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REPOSITIONING IN SUPPLY NETWORKS – IMPLEMENTING SUPPLIER PARTNERING IN THE CONSTRUCTION INDUSTRY

Competitive paper

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ABSTRACT

Cooperative relationships between buyers and suppliershave shown to be beneficial for both parties. The advantages that can be obtained from such conditions have initiated investments in high-involvement relationships between many firms. Relationships with these features are considered a means to overcome performance problems in the construction industry, where contractor-supplier relationships normally are characterized by 'arm's-length' conditions. The actions to affect this business order are identified as 'partnering' with suppliers. However, despite promising prospects, partnering has not yet lived up to expectations.

This paper explores prerequisites and consequences related to implementation of partnering agreements between contractors and suppliers in the construction industry. The aims of the study are threefold: (i) to analyse the reasons for the reluctance of construction firms to implement partnering, (ii) through an empirical study illustrate how partnering has been applied by a contractor that actively transformed its operations on the supply side; and (iii) to provide some recommendations concerning the further role of partnering in construction.

Keywords: construction industry, interaction, partnering, relationship

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INTRODUCTION

Companies in the construction industry have made huge efforts in order to "stimulate radical improvements […] in terms of value for money, profitability and reliability" (Beach et al., 2005:611). These ambitions originate from a general opinion that construction was characterised by "inefficient business processes which feed through as overheads to total project costs" (Bresnen and Marshall, 2000a:230). Wood and Ellis (2005) claim that such criticism put a lot of pressure on construction companies to reorganise their operations. These tensions resulted in "worldwide efforts of creating significant improvements in the construction industry" (Brown et al., 2001:192). The operations at the supply side of the contractor were perceived particularly significant for these improvements. For example, Wood and Ellis (2005:31) argued that one of the main measures in overcoming performance problems would be to apply "radically different approaches to procurement". Another study concluded that the problems with construction efficiency and performance originate from "failure of traditional procurement methods" (Naoum, 2003:71).

The main attention in the reorientation on the supply side and modifications of purchasing was directed to the features of the business relationships between contractors and their suppliers. The industry association in the US concluded that successful restructuring "requires changing traditional relationships to a shared culture without regard to organizational boundaries" (CII, 1991:iv). This shared culture is an important characteristic of the types of relationships that are covered by a common umbrella, identified as 'partnering'. Wilson et al. (1995:40) described partnering as "an increasingly popular management tool aimed at reversing the negative effects of adversarial relationships in construction". Significant aspects of this new tool included "a long-term commitment" in order to maximise "the effectiveness of each participant's resources" on the basis of "trust, dedication to common goals" and an understanding of the counterpart's "expectations and values" (CII, 1991:iv).

The potential advantages of partnering were expected to be considerable. Other industries (e.g. automotive) had achieved substantial benefits owing to reorganisation of the supply side in general, and of purchasing in particular (Gadde and Dubois, 2010). Despite these promising prospects, partnering has not lived up to expectations. A Norwegian study concludes that partnering primarily has concerned relationships between contractors and their clients (Bygballe et al., 2010). Similar results are reported in a British study, claiming that cooperative efforts in construction have neglected the potential involvement with suppliers (Dainty et al., 2001). Finally, a study from France concludes that partnering is quite unusual in the construction industry in that country (Crespin-Mazet and Portier, 2010). Several authors claim that there are severe problems with achieving the desired outcomes of partnering in construction. For example, Anvuur and Kumaraswamy (2007) argue that there are serious difficulties related to the implementation of partnering. Bresnen and Marshall (2000a) observed the difficulties in taking the step from strategic decisions concerning partnering to actual behaviour at operational levels. In similar vein it was concluded that there is "considerable uncertainty as to how to translate general principles of partnering into any sort of concrete application" (Tang et al., 2006:217). An outcome of this uncertainty is that "many are only paying lip-service to the principles of partnering" (Brown et al., 2001:195).

One of the reasons for the problems and uncertainties concerning the transformation towards partnering arrangements seems to be the lack of research within the area. Bresnen and Marshall (2002), for example, claim that only few empirical studies have analysed the consequences of partnering in sufficient empirical depth. Wood and Ellis (2005:318) share this opinion in arguing that there has been too little research concerning "the nature of partnering in practice and whether the claims made for it are consistently justified".

The overall objective of this study is to shed some new light on partnering in the construction industry, in terms of three more specific aims. The first is to explore why it is problematicto apply the partnering concept. The second is to illustrate how partnering can be implemented in practice. The third is to provide some recommendations concerning the future role of partnering in construction. These three aims are attained through (i) a literature review concerning the context in which partnering is to be implemented and (ii) an empirical study dealing with a building contractor that transformed its operations on the supply side. The paper begins with a literature review and continues with the description and analysis of the empirical study, followed by conclusions and implications.

FRAMEWORK AND METHODOLOGY

In a literature review, Gadde and Dubois (2010:260) concluded that "the expectations of a rapid movement towards strategic partnerships are unrealistic, since this shift would require major modifications of basic conditions established over long time". The authors investigated the nature of relationships in construction and compared them with the high-involvement relationships in other industries that had served as prototypes for partneringin construction. Below we describe typical features of cooperative relationships and relate them to prevailing conditions in construction. This analysis involves six dimensions: longevity, adaptations, dependence, interaction, relationship atmosphere and mutual orientation.

High-involvement relationships are characterised by *longevity*, shown in a huge number of studies **(**e.g. Gadde and Mattsson, 1987; Dubois et al., 2003). One of the most significant examples of this long-term orientation is that twenty of the original suppliers to Ford's Model T still were used 100 years after the launch of the car (Ford Motor Company, 2008). Also in the construction industry buyer and supplier normally have been involved in business exchange for long time. However, high-involvement relationships in other industries are characterised by more or less continuous business transactions between buyer and supplier, while business in construction tends to be more irregular and intermittent. This is because buyers often switch supplier from one project to the next. The outcome of these conditions is that "the majority of construction projects are one-off, which often means that no long-term business relationships can be established" (Brown et al., 2001:195).

Long-term relationships occur because high-involvement involves mutual *adaptations* between the buyer and the supplier, in order to improve their joint performance (e.g. Anderson et al., 1994; Håkansson et al., 2009).Adaptations take time to establish and exploit, and may concern technical connections between machinery, logistics couplings in physical flows or administrative routines. Adaptations are central for the efficient and effective combining of the resources of buyer and supplier, but also imply interdependences. Construction firms, on the other hand, normally strive to avoid adaptations to individual business partners, because they see benefits in staying free from strong connections with specific suppliers. Therefore, building materials are most often standardized (Stinchcombe,

1959; Love et al., 1999). These standardised components and material then have to be adjusted to each other in accordance with the specific conditions at sites.

Adaptations improve performance in a relationship but lead also to *interdependences* between the parties. In the capturing of potential high-involvement benefits regarding improvements of productivity and innovation, firms cannot escape interdependences (Håkansson et al., 2009). It is through strong couplings that a firm can benefit from the access to the resources of a counterpart. These couplings thus provide opportunities, but also induce interdependences that somehow must be handled. Construction firms normally strive to *avoid dependence* on specific business partners (Crichton, 1966). By doing so they are supposed to be able to encourage competition among suppliers and avoid the trap of becoming too dependent on the technology of an individual supplier. In this way, relationships in construction are featured by 'arm's-length distance' – or low-involvement relationships (Gidado, 1996).

Adaptations and interdependences evolve from *interaction* between buyer and supplier. In high-involvement relationships interaction is continuous and intense, for example regarding joint product development projects and the establishment of a common information system (Ford et al., 2011). What takes place in a particular interaction episode between a buyer and a supplier is contingent not only on the specific issue of concern. The previous experience of the relationship, as well as what is on-going in other relationships significantly affects the current interaction. In the construction industry interaction is more intermittent, with limited continuity in the interaction between firms. However, at the construction site intense interaction is required among the actorsinvolved in the adjusting of standardised components to the conditions at the site (e.g. Shirazi et al., 1996; Love et al., 1999).

The interaction outcome is dependent also on the *relationship atmosphere* between the two parties. This atmosphere is characterised by a "mixture of collaboration and confrontation" (Gadde et al., 2010: 114), containing collaborative features (such as trust and commitment), but also features related to confrontation (e.g. power and conflict). The collaborative features are important means of handling the relationship tensions that appear since the two parties have to come to joint agreements on several issues where they may have conflicting interests. In construction, prevailing interaction patterns make it difficult to establish the desired collaborative features. Confrontation is dominant, because of short term price-chasing in business transactions, and it is claimed that lack of trust is a major reason behind the inefficiencies observed in construction projects (Wong and Cheung, 2004; Ngowi 2007).

High-involvement interaction over time leads to *mutual orientation* between the parties. Adaptations and interaction make the companies knowledgeable about the conditions of the counterpart. Therefore, decision-making in cooperating firms increasingly take the other side into account. Mutual orientation makes it possible to extend the scope of economic analysis. High-involvement relationships provide opportunities for taking both relationship costs and the internal costs of the counterpart into consideration (Gadde and Snehota, 2000). The above features of construction relationships highlight severe problems in establishing the mutual orientation that is a significant ingredient in high-involvement relationships.

Implementation of partnering

The lack of mutuality makes it difficult to attain the benefits that may be gained from closer collaboration. The above analysis indicates the problems with relying on shared

resources,which is one of the main motives behind high-involvement relationships. Construction firms tend to be somewhat reluctant to such behaviour. For example, Bresnen and Marshall (2000a: 233) found that some companies are willing to share their technical know-how, while "other may jealously guard such proprietary knowledge". Mutual orientation is a means of applying an extended scope on costs and benefits to consider. Joint evaluationsmake it possible to apply a total-cost approach, which may improve the economic outcomes for both parties. These conditions are not always at hand in construction, illustrated by the conclusion that "typical contractor/subcontractor relationships are still cost-driven and potentially adversarial" (Wood and Ellis, 2005: 318), since firms favour 'playing-the-market' approaches.

For the implementation of partnering arrangements the level of *relationship involvement* is thus the first crucial issue. What needs to be added is that a single relationship is part of a larger network of relationships, implying that what is on-going in one relationship affects, and is affected by, other relationships. Both parties are engaged in interaction also with other business partners and these connections imply both constrains and opportunities. For example, it might be difficult for a supplier to make adaptations in relation to a specific business partner because this could lead to problems in relationships with other, more important, actors. However, prevailing connections also provide opportunities. By actively involving third parties it might be possible to influence a business partner in a way that the individual company had not been able to do. Moreover, strong couplings to, and among, several business partners are beneficial for positive network effects in terms of information exchange and knowledge expansion. We identify this second crucial issue in partnering arrangements as *network orientation*. In the construction industry, the connections and couplings among firms are weak, which makes it difficult to exploit potential opportunities. As concluded above, the adjustments undertaken at construction sites feature strong couplings between the parties involved. These problem-solving activities at sites provide significant opportunities for joint learning and mutual knowledge expansion. However, in reality these opportunities are severely limited since "the constellation of firms involved in the temporary network does not have joint plans beyond the project" (Dubois and Gadde, 2002b:624). These conditions direct the attention to organisational issues which represents the third crucial issue in partnering.

Organisational arrangements are highly significant for the opportunities to transform construction towards partnering. Construction industry organising is characterised by strong decentralisation to the project level (the temporary network above). It is claimed that construction is inherently a project-based operation (Cox and Thompson, 1997), mainly concerned with coordination of specialised and differentiated activities at the site level (Shirazi et al., 1996). This decentralisation of responsibilities leads to a strong focus on the conditions in each individual project. Economic efficiency is considered from the perspective of the isolated project and assumed to be obtained through competitive tendering procedures (Thompson et al., 1998). One particular consequence of the project orientation is that business transactions are "typified by market-based, short-term, interactions between independent businesses" (Gann, 1996: 445). These conditions have affected the opportunities for partnering negatively since "beneath the veneer of partnering some of the traits that have characterised the construction industry for years are still apparent" (Wood and Ellis, 2005: 324) and deep-rooted cost driven agendas still persist in most transactions. The basic characteristic of construction in these terms has been identified as a 'project-based mind-set' leading to an "overly narrow project focus [that] constrains the process of achieving substantial competitive advantage" (Ingirige and Sexton, 2006:521).

Considering these features of the industry, it seems natural that partnering primarily has been connected to the project level, in terms of project partnerships, “created and sustained for the life of a specific project with focus on short-term benefits” (Beach et al., 2005:613). Wilson et al. (1995:40) found that the attention to partnering so far had been focused on “a project by project implementation” and thus not evolved into the intended strategic partnerships that were planned “to last for significant periods of time, include several projects and seek gains for long term” (Beach et al., 2005:613). A possible reason for these drawbacks is that implementation of partnering seems to have been governed by formal mechanisms, with the aim to ‘engineer’ partnering through application of appropriate tools and techniques (Bresnen and Marshall, 2002). Several authors claim that such procedures are not appropriate for the development of strategic partnerships, that rather “should be the result of natural evolution of long-term relationships between two parties who have realized the financial benefits of combining production processes” (Green and McDermott, 1996:2).

The above analysis identifiesthree areas for further exploration of partnering implementation in the construction industry. The first concerns the *level of involvement* with suppliers. The second regards the buyer’s *network orientation*, in terms of theways in which the individual supplier’s connections to other actorsare considered. Third, the *organisational arrangements* applied by the buyer are crucial. This involves internal organising in the buying company with regard to the interface between the company and the projects, as well as organisation of the connections with suppliers. Finally, modifications in the three areas discussed abovemay leadto major *repositioning* in the construction network.

An industrial network approach to partnering implementation

Exploration of the partnering issues identified in the literature review requires a holistic approach because of the complex context featuring the construction industry. For this reason the industrial network approach (Håkansson and Snehota, 1995; Håkansson et al., 2009) and particularly the ARA-model (activities, resources, actors), is selected for the framing of the research problem. According to this model, efforts to implement partnering, by developing high-involvement relationships with a reduced number of suppliers, is a typical example of repositioning in the actor layer of the network (Gadde et al., 2010).

The actual positioning in the network is determined by a company’s relationships to other actors, and the interaction patterns in which it is involved. Significant dimensions of business relationships were discussed in the section above, and it is through the nature of these features that firms are connected in terms of activity links, resource ties, and actor bonds. When this relationship substance is substantial, the parties are united in high-involvement relations, while a low-involvement approach is to hand when the substance is limited (Håkansson and Snehota, 1995). Network actors are continually involved in activity coordination in the larger pattern of activities, in order to promote operational efficiency. These efforts may include specialisation to improve the economies of scale, as well as integration of interdependent activities. Moreover, actors engage in combining of resources in their part of the network’s resource constellation. This combining concerns, for example, attempts to enhance capacity utilisation and adaptations to make resource elements fit better in relation to each other.

Organisational issues are central in the efforts to coordinate activities and combine resources, since alternative forms of organising provide their specific opportunities in these respects.Network repositioning involves modification of prevailing principles for activity

coordination and resource combining, and therefore calls for reorganising in the actor layer. The organising of the supply side of a firm has shown to be critical to purchasing performance (Gadde et al., 2010). It is a critical issue because it determines the connection between the buying firm and its suppliers and thus represents the interface between internal and external organising. For this interface to function accordingly there must be a balance in the interplay between organisational issues on three levels: organising of the purchasing function in the buying company, organising in relation to individual suppliers, and organising with regard to the whole supplier network (Hessel, 2011).

An empirical study exploring the implementation of partnering arrangements thus needs to capture the context in which this repositioning takes place. The industrial network model provides a useful perspective in this respect through the three complementary views of the business reality. The efforts of a company to establish partnering with its suppliers impact considerably on the relationship involvement. Moreover, each relationship needs to be considered with a network orientation since relationships are connected. Finally, organisational issues on the supply side must be analysed with regard to what prerequisites for change they imply, as well as in terms of what organisational modifications are required.

Methodology and empirical study

We claimed above that the complex context in which partnering is to be implemented requires a holistic framing. This conclusion also has its clear implications for the methodological approach and calls for a case study design. This approach is recommended for studies of complex systems and events that are unique and where broad conceptual frameworks are used (Yin, 1994).A case study approach makes it possible to study “a contemporary phenomenon, which is difficult to separate from its context, but necessary to study within it to understand the dynamics involved in the setting” (Halinen and Törnroos, 2005: 1286). Moreover case studies allow researchers to study an object in its context, they provide depth, detail and richness of data, and they are longitudinal by default and process-oriented (Easton, 1998).

Qualitative case studies are frequently used by industrial network researchers (Dubois and Araujo, 2004), because they make possible analysis of problems in settings with unclear boundaries. Other researchers have recommended case studies as particularly relevant in the construction industry context. For example, Ellegaard et al. (2010) claim that this approach would be useful for examination of prerequisites and consequences related to partnering in the industry. Furthermore, Johnson and Leenders(2006) request more case based research in order to acquire a deeper understanding of organisational issues on the supply side.

Within the case study framing we rely on the principles of systematic combining (Dubois and Gadde, 2002a). Systematic combining is a non-linear, path dependent process based on a continuous exchange and interplay between theory and reality and vice versa. Systematic combining is expressed as “a process where theoretical framework, empirical fieldwork and case analysis evolve simultaneously and it is particularly useful for development of new theories"(Dubois and Gadde, 2002a:554). In this course of action, data and theory are successively adapted to fit with each other through the process of going back and forth between theoretical framework, empirical observations and analysis. This means that what is found in the empirical world might call for refinement of the framework, which requires additional theory. In the same way the modified framework may call for additional information about the empirical world.

This case study takes its starting point at a building contractorinvolved in implementing partnering. The reason for this strategic decision was the perceived challenges in reaching individual projects' cost and time limits, where materials supply and logistics are particularly problematic. Aiming at more efficient construction processes the contractor wanted to change its operations through standardization among projects and by working closer, and on more long-term basis, with suppliers. The case study describes the selection of dedicated suppliers, and provides in-depth insight into the collaboration that was initiated between the contractor and these suppliers. The case captures the transformation from the widely adopted purchasing logic of competitive tendering towards 'partnering with suppliers', characterized by high-involvement relationships. The study is based on eleven interviews with the contractor and its dedicated suppliers. In addition, large amounts of secondary data, such as requests for tenders, policy documents, delivery plans and other material, contribute to the case description.

THE CASE STUDY

The empirical study centres on a Swedish construction firm, operating primarily as a contractor for residential buildings. A typical client project concerns about 100 apartments, with a project time-span of one and a half years. The construction process always starts with ground and pile work, followed by frame work and finally, frame complemenst (including façade, outer walls, inner walls and wardrobes, and kitchen cabinets).

Challenges perceived by the contractor

A couple of years ago the contractor decided to address some challenges regarding cost levels and time limits in individual projects. Such issues related to the supply of materials and the logistics flows were considered especially frustrating. For example, in each project the site manager was responsible for the coordination of a large number of counterparts (see Figure 1 for an illustration of the situation at the time).

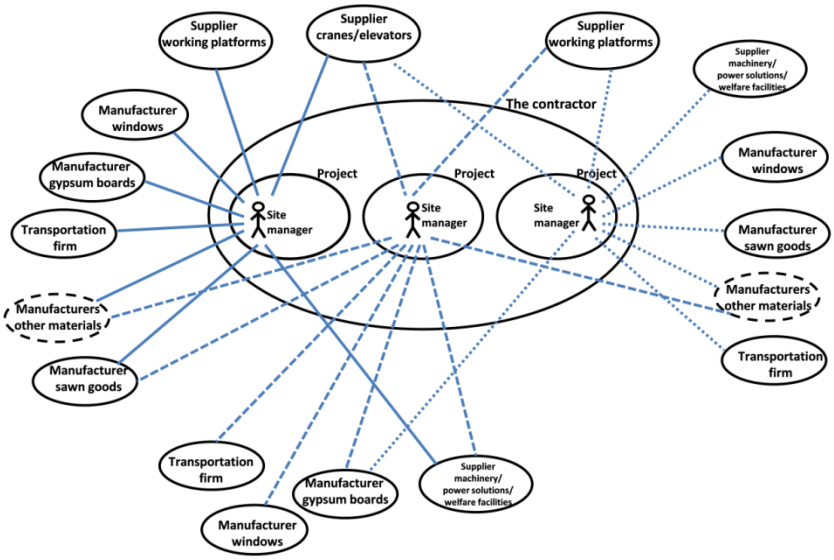

Figure 1. The supply side of the contractor before the change

One of the problems was that site managers spent much time on coordinating orders and deliveries from lots of suppliers and then inspecting the quality on incoming material. One site manager, with experiences from the car industry, was particularly stressed by the fact that missing materials or delayed deliveries often disturbed the processes at the site. As a consequence of these deviations from plans, site managers had to come up with "ad hoc solutions". Furthermore, workers at the site spent a lot of time on unloading, sorting, collecting, and moving materials from the unloading area to the location of assembly.

The selection of materials and suppliers was primarily based on direct cost in terms of list prices, thus excluding indirect costs associated with ordering, order surveillance, quality assurance, packaging, transportation, assembling of materials etc. The focus was on ordering quantities that qualified for volume discounts. Owing to this approach materials were purchased in advance and stored at the construction site to be used later. Managers responsible for this purchasing approach were rewarded when attaining "prices per unit" below calculated budget cost. However, this behaviour generated extra costs in other dimensions. The construction site is an unsuitable location for storing of materials, owing to bad weather conditions, lack of space and damages from on-going activities. These conditions result in substantial waste generation.

There was also another obstacle related to the purchasing behaviour. Each type of material followed its own tendering process, comprising enquiry, proposal evaluation, and supplier selection (commonly based on "lowest price per unit"). Once a supplier was selected the procurement process was initiated, including ordering, coordination, and distribution of the materials with regard to quality, time and price. Time and other resources required for these activities were often substantial, with regard to planning, daily call-offs and goods receiving.Furthermore, despite the fact that the construction process was rather standardized, the procedures related to each construction project were treated as isolated entities. Hence, it was difficult to benefit from potential economies of scale among the various projects. The focus on specific site conditions and efficiency in individual projects were also identified as hinders for further performance improvements.

Appointing dedicated suppliers

Owing to these conditions, the contractor wanted to change its operations towards construction processes featured by a total view on efficiency. This was supposed to be achieved through standardization of the house-building processes across construction projects and sites: "working in the same way at sites A, B and C". One approach to accomplish this would be to work closer, and on more long-term basis, with suppliers. This was identified as an important alternative way of working compared to the current practise based on "continually handling tenders and making price comparisons". The appointing of partnering suppliers was made according to the following procedure. The contractor selected two of its projects for evaluation of potential partners. In these projects all suppliers were assessed both in the tendering process and in the delivery phase of the project. The outcome of the appraisal was that four dedicated suppliers were selected within their respective speciality. The four vendors supplied the following procurement categories: (1) building materials, (2) scaffolds/working platforms, (3) cranes/elevators and (4) machinery/power solutions/welfare facilities. The four suppliers were guaranteed full supply to all the contractor's projects within the specific purchasing category for a three-year contract period. Three of these purchasing categories are described more in-depth below.

Supply of building materials

The supplier of building materials is part of a regional wholesale chain specialising in distribution of construction materials. The firm focuses on doing business with material manufacturers (producers of windows, gypsum boards, kitchen devices and so on). The building materials supplier (BMS) coordinates transportation to sites by involving various transportation firms and can also, through a subcontractor, offer services for materials handling at sites, from the place of unloading to the specified assembly area. BMS sees itself as an actor providing "a niche function", offering services related to materials supply, transportation and materials handling. For the contractor, these competences were considered crucial to access, in order to focus on its own processes. Moreover, the contractor already had some positive experiences of working directly with the subcontractor involved in site logistics. The subcontractor undertakes all materials handling after regular working hours to minimize disturbance of the work flow at the construction site, which is very beneficial for these operations. Site managers are still responsible for ordering and handling of bulk materials.

Thus, BMS is fully responsible for supplying the 'traditional' building materials to the sites of their customers. Under the device "the right materials at the right time to the right place" the company sets the focus on efficient logistics. Building materials are delivered either directly from material manufacturers to the site or through the warehouse of BMS. BMS strives to reduce the costs for transportation by using full cargo carrying capacity and also by co-loading material deliveries from the own warehouse. They also encourage material manufacturers to do the same. BMS takes the responsibility for the requests for tenders on behalf of their customers. These tenders are disposed quite differently from the common standard in the construction industry. They cover not only type of material requested, but also specific details regarding packaging, handling of pallets, quality assurances, and logistics (including specified delivery times, number of deliveries, and principles for unloading),

In addition to material prices, the costs for logistics are also to be specified according to a predetermined template. This 'total cost' is also to be set for the whole time-span of each project. Often manufacturers respond solely with the direct purchasing cost, which makes the tender to go back and forth from BMS to the manufacturer three or four times, before all costs are included in the final tender. For some manufacturers these requirements from BMS are rather demanding and cause extra work, and thereby also extra cost. For example, a window manufacturer usually package windows according to a logic that 'fits' their own production flow. However, BMS has other demands on packaging, requiring that windows are packed in accordance with the logic for the handling at the construction site. These requirements are set in order to secure that pallet lifts that fits into the construction elevators at site can be used.Consequently, the windows supplied to the contractor in this case need to be unpacked and re-packed by the window manufacturer to fit the demands of BMS.

Thus, the contractor now buys a service that fully covers the supply of building materials. The dedicated supplier, BMS, acts as a consolidating supplier by bringing together materials from a huge number of manufacturers, with full responsibility for procurement, transportation to the site and materials handling on the site. Jointly designed time plans and delivery plans are crucial issues in this relationship. Firstly, plans clarify the details of the processes for the contractor and secondly, they visualize the requests for BMS at an early stage. This means, in turn, that BMS can plan for tenders and call-offs in relation to the various material

manufacturers. Consequently, considerable time and resources are devoted to the planning phase of the project, covering not only production, but to an increasing extent also the flows of materials and personnel. The focus is thereby shifted from narrow price considerations towards a total cost perspective: the costs for materials available at sites, including price of materials, transport, order surveillance, packaging and other indirect costs. The contractor claims that “the costs for planning are not worth mentioning compared to what it used to cost us to deal with inefficient material flows and disturbances in the building of houses”.

Supply of scaffolds and working platforms

The supplier of scaffolds and working platforms (SWS) has supplied this equipment to the contractor in previous projects. For SWS the position as dedicated supplier creates new benefits. For example, if the contractor’s tender is accepted in a bidding process for a project, SWS knows that they will become the supplier in that project. This knowledge improves the prerequisites for the planning of their operations and as stated by SWS: “we can work in a way that benefits us both”. The contractor’s request for tenders differs from those of other SWS customers since the contractor uses working platforms to a greater extent than scaffolds, while most customers primarily use scaffolds. Working platforms are more expensive compared to scaffolds, but still generates a lower total cost, since time and cost for assembly is significantly lower. Moreover, the contractor always request tenders containing alternative combinations of scaffolds and working platforms. For example, one project included four alternative requests for tenders, involving different solutions regarding the mix of scaffolds and working platforms. The supplier calculated tenders for these alternatives, and could also provide input to the contractor regarding possible modifications. Finally, the contractor selected one solution, optimal in terms of the flow of materials and personnel and the production processes, but not necessarily the one with the lowest price.

What is required in terms of scaffolds, working platforms and assembly/dismantling continually changes during a project. Hence, extra costs are added to those specified in the tender. Many of the customers are accounted for lots of extra costs owing to mismatch of their planning. The contractor in this case accomplishes to cover almost all such aspects through its planning procedures, thus attaining only limited extra costs in addition to the specifications in the tender.

Supply of cranes and elevators

The supplier of cranes and elevators (CES) and the contractor initiated their joint business during one of the evaluation projects in which the dedicated suppliers were selected. In this project, the subcontractor responsible for site logistics had some very specific requirements regarding elevators. A key issue for this subcontractor is to use elevators as much as possible and thereby minimize the employment of tower cranes at the site, in order to handle materials in the most cost efficient way. This approach sets some specific requirements on the elevators. They have to be larger than what is normal at Swedish construction sites and the engine needs to be placed on the outside of the elevator, so that large bundles of materials, such as kitchen devices, can be handled. The elevator also must go all the way down to the ground, since pallet lifts are used by the subcontractor. Moreover, the elevator must be approved for transportation of both materials and personnel, and it has to be fast. In the search for a dedicated supplier in this area, only CES managed to meet these demands for the supply of this type of elevators, which had to be imported.

The contractor contacts CES early in the planning process of a new project, and provides drawings and “a logistics map” covering the materials handling at the site. CES works with this information and after discussions with the contractor they suggest a solution regarding how many tower cranes are needed, their sizes and heights, number of hooks, where to place them, the number of elevators, as well as several other features. In some situations the contractor sends a request for tenders to CES including more than one alternative, and the supplier formulates tenders for all these alternatives, of which one is selected. According to CES, it is common in the construction industry that contractors and subcontractors send requests for tenders based on price to some suppliers and then use this information, including calculations, in order to find out whether other suppliers can ‘match’ that price. Such procedures cannot be used in arrangements with dedicated suppliers.

CES is well aware of the needs of the contractor at least six months in advance, which makes the planning process smooth with regard to assembly and dismantling, and the logics for allocating cranes and elevators among customers. The contractor also manages to keep its time plans to a great extent, and in situations when this fails it is often due to weather conditions. Other customers of CES often require modifications of original plans, for example concerning when tower cranes and elevators are to be dismantled. Sometimes they want to keep the equipment for longer time than predicted, since they are running late with respect to their plans. This causes problems for CES since elevators and tower cranes are scheduled to be serviced and thereafter immediately delivered to other customers.

Consequences of the reorientation

One significant consequence of the new working arrangements is that the contractor emphasizes the planning phase and allocates time and resources to come up with as detailed plans as possible, trying to include everything already in the request for tenders. In this process, the contractor fully trusts the input from the dedicated suppliers in terms of suggestions and improvements, and there is always a two-way communication before anything is decided regarding the responsibilities of the dedicated suppliers. To facilitate this process, the contractor has appointed a logistics manager. This role incorporates the design of time plans related to production, which are then converted into delivery plans that are shared with the supplier of building materials before the start of the project. The delivery plans specify the type of material, the assembly area at sites, delivery date to site, call-off for materials and the final date for request for tenders to material manufacturers. Furthermore, a specific communication pattern is decided concerning the exchange of information between the logistics manager at the contractor and one person at the supplier of building materials, including certain rules regarding call-offs and confirmation of materials.

The contractor also emphasizes the benefits associated with long-term relationshipswith dedicated suppliers. The contractor trusts the suppliers and their capabilities within their areas of responsibilities expressed in the following way by the contractor: “The mutual commitment from us and the suppliers is core in this type of collaboration, we cannot – and will not – persuade anyone to work on these premises”. Following these positive experiences the contractor has begun to evaluate how changes can be implemented in the house-building processes. Such modifications concern, for example, alternative processes for construction workers to fully benefit from a standardized production process and the collaborative arrangements with the dedicated suppliers.

Another consideration for the contractor regards enhanced coordination among projects. In addition to the logistics manager,another person is assigned as a project coordinator, responsible for the standardization of the production process, as well as for identifying opportunities for coordination across projects. This coordinator is responsible also for the planning of individual projects. Neither the logistics manager nor the project coordinator are located at the main office of the contractor, but move around between sites, sharing facilities with site managers, construction workers and other people at the site. While the logistics manager works closely together with the supplier of building materials, the project coordinator is responsible for the cooperation with the three other dedicated suppliers. This cooperation is most intense in the planning phase (although some adjustments are required during the project), and always with the same people at the dedicated suppliers. In some cases, for instance regarding the assembly and dismantling of tower cranes, there is also a need for coordination between the dedicated suppliers and the contractor's site manager. The logistics manger and the contact person at the material supplier work intensively together throughout the whole project.

Figure 2 illustrates the situation on the supply side of the contractor after the change.

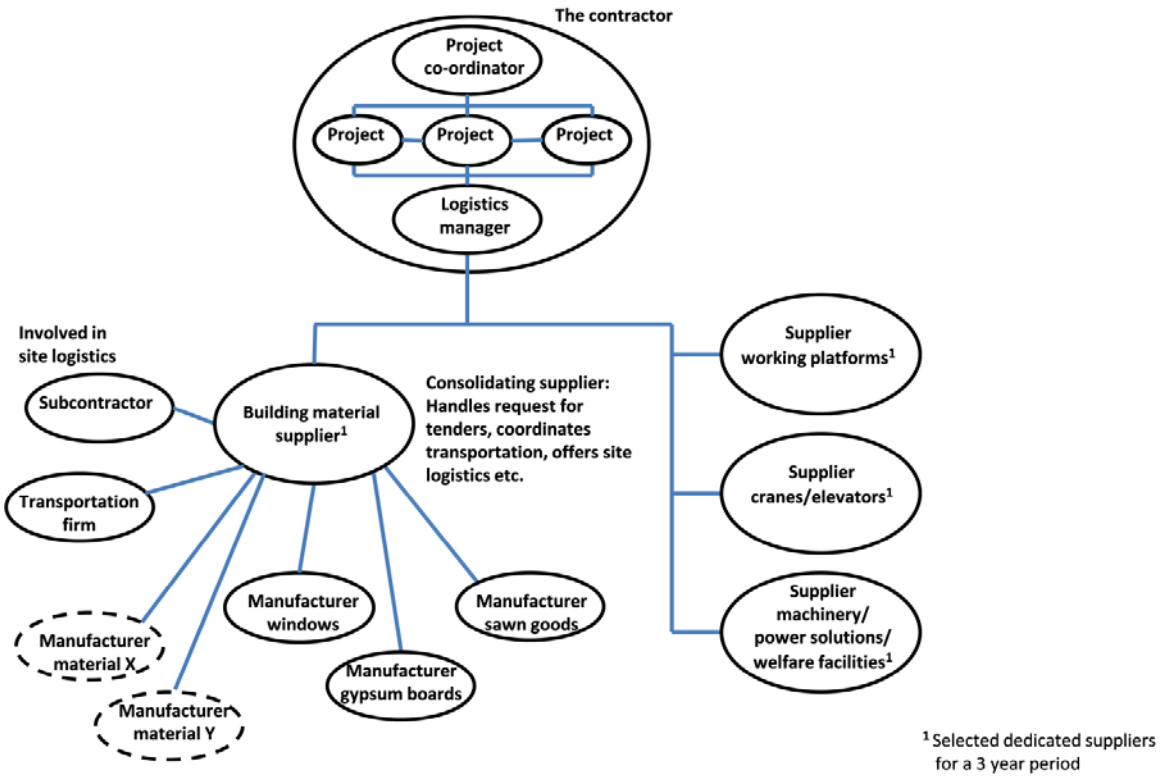

Figure 2. The supply side of the contractor after the change

ANALYSIS

Our analysis centres on the four themes identified in the framing of the research problem. Firstly, the case shows that the network around the contractor has changed considerably in terms of the division of labour among firms, as well as regarding how resources are

combined. Hence, the first analytical theme deals with this*network repositioning* in terms of how activities and resources are coordinated and combined among the actors. Secondly, the case illustrates how the contractor has worked actively with attempts toestablish high-involvement business relationshipswithdedicated suppliers. A second issue is therefore to analyse the modifications of the *relationship involvement*. Thirdly, the contractor has actively reorganised its operations in several dimensions, concerning the operations of site managers, the appointing of a logistics manager and a project coordinator. These changes in the internal organising affect interaction both internally and externally. Thus *organisational arrangements* to support interaction are means for capturing positive effects across on-going projects and in relation to future projects. Finally, the analysis is extended to identify the couplings to the indirect relationships in order to investigate the *network orientation* of the contractor.

Repositioning in the network

Before the reorientation, there was no common approach, neither concerning the activities undertaken at the various sites, nor in the allocation of resources among projects. Individual site managers spent time and resources on contacts and communication with the huge cadre of material manufacturers, on call-offs of materials, and planning of materials deliveries for each isolated project. This was the normal procedure despite the fact that in many cases the same material manufacturer was used in several on-going projects. At each site, construction workers spent lots of time on unloading, sorting, collecting and moving materials. Hence, in terms of the network layers, the boundary for what activities were taken into consideration was the individual project boundary. Concerning the resource layer the focus was on the resources assigned for the undertaking of these project activities, such as the site manager, construction workers, and equipment based on the site. Also for suppliers, activities were executed on the basis of the project structure, although what takes place in one project to a great extent affects the conditions for their performance in relation to other projects.

As claimed above this case is a highly relevant illustration of repositioning in the network. The transformation involves an intricate interplay between modifications in the pattern of activities, the constellation of resources, and the web of actors. Before the change, the contractor's position was determined by low-involvement interaction with many suppliers. After the change, the contractor is repositioned. The activities related to procurement of building materials, including tendering, physical distribution, and materials handling at the site, are now largely outsourced to the supplier of building materials (BMS). This approach made it possible for the contractor to focus on house-building activities and this specialisation improved the performance of these activities. At the same time, BMS can contribute with their particular capabilities in terms of coordinating the operations of material manufacturers, transportation firms, the subcontractor handling site logistics, and the contractor.

Site managers are now less focused on procurement of materials and responsible only for the supply of bulk materials. Therefore they can now to a greater extent devote their resources to the house-building processes at the site. Construction workers are nowadays involved in materials handling only to a very limited extent, since these activities are outsourced to the subcontractor, contributing with its resources in terms of skills and equipment for efficient material handling. In relation to the supply from the other dedicated suppliers, the main implication of the change concerns the transfer of planning activities from site managers to the project coordinator. This modified approach makes it possible to increase the utilization of the planning resources, since this task is undertaken by only one person. In addition,

suppliers are involved to a greater extent already in the planning phase of a project in order to be able to contribute with their knowledge and experiences. Thus, the perspective regarding the supply side of the contractor changed from a cost focus, primarily based on low prices, towards the consideration of potential contributions from dedicated suppliers.

The reorganising of the activity layer released time and resources that previously were tied up in various arrangements in individual projects. This structural transformation significantly reduced the number of relationships with suppliers that were kept at arm's-length distance. Instead more collaborative relationships were established with a reduced number of suppliers. The repositioning in the actor layer created a network of actors specialising in their particular operations, which called for enhanced coordination among these firms. This change required joint resources for planning and substantial interaction among the actors involved. Moreover, this interaction is a crucial determinant for the capturing of the potential benefits related to the repositioning in the network

So far, the analysis has focused on repositioning in terms of what activities to undertake internally, as well as what resources to control through ownership, and their interplay with the activities and resources residing outside the boundary of the firm. In this respect the number of relationships has shown to be crucial for the positioning of firms since a company cannot be involved in too many close relationships. The reason is that high-involvement relationships are resource demanding. Therefore not only the number of relationships, but also their features, are crucial for the outcome of partnering, which is the concern in the second theme.

Relationship involvement

Before the change, the supply of materials followed the widely adopted logic in the construction industry: competitive tendering based on lowest unit price. Relationships were dominated by arm's-length conditions to a large number of potential suppliers. Through these arrangements the contractor avoided dependence on individual suppliers, and could gain short-term benefits in isolated transactions. Hence, the relationships were mainly price-driven and potentially adversarial. As described above, the repositioning reduced the number of supplier relationships to handle. Instead, these 'few' relationships became more collaborative in terms of their features. The relationships between the contractor and the four dedicated suppliers are typified as high-involvement relationship with some common characteristics.

To begin with, the relationships between the contractor and the four dedicated suppliers rely on a time aspect stretching beyond individual project horizons. The formal contracts stipulate three-year collaboration between the contractor and the suppliers. Business exchange is more or less continuous, in terms of several on-going projects and in relation to future projects. A number of adaptations have been made between the counterparts, implying improved utilization of the resources of both parties. For example, the elevators needed to be adapted (to have the engine outside) so that some particular equipment and materials could be loaded. Furthermore, the early phase planning between the suppliers and the contractor is an important administrative adaptation that enables planning for joint resource in advance, thus preventing delays that would require the firms to take expensive urgent measures.

Extensive knowledge of the business of the counterpart is also provided through the prolonged time perspective and more intense business relationships. For example, the supplier of scaffolds and working platforms adapted to the demands of this contractor that differed

substantially from other customers' requirements. Such adaptations must be regarded as investments and create a mutual dependence among the parties.

In the relationships described in this case there was intentional commitment from both parties when the dedicated supplier-contractor relationships were initiated. All four suppliers selected were known by the contractor before the initiative, but they had been used in accordance with the traditional logic in construction. However, when these vendors were appointed 'dedicated suppliers', there was an intentional ambition to create high-involvement relationships that would benefit both parties. For suppliers, the new approach means that they knewthat they no longer need to become involved in tendering for each projects at the contractor, which is beneficial for their administrative costs.

Organizational arrangements supporting internal/external interaction

Previously, the contractor's organization was to a great extent formed by the focus on individual projects. Connections between the contractor and its suppliers mainly concerned the site manager and sales representatives of suppliers. In many situations, one and the same supplier was involved in several simultaneous projects with the contractor, but there was no coordination among projects regarding tendering processes and deliveries of materials. When a new project was about to start, a tendering process was initiated where suppliers were selected on price mainly, without taking previous interaction into consideration.

The organizational modifications at the contractor, in terms of appointing the logistics manager and the project coordinator, created an important cross-functional team, spanning the boundaries of on-going projects. In addition, these functions enable internal and external interaction and thereby improve the interfaces in relation to suppliers. The logistics manager is now responsible for handling the supply of building materials in all on-going projects, which improves performance in these operations, by making better use of resources. In addition, reliance on dedicated suppliers provides economies of scale, and the same assortment of materials is used at all the sites.

The exchange of information between the logistics manager and the project coordinator at the contractor, and each of the suppliers, now follows predefined patterns, and it is always the same people that are involved in this interaction. This approach, together with the long-term nature of the relationships with suppliers has increased the transfer of knowledge between the parties, as well as among projects. The previous organisational structure did not promote information sharing across projects. Therefore, the knowledge gained in the interactive problem-solving at each site only seldom spread to other projects. These conditions are common in project-based businesses like construction and caused by the fact that the time span for cooperation is limited to the length of the project, since new constellations will be formed in coming projects. In the new organisational structure more permanent constellations of people are created, which is favourable to joint learning.

In summary, the modified organizational arrangements stimulate enhanced interaction among projects, as well as over time. Increasingly knowledge is transferred across the projects of the contractor and in relation to the dedicated suppliers. In the section below, the scope is widened towards the surrounding network.

Network orientation

In the analysis of a construction network it is relevant to distinguish between the temporary network around a specific project and the permanent network constituted by the firms in the industry. The main diversity between the two networks regards the extent of interaction. In the temporary network intense interaction is required at the site in the efforts to adjust standardised materials to the specific conditions at each site. In the permanent network less interaction is needed since the business transactions primarily concern standardised materials.

In this case the revised working procedures resulted in increased interaction between the various temporary networks. This was accomplished through the re-organization of the contractor, but also through the high-involvement relationships with the dedicated suppliers. In this way, the objective of 'strategic partnerships', involving long-term arrangements stretching over a series of projects has been obtained. Thus, the organisational changes at the contractor have impacted on this part of the permanent network.

However, when it comes to the impact in the wider network, the situation is less clear-cut. The business transactions between the supplier of building materials (BMS) and the material manufacturers are based on competitive tendering. Concerning these tenders BMS has specific demands with regard to packaging, handling of pallets, logistics operations and other activities. The 'total cost' for these particular requirements has to be set for the entire project. Material manufacturers are not used to this form of tendering, which differs substantially from what is common in relation to other customers. This means that suppliers have to treat BMS differently, and adapt their own business logic to that of BMS. It is difficult to convince material manufacturers to take these requests into consideration, since they become frustrated by the demands. This reluctance prolongs the tendering processes and require extra resources for both BMS and the material manufacturers. For example, for the window manufacturer mentioned above, the requirements from BMS were perceived strange and hard to grasp, and it took several turns, back and forth, before the tender was 'correct' from the perspective of BMS. Furthermore, the delivery of the windows in the form that was requested,called for adaptations in production, packaging and delivery activities. However, this broadened cost perspective is central for the reliance on the cost efficient alternative for site logistics provided by the sub-contractor of BMS.

CONCLUSIONS

The case illustrates a situation where a building contractor decides to change its procedures on the supply side towards partnering arrangements. The efforts to establish long-term agreements with dedicated suppliers have been successful and made possible favourable changes in the division of labour, as well as recombining of resources. The network repositioning was made possible through reorganising on the supply side. A functioning interplay between the internal organisation of the purchasing function of the contractor, and external organisation in relation to the dedicated suppliers, was an important prerequisite for the positive outcome. These four suppliers have adapted to the modified conditions and are familiar with the 'new' logic of the contractor. However, when it comes to the third dimension of the organisational interplay, the situation is different, since organising in relation to the whole supplier network is more problematic. The study shows that the suppliers of the dedicated supplier (i.e. the manufacturers of building materials) have trouble in understanding and fitting these particular requirements with their own business logic. But

there are a few signs that some of these manufacturers have started to adapt to this new logic in order to incorporate it into their own business model, and then try to apply it in relation to their direct business partners. However, one of the problems in accomplishing these network effects is that the tendering procedures have not been fully abandoned;rather they have been moved from the contractor to the dedicated suppliers.

The effects of the repositioning must be considered substantial in light of the problems appearing in other attempts to implement partnering. Several factors contribute to explain the reasons for these diverse consequences of partnering. Firstly, the contractor in this case is a medium-sized company, while other studies seem to have involved large-scale contracting firms. Partnering arrangements require enhanced centralisation which reduces the authority of site managers. Taking this step is probably easier in a small company than in a large organisation where it might be difficult to arrive at consensus regarding potential constrains on decentralised responsibility and decision-making. Secondly, the contractor works on a regional basis. This means that the contexts of the operations are more homogeneous than they are for bigger companies operating nation-wide. Moreover, agreements with dedicated suppliers are easier to settle at the local level, than in situations where the site managers in various regions of the country for long time have worked with local suppliers. Thirdly, the partnering agreement still is in its first contractual period. Even if prospects for continued collaboration seem promising today, no one knows what the future will bring.

IMPLICATIONS FOR PARTNERING

In this section we provide some managerial implications for partnering in construction. These implications are based partly on findings from the case study, partly on information from other studies of partnering efforts, and partly on the particular conditions identified in the analysis of the construction industry. Two main issues are subject to discussion: the mix of centralisation and decentralisation, and the call for a differentiated view of partnering related to extended contractor-supplier interaction.

The mix of centralization and decentralization

The literature review showed that several studies indicate that construction is featured by an ‘overly narrow project focus’, which constrains the performance of operations. This case study showed that enhanced centralization of purchasing decisions improved the functioning on the supply side. However, we also claimed above that depriving a site manager of authority in this way, probably is more problematic in large organisations. Therefore, the conclusive recommendation for success in partnering cannot be formulated entirely in terms of increasing centralisation and reduced decision-making power in the temporary organisation.

As described in the literature review the project organisation, with delegated authority and responsibility to the local level, is strongly embedded in the construction industry. Decentralisation provides some specific benefits when it comes to problem-solving in the particular contexts of individual building projects. Therefore, the deep-rooted project orientation is an expression of ambitions to promote some particular dimensions of efficiency and effectiveness. Since efficiency and effectiveness are multi-dimensional phenomena, overreliance on some of these dimensions also brings the disadvantages of decentralisation. Problems related to overexploitation of the project based mind-set have been identified in several studies – see Table 1.

- *each house is treated as a pilot model for a design that never had any runs* (Gann, 1996)
- *a new learning curve is climbed by the supplier each time* (Cox and Thompson, 1997)
- *frequent need to learn things that are already known* (Ajmal and Koskinen, 2008)
- *there is no input of commonly shared experiences* (Crichton, 1966)
- *projects generate innovative solutions that do not spread* (Ingirige and Sexton, 2006)
- *in decentralised organisations lies unknown a vast treasure of knowledge, know-how and best practice* (O'Dell and Grayson, 1998)

Table 1. Some problems identified in decentralised organisations

The most striking consequence of the decentralised approach in construction is that "projects occupy only a bracket in time and thus have neither history nor future" (Kreiner, 1995:345). However, the main reason for these conditions is not necessarily related to decentralisation as such. The most significant determinant of these problems is the reliance on an acquisition process featured by competitive tendering. The effect of this orientation is that the project constellations change all the time, in terms of what actors are involved, which is an obvious drawback for joint learning over time. A modified acquisition processes with less emphasis on short-term competition and enhanced attention to the benefits obtainable from longevity and high-involvement, would improve conditions considerably.

Moreover, there are potential benefits to reap from exploiting the scale of large construction firms, running a huge number of projects. Centralisation of procurement would be a means for such efforts. Furthermore, it is claimed that knowledge-sharing within project-based multi-unit organisation must build on formal hierarchical structures and thus call for some form of centralisation (Tsai, 2002). However, owing to the historical culture of decentralised authority, such measures must be implemented with great care to avoid undermining the positive aspects of current organisational responsibilities. For example, it has been found that too much centralised bureaucracy is perceived as one of the main problems with regard to project performance (Chan et al., 2006). Jones and Kaluarachchi (2007) highlight the problems that may appear when central management functions force their ambitions for centralisation on the local project level. In particular, too much bureaucracy and control may cause severe problems when it comes to exchange of information among projects (Tsai, 2002). Therefore, rather than imposing too much centralisation, large-scale construction firms should stimulate interaction among projects and in relation to suppliers in order to take advantage of potential economies in their operations. We provide some suggestions regarding these interaction patterns below.

Extended interaction and differentiated partnering

The benefits of enhanced interaction among projects, and in relation to suppliers are clearly visible in our case study. Moreover, increased interaction would solve some of the short-comings concerning learning and innovation related to decentralisation that are illustrated in Table 1. Interaction is also a means for reducing the attention to competitive tendering, since interaction stimulates relationship involvement, which promotes a more long-term orientation in relation to suppliers.

The point of departure for our recommendations is the benefits that have been identified in what is commonly known as project partnering. These advantages are created through the

intense interaction at the site. From this interaction at the site three dimensions of extended interaction can be identified:
- extended interaction within the individual project
- extended interaction across the projects of a specific contractor
- extended interaction in the permanent network

It has been claimed several times that there is a lot of interaction among the actors involved at the construction site. It might seem somewhat strange therefore to suggest extension of this interaction. The reason is that this interaction normally starts at the construction site, in order to handle the problems associated with adjusting standardised building materials and other essential components to the specific conditions at the site. If the the main contractor, important suppliers, and their subcontractors initiated their interaction earlier in the construction processes, several benefits may be attained. If suppliers and subcontractors are involved in the planning process, many problems that now have to be solved at the construction site can be avoided. By engaging these actor categories in the project already from the beginning, the contractor in our case study gained several benefits.

The second type of extension concerns interaction across the project portfolio of a contractor. This approach would reduce the problems related to the fact that projects tend to be handled in isolation. Two types of interaction across projects provide benefits to a contractor. One concerns interaction among projects on-going at the same time, while the other relates to extension over time, thus dealing with carry-over effects between projects. Extension in time should improve conditions for joint learning and contribute to enhanced performance in general. By creating stable constellations of actors it should be possible to secure that the same firms and the same individuals are used in consecutive projects. A Norwegian study illustrates how a contractor established such a network, involving ten subcontractors within three service categories (Holmen et al., 2007). This ‘supply network initiative’ of the contractor aimed at improving the coordination between the three types of installation work. Three suppliers decided at an early stage to refrain from this collaboration, while the remaining continued to take part in the initiative and were combined in various ways in the projects of the contractor. In each project three formalized activities were conducted: a kick-off meeting where objectives and expectations were made clear; a half-way meeting where the early phases of the project were evaluated and provided the basis forthe corrective actions that should be undertaken; a final meeting where the whole project was accessed. These meetings provided a common source for further feed-back of experience and joint learning.

Extended interaction across simultaneous projects also build on closer cooperation with a reduced number of suppliers, than what is normal in traditional acquisition processes. By accumulating procurement from several projects with fewer suppliers, the contractor would benefit from economies of scale. This approach, thus, requires some form of centralisation which would constrain the authority of site managers. However, enhanced standardisation across projects concerning selection of materials and suppliers would be cost-efficient for the contracting firm as a whole. A crucial issue in the analysis of this form of partnering is the mix between centralised and decentralised authority and responsibility.

The two suggestions for extended interaction discussed above concern enlargement of project partnering. The third alternative regards enhanced interaction in the permanent network, and therefore related to strategic partnering. This form of partnering is a logical consequence of the previous two. The first one suggested early involvement of suppliers in individual

projects. Such cooperation provides the basis for the second form of partnering relying on actor constellations that are kept together over series of projects. In this way the business partners gain from knowledge exchange and common experiences. Previous research on customer-supplier relationships in other industries shows that such situations and environments are favourable for the development of the high-involvement relationships that have served as role models for partnering in construction. These conditions are the breeding ground for the mutual adaptations that makes possible joint exploitation of resources. Close collaboration in these respects could make it possible to modify some of the management techniques that are used in other industries and have been asked for in construction, such as customisation and just-in-time deliveries.

FINAL REMARKS

The exploration of partnering in construction provides three types of contributions. First, it confirms previous findings concerning the decisive divergence between the high-involvement relationships that served as role-models for partnering,and the current buyer-supplier relations in the construction industry. This diversity stems from contrasting perceptions of purchasing efficiency and the strong reliance on decentralisation and project responsibilityin construction. These conditions have been formed over long time and established a special culture in construction that is difficult to change for an individual company.Therefore, we agree with the claim that 'fully-fledged' strategic partnerships "do not always appear to be necessary, desirable or feasible in construction" (Bresnen and Marshall, 2000b:829).

The second contribution regards the findings from the empirical study showing that despite the prevailing construction culture it is possible for a contractor to initiate partnering in relation to its suppliers. This result is relevant not only for the construction industry. It is valid also for other firms, working in similar industrial contexts, aiming at enhancing the involvement with suppliers. In such efforts buyers should carefully evaluate in what situations high-involvement makes sense, and when other approaches would be more appropriate.The obvious reason is that cooperation and high-involvement are resource-demanding undertakings, implying that the costs of some forms of partnering would outweigh potential benefits. Therefore, in some situations arm's-length contractual-based relationships "may be a legitimate strategy given the context in which they operate" (Fernie and Thorpe, 2007:327).

Finally,the paper shows that a buying firm can benefit substantially from enhanced interaction with business partners. We suggest three alternative approaches to extend this interaction – one concerns the project level, one regards interaction across projects, and one deals with interaction in the permanent network. If this three-step extension of interaction is followed, particular benefits for enhanced partnering are provided, since the point of departure builds on the current project partnering, rather than central management proposals. The three approaches to interaction together constitute a differentiated pattern of partnering, which we have found to be the most relevant application of the partnering concept in construction, as well as in other project-based businesses.

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