

# A method for customer-driven purchasing

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## **Abstract**

Competitiveness based on customer interaction is the baseline for strategies such as customization, postponement and customer-driven manufacturing. The emphasis is on the interface between a focal actor and the customer. The approach may however have implications that explicitly influence the suppliers of the focal actor and this is the core theme of customer-driven purchasing. The method for customer-driven purchasing, presented in this paper, has been developed in collaboration between researchers and practitioners and provides a structured approach with twelve steps for analyzing supplier interaction. The method can be conceived of as extending the reach of operations strategy to include also purchasing and the suppliers.

**Keywords:** Purchasing, Customer-driven, Decoupling points

## Introduction

“Customer is king” is a principle that has been around for many years. The original reference for this quote is not known with certainty but it has been used in many different contexts. Most managers would agree that the customer is of critical importance to the business but more seldom is this quote associated with the purchasing function. Purchasing as responsible for procuring direct and indirect material represents a large part of most businesses’ turnover. In some cases the in-house value-add is large but in other cases outsourcing etc. has changed the proportions of direct material in relation to the value adding activities. This is directly related to an emphasis on core competence where non-core activities are outsourced (Prahalad and Hamel, 1990). As a consequence, a greater part of the total supply lead time is taking place outside the focal actor. From a supply chain management perspective this definitely complicates matter since what used to be performed within the focal actor is now performed by a supply network involving not only the company in focus, here referred to as the focal actor, but also a number of suppliers, here referred to as supplier actors. Each relation between the focal actor and a supplier actor can be analyzed as a dyad of two actors. In a corresponding way the relation between the focal actor and the customers, here referred to as customer actors, can be analyzed from a dyadic perspective. Historically, most businesses have been in a position where these two types of dyads may be designed, performed and analyzed separately. Purchasing manages the relations with the supplier actors and sales & customer service manages the relation with customer actors. The focal actor is thus providing goods and services to a customer actor and this key relation is captured by the customer order fulfillment process, covering the full cycle from when the customer order is placed to the moment when the demand is satisfied.

Both purchasing and sales & customer service functions act at the interface with other actors upstream and downstream respectively. Depending on the delivery lead time, manufacturing is to some extent squeezed in-between these two functions and potentially performing some customer-driven activities. As long as the manufacturing lead time is long in relation to the delivery lead time, this approach to managing the business in terms of two separate dyads is possible to pursue in a competitive way. But, as indicated above, outsourcing decreases the internal manufacturing lead time of the focal actor whereas the emphasis on customization increases the delivery lead time. As a consequence, the requirements put on the customer interface may have implications that extend across the whole focal actor and may even affect the supplier actors. This situation requires that the three actors are analyzed in combination and hence modeled as a triad consisting of a supplier actor, focal actor and a customer actor as illustrated in Figure 1. As shown in the figure the situation with customer-driven manufacturing is now extended to include purchasing in direct relation to the customer actor and it is this scenario that is referred to as customer-driven purchasing.

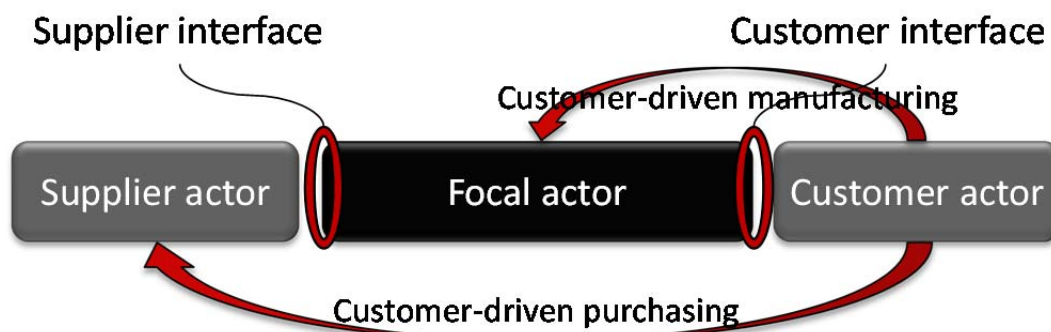


Figure 1 – Triad as a unit of analysis

The triad of Figure 1 represents the baseline for a customer centric strategy where customers not only affect manufacturing but also the purchasing function, resulting in a triad based scenario and customer-driven purchasing. Managing the triad provides additional challenges compared to managing the two dyadic relations separately. This triad based scenario requires an integrative perspective of the business where it is recognized how the relation between the focal actor and the customer actor influences the relation between the focal actor and the supplier actor. The support for managing this triad based scenario is limited in the literature but is nevertheless an important challenge for practitioners. In response to this research gap the method for customer-driven purchasing has been developed by a group of researchers in close collaboration with a group of practitioners.

The purpose of this research has been to develop a method for analyzing and developing customer-driven purchasing (the CDP method). The intention with the CDP method is to investigate the implications of customer requirements on supplier interaction for the focal actor in a supply network. The analysis is hence based on a triad scenario and the method should be possible to implement in a wide range of companies. A guideline in the development of the method has been to exclude as much as possible of product specific characteristics.

The next section provides a summary of the methodology employed in developing the CDP method. The CDP method is then described followed by managerial implications of applying this method. Finally the paper is concluded and some ideas for further research are stated.

## **Methodology**

The CDP method was developed by iteratively using theoretical literature studies and empirical case study research. The literature studies were mainly on the subjects of purchasing strategy (e.g. Kraljic, 1983), manufacturing strategy (e.g. Hill, 2000) and decoupling points (e.g. Hoekstra and Romme, 1992; Wikner and Rudberg, 2005).

The empirical case study findings were collected through a research project, called KOPeration, involving six companies in Sweden within different lines of trade. The companies were Combitech AB in Linköping, Ericsson AB in Borås, Fagerhult AB in Habo, Husqvarna AB in Huskvarna, Parker Hannifin AB in Trollhättan, and Siemens Turbomachinery AB in Finspång. During the research project, the CDP method was applied to more than 20 products in five of the case companies. The sixth company, Combitech AB, is a consultancy company without its own manufacturing. Its role in the project was to provide the research project with knowledge from a wide range of consultancy assignments. In total, 36 representatives have been involved in the research project from the six companies, working within purchasing, supply chain management, production logistics, production control, etc.

The main activities during the research project were workshops where researchers and representatives from the companies met. All in all, eleven workshops were held during the period March 2009 – March 2013. Besides the workshops and meetings between the researchers and the companies, one of the researchers visited the companies several times to work together with representatives for the companies in order to develop and apply the CDP method.

At the half-time workshop in June 2011, the initial thoughts about the CDP method were presented as a way to synthesize the results from the research project. Thereafter, three workshops focused on the applications of the CDP method to products at the companies. Before the first of these three CDP method-workshops, an initial description of the CDP method, together with an instruction of use, were sent to the participating

companies. This initial description of the CDP method was developed based both on literature studies and thorough empirical studies on the case companies during the first half of the research project. The companies prepared the first CDP method-workshop by applying the method. During the workshop, each company presented its results of its application and discussed this together with the representatives from the other companies and researchers.

Due to that the companies found the last steps (10-12) of the CDP method more difficult to apply, the second and third CDP method-workshop focused on these steps. During these workshops, the companies presented their results from applying the method to other products than the products presented at the first workshop. The joint work resulted in the twelve step CDP method.

### **The twelve step method for customer-driven purchasing**

At the outset of the research project the focus was on how to extend the reach of customer-driven manufacturing to also embrace purchasing. Initially individual concepts and tools were emphasized but as more concepts and tools were introduced the complexity of the approach increased and became less manageable. In support of making the package of concepts and tools easier to apply in a congruous way the work procedures were developed into a set of well-defined activities. The activities were then formalized into steps and at the end twelve steps were defined. To provide further structure to the approach the steps are grouped into three distinct phases focusing on different aspects of customer-driven purchasing. These three phases represent the corner stones of what here is called the CDP method:

- Phase 1 – *Identify and differentiate items* consists of the core concepts and tools for lead time based investigation of customer-driven manufacturing.
- Phase 2 – *Analyze item characteristics* is based on the platform created by phase 1 and constitutes the link, in the method, between manufacturing and purchasing.
- Phase 3 – *Analyze and implement supplier interaction* is the final phase where the details of customer-driven purchasing are established.

The first phase represents a “mechanistic” approach where the steps, to a large extent, generate a specific output as a logical consequence of the input provided. The second phase introduces more qualitative analysis where tacit knowledge is required from different participants in the process. The final third phase requires even more qualitative analysis and the strict logical reasoning of phase one is in many ways substituted by a broader spectrum of tacit knowledge provided in particular by people involved in purchasing but also including for example product development. The three phases are further outlined below.

#### *Phase 1 – Identify and differentiate items*

The objective of phase 1, as illustrated in Figure 2, is to distinguish purchased items that are supposed to be subject to the analysis performed in phase 2. Note that in the figures describing the three phases, the input side of a step represents the input in addition to the output from the previous step which of course also is used.

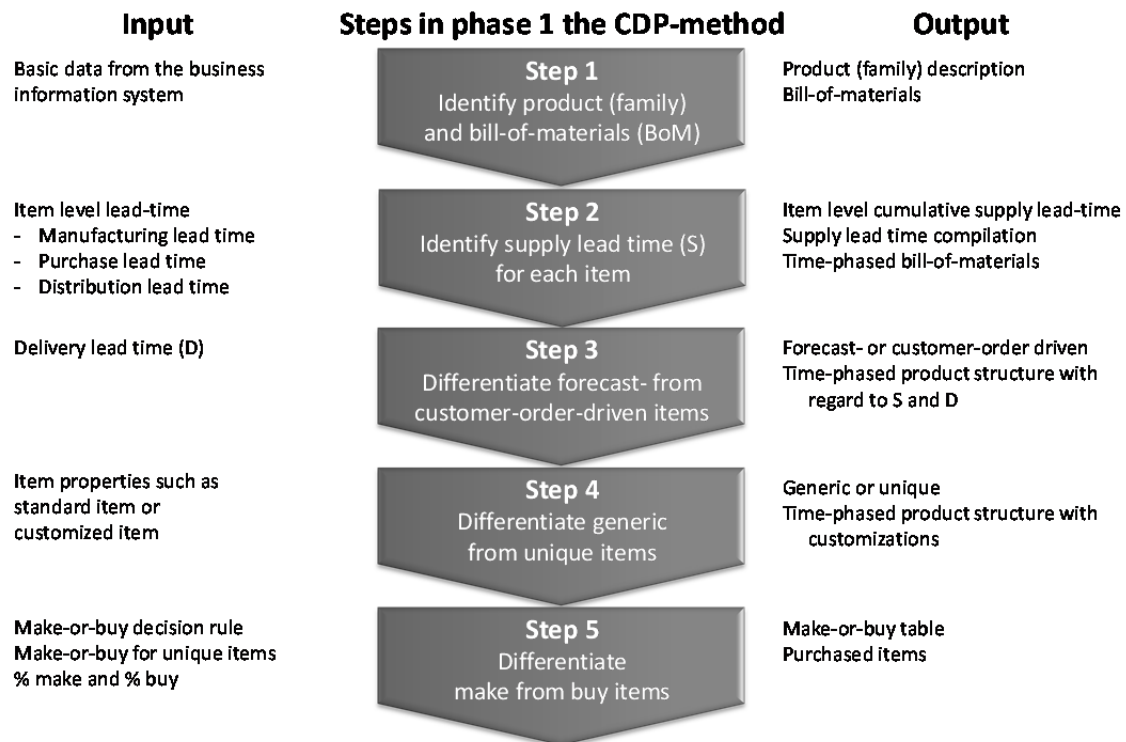


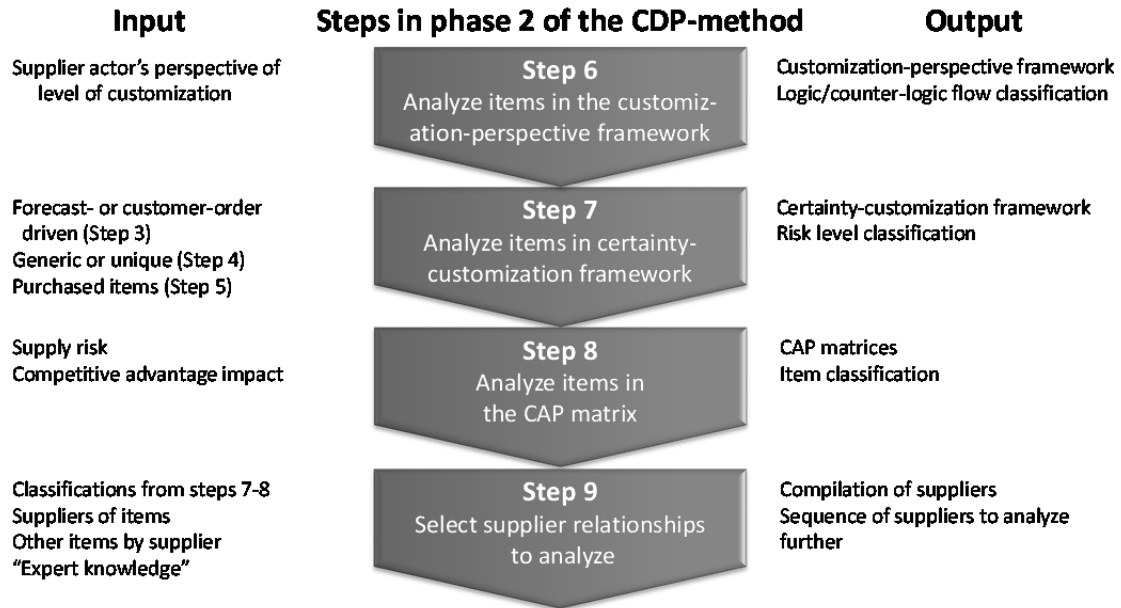
Figure 2 – Phase 1 of the CDP method – Identify and differentiate items.

- **Step 1: Identify product (family) and bill-of-materials (BoM)**  
The point of departure of the method is to select a product or a product family to be investigated in addition to identify the complete product structure. The key information at this stage is the items the product is made up of.
- **Step 2: Identify supply lead time for each item**  
Each identified item from step 1 is here complemented with the manufacturing lead time or the purchasing lead time, depending on whether it is a make or buy item. The cumulative lead time, i.e. the supply lead time, can then be calculated for each item.
- **Step 3: Differentiate forecast- from customer-order-driven items**  
Each item can be categorized in terms of level of certainty, as either being forecast-driven or customer-order-driven. The categorization is based on the delivery lead time in relation to the supply lead time (also known as the P:D relation, see e.g. Shingo (1981) and Mather (1984)).
- **Step 4: Differentiate generic from unique items**  
It is also important to differentiate between different levels of customization. In this context this is referred to as properties on a scale from generic to customer order unique in line with Wikner and Bäckstrand (2012).
- **Step 5: Differentiate make from buy items**  
The initial four steps are generic in terms of make or buy items and can hence be used for different purposes related to for example selecting postponement strategies and planning strategies. This fifth step is however targeting the differentiation of buy items as a gateway to next phase that focuses on purchased items.

As a result of Phase 1 a thorough lead time based analysis has been performed on the targeted product or product family. All sub-items have been analyzed using a time-phased approach and combined with a make-or-buy categorization all purchased items have been classified along the dimensions of level of certainty and level of customization.

*Phase 2 – Analyze item characteristics*

The objective of phase 2, which is depicted in Figure 3, is to identify the supplier relationships to focus on in the final phase, i.e. phase 3, of the method.



*Figure 3 – Phase 2 of the CDP method – Analyze item characteristics*

- **Step 6: Analyze items in the customization-perspective framework**  
All items at the focal actor have some level of customization and this was investigated in Step 4. The analysis is here further detailed as the purchased items, that are in focus in phase 2, have a level of uniqueness that depends on if the item is viewed from a focal actor perspective or from a supplier perspective (Wikner and Bäckstrand, 2012). This analysis provides further information related to e.g. how risk should be shared between the focal actor and the suppliers.
- **Step 7: Analyze items in the certainty-customization framework**  
So far the issues of certainty and customization have been analyzed separately. This step is crucial in the sense that they are combined in an integrated framework. The framework provides information on purchased items with different combinations of level of certainty and level of customization. Based on this information items can be classified and less competitive combinations can be targeted for further analysis, such as forecast-driven customer-order-unique items.
- **Step 8: Analyze items in the CAP matrix**  
The analysis in the certainty-customization framework in step 7 results in six different item categories. For each category an adapted version of the Kraljic matrix is applied. The adapted matrix is referred to as the competitive advantage purchasing (CAP) matrix and differentiates items based on the dimensions of supply risk and competitive advantage whereas the traditional Kraljic matrix is based on supply risk and profit impact. By focusing on competitive advantage instead of profit impact the strategic intent of the focal actor is more explicitly reflected in the categorization of each item.
- **Step 9: Select supplier relationships to analyze**  
The previous steps were based on the categorization of items. This step takes the analysis further by recognizing the connection between item and supplier. This step hence constitutes the crucial link between item based analysis and the management

of supplier interaction. This step puts more emphasis on tacit knowledge and experience.

Phase 2 of the method introduces a higher level of complexity in the analysis as the lead time based analysis of individual perspectives is extended to cover also intersections of different concepts and actors. Finally a differentiated perspective of suppliers is obtained that provides a baseline for a more elaborate investigation of supplier interaction.

*Phase 3 – Analyze and implement supplier interaction*

The third phase of the method is shown in Figure 4 and the objective of this final phase is to extend the identification of requirements of different supplier relationships to become practical guidelines for how to appropriately manage supplier interactions in a context of customer-driven purchasing.

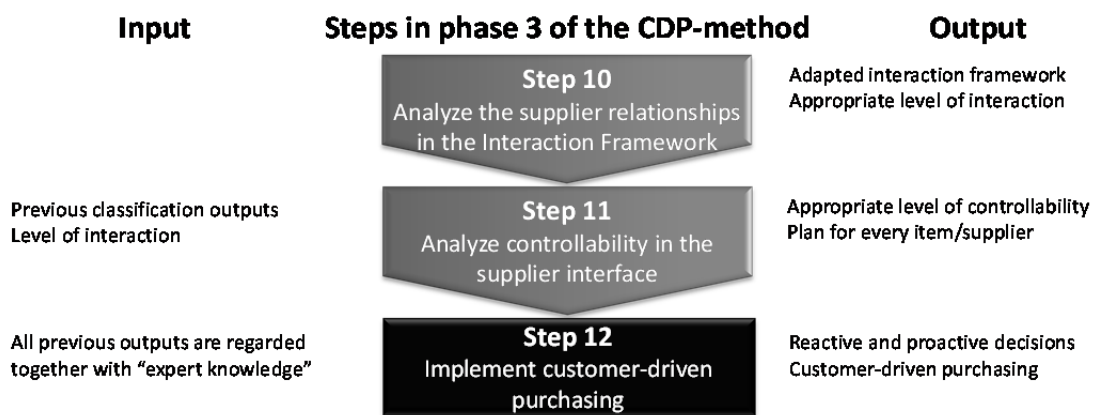


Figure 4 – Phase 3 of the CDP method – Analyze and implement supplier interaction

- **Step 10: Analyze the supplier relationships in the Interaction Framework**  
The previous phases provided an overall differentiation of suppliers, using a combination of different types of lead time based analysis, perspective based analysis and CAP matrix based analysis. This step takes the analysis further by highlighting a set of factors that need to be considered in each case. The gross set of potential factors is huge but by using the output from the previous steps a much more elaborate approach is employed in terms of the Interaction framework, (Bäckstrand, 2007, 2012). The result is a detailed description of what to emphasize in each individual supplier interaction.
- **Step 11: Analyze controllability in the supplier interface**  
The previous steps of the method have provided a thorough understanding for the supplier relations of the focal actor. The method has also provided differentiation between the suppliers and highlighted key characteristics of each supplier relation. At this stage, a subset of the suppliers has been identified for inclusion in the implementation in Step 12. In preparation for implementation a “plan for every item/supplier” approach is used. Key issues in this work is to identify the level of controllability for each item/supplier and then to define how to manage each individual item/supplier interaction. Controllability refers to the focal actor’s ability to control the supply system (Wikner *et al.*, 2009; Wikner and Bäckstrand, 2011).
- **Step 12: Implement customer-driven purchasing**  
The implementation is formally performed in this step. As in many cases, the road is the goal in itself and by performing the initial eleven steps also much of the

implementation is performed. The formal implementation, represented by this step, usually involves a formal decision to measure and control the operational aspects of how to increase the use of the customer-driven purchasing.

Phase 3 involves the operationalization of the output of the previous two phases. The details of how to manage the supplier interaction was outlined also covering a “plan for every item/supplier” approach. The formal implementation then finalized the CDP-method.

## **Managerial implications**

### *Cross-functional collaboration*

The CDP method provides tools and visualizations that everybody in the company can understand and agree with. By making all facts visual, the CDP method reduces the need and/or possibility to argue between functions. The CDP method thus creates a platform for neutral communication between functions in the company. It also creates a platform for communicating with suppliers.

### *Lead time visualization*

The CDP method provides well-founded decision support, e.g. it visualizes the effect of aggressive low-cost country sourcing on delivery performance, and points out the need of policies regarding, for example, make-or-buy decisions. The CDP method visualizes clearly the need for a differentiated purchasing strategy depending on the circumstances for the purchased item. It also visualizes customer requirements and is thus a valid decision support for ‘available-to-promise’. The time-phased product structure is a very elaborate tool, not previously available to purchasers.

A feature of the CDP method that is regarded as beneficial is that the same method can be used both reactively to identify root problems and proactively to design supply chains without creating potential future (lead time) problems. It can also be used to analyze the upstream supply chain by placing the own company as the customer actor and a certain supplier as the focal actor.

When applying the CDP method on the case companies’ products, it was evident that an external or novel user can identify the item and supplier that causes the most problems for the focal actor, without previous experience of the company or the product. The conclusion is thus that the first eight steps of the CDP method can be carried out by less experienced users (Bäckstrand and Johansson, 2013) even though it is beneficial if the whole method is carried out by a cross-functional team.

## **Conclusions and further research**

Purchasing and manufacturing have traditionally been managed as separate entities. Purchasing has placed much emphasis on price in the relation to suppliers while the relation to customers mainly has influenced manufacturing. Increased outsourcing and/or requirements for customized products involve that the customer requirements increasingly should be reflected in the relation with the suppliers. The approach suggested here provides not only conceptual frameworks for such scenarios but also a comprehensive method for analysis of supplier interaction and the implementation of customer-driven purchasing. The method is both theoretically and empirically validated in the sense that it is founded on established, and further developed, theories as well as being co-developed and evaluated by six companies with different industrial contexts. The companies have products ranging from short to very long supply lead times, low to



high cost, fairly standardized to customized products. In all these scenarios, the CDP method has shown great applicability and potential for not only improving the supplier interaction in line with the competitive priorities of the business, but also improving the internal communication and understanding.

### **Acknowledgements**

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