ORGANIZING FOR INTERACTION. "THE MISSING LINK IN SUPPLY CHAIN MANAGEMENT"

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1. INTRODUCTION

A supply chain can be defined as a series of units that transforms raw materials into finished products and delivers the products to customers (Mabert and Venkataramanan, 1998). Some of the units in a supply chain may be located inside the boundaries of a focal organization, while others cross such boundaries in complex and evolving ways (Ketchen and Hult, 2006). The objective of supply chain management has been expressed as (Lambert et al, 1998) "to maximize competitiveness and profitability for the company as well as the whole supply chain network including the end-customer". Thus, supply chain management can be regarded as a network of connected and interdependent organizations mutually and co-operatively working together to control manage and improve the flow of materials and information from suppliers to end users. The implementation of SCM for a focal organization involves identifying the supply chain members, with whom it is crucial to link, what processes need to be linked with each of these key members, and what type/level of integration applies to each link. The notion that modern competition is being fought "supply chain versus supply chain" rather than "firm versus firm" (Boyer et al, 2005, Christopher, 1992), imposes that the purpose of collaboration is to create an advantage to the market. Thus, from a focal firm's point of view, SCM is about to identify, develop and maintain solutions that significantly outperform the market in collaboration with other parties.

As long as the external interaction only is governing the exchange between the parties it can be done without any internal consequences. But as soon as the external interaction has a substance – in terms of resource ties, activity links or actor bonds it will be dependent on the internal organization of the involved companies (see Håkansson et al 2009, chap 3). The substance in the external interaction must be related to the substance existing within the involved parties and the way these are organized will affect to what extent they can be mobilized in the interaction. In a sense the internal organization determines the way the company can interact with others. A certain way of organizing and functioning internally will determine (restrict or facilitate) different type of contents in the external interaction. This obviously concerns a buyer as well as a supplier in any buyer-supplier relationship. From a buyer point of view, the way in which purchasing and the interaction process with key suppliers is organized, are therefore crucial issues when implementing a supply chain management approach (and this is the approach that this article takes as an analytical starting point). This is a point that was intensively discussed in the 1970s in relation to the organizational theory development for example in several Swedish research studies (Guillet de Monthoux 1975, Håkansson & Östberg 1975, and Melin 1977). The issue has since been much less stressed as will be seen in the literature review below.

Abstract preview
The purpose of this paper is twofold. First, based on a review of the literature and particularly prior research regarding organization structure and the boundary spanning role of purchasing in a supply chain management context, we suggest that organizing for interaction indeed may be a "missing link" in supply chain management research, and that the dominant practice for organizing purchasing may be a significant barrier for meaningful interaction. Second, it is suggested that the issue in question can be addressed through understanding how to exploit interdependencies, and the organizational consequences of interdependence

2. PRIOR RESEARCH

In a special issue of Journal of Operations Management (2007) regarding Organization Theory and Supply Chain Management, the editors (Ketchen and Hult) state that organization theory has the potential to offer provocative and helpful wisdom to the field of supply chain management, yet that potential has remained largely underdeveloped in the supply chain arena. Researchers in supply chain management have made limited use of organizational theories. As a result, major opportunities exist to integrate insights from organization theory and supply chain management in order to build understanding of why some supply chains excel while others do not. They also recognize the fact that the relevant and important theories are many and involve a wide variety of interesting and useful perspectives, including for instance the resource-based view, strategic choice theory, institutional theory, systems theory, to mention a few. Across the various fields associated with organizational research there is a growing recognition of the importance of interorganizational relationships as a source of competitive advantage and value creation. A central proposition is that when organizations invest in relation-specific assets, engage in knowledge exchange, and combine resources through governance mechanisms, a supernormal profit can be derived on the part of the exchange parties (Krause et al, 2007). As supply chains have drawn increasing attention from organization theorist since the 1980s, research has shifted over time to emphasize one after another of several organization theory perspectives (Miles and Snow, 2007). Indeed, it is suggested that interest in the organization and management of supply chains have evolved from an initial focus on strategic choice, to one of resource development and utilization, to the design of multi-firm network organizations whose capabilities are focused on knowledge sharing and application. While most of these perspectives or theories may contribute to our understanding of different issues in supply chain management, some of them are obviously more relevant to the question raised in this paper regarding the organization of interaction in supply chains.

There are particularly three streams of research which seem to contribute in this context. First, there is a stream of interorganizational research and empirical investigations regarding the fundamental rational for interaction in supply chains, interorganizational relationships, and the relationship between collaboration and performance. Second, a series of studies have been focusing on which procurement and supply strategies firms are pursuing and which strategies they expect to lead to significant improvements in a near future. Third, there is some research more precisely addressing organizational design features in purchasing and supply management.

The study of interorganizational relationships has been the subject of many articles over the years (Mohr & Spekman, 1994, Monczka et al, 1998, the IMP-group). There are particularly a few studies in this first category (outside IMP research) that we want to mention, based on the fact that they have focused on one type of interorganizational relationship, namely between purchasing organizations and their independent suppliers. In this context, authors have emphasized that closer buyer-supplier relationships may offer many technical, financial, and strategic advantages over spot market transactions and vertical integration. There has been an interest in how parties are brought together in

cooperative arrangements, the dynamics of interorganizational cooperation, and the performance implications of such arrangements. For instance, Monczka et al (1998), studied how alliances are developed, their key success factors and the specific benefits to be achieved. In their analysis they found a set of attributes of such alliances to be significantly related to partnership success. Particularly, they emphasized factors such as trust and coordination, interdependence, information quality and information sharing, joint problem-solving, avoidance of the use of severe conflict resolution tactics, and the existence of a formal supplier alliance selection process. They argue that the most important action to be taken by purchasing in building a successful supplier alliance is to foster and nurture a sense of trust with the supplier, that bilateral communication behavior and joint problem-solving play a significant role in determining alliance success, and that there is a need for a formal purchasing commodity strategy development process, followed by a formal supplier assessment and selection process for alliance success. In another study, in which purchasing executives whose firms were involved in collaborative planning with suppliers were surveyed (Monczka, Petersen, and Ragatz, 2005), the authors examine factors that support effective planning and the impact that effective collaborative planning has on performance in the buying firm. In the study they define eight collaborative planning processes which were selected because of their potential criticality to effective supply chain integration. The planning processes considered were supplier scheduling, forecasting and inventory positioning, inventory visibility, capacity planning, performance evaluation, sourcing and supply proposal evaluation, joint goals/ target setting, and parts standardization. The results show, that effective collaborative planning is dependent on the level of trust and the quality of information shared between firms.

Despite the compelling benefits supply chain management offers, many supply chain alliances fail to realize such benefits. Supply chain alliances may fail because participating firms fear opportunistic behavior on the part of other alliance participants, and as a consequence under invest their information and resources into the alliance (McCarter & Northcraft, 2007). They suggest that the interdependence structure of an alliance may contribute to this problem, and that viewing managed supply chains as a form of social dilemma can help identify solutions that may be implemented unilaterally by individual firms or jointly by the alliance. Others have suggested that the slow rate of postponement applications in an interorganizational context (Yang, Yang, and Wijngaard, 2007) may be understood from an organizational perspective. However, it can be observed that none of the studies in this category covers any organizational design features and their relevance to success.

A second stream of research have studied which procurement and supply strategies firms are pursuing and which strategies they expect to lead to significant improvements in a near future, particularly regarding the relationship to suppliers. Suppliers are an increasingly important resource for manufacturers, and provide materials and services that constitute a majority of the cost of many new products. In addition, suppliers may provide innovative product and process technologies that are critical to the development effort. In a study of supplier involvement in new product development (Handfield, Ragatz, Petersen, and Monczka, 1999), the authors conclude that the respondent companies achieved significant improvements in project results when suppliers participated, compared to similar new product developments projects in which suppliers were not involved. But the results also revealed another interesting fact, namely that the companies level of satisfaction with their supplier integration efforts was quite varied. Actually, a large fraction of the respondents were not satisfied. Thus, they conclude that the results seem to indicate that many companies realize the importance of supplier integration in product development but have not yet discovered the means to successfully implement it. The study also shows that the level of knowledge regarding the supplier's capabilities is a critical success factor in supplier integration projects, and points at the major role purchasing can play in this context.

In another and more recent study of supply management strategies (Ogden, Petersen, Carter, and Monczka, 2005), particularly focusing collaboration and integration, the authors conclude that an increased integration is taking place in three major areas. First, integration is increasingly taking place within the organization. This integration is being facilitated both by the use of cross-functional teams and through changes in reporting relationships within the organization. They state, that the effectiveness of cross-functional sourcing teams will depend on the ability to integrate sourcing decisions with other functions within the firm. Second, organizations are increasingly collaborating with and becoming more integrated with their suppliers. This increased integration and collaboration facilitates the identification and reduction of costs throughout the supply chain. They suggest, that supply managers should look for ways to become involved in the sourcing strategies of their critical suppliers, allow suppliers to take a greater cost management role, involve suppliers earlier in the product/service development process, and allow and encourage suppliers to provide value-adding services in areas such as R&D, manufacturing, and engineering. The companies in the study view supplier collaboration efforts as having the highest likelihood of occurrence and also the highest potential positive impact. And they say that "Clearly, a stronger, closer relationship with key supply partners throughout the supply chain is viewed as a critical supply management capability in the near future". Organizations are also increasingly collaborating with customers. Thus, according to the authors, supply managers should look for ways to facilitate and encourage collaboration and integration along all theses three dimensions (i.e. internal, upstream, and downstream) with customers and suppliers so as to enhance the value of product and service offerings, and to align activities to the correct place in the supply chain.

One issue also addressed in this stream of research has been the need for different types of relationships. Thus, it has been argued that the buyer realize different performance benefits from relational exchanges in certain versus uncertain environments (Fink, Edelman, and Hatten, 2006). In their study, all the tested performance benefits were enhanced through the use of relational exchanges in uncertain environments, while in more certain environments, only the production performance benefits achieved through knowledge transfer were improved. The type of relationship has also been related to the purpose of the interaction. For instance Stuart and McCutcheon (2000), are arguing that basically firms are interested in how they can either significantly reduce product costs or add to what customers perceive as value-added benefits. Typically, low cost is the primary requirement for most of a firm's purchased goods and services, with the strategic objective for the supplier relationship being cost reduction. Some gains result from securing the best suppliers, while others come from the way the firm interrelates with the supplier and how the two companies interact. Value added benefits may include improved delivery speed, additional design features and options, or the ability to customize, and relates to technology. Clearly, fulfilling these two distinct strategic objectives requires quite different forms of supplier relationships, and the authors are suggesting two basic types, which they call competitive tension and strategic alliance, in addition to a third transitional form called cooperative partnership. Some authors have discussed different types of relationships in relation to various portfolio models (Wagner and Johnson, 2004, Olsen & Ellram 1997), while others have related the type of relationship to the type of interdependence (Håkansson and Persson, 2007).

A third stream of research is more precisely addressing organizational design features in purchasing and supply management. Fearon (1988), extensively examined the characteristics of the chief purchasing officer, the average size of the professional purchasing staff, the reporting level of purchasing, purchasing responsibilities and other factors related to organizational design. Fearon and Leenders (1996) performed a follow-up study and Johnson and Leenders (2001) presented further extensions of these earlier studies. A few studies have focused on various trends and changes and their implications for organizational design. In their longitudinal study of trends and changes

throughout the 1990s, Monczka and Trent (1998) concluded that the number of purchasing groups organized by commodity will continue to decrease gradually, while the number of purchasing groups organized by end item or hybrid structures will increase. They state that this reflects a growing need for purchasing to integrate with other parts of the organization, particularly technical groups during new product development. In a more recent study by Trent (2004) all of the research questions directly involve organizational design. Summarizing some of his conclusions, he is arguing that a higher-level procurement officer is critical to organizational effectiveness, and he says

"It is not likely that many of the design features presented here (or other progressive design features) will become a reality without an executive champion who has the authority and resources to make necessary changes. The research evidence is quite clear – companies that seek advantages from their organizational design must consider the importance of a higher-level procurement officer as well as the reporting level of that position."

Further, he is stating that a gradual shift towards centrally coordinated or centrally led purchasing will continue, and that the use of teams will remain popular and will be growing. The research results also show that many of the design features that show expected growth over the next several years appear to relate to coordination and integration, and he suggest that organizational design supports three kinds of integration: cross-functional, cross-locational, and cross-organizational. Thus, supply organizations are expected to shift gradually from a vertical to a horizontal perspective. A process-oriented organization is designed around supply chain processes, such as supplier evaluation and selection, new product development, demand and supply planning or customer order fulfillment. It is also argued, that new product development teams will increasingly include both purchasing and supplier representatives.

Summing up, it seems reasonable to suggest that there is a rather overwhelming body of evidence (even when we have not included IMP research) regarding the rational for supply chain management and for the opportunities of creating an advantage through collaboration and interaction. There also seem to be an agreement regarding many failures in the implementation process, which are basically explained in behavioral terms such as trust and commitment. The purpose of collaboration is to create an edge to the market. Thus, from a managerial point of view, it is about to identify, develop and maintain solutions that significantly outperform the market in collaboration with other parties. With the exception of the study by Trent (2004), the topic of organizational design is rarely mentioned in the literature. We can therefore conclude that except for cross-functional teams, organizational design has received limited attention in supply chain research.

3. PURCHASING ORGANIZATION

As been pointed out in the introduction, the way in which a company is organized internally is related to the way in which it interacts with external counterparts. A certain way of organizing and functioning internally will support or restrict external interaction. The way in which purchasing is organized may therefore be a crucial factor for understanding the success of supply chain management efforts. There are obviously different ways of organizing the internal purchasing function within a business unit, the most common involving some form of specializing of the work carried out within the function. This is normally done along one of two dimensions: either the commodities bought or the professional requirements for carrying out the different tasks (van Weele, 2005). In the first case purchasing is organized into commodity groups (with similar features), so that the purchaser specialize on buying that specific type of commodities. The other dimension take as a starting point different professional requirements for a purchaser, such as planning and control, quality management, engineering, IT etc. , and organize the function accordingly. In this case, the required professional skills for the particular purchase are matched with the individual skills. The two principles are illustrated in Figure 1. One interesting observation is that both of these principles

are identified from the inside looking out – it starts in the internal resources and activities. The specialization is starting in some internal resources and how they should be used.

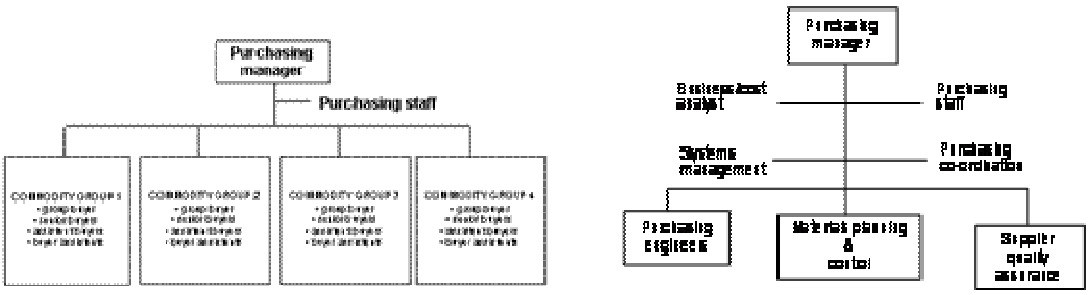

Figure : Specialization and the purchasing function.

The organizational design issue is then to a large extent focusing on centralization versus decentralization of the purchasing function, and the use of hybrid organizations such as a center-led purchasing organization. The focus in both cases, regard specialization of the personnel, making it possible for the individual purchaser to develop a specialized experience by which a learning curve and economies of scale can be achieved. One may argue that economies of scale seem to be the sole rational for a specific organizational design. However, matching skills with required competences can also be obtained by other arrangements such as cross-functional teams, where the accumulated skills of the participants match a specific need, or by organizing around supply chains. This leads us to the challenge of how to approach other types of economies which will be discussed below and where we also will try to change the basic perspective by also looking at the purchasing organization starting from the outside – from the environment or suppliers point of view or starting in the resources and activities that are outside the company.

4. INTERDEPENDENCE, COLLABORATION, AND RELATIONSHIPS

There are several factors to consider, when a purchasing company is trying to create an advantage through collaboration with a supplier, as has been discussed by Håkansson and Persson (2006). Many of these factors are related to the ability of the purchasing company to initiate dynamic developments where it together with interested suppliers searches for new ways to design the supplying process. In fact, many of the factors imply that exploiting interdependencies is the important goal, rather than trying to be independent. The question becomes which interdependencies to exploit in which relationships. In other words, it is a question of exploiting, through interaction, the business opportunities embedded in interdependence. In this case the perspective of the counterpart has to be included into the interaction process.

A classification of interdependencies that has been used in discussing different ways to create value (Stabell & Fjeldstad 1988) or create economies in supply networks (Håkansson & Persson 2004) was first suggested by Thompson (1967). It distinguishes between pooled, serial or sequential, and reciprocal interdependencies. Pooled interdependence between two activities means that they both are related to a third activity or share a common resource and they are therefore indirectly dependent. The most obvious pooled interdependencies concern shared resources. The efficiency of carrying out an activity can increase when it shares the use of resources with other activities. By exploiting pooled

interdependencies in the form of shared resources, the efficient use of resources can lead to economies of scale or economies of scope. Economies of scale may be obtained when the activities are identical, and economies of scope when the activities are similar. Serial interdependencies are related to a situation where the output of one activity is the input to another activity. By exploiting sequential interdependencies between the activities one will achieve some economies of integration. Given that it concerns activities carried out in sequence there are obviously time dependencies to exploit, but there might also be technological or administrative interdependencies. By adjusting and coordinating the activities across the supply chain one can reduce costs and increase services in relation to specific counterparts. Reciprocal interdependency means that there is a mutual exchange of inputs and outputs between two parties. The only opportunity to change is if the two parties change simultaneously. Development projects involving several companies are often characterized by reciprocal interdependencies and they require mutual learning and continuous exchange of information.

Persson and Håkansson, (2007) offer a model where different types of interdependencies between parties determine ways of collaborating. The first way of collaborating is called distributive collaboration, which exploits pooled interdependencies in order to gain economies of scale and scope. This type of collaboration is often an interesting option for instance for MRO-items (Maintenance, repairs, and operations). The second is functional collaboration, where serial or sequential interdependencies are exploited in order to gain economies through integration. Functional collaboration is normally an interesting option for components and parts that are decisive for logistics and supply chain performance. The third and final is systemic collaboration, where efforts are directed towards exploiting reciprocal interdependencies, providing opportunities for innovation and agility. Systemic collaboration is an option related to components (or services) playing a significant role in differentiating the final product. All these types relate to different focus of management. While standardisation and specialisation is needed for gaining the benefits in the first type of collaboration, coordination and adaptation are required for the latter. Finally, confrontation and learning are the focuses in systemic collaboration. There are some substantial differences between systemic collaboration and the other two groups. In the first two groups, there are rather clear roles for the two involved parties in terms of competencies and activities as well as resources. It is often possible to find performance measurements. This is not always the case in the systemic collaboration. There it is often much more diffuse roles and it is often difficult to estimate potentials and therefore difficult to make evaluations beforehand, but the process can always be evaluated. There is also a time dependency between the categories, collaborations often start out as distributive or functional but develops over time into systemic collaboration. Sometimes even without the two parties being conscious about the change.

An interesting way of approaching organizational design and supply chain management is to extend this reasoning by applying Thompsons's framework for handling interdependence. According to Thompson, in situations of interdependence, concerted action come about through coordination, and if there are different types of interdependence, one would expect to find different devices for achieving coordination. Thus, he defines three types of coordination: coordination by standardization, coordination by plan, and coordination by mutual adjustments. He then makes two observations regarding interdependence and coordination, which are crucial to his examination of structure. First, there are distinct parallels between the three types of interdependence and the three types of coordination: with pooled interdependence, coordination by standardization is appropriate; with sequential interdependence, coordination by plan is appropriate; and with reciprocal interdependence, coordination by mutual adjustment is called for. Second, the three types of coordination place increasingly heavy burdens on communication and decision. Coordination by mutual adjustment is more costly, involving greater decision and communication burdens, than

coordination by plan, which in turn is more costly than coordination by standardization. One would therefore expect first priority to be given to organizational grouping in such a way as to minimize the more costly forms of coordination. The argument can be summarized as follows: the basic units are formed to handle reciprocal interdependence, if any. If there is none, then the basic units are shaped according to sequential interdependence, if any. If neither of the more complicated types of interdependence exists, the basic units are shaped according to common processes. The problem is, however, when the three types of interdependence form a Guttmann scale, where all organizations have pooled interdependence, more complex organizations also have sequential interdependence, and the most complex organizations have reciprocal interdependence in addition to the other two forms. If the basic groups are formed to deal with reciprocal interdependence, they still must deal with the other types. Moreover, it is not always possible to contain reciprocal interdependence within first-order groups. Because first groupings do not entirely handle interdependence, organizations link the groups involved into higher-order groups, thus forming a hierarchy, and when interdependence is not contained by such departmental arrangements, they assign remaining problems of coordination to committees or to task-force or project teams. However, the question is not only which criterion to use for grouping activities, but rather in which priority the criteria should be exercised.

Following this logic one would expect much stronger inter-firm coordination, both in terms of plans and mutual adjustment, than what generally seems to be the case. There are several reasons for that, the most important being that the increased specialisation of firms, automatically leads to stronger interdependence both in terms of product development and supply process performance. Product development processes may be rather unique, and the reciprocal interdependencies may therefore be solved through second-order groupings in the form of cross-firm and cross functional teams, but major serial interdependencies embedded in the supply processes may be expected a first-order grouping to make possible inter-firm coordination and continuous improvements. There are reasons to find quite advanced organizational arrangements to handle all these interdependencies, which can be seen in the following case.

5. ORGANISING FOR INTERACTION – A CASE EXAMPLE

Being a highly specialized firm, the Ducati case, as described and analyzed in Håkansson & Bocconcelli (2008), represents an instructive illustration for the problems of relating internal and external organizing. We will here use the case to identify the complexity of this interface between internal and external organizational dimensions. It involves a turnaround operation, which required the involvement of external partners, and it also show an organization of internal purchasing resources aimed at achieving other types of economies than just economies of scale. The turnaround operation took place around the turn of the century. Based on an internal review, the management team realized that to survive they had to see significant improvements, and that these improvements had to be based on external changes in relationships to customers and suppliers. Internal improvements were simply not enough. Since the value of their products was created throughout the supply chain, and a major share outside the firm itself, any successful improvement process had to be extended to involve also other supply chain participants. The turnaround process involved several elements also on the marketing side, but here we will concentrate on the supply side of the process.

The process regarding the supply side of the firm also involved several elements but may be summarized as in the following sections.

5.1 Reorganization for interaction

Up until 2002 the purchasing function had an operative and administrative role and was internally structured into commodity groups, each of them responsible for the purchase of some well identified type of goods. There were groups covering direct iron materials, direct non iron materials, electrical materials, plastics and commercials, and indirect materials, services, and plants. Each group had developed specific competences related to the materials and corresponding suppliers for which they where responsible. One of the problems with this organization was that the supplier had to deal with different people representing for instance logistics, quality, purchasing, and engineering when dealing with the customer. The suppliers met a counterpart that was composed of a number of different units, and representing different opinions and evaluation criteria. Thus the internal organization at Ducati created problems in the interaction with the suppliers. With the purpose of improving the interaction process with the suppliers, purchasing was reorganized into five basic units, representing five different supply chains, and with a senior buyer in charge of each of the supply chain units. The purchasing activities were now also supported by inter-organizational teams, bringing together all the competences needed to manage the supply chain in question. The new organization is depicted in Figure 2

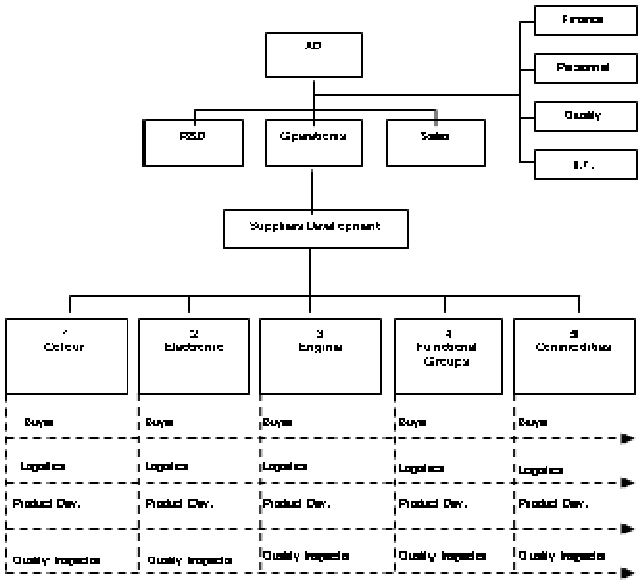

Figure 2. Re-organizing the purchasing function towards supply chains

Now the objective of each group is to ensure that each single component in the same supply chain is developed, produced and delivered following the same logic and in a coordinated manner.

5.2 Re-alignment of activities

One important consequence of the new approach has been a systematic analysis of where to perform different production activities. An effect was that some assembling operations, some mechanical processing, the distribution of spare parts and accessories were externalized. Also many inbound activities, such as collecting components from suppliers, warehousing activities, and feeding of the assembly line, were outsourced. The same happened to outbound activities, such as packaging and delivery. Thus, an important consequence of the analysis was an increased utilization of external resources and capabilities. Though they already at the start were heavily dependent on some of these

resources the process led to an even higher interdependence among the supply chain participants. From an 80% share of total costs, suppliers now represent 92% of total cost.

5.3 Changes in the supply base

Another distinct change due to the change in interaction was a significant reduction of the number of suppliers. From 1997 to 2004 Ducati reduced the number of qualified suppliers from 380 to 170. This was primarily due to the fact that all suppliers were not prepared to take on the increased responsibilities and engagement in close interaction. It was also an effect of an increase in the supply of pre-assembled systems as mentioned above. Today the 170 first tier suppliers are fully responsible for the sub-suppliers network and for the competences of that system.

5.4 Supplier partnership project

The reduction of the number of suppliers as well as a concentration in terms of volumes and geographical location is a reflection of a more intensive interaction for integrating and adapting activities and operations throughout the supply chain. Strategic suppliers have been taking part of a Supplier Partnership Project, composed of several modules: a cost analysis, a process analysis, and a product simplification module. Also the flows of goods were mapped and analyzed to reduce lead-times and throughput times. The supplier partnership project has been an important instrument to achieve improved logistics coordination, and to increase the innovative capability of the system. Through the supplier partnership project, the organizational approach of the improvement process becomes not only cross-functional but also cross-firm.

6. ORGANIZING AROUND SUPPLY CHAINS

Using our framework for interaction and collaboration, we can observe that Ducati develops capabilities to identify and implement inter-organizational improvement potentials regarding efficiency as well as effectiveness by organizing the purchasing function around defined supply chains and by introducing cross-functional as well as cross-firm groups for handling each supply chain. Further, all types of interdependencies are exploited through interaction in the case: pooled, serial, as well as reciprocal. Pooled interdependencies are exploited particularly through the process of re-aligning the activities and the changes regarding the supply base. By reducing the number of suppliers and increasing the volumes at chosen suppliers, economies of scale can be obtained for the suppliers. The same effect will be obtained also by moving activities, such as inbound and outbound logistics activities, to actors which are better positioned to gain economies of scale through pooling resources. Serial as well as reciprocal interdependencies are particularly addressed and exploited in the Supplier Partnership Project. Here Ducati is using several known techniques to systematically remove waste in product development, logistics and production processes. Thus, products and processes are improved with the help of and in interaction with other supply chain participants.

A major point in this context is that the improvements achieved in this process were made possible not only by willingness among the participant to collaborate but also by the fact that the internal re-organization in itself significantly helped to systemize the efforts. Thus, it is suggested that a permanent competence and power structure, in the sense of an appropriate line organization, significantly helps in the process of identifying and particularly implementing supply chain opportunities. It is also suggested, that the importance of an internal organization capable to handle supply chain challenges has been widely underestimated in the supply chain literature. Traditional

specialization of purchasing in commodity groups or according to professional features, lead to a fragmented approach from a supply chain point of view, and is therefore not the right base for achieving neither economies of integration or economies of innovation. The required competences have to be gathered together in the line organization so that this organization becomes responsible for the change process related to the supply chain opportunities. The major change in the organization structure is that the internal organization of purchasing within Ducati is made to mirror the external interaction pattern with the suppliers. The internal organization becomes a part of a larger organization binding several companies together into a meaningful totality. Actually, it is not the solutions which represent the innovation in supply chain management but rather the organization of the process. The absence of a purposeful organization design may explain the limited number of success stories that we can observe in real life. Introducing supply chain managers representing the buying organization in the process of identifying and implementing supply chain opportunities, and organizing the work according to the challenges in the different supply chains will therefore be two major elements in any supply chain strategy. An additional important point is that the counterpart must be influenced to make a corresponding change toward a type of organization that is matching the buyers approach and based upon a common understanding of the challenges in question.

7. CONCLUDING REMARKS

There is several different type of conclusions that can be made. One has to do with the organization structure of purchasing another with the way the organization design should be developed. A third as to do with the effects the two first types of conclusions have on the way suppliers should handle their organizing. A fourth is what kind of further research is needed.

The design of the purchasing organization has traditionally not been seen as a very important issue. Instead the organization design has been seen as a very pragmatic issue in the sense that it is a question of purpose and prioritizing in relation to bought products or services. Our discussion has pointed to the importance of adapting it to the economies one wishes to achieve. In a situation where a company seeks to achieve economies of scale and scope in relation to bought items only, the traditional ways of organizing the purchasing function is adequate. However, as soon as inter-firm, serial or reciprocal interdependencies represent major economies, these can only be addressed by cross-firm and cross-functional coordination mechanisms. Actually, we suggest that the traditional structures represent a barrier for achieving these types of economies. In highly specialized companies, one would therefore expect first-order groupings around supply chains or supply networks involving the buyer as well as key suppliers for achieving efficiency and innovations.

The second type of conclusions relate to the development of the organization structure. The organizing process is nothing that can be handled outside the development of the supply chains and networks in themselves. The organizing dimension of purchasing is only one aspect of the organizing of the supply chains and networks. Thus, a company will never reach a stable and final structure – it will have to develop as long as the company wants the supply chains and networks to develop.

One crucial consequence is that the organizing of the buying company's purchasing function has to be related to how its suppliers develop their organizational structure. The whole ambition is to find a better match between the internal functioning of the buying company with the internal functioning of the suppliers. On both sides the internal functioning also includes how the organizations are related to other important counterparts. The development of the organization structure as well as processes related to the purchasing function must in this way be seen within the larger inter-organizational setting that it is an integrated part of. The same applies for the suppliers where the organizational dimensions are the keys to create suitable organizational links to the buyers.

The discussion above can also be summarized in a call for much more research where the organization within the companies – both regarding purchasing and marketing – is systematically

related to how the external organizing together with suppliers and customers are designed or approached.

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