the right choice of sourcing models (e.g. following in A, B or C-parts) classification and criteria for exclusion
- Objective fit: interrelation between model type and logistics objectives (e.g. low process costs, high service level, low inventory costs)
- Assignment of tasks: allocation of responsibilities for logistic service provider and customer for each process step (e.g. delivery by customer, the company's own conveyer or service provider)

Depending on the company's objectives, each of the standard sourcing models offers corresponding advantages and disadvantages in application. The application is significantly determined by the selection criteria rating (A-, B- or C-parts), the demand rate (low or high) and the customer (customer-specific (make-to-order production) or customer-anonymous (make-to-stock production)) of the sourcing parts. The interrelation of selection criteria and sourcing models is shown in Figure 2.

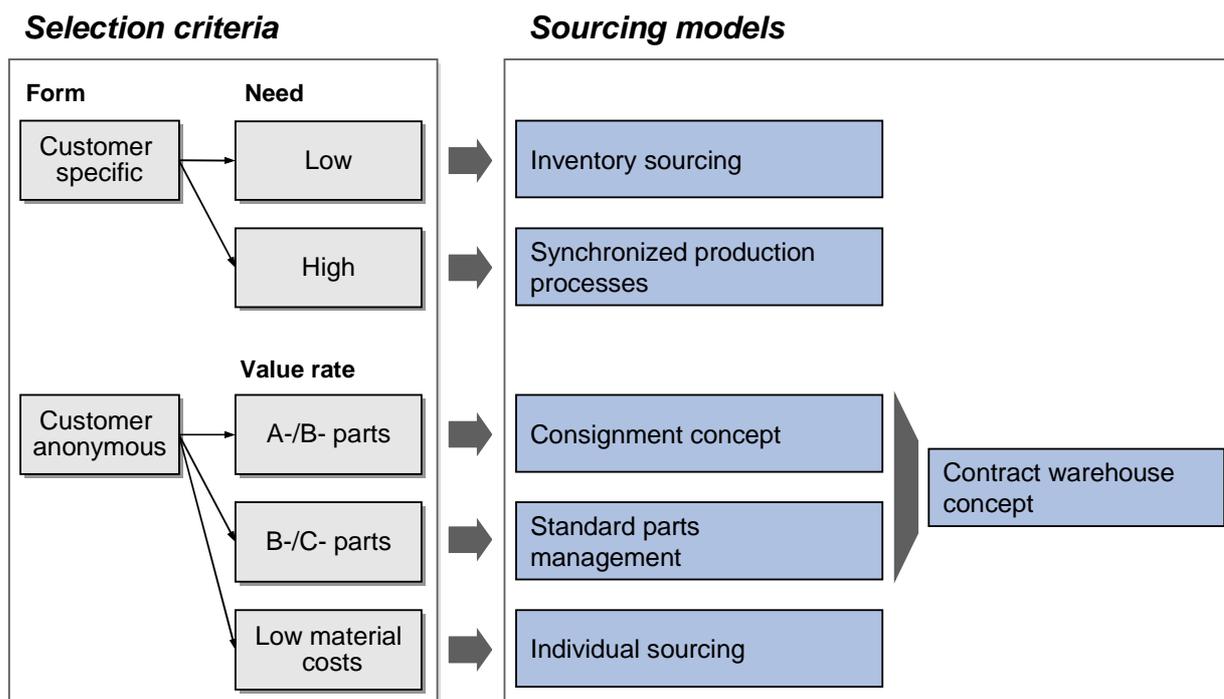


Fig. 2. Selection of standard sourcing models
 Rys. 2. Wybór standardowych modeli zaopatrzenia

Standardized sourcing offers many advantages for the configuration of supply chains. By the means of standardized sourcing processes, the communication within the company (e. g. between different production segments) but also across company borders (e. g. with different suppliers) is simplified. Therefore both new suppliers and new products or variants can be integrated in the supply chain easier and faster. In addition, the organization complexity regarding individual processes is decreased due to a reduction of applied sourcing models within a single site or in the entire corporation [Nyhuis, Wriggers, Fronia 2008, Potthast, Baumgarten, 2009].

APPLICATION OF STANDARD SOURCING MODELS

The IPH - Institute of Integrated Production Hannover reviewed and analyzed established sourcing processes at a world's leading supplier to the automotive industry in order to improve this company's logistic performance. Material and value flows were evaluated in workshops with interdisciplinary teams with regard to the standard sourcing models. Improvements were identified and arrangements were derived.

The adoption of standard sourcing models was partially possible due to the general conditions given in the company (e.g. long-term framework agreements with suppliers). However, the standard sourcing models offered a basis for a joint identification of possible potentials of improvement. For example, a consignment concept is often interpreted in different ways. At the automotive supplier, a posterior accounting transfer of ownership of the goods was the determining factor. Yet, applying the standard consignment model the supplier is also responsible to assure a predefined minimum stock level of the goods.

Another potential resulted from the high process costs arising from the elaborated sourcing process in the company. Thus, the intensified integration of the supplier into the sourcing process was suggested in which sub-processes such as scheduling, receiving materials and storing should be carried out by the supplier or service provider. The standardization of the sourcing processes requires a high

degree of enduringness in order to be able to develop standards with rules, and therefore also to be able to provide the sustainability required for other suppliers and products.

When implementing standard sourcing models, an important step is the assignment of responsibilities for each individual process step and correspondingly for the goods, information and values. If assigned to the supplier, the complete coordination of supply within the part of distribution logistics is carried out by the supplier. If the coordination, however, is carried out by the customer, it is covered by the logistics department of the customer. Furthermore, the responsibility may be given by to service provider.

Moreover, company-individual guidelines on the part of the management have to be taken into account. But they cannot be conflicting to the defined standard models. For example, a low inventory level may be defined as an objective, keeping in mind that these may not be "paid" with overwhelming process costs.

CONCLUSIONS

Integral process thinking and acting does not end at the supplier's entrance, but in fact implies the integration of suppliers into the existing sourcing processes.

To be able to apply the six sourcing models in the industry targeted, the described, main specific features of the sourcing models are at hand. Applying standard sourcing models offers the possibility to reduce costs and simultaneously improve logistics performance on the part of both suppliers and customers. Following the focus of the tool could be extended e.g. to distribution.

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AŁOKACJA DLA FIRM PRODUKCYJNYCH

STRESZCZENIE. Optymalne procesy gospodarcze, realizowane przez minimalną liczbę personelu, elastyczność i zdolność do szybkiej reakcji to cechy znakomitej relacji pomiędzy klientami a dostawcami, przynoszącej korzyści dla obu stron. Standardowe modele zaopatrzenia oferują sprawdzone w praktyce rozwiązania dla sieciowego kształtowania procesów w łańcuchu dostaw.

Słowa kluczowe: SCOR, zaopatrzenie standardowe, modele logistyczne

ZUWEISUNG FÜR PRODUZIERENDE UNTERNEHMEN

ZUSAMMENFASSUNG. Schlanke wirtschaftliche Prozesse, Flexibilität und Reaktionsfähigkeit, die sowohl für den Kunden als auch für den Lieferanten Vorteile bringen, sind Merkmale einer exzellenten Kunden-Lieferanten-Beziehung. Standard-Beschaffungsmodelle bieten einen praxiserprobten Ansatz um Prozesse unternehmensübergreifend auszulegen.

Codewörter: SCOR, Standard-Beschaffung, logistische Modelle

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