Managing Supply Networks: Taking both the buyer's and the suppliers' view into account

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Abstract

This paper discusses the importance of understanding a supplier's situation and context when a focal buyer tries to introduce new supply network management initiatives. We discuss theory related to both the buyer's and the suppliers' view on such initiatives, and suggests a tentative 2x2 matrix which the focal buyer may use in order to consider the supplier's context before introducing an supply network initiative. The matrix is illustrated by examples gathered from a longitudinal case study. Finally, the usability and limitations of the matrix are discussed; in particular in relation to whether the focal buyer has, or can gather, the necessary information about the suppliers.

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Introduction

During the last decades, purchasing has increasingly become supply management (Kraljic, 1983). Firstly, purchasing has become more important because the amount a firm spends on purchased goods and services comprises a larger amount of its turnover. Figures of 60-80 percent are not uncommon as firms increasingly focus on their core competences and outsource activities based on other competences to suppliers (van Weele, 2000). Secondly, supplier relationships have become more important because companies often make use of one or a few suppliers instead of shopping on the market from various suppliers (Gadde and Håkansson, 2001).

This means that within the field of supply management, several management issues have increasingly been attended to, for example: How to manage single supplier relationships, and how to manage supply chains and supply networks (Håkansson and Persson, 2004). So far, the first issue has received much attention. By now, there is quite an amount of knowledge on how relationships to single suppliers may be handled (see e.g. Håkansson, 1982; Lamming, 1993; Dwyer et al., 1987; Frazier et al., 1988, Lamming et al., 1996; Gadde and Snehota, 2000; Gadde and Håkansson, 2001). However, the second issue has received much less attention. Thus, the focus of this research project is on supply networks, which may be defined in the following way: *"Supply networks are nested within wider interorganization networks and consist of interconnected entities whose primary purpose is the procurement, use, and transformation of resources to provide packages of goods and services."* (Harland et al., 2001, p. 21)

Purpose of the paper

So far, most of the research within the field of supply networks has focused on organisational aspects (e.g. the number of suppliers, the number of organisational levels/tiers, how the network develops over time etc.) from the *perspective of the buyer* (Gadde and Håkansson, 1994; Dubois et al., 2003; Harland et al., 2004). This is hardly surprising given that supply directs the focus on purchasing issues and thereby the buyer. However, over the last few years more contributions have paid attention to the suppliers' view on supply networks. We find these contributions interesting not because we take the suppliers' view in this paper, but because we take a network perspective to supply management and thereby emphasising the importance of the suppliers' context for the buying firm when trying to manage a supply network.

Thus, the purpose of the paper is to conceptualise how a (buying) firm can manage its supply network by also taking the suppliers' view into account. The paper focuses on developing a 2x2 matrix that in addition to the involvement in the focal supply network also systematically takes the different suppliers' involvement in other supply networks into account.

In the next section, we review literature on supply networks seen from the buyer respectively the supplier perspective. Then we present and discuss a 2x2 matrix which the focal buyer can use for managing supply networks. The main issue introduced in this matrix is *the importance of a supplier's involvement in other supply networks than the focal buyer's*. Furthermore, the matrix is illustrated with an example from the construction industry, where a main contractor has initiated the development of a supply network and has tried to take the suppliers' other counterparts into account in this development. Finally, we discuss how firms may benefit from gaining and using insight into its most important suppliers' involvement in other supply networks.

Theoretical basis

The theoretical part of the paper first presents and discusses literature on supply networks seen from the buying firm's point of view. Following that, we look into recent contributions on the suppliers' view of supply networks. At the end of this section, we introduce a matrix which a focal buyer may use to take the suppliers' view into account when managing supply networks.

The buyer's perspective on supply network

In an article by Mills, Schmitz and Frizelle (2004) they conduct an extensive strategic review of supply network literature. The authors claim that supply network management is a rapidly expanding field with a fast growing amount of literature. Mills et al. (2004, p. 1018) propose a framework consisting of four perspectives to access, analyse and understand supply network management from a firm's point of view. In a similar vein Holmen, Pedersen and Jansen (2007, p. 180) identify and discuss three important issues in supply network management based on a literature review of both purchasing and 'non-purchasing' journals. These issues are:

1) interconnected relationships, i.e. creating relationships among suppliers in the supply network (which also incorporate the nature of the relationships)
2) the structure of supply networks
3) the process of initiating, creating, managing and/or changing a supply network.

In the following, we will use these three issues to structure the presentation and discussion.

If we start with the issue of **interconnected relationships** many of the contributors within the field of supply networks have touched upon this characteristic. Harland, Zheng, Johnsen and Lamming (2004, p. 2) consider how a supply network can be delimited in space and argue that *"… we could examine the total supply network for a firm that could be represented by the set of upstream and downstream organizations it deals with, either directly or indirectly, from original source of raw material or service creation, to ultimate end customer. This would provide a map of all relationships within that firm's supply network"*. In a similar vein Dubois and Gadde (2000) argue that an important issue of supply networks is that collaboration not only takes place between a buyer and its suppliers, but also among the suppliers thus creating connected relationships. This is supported by Andersen and Christensen (2005, p. 1261) who claim that *"…supply networks are characterized by sets of purposeful and connected exchange relationships",* and by Håkansson and Persson (2004) who discuss different types of interdependencies in supply networks.

The second issue is how the **structure of supply networks** can be characterised and classified. Lamming et al. (2000) and Harland et al. (2001) present a model for classifying supply networks based on two dimensions; 1) the degree of supply network dynamics and 2) the degree of focal firm supply network influence. Based on these two factors they construct a 2x2 matrix and discuss four supply network types. Mills et al. (2004, p. 1023) also discusses structural elements of supply network and claim that the static network perspective of a focal firm's whole supply network is important *"…in order to compare performance in its multiple supply chains…"*. Furthermore, they emphasise the firm's position in the network and how the position can be improved without changing the structure of the supply network. Related to position in supply networks, Knight and Harland (2005) discuss organisational roles in supply network management and, based on empirical research and the use of role theory, they identify six different roles that firms can have in supply networks. Håkansson and Persson (2004) also focus on structural issues as they discuss interdependencies in supply network, on the basis of Thompson's concepts of sequential, pooled and reciprocal interdependencies. They claim that one major issue in relation to supply networks is *"… the fact that any focal organization is normally part of several supply*

chains, each of them representing different entities, which may or may not be in conflict as far as optimization and integration is concerned. This issue in fact is related to the exploitation of pooled interdependencies" (Håkansson and Persson, 2004, p. 18).

A third issue, which over the latter years has become more prevalent in the literature, is the **process of initiating, creating, managing and/or changing a supply network** over time. This is also pointed out by Mills et al. (2004, p. 1025)) who divide what they call the 'dynamic network perspective' into (a) the evolution of existing supply chains and (b) the creation of new supply chains. One stream of research within this area is carried out at the Centre for Research in Strategic Purchasing and Supply (CRiSPS) at University of Bath, see e.g. Harland (1996), Johnsen et al. (2000), and Harland et al. (2004). CRiSPS have particularly focused on (a) the creation and operation of supply networks and (b) strategies related to how to manage these supply networks over time. A more logistics-oriented approach is taken by Hines et al. (1998) who present and discuss a lean logistics approach to designing a programme to develop a supply network. Romano (2003) also takes a logistical point of departure and discusses co-ordination and integration mechanisms to manage logistics processes across supply networks. He develops a conceptual framework containing three elements and concludes that the process has lead to intensified interaction and communication both at a dyadic level, but also at an overall supply network level. A third stream of research pays particular attention to the development of Toyota's supply network. Among the researchers who have studied and conceptualised this, we find Dyer (2000) and Dyer and Nobeoka (2000) who pay particular attention to knowledge management processes in Toyota's supply network(s). In relation to that they describe the evolution of the network in three phases. First, the development of weak ties between the buyer and the different suppliers in the network. They use the term 'weak' to point out that the relationships were new and the frequency and intensity of the interaction was low. Second, the development of strong ties between the buyer and the suppliers, where Toyota transferred know-how of, for example, production technologies. Third, the development of strong ties among the suppliers, enabling the suppliers to create sub-networks within the full network to maximise the willingness to share information and knowledge.

The suppliers' view of supply network

Studies of supply networks have primarily focused on how *a core buyer* (the hub) may manage and organise its suppliers in networks, and thus, not many studies have taken the suppliers' interests into account. The suppliers are rarely viewed as actors with their own plans and visions, and seldom are the alternative relations available to the suppliers discussed or handled.

Lately a few contributions have pointed out that fact that there is less focus on the supplier perspective of supply networks (Mills et al., 2004; Stjernström and Bengtsson, 2004; Andersen and Christensen, 2005). For example Stjernström and Bengtsson (2004, p. 137) claim that *"one shortcoming, however, is that most of the literature is based on buyer perspective, while studies made from the supplier perspective are rather few"*. One reason for this can be that a lot of the empirical studies of supply networks has been conducted in or related to large buyers within the automotive industry. This has also been observed by Kinder (2003) who claims that the creation and management of supply networks have first and foremost been studied in automotive settings, originating in Japan and transferred to other (automotive) manufacturing countries. In a similar vein Stjernström and Bengtsson (2004) argue that most studies have focus on 'organised networks' characterised by many actors and tiers, primarily within the automotive industry.

However, there are a few examples of contributions which have taken the suppliers' view of supply networks as the point of departure. One early example is Lilliecreutz (1998) who takes into account how a buying firm's restructuring of its supply base affects the suppliers,

and how a buying firm can synchronise its strategy with the strategies of its suppliers. He claims that suppliers need to develop their own strategies as a consequence of buying firms' growing interest in restructuring, rationalising and developing their supply base/network. He concludes that the suppliers' ability to orchestrate their resource base, role and position is of great importance. In a similar vein, Calabrese (2000) studied 25 small and medium sized suppliers and looked into the strategies they adopted in order to handle changes initiated by the manufacturers (the buyers), for example reorganisation of the supply base/network. What is typical about these contributions is that they often focus on situations (or structures) where it is only one buyer (or a dominant buyer). This implies that all changes, strategies etc. are related to the initiatives taken by a single, often dominant buyer in a supply network.

A third contribution comes from Stjernström and Bengtsson (2004) who discuss suppliers' contributions to customers' product and process development in multiple supply networks. By contributions they mean (a) new product development, (b) new product manufacturability, (c) efficient manufacturing processes and (d) the general development of the supply chain/network. Stjernström and Bengtsson (2004) have studied six suppliers who have overlapping customers, and the three different customers had different views on the fact that their suppliers delivered to a competitor. While the suppliers believed that delivering to different, competing customers would lead to faster technological development and more learning, one of the customers stipulated in the contract *"…not to deal with the competitors"* (Stjernström and Bengtsson, 2004, p. 144).

Andersen and Christensen (2005) also discuss different supply network structures and look at positions and roles of individual suppliers in such structures. Based on different illustrative cases they present a typology with five different bridging roles subcontractors (suppliers) can have in international supply networks. They are: (a) the local integrator, (b) the export base, 8c) the import base, (d) the international spanner and (e) the global integrator. Andersen and Christensen (2005) identify some of the same issues related to how to handle situations where there are multiple buyers, and where each of these might initiate new supply network strategies. They claim that further research is needed into two areas; (a) the suppliers' capability to connect different customer relations and different sub-supplier relations and (b) the suppliers' capability to translate information between different actors.

Based on the literature review above it seems important to pay attention to how the suppliers, which form part of such supply networks, may handle their involvement in the supply networks of its different customers (who might be competitors). Furthermore, these suppliers at the same time also manage its 'own' supply network. This is illustrated in figure 1 below.

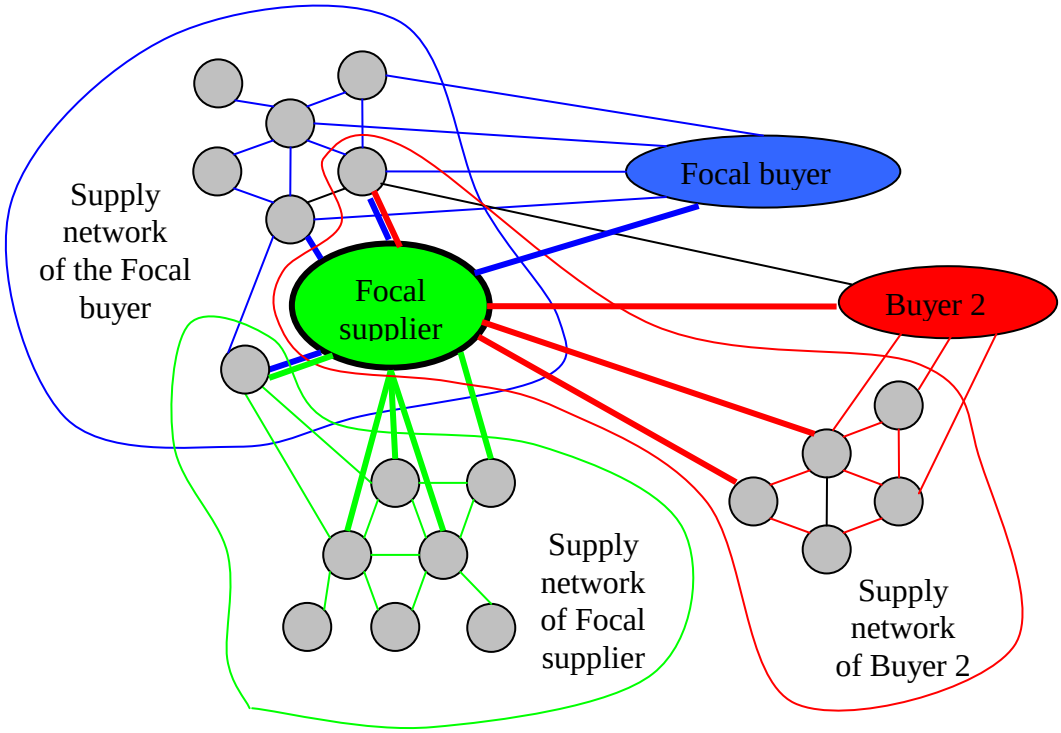

Figure 1: Partially overlapping supply networks

In the figure, the (green) Focal supplier both forms part of multiple customers' different supply networks (both Focal buyer and Buyer 2), but it also has to manage a supply network of its 'own' suppliers. Even though the figure presents a simplified picture of the situation, it enables us to notice that a supplier may have different roles in the three different but overlapping supply networks. Hence, for the Focal buyer it may not only be a question of relating to the Focal supplier and the other suppliers to whom its has (blue) relationships, but also to some extent a question of finding out and relating to other customers of the suppliers, e.g. Buyer 2 (red).

In the following section we consider how a buying firm can take knowledge about the suppliers' role in different networks into account when trying to manage its supply network.

Considering the suppliers' contexts when managing supply networks

So far, the paper has reviewed literature on supply networks seen from either the buying or the supplying firm's perspective. As mention earlier, we are not interesting in taking the suppliers' perspective in this paper, but merely to stress the importance of the suppliers' context for the buying firm. Following this logic, the buying firm may consider the situation of its suppliers when trying to manage its supply network. Thus, we suggest a model, in the shape of a 2x2 matrix.

The first dimension of the matrix is 'the degree of involvement in the relationship between the focal buyer and the focal supplier'. A high score on this axis implies that the two firms in the analysis have established a close relationship and, as a consequence, have cooperated and made mutual adaptations in the past, as well as developed a considerable amount of trust towards, and information about, each other. A low score represents a situation where the two firms have only made minor mutual adaptations of their activities and resources.

The second dimension of the matrix is 'the supplier's degree of involvement in other supply networks'. A high score on this axis implies that the supplier is either heavily involved with a small number of other important customers and/or has a lot of different (but less important)

customers. A low score would represent a situation where the supplier has few other customers than the focal buyer.

Combining these two dimensions, we can draw a 2x2 matrix which may assist us in considering the different ways in which the suppliers of a focal firm may be embedded in a network context which constrain as well as enable the supplier's relationship to the focal buyer. Figure 2 below illustrates this 2x2 matrix and we then turn towards describing the four different situations.

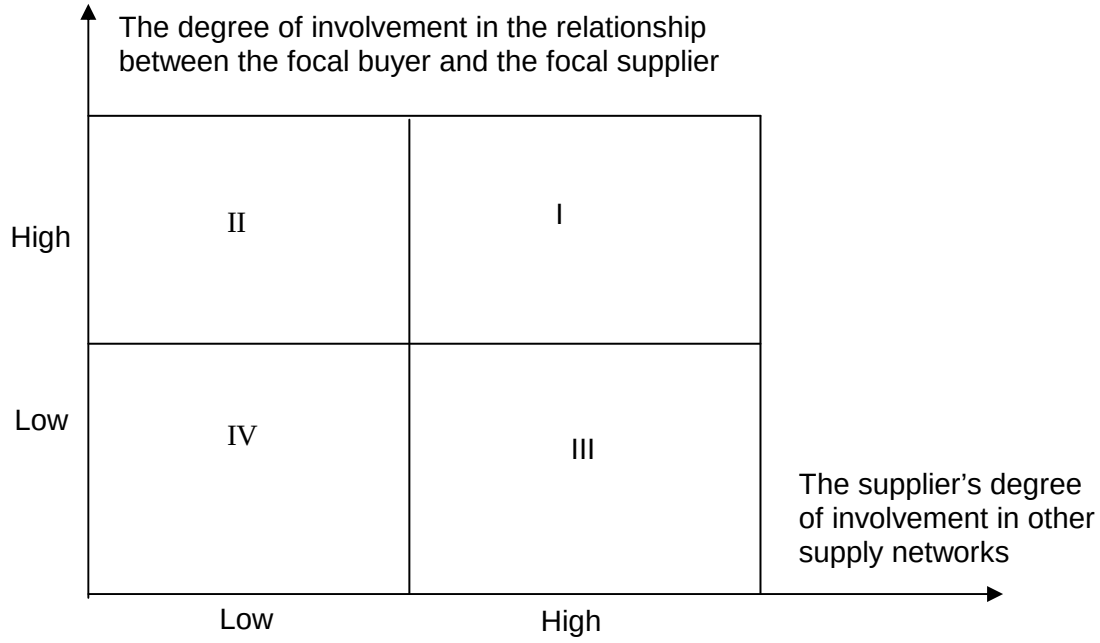

Figure 2: Matrix for considering the suppliers' contexts when managing supply networks

The first situation (I) we shall describe is the situation in the upper right corner. In this situation, a relationship already exists between the two parties. This means that it is likely that the involvement in the supply network initiative will be seriously considered by the supplier, and that they most likely will, at least, be interested in discussing the initiative. However, the supplier in this situation will also have other important supply networks to relate to. This could for example mean that while the supplier really wants to take active part in the initiative presented, the firm cannot do so at the time because of other commitments made in other supply networks. In other words, the 'timing' of initiatives will often be a serious issue. Another factor which may be of crucial importance to the supplier, is the possibility of 'combining' the initiative presented with other initiatives going on in other supply networks it is a part of. If such 'combining' is possible, it will be correspondingly easier for the supplier to join the initiative, and it may even enable the two firms to solve a 'timing' problem because of the possibility of combining two initiatives, instead of running them side by side. 'Combining' may, however, not always be possible. Sometimes, it would not even be in the interests of the buying firm. In particular, this could be the case if the buying firm wants the initiative to be a competitive advantage, and the supplier is involved in supply network where some of the major competitors are involved as well.

The second situation (II) we describe is the upper left corner. Here, as in the situation above, there is an existing relationship between the two firms. However, unlike the situation above, the supplier has few or no other important supply networks to relate to. In this situation, the supplier may be keen to seize any opportunity to partake in initiatives from the buying firm,

and will usually try to adapt to its requests. However, a possible problem here could be that the supplier will be able to contribute very little in the way of developing the initiative. In some cases the buying firm could choose to encourage the supplier to develop its capabilities and relations to other firms. The benefit for the focal buyer would then be to get a more active supplier.

The third situation (III) we describe is the lower right corner. This is a difficult situation since the buying firm has very little prior contact (and thus made few adaptations) with the supplier before starting up a supply network initiative. Furthermore, the supplier in question will not be easily approached, as it will have other important customers in other supply networks to relate to. Since it is often emphasised that it is difficult to have too many close relationships at the same time (Gadde and Snehota, 2000), this might mean that the supplier may choose to ignore the approach made by the buying firm simply on the ground that it has its hands full already. In the case that the supplier would like to participate in the supply network the two firms need to build a relationship by working more intensively together.

The fourth situation (IV) we describe is the lower left corner. This situation arises when the supplier neither has a close relationship to the buying firm nor has a strong position in any other supply networks. This could for example mean that the supplier is small and very specialised, or that it delivers a large number of standard components to a large number of customers (for example a retailer). In this situation, the components are usually easily accessible, but if the buying firm wants to make adaptations to the product, this can be very difficult to achieve. The reason for this could be that the supplier relies on standardised components as the factor which creates economies of scale.

The model suggests that the structural configuration of the context of a supplier may vary considerably. A buyer may benefit from considering such variations and, in particular, how these four structurally different contexts may, in different ways, enable and constrain the supplier's orientation towards supply network initiatives taken by a focal buyer. In the following sections of this paper we present and discuss an illustrative case of a main contractor within the construction industry who has tried to create and manage a supply network, together with its technical subcontractors, across a large number of construction projects carried out over a number of years.

Case and methodology

In this section, the matrix in figure 2 is further developed and exemplified using an illustrative case. The examples come from a long-term processual case study, which is real-time, theory-led, and contextual. The focal firm in the study is a large main contractor. As mentioned in the theoretical part, most studies of supply network management focus on firms in various manufacturing industries (often automotive). Thereby, this study adds to our awareness of varieties of supply network initiatives and how they may be managed.

The empirical material for the case study was gathered in real-time, over a period of six years, and multiple sources of information were used. For example, we have:

(a) taken part in the main contractor's supply network project
(b) carried out approx 40 semi-structured, personal interviews with people from the contractor as well as the subcontractors (suppliers),
(c) taken part in various internal seminars, workshops and field trips (to construction sites),
(d) read various company documents, and
(e) supervised a number of (master) students writing their theses with the contractor as the core firm.

Empirically, we have followed a large main contractor in its efforts at reorganising and reducing the supply base of the firm and structuring part of the base as a supply network. This process started in 1997 and we have followed the firm in the period 1997-2003. For a more thorough description of the case, see Holmen, Håkansson and Pedersen (2003) and Holmen, Pedersen and Jansen (2007). During that period the case firm has, on two occasions, carried out extensive interviews and investigations into its most important technical subcontractors regarding:

1. Internal matters (i.e. organisation structure, routines, market strategies, focus in technological development)
2. The supplier's co-operation partners, mainly other customers and suppliers
3. Competitors (firms which the suppliers would recommend as co-operation partners)
4. Ability and willingness to co-operate with the main contractor
5. Further plans in relation to the main contractor

The following examples have been chosen in order to illustrate the different quadrants of the matrix. This method is also used by Andersen and Christensen (2005, p. 1265) claiming that: *"Cases have been selected and are used for illustrative purposes to flesh out and detail the empirical equivalent of our typology, allowing us to iterate between a deductive and an inductive research process"*.

Example of situation I

The main contractor has over the years developed a close relationship to a local plumbing sub-contractor. The case firm had bought some services from the sub-contractor sporadically (based on tendering procedures) over many years, but the relationship did not acquire substance until the supply network initiative started in 1997. Since then, the relationship has strengthened and new routines and adaptations in administrative procedures have been discussed. Furthermore, possible new co-ordination mechanisms at the construction site have been analysed and implemented. Based on this we can say that 'the degree of involvement in the relationships between the focal buyer and the focal supplier' is high.

On the other hand the sub-contractor is also heavily involved with two other major customers. These customers are competitors of the case firm within the construction industry, but somewhat smaller than the case firm. The sub-contractor also interacts closely with these two other customers, which we would define as 'the supplier's degree of involvement in other supply networks' being high.

The main contractor is well aware of this situation and openly discusses this type of sub-contractor involvement in several supply networks with the sub-contractor. This overlap is regarded as positive from the case firm's point of view since the sub-contractor learns different routines, techniques etc. by working intensively with different counterparts.

Example of situation II

During the supply network initiative (1997-2000) the main contractor developed a very close relationship with a local electrical sub-contractor. The case firm had bought a lot of services from this sub-contractor (but always based on tendering procedures) over the years before the supply network initiative started. During the initiative, the relationship strengthened and new routines were developed. Furthermore, potential new co-ordination mechanisms at the construction site were analysed and implemented. Based on this we can say that 'the degree of involvement in the relationships between the focal buyer and the focal supplier' is high.

The sub-contractor, however, had a lot of different customers when entering into the supply network initiative. During the initiative the sub-contractor adapted more and more to the case firm, and after some years approximately 80% of the sub-contractors turnover was generated by the case firm. This implied that 'the supplier's degree of involvement in other

supply networks' was low.

This situation became a problem mostly for the sub-contractor but also for the case firm. The reason for this was that the sub-contractor felt that they became too dependent on the main contractor, and that it had very little to offer in their relationship. The sub-contractor acknowledge that they had learned a lot during the supply network initiative and that they had evolved enormously as a consequence of this process, but they had also become vulnerable. Thus, the sub-contractor decided to restructure the firm and change their strategy towards its customers which led the sub-contractor to focus on the consumer market instead of professional contractors.

Example of situation III

Just after the supply network initiative started, the main contractor started to use a plumbing sub-contractor which had not been used before. This was due to a situation where one of the selected plumbing sub-contractor for the supply network initiative had financial difficulties and had to leave the initiative. The case firm contacted this new sub-contractor who they had heard a lot of positive comments about, but had actually never used in a construction project. Based on this we could say that 'the degree of involvement in the relationships between the focal buyer and the focal supplier' is low.

The sub-contractor, of the other hand, was heavily involved with a few other major customers, and was the 'preferred supplier' for one of these customers. Most of these customers were competitors of the case firm within the construction industry. The sub-contractor had in these relationships developed close interaction, which we would define as 'the supplier's degree of involvement in other supply networks' being high.

The main contractor is aware of this situation and discusses this type of sub-contractor involvement in several supply networks with the sub-contractor. The case firm is not satisfied with the situation because they feel that they do not get enough priority from the sub-contractor, and that the price level is too high. In this situation the overlap of multiple supply networks is not regarded as positive from the focal firm's point of view since the sub-contractor seems not to be able to learn more by working with different customers.

Example of situation IV

During the last few years (and after the supply network initiative ended) the main contractor started to use a new electrical sub-contractor which had not been used before. This was due to a situation where it was lack of capacity at the selected sub-contractors in the supply network. The new sub-contractor is a very large international firm which produces electrical equipment (cables, switches etc.) and performs electrical installation services. Based on this we could say that 'the degree of involvement in the relationships between the focal buyer and the focal supplier' is low.

The sub-contractor has an explicit 'stand-alone' strategy, which implies that the sub-contractor sells to all major (and a lot of the minor) contractors in the area. They sell a lot of standardised products and thus prefer to have contact with a lot of different main contractors and to be part of many different types of construction projects. This implied that 'the supplier's degree of involvement in other supply networks' is low.

The main contractor has tried to involve the sub-contractor in the supply network and invites the firm to kick-off meetings, seminar etc. The main contractor also tries to get the sub-contractor to develop a mutual relationship with a higher degree of trust and adaptation. The sub-contractor is considering these initiatives, but on the other hand it will not give up its independent position.

Final discussion

By utilising examples from a single case, we show that all the different situations in the matrix can be found in relation to the supply network of a single buyer. We suggest that a buying firm may benefit from considering and handling the various contexts its suppliers form part of. Furthermore, the model in figure 2 may be a useful way of analysing the suppliers' contexts before a new initiative is introduced by a focal buyer. In particular, we want to stress the inclusion of a suppliers' involvement in other supply networks as a contribution to extant theory on supply networks.

However, while our tentative model can be useful, it should still only be regarded as tentative. More empirical investigations and further development of the arguments introduced are necessary. In particular, we would like to point out two limitations of the model which requires more thinking; the fact that the model is static whereas the 'real world' is constantly evolving, and the fact that there is an information problem regarding the dimension 'supplier's degree of involvement in other supply networks'.

Related to the first point, the dimensions represent the situation at a specific point in time, and that is affecting the results. This could be a problem for the buying firm since introducing a large supply network initiative probably will take considerable time, and the situation for a key supplier may change quickly, especially if the supplier is heavily involved in other supply networks.

Related to the second point, it can be discussed whether the focal buyer can realistically evaluate whether the supplier is heavily involved in other supply networks or not. As a minimum, finding 'accurate' information about this would normally require a working relationship with the supplier in question. Since relationships are seen as resource-intensive, the number of suppliers we can have a close relationship with is limited, and thus the information may not always be as accurate as we would like.

However, the examples show that it is possible for a buying firm to gain insight into the important customers (and suppliers, competitors etc.) of its main suppliers. Such knowledge may be vital to a firm which would like to manage a supply network. On the other hand, Holmen and Pedersen (2003) argue that an efficient and effective network horizon may be a quite limited one. The reason for this is that it can be very resource consuming to acquire and maintain a deep and broad network horizon. Instead, the firm may rely on its counterparts (e.g. a supplier) to effectively and efficiently mediate between the firm and the rest of the network, using different mediating functions.

In addition, Holmen and Pedersen (2003) further discuss that within the network horizon we have the network context, which Anderson, Johanson and Håkansson (1994, p. 4) define as *"the part of the network within the horizon that the actor consider relevant"*. So far, studies of supply networks have focused on that which lies inside the boundaries of the supply network and have, as such, not paid much attention to studying the *context* of a supply network (cf. figure 1). We suggest that we need more research into (a) how a focal buying firm may use the knowledge of its suppliers' network contexts to manage its supply network, and (b) how a focal supplier may handle its involvement in the supply networks of its different customers at the same time as the firm may manage its own supply network.

References

Andersen, P.H. and Christensen, P.R. (2005) "Bridges over troubled water: suppliers as connective nodes in global supply networks", **Journal of Business Research**, Vol 58, pp. 1261-1273.

Anderson, J.C., Håkansson, H. and Johanson, J. (1994), "Dyadic Business Relationships within a Business Network Context", **Journal of Marketing**, Vol 58, October, pp. 1-15.

Calabrese, G. (2000) "Small-medium supplier-buyer relationships in the car industry: evidence form Italy", **European Journal of Purchasing and Supply Management**, Vol 6, pp. 59-65.

Dubois, A. and Gadde, L.-E. (2000) "Supply strategy and network effects – purchasing behaviour in the construction industry", **European Journal of Purchasing and Supply Management**, Vol 6, pp. 207-215.

Dubois, A., Gadde, L.-E. and Mattsson, L.-G. (2003) "Change and Continuity in the Supplier Base: A Case Study of a Manufacturing Firm 1964-2002", **Journal of Customer Behaviour**, Vol 2, pp. 409-432.

Dwyer, F.R., Schurr, P.H. and Oh, S. (1987) "Developing Buyer-Seller Relationships", **Journal of Marketing**, Vol 51, pp. 11-27.

Dyer, J.H. (2000), **Collaborative Advantage: Winning Through Extended Enterprise Supplier Networks**, Oxford University Press, New York.

Dyer, J.H. and Nobeoka, K. (2000) "Creating and managing a high-performance knowledge-sharing network: The Toyota case", **Strategic Management Journal**, Vol 21, pp. 345-367.

Frazier, G.L., Spekman, R.E. and O'Neal, C.R. (1988) "Just-In-Time Exchange Relationships in Industrial Markets", **Journal of Marketing**, Vol 52, pp. 52-67.

Gadde, L.-E. and Håkansson, H. (1994) "The changing role of purchasing: reconsidering three strategic issues", **European Journal of Purchasing and Supply Management**, Vol 1 No 1, pp. 27-35.

Gadde, L.-E. and Håkansson, H. (2001), **Supply Network Strategies**, John Wiley & Sons Ltd, Chichester.

Gadde, L.-E. and Snehota, I. (2000) "Making the Most of Supplier Relationships", **Industrial Marketing Management**, Vol 29, pp. 305-316.

Harland, C. (1996) "Supply Network Strategies. The Case of Health Supplies", **European Journal of Purchasing & Supply Management**, Vol 2, pp. 183-192.

Harland, C., Lamming, R.C., Zheng, J. and Johnsen, T. (2001) "A Taxonomy of Supply Networks", **The Journal of Supply Chain Management**, (Fall), pp. 21-27.

Harland, C., Zheng, J., Johnsen, T. and Lamming, R. (2004) "A Conceptual Model for Researching the Creation and Operation of Supply Networks", **British Journal of Management**, Vol 15, pp. 1-21.

Hines, P., Rich, N. and Esain, A. (1998) "Creating a Lean Supplier Network: a Distribution

Industry Case", **European Journal of Purchasing & Supply Management**, Vol 4, pp. 235-246.

Holmen, E., Håkansson, H. and Pedersen, A.-C. (2003) "Framing as a Means to Manage a Supply Network", **Journal of Customer Behaviour**, Vol 2, pp. 385-407.

Holmen, E. and Pedersen, A.-C. (2003), "Strategizing Through Analyzing and Influencing the Network Horizon", **Industrial Marketing Management**, Vol 32, pp. 409-418.

Holmen, E., Pedersen, A.-C. and Jansen, N. (2007) "Supply Network Initiative – A Means to Reorganise the Supply Base?", **Journal of Business and Industrial Marketing**, Vol 22 No 3, pp. 178-186.

Håkansson, H. and Persson, G. (2004) "Supply Chain Management: The Logic of Supply Chains and Networks", **The International Journal of Logistics Management**, Vol 15 No 1, pp. 11-26.

Johnsen, T.E., Wynstra, F., Zheng, J., Harland, C.M. and Lamming, R.C. (2000) "Networking Activities in Supply Networks", **Journal of Strategic Marketing**, Vol 8 No 2, pp. 161-181.

Kinder, T. (2003) "Go with the flow – a conceptual framework for supply relations in the era of the extended enterprise", **Research Policy**, Vol 32, pp. 503-523.

Knight, L. and Harland, C. (2005) "Managing Supply Networks: Organizational Roles in Network Management", **European Management Journal**, Vol 23 No 3, pp. 281-292.

Kraljic, P. (1983) "Purchasing must Become Supply Management", **Harvard Business Review**, September-October, pp. 109-117.

Lamming, R.C. (1993), **Beyond Partnership. Strategies for Innovation and Lean Supply**, Prentice Hall, London.

Lamming, R.C., Johnsen, T.E., Zheng, J. and Harland, C.M. (2000) "An Initial Classification of Supply Networks", **International Journal of Production and Operations Management**, Vol 20 No 6, pp. 675-691.

Liliecreutz, J. (1998) "Orchestrating resource base, role and position: a supplier's strategy in buyer-dominated relationships", **European Journal of Purchasing and Supply Management**, Vol 4, pp. 73-85.

Mills, J, Schmitz, J. and Frizelle G. (2004) "A strategic review of "supply networks", **International Journal of Operations & Production Management**, Vol 24 No 10, pp. 1012-1036.

Romano, P. (2003) "Co-ordination and Integration Mechanisms to Manage Logistics Processes Across Supply Network", **Journal of Purchasing and Supply Management**, Vol 9, pp. 119-134.

Stjernström, S. and Bengtsson, L. (2004) "Supplier perspective on business relationships: experiences from six small suppliers", **Journal of Purchasing and Supply Management**, Vol 10, pp. 137-146.

van Weele, A.J. (2000), **Purchasing and Supply Chain Management. Analysis, planning and practice,** Thompson Learning, London.