How to manage a long-term buyer-supplier relationship successfully? The impact of network information on long-term buyer-supplier relationships in the Dutch potted plant and flower industry

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Abstract

Recently, scholars have suggested that to understand fully the nature of a dyadic relationship, greater attention must be directed to the network context. In this study we drew on emerging perspectives on inter-firm governance and networks to develop a theoretical framework to understand the successful governance of long-term buyer-supplier relationships. In order to test the research framework, we conducted a survey among 174 merchant distributors (buyers) and 67 growers (suppliers) in the Dutch potted plant and flower industry. In the estimated models, we found several positive impacts of the information obtained from the business network on the dimensions of relationship management, and ultimately performance, both in terms of operations as well as finance. The results of this study support our rationale that the business network compensates for the information asymmetry assumed in transaction cost economics. Although there are several similarities in our findings, buyers and suppliers use clearly different information strategies to achieve success. While the most successful distributors tend to take the 'hard', tangible approach using transaction-specific investments and fostering joint action, the successful growers take the 'soft', social approach by putting emphasis on norms of flexibility in the relationship. Managers may use these findings to check the adequacy of their business networks and their approach to relationship management.

Keywords: information, business networks, buyer-supplier relationships, relationship management

1. Introduction

No firm works in a vacuum, managers continually look for challenges and opportunities, using their relationships with other firms to obtain valuable information for their decision-making. In this paper we analyse the importance of the social capital (the managers' capacity to extract valuable information from its business network) for the firm's long-term survival. We should realize, however, that the human capital (the competences, capabilities and business skills of the firm's personnel), and the structural capital (the tangible assets, such as plants and equipment, and intangible assets, such as patents, trademarks, brand names, product and process know how), are at least as important for its long-term survival as the social capital. We therefore asked ourselves: *How important is the social capital compared to the human and structural capital of a firm? In other words: Should managers concentrate on increasing the social capital, or is it more appropriate to concentrate more on human and structural capital, taking the limited manager's time and resources into account?*

Issues on relationship management have received considerable attention in network literature. A growing body of research addresses different aspects of the firms' relationships with exchange partners from a variety of theoretical perspectives (Omta et al., 2001). The predominant focus in much of the existing research has been on isolated dyadic relationships between firms. However, there is a clear need to move beyond the dyadic relationship and explore the competitive advantages of being embedded in a business network. The present study aims to understand the impact of the business network on a focal buyer-supplier relationship. To that end, we analyse the business network in terms of the information that firms can obtain from the total set of connected relationships (e.g., with first-tier suppliers and buyers' customers). The present study focuses on the two sides of the buyer-supplier relationship. By collecting data from both buyers and suppliers, we explore the differences between the purchasing and marketing perspective, i.e. whether or not a company in the buying position takes a different approach to achieve high performance compared to a company in the supplying position. This allows for a fine-tuning of research in the

field of relationship management, since most previous studies used data from only one side of the relationship. A survey was conducted including 174 growers of potted plants and flowers and 67 merchant distributors in the Netherlands. The potted plant and flower industry was chosen because it is one of the most important sectors in Dutch agribusiness with a 2001 sales volume of over €3 billion, accounting for more than 65% of the total world trade in flowers and plants (Ministry of Agriculture, Nature and Food Quality 2001). Furthermore, despite the fact that the Dutch auction clock system is world renowned, in recent years an increasing number of firms have shifted their trade from the auction clock, where buyers and suppliers have virtually no contact, to fixed lines, in which long-term buyer-supplier relationships are established. These changing relationships require growers and merchant distributors to change their spot-market mindset. Firms must now look for collaboration, in terms of creative problem solving, integration of activities and resources, and close contact with the counterpart. The shift away from spot-market exchange also entails a shift in the approach to obtaining valuable information, making it a very interesting subject for research of the impact of the business network information on long-term buyer-supplier relationships. This paper is divided into five sections. In section 2 the theoretical foundation and the theoretical framework are discussed; section 3 presents the study domain and the research design, and section 4 describes the results of the surveys. Finally, section 5 includes the discussion and conclusions, the managerial implications, and suggestions for further research.

2. Theoretical framework and research hypotheses

The network school of thought

The network school of thought has significant implications for the study of buyer-supplier relationships. Building on social exchange literature, researchers in the past decade have moved beyond the dyadic level to look at the effects of the overall structure of relationships in which firms are embedded (Granovetter, 1985). According to Saxenian (1991) for instance, firms act in a complex environment in which no relationship can really be understood without reference to relationships with many others. For this reason networks have received attention in a wide range of organizational literature, from sociology to management and economics. From these fields a network perspective has emerged that views organizations as embedded in a web of linkages that both facilitate and constrain them by guiding their interests and abilities to take actions (Powell,

1990; Nohria and Eccles, 1992). Granovetter (1985) presented the essence of this perspective: *'Actors do not behave or decide as atoms outside a social context, nor do they adhere slavishly to a script written for them by the particular intersection of social categories that they happen to occupy. Their attempts at purposive action are instead embedded in concrete, ongoing systems of social relations.'*

Networks have been investigated in relation to alliances (e.g., Gulati, 1998), organizational management (e.g., Kenis and Knoke, 2002), organizational learning (e.g., Kogut, 2000), strategy formulation (e.g., Jarillo, 1988), preferred suppliers (e.g., Dyer, 1996), international relationships (e.g., Hakansson and Johanson, 1993) and marketing channels (e.g., Antia and Frazier, 2001). Others have investigated networks as webs of firms connected by ICT and forming virtual organizations (e.g., Ahuja and Carley, 1999). The industrial network approach focuses on exchange relationships between production and distribution firms. Because activities are interdependent, coordination is based not only on market forces but also on the actors, resources and activities that are part of the relationship (e.g., Hakansson and Snehota, 1995). The diverse array of definitions of networks used by the above-mentioned authors has a common core. Each definition describes networks as a set of dense interdependent business relationships that can evolve out of a manager's personal ties or from market-based relationships, while the primary benefits are access to information and resources. In contrast to the tendency to emphasize the negative role of dependency (e.g., Heide and John, 1990; Kemp and Ghauri 2001), in the network perspective firms' interdependence is viewed as an important force binding organizations, as a separate governance structure, alternative to the traditional spot market and vertical integration (Thorelli, 1986; Powell, 1990, and Granovetter, 1985).

Buyer-supplier relationships and the network concept

A network can help shape buyer-supplier relationships, because it binds connected relationships together. Relationships are connected in the sense that decisions made in a focal relationship are supported by the valuable information provided by other relationships (Gulati, 1998; Hakansson and Snehota, 1995; Burt, 1997; Blankenburg et al., 1999). Generally speaking, firms link to one another to create bonds that serve both as a lubricant for getting things done and as a glue imposing order and meaning (Granovetter, 1985). Since no relationship exists in isolation, what happens or is achieved in one relationship will always relate to what is happening in at least some others (Anderson et al., 1994). For example, if a supplier invests in developing a new product with a specific buyer, he could successfully

apply information about the production and logistic processes used in other connected relationships. The supplier might also be able to use the same approach with other buyers in other regions. The network then can be said to possess informational advantages that go beyond information exchange in only one dyadic relationship.

Theoretical framework

Following studies that consider networks as supportive of bilateral governance, the present study places networks central in the explanation of the bilateral governance of long-term buyer-supplier relationships. Dyer (1996) studied the preferred-supplier approach used by automobile manufacturers, and Saxenian (1991) the computer Industry. They found evidence of interactions between not only the direct participants in a specific buyer-supplier relationship but also between other suppliers and customers. These interactions may create an atmosphere of supportive social relations with information flows providing opportunities and access to resources. Swedish construction firms invest in connections with other firms and pool information that fosters resource integration and innovation and blurs independent identities (Hakansson et al., 1999). Although there is much literature on certain aspects of buyer-supplier relationships (e.g., the relation between trust and collaboration), up to now, no framework has emerged that integrates theories on relationship management and network theory. The present study combines these concepts into one theoretical framework (see Figure 1).

Following the causal relations displayed in Figure 1, we asked ourselves: *How might the information obtained from the network impact the dimensions of a focal buyer-supplier relationship?* In this framework we used the three most important dimensions of a long-term buyer-supplier

relationship mentioned in literature: namely trust (Anderson and Narus, 1990), transaction-specific investments (Williamson, 1985) and collaboration (Morgan and Hunt, 1994), divided into joint action (Zaheer and Venkatraman, 1995) and flexibility (Noordewier et al., 1990). The constructs used in the theoretical framework will be elaborated below.

Network information

Information obtained from network connections (the business network in figure 1) may help firms to reduce information asymmetry in buyer-supplier relationships. 'Information asymmetry' refers to the fact that many transactions are characterized by incomplete, imperfect or unbalanced information among the transactional parties (Williamson, 1985). While public information is available to each transactional partner, private information is available only to selected organizations (Hobbs, 1996). A review of the literature echoes the role of information in supporting a relationship in terms of innovation (Kogut, 2000), resource exchange (Kenis and Knoke, 2002), sentimental attachment (Gulati, 1998), business opportunities (Hakansson and Johanson, 1993), monitoring (Williamson, 1996) and the setting of trade conditions (Stern et al., 1996). Moreover, recent studies focus on the information benefits provided by networks, and found that information directly affects the integration of complementary resources for improving processes in a specific relationship (Gulati et al., 2000; Antia and Frazier, 2001).

Gulati (1998) argues that firms in a network bring social capital to other network members in the form of information, which can be used as a source of reputation, contacts and referrals. The network also brings information that *a priori* affects trust, which is an important element of a buyer-supplier relationship. Firms may also share expert

Figure 1. Theoretical framework.

interpretations of information. For example, cooperatives and specialized associations frequently release reports on the market, tendencies and trends. The interpretation and applicability of such information is even more important than the transmission of the information itself. Network information may have to do with trade conditions, e.g. price information of other deals (Sebenius, 2002), and contribute to defining sales and purchase strategies (Stern et al., 1996). Secondly, it may also have to do with more proprietary and tacit types of information, as other firms in the network may convey valuable information to counterparts how to improve the innovative potential and production processes (Hakansson and Snehota, 1995; Hakansson et al., 1999) and logistics (Gadde and Snehota, 2000). Thirdly, it may be Information about the (potential) actions of the partner (Burt, 1997). Information on the partner's past actions may enable firms to avoid unexpected moves by a transaction counterpart. In the business relationship literature firms are considered to act collaboratively, but eventually some 'self-interest seeking with guile' may emerge through opportunism (Williamson, 1985, for a detailed discussion on opportunism see Wathne et al., 2001). In addition, the network connections enable firms to develop common beliefs and values, which create goal congruence among members and reduce risks of opportunism.

Trust

The need for trust between partners has been identified as an essential element of a long-term buyer-supplier relationship (Anderson and Narus, 1990; Geyskens et al., 1998; Rousseau et al., 1998). Trust enables partners to manage risk and opportunism in transactions (Nooteboom et al., 1997). Moreover, trust helps to reduce complexity more efficiently than prediction, authority or bargaining (Powell, 1990). Broadly defined, trust reflects the extent to which negotiations are fair and commitments are sustained (Anderson and Narus, 1990) and the extent to which one party believes that its requirements will be fulfilled through future actions undertaken by the counterpart (Anderson and Weitz, 1992, Barney and Hansen, 1994). Trust, then, refers to the shared belief that in the long run, rewards will be distributed fairly among the partners (Barney and Hansen, 1994). There is a general sense that this year's winner could be next year's loser and, consequently, to press one's advantage opportunistically would be unadvisable. Trust is an important lubricant of relationships. It binds parties and has an important future orientation (Ganesan, 1994). It enables a party to have a fair degree of reliance on the counterpart's word (Bradach and Eccles, 1989). Previous studies found that trust guides behaviour in some business settings (Morgan and Hunt, 1994), and when trust is operative the risk of opportunism and market instability

is reduced. Moreover, Smith and Barclay (1997) found that trust significantly affects the attitudes and behaviour of suppliers toward buyers (i.e., independent sellers). The present study draws on two 'trust dimensions' that can be defined in the buyer-supplier relationship, namely the interpersonal and the inter-organizational dimension (Rousseau et al. 1998). While inter-organizational trust reflects the extent to which members of an organization have a collectively held trust orientation toward the partner firm, interpersonal trust reflects the extent to which a boundary-spanning agent trusts his or her specific counterpart within the partner organization (Zaheer et al., 1998).

Transaction-specific Investments

The ramifications of the decision to create specific transactional assets are the principal focus of transaction cost economics (TCE, Williamson, 1985, 1996). TCE has focused attention on the accumulation of assets - that is, any tangible or intangible value - that are difficult and costly to shift from one transactional partner to another. Such assets are rather customized and idiosyncratic and are therefore of considerably less value outside the focal relationship (Heide and John, 1990). Specificity arises in different ways, particularly in human knowledge and skills and in physical specificities. Initially, the central proposition was that high levels of transaction-specific investments (TSI) would affect the buyer-supplier relationship negatively by fostering dependence and other governance hazards, such as opportunism (e.g. Williamson, 1985; Anderson and Gerbing, 1988). However, research has proven that TSI might enhance coordination and cooperation between partners (Bensaou and Venkatraman, 1995; Dyer, 1996). In strategic management, investment in specific assets can be a source of competitive advantage (Dyer and Singh, 1998). The notion of contracting with another organization, yet only partly shielding specific investments, has attracted considerable attention. In an increasingly complex, dynamic and competitive environment shaken by rapid changes in consumer wishes, technology and international trade, it has become more difficult for any single firm to 'go it alone' in all of its products and markets (Ohmae, 1989). Thus, many firms must reduce their range of activities and concentrate on a few core competences (Prahalad and Hamel, 1990), at the same time increasing the frequency and magnitude of collaboration with other firms (Contractor and Lorange, 1988). In buyer-supplier relationships, firms can focus on their own distinctive core competences (i.e., specializations) while investing in specific assets. Collaboration enables them to benefit from a counterpart's other, complementary assets, which might be difficult to appropriate, and still pursue a multitude of markets and

technologies (Powell, 1990). TSI is therefore an important mechanism for achieving closeness in a buyer-supplier relationship. The deliberate creation of specific assets for the purpose of making it difficult for a partner to exit the relationship confers a sufficient reason for the collaborators to continue to work closely together (Williamson, 1985). This self-imposed exit barrier provides incentive for an investor to live up to its promises, suggesting that TSI acts as a safeguard against opportunistic behaviour. Additionally, TSI reassures the counterpart about the intentions and integrity of the investor. Creating specific assets is known as creating credible commitments (Heide and John, 1988) or pledges (Anderson and Weitz, 1992). The concept of TSI has been employed extensively in studies of buyer-supplier relationships (e.g., Heide and John, 1990; Klein et al., 1990; Bensaou, 1999). Given the extant literature, TSI primarily centers on the human and physical dimensions (for an extensive review see Rindfleisch and Heide, 1997). Physical TSI refers to transaction-specific capital investments that tailor processes to particular exchange partners. The physical investments investigated in previous research are customized machinery, tools and dies (e.g., Bensaou and Venkatraman, 1995). Human specificity is the degree to which the skills, knowledge and experience of firm personnel are specific to the requirements of dealing with another firm. John (1984) conceptualized specialized technical knowledge in shipping as reflecting human specificity. More recent studies have focused on human TSI as the level of training and experience specific to a product line in distribution channels (Heide and John, 1990; Bensaou and Venkatraman, 1995; Dyer, 1996).

Collaboration

In buyer-supplier relationships, organizational boundaries are penetrated by the integration of activities as the supplier becomes involved in activities that traditionally are considered the buyer's responsibility and vice-versa (Yilmaz and Hunt, 2001). Collaboration is a departure from the anchor point of discreteness that underlies spot-market transactions toward a relational, bilateral exchange. The roles of supplier and buyer are no longer narrowly defined in terms of the simple transfer of ownership of products. Given the dynamics of the environment and the shared decision-making roles of the parties, *joint action*, comprising *joint problem solving* and *joint planning* (Zaheer et al., 1998), as well as the *flexibility to make adjustments* (Noordewier et al., 1990; Bello and Gilliland, 1997) are essential to achieve success. These relationships rely on joint problem solving for conflict resolution and on joint planning as vehicle for achieving mutual understanding. Plans provide the frame of reference within which the parties jointly participate in the formulation process. Joint problem solving is necessary

to resolve disagreements that emerge in the process of maintaining the relationship, even when planning was done at the outset.

Performance

In the literature of performance much attention has been devoted to three main streams: financial, organizational and strategic. In the financial stream, accounting-based indicators of performance are most popular among researchers (for a review see Murphy et al., 1996). These include return on investment, return on sales, growth rate and return on assets. However, these measures are of limited value when applied to strategic issues. Seldom can all the objectives of a firm be evaluated by accounting-based measures. Furthermore, there is always some room for manipulation in the way liabilities and assets are represented, despite strict accounting legislation (Venkatraman and Ramanujam, 1986).

Organizational theory offers three approaches to measuring organizational effectiveness or performance (Murphy et al., 1996). First is the goal-based approach, which suggests that a firm should be evaluated based on the degree to which it has attained the goals it set for itself. Nevertheless, firms have multiple and possibly contradictory goals. This makes cross-firm comparisons in research difficult or even impossible. Second is the system approach, which partially compensates for the weakness of the goal-based approach by considering the simultaneous attainment of multiple, generic performance targets. Neither approach, however, takes into account the fact that different stakeholders might have different perspectives on performance. The third approach, the multiple constituency approach, factors in these differences in stakeholder perspectives. The multiple constituency approach evaluates a firm by examining the extent to which the agendas of various stakeholders are satisfied. It is important to examine operational (non-financial) performance measures, such as product quality, customer satisfaction, new product introductions and market shares. The set of non-financial measures involves subjective as well as objective indicators. These indicators of a firm's operational effectiveness are what lead to financial performance. Thus, by examining the two dimensions, research can arrive at an accurate estimate of the performance of an organization. The present study applies a multidimensional measure of performance. Two measures of financial performance are used, profitability and the sales growth rate, alongside one operational measure, perceived satisfaction.

Hypotheses

It is important to stress that the development of a relationship contains loops and is not always a sequential process. The formulation of the hypotheses tries to build in some sequence and causality based on the literature review. Noteworthy, however, is that some variables mutually affect each other. For example, good performance might have a direct positive impact on collaboration and trust. Moreover, more direct and indirect relations between the concepts might occur in practice. Thus, more collaboration may influence the level of trust and encourage firms to seek more information through the network, whereas a (too) high level of transaction-specific investments might reduce flexibility by creating hold-up situations. These effects might come to the fore in our empirical hypotheses testing. We will be vigilant for such effects in our analyses.

The impact of network information on the buyer-supplier relationship

The network in which a firm is embedded is likely to offer information that promotes trust in a buyer-supplier relationship. Network members diligently transmit information about unacceptable behaviour, thus providing a mechanism for monitoring potential opportunistic behaviours. Network connections also foster common beliefs and values among member firms, leading to goal congruence and reducing the risk of opportunism. Future plans and strategic decisions can be based partially on information on trends and product demands obtained through the network. The information represents a guarantee that a relationship is subject to good-faith modification if a particular practice proves detrimental in the light of changed circumstances. We therefore expect that:

H1-H4: The more positive feedback information a firm obtains from the network about its partner in a focal buyer-supplier relationship, the more this will encourage either tangible (e.g. transaction-specific investments, H1), or intangible investments, e.g. in terms of trust (H2), and collaborative behaviour (H3 and H4).

The impact of trust on the buyer-supplier relationship

Considering the benefits of trust, we posit a positive causal path from trust to collaborative behaviour. As discussed previously, trust not only offers the benefits of calculative economics but also the soft side of affection and belief in partners and the security of a continuing relationship. According to Powell (1990) and Hakansson and Snehota (1995), trust leads to a more rapid flow of information and a high level of open communication. Trust creates a perceived supportive climate that encourages a firm to adapt

as circumstances unfold (Anderson and Narus, 1990). We then expect that:

H5-H6: The more the partners trust each other, the higher the degree of collaborative behaviour will be in a focal buyer-supplier relationship.

The impact of TSI and flexibility on joint action

There might be two effects of TSI on joint action. Firstly, joint actions may serve to safeguard high TSI. This is because joint action creates grounds for bilateral governance in the relationship (Williamson, 1996), which helps to reduce the opportunistic tendencies that erode the value of specific assets. Secondly, joint action may facilitate coordination of activities and resources in buyer-supplier relationships. Flexibility is important for coping with the day-to-day management of the ever changing circumstances that any firm faces, considering the complexity and risk of today's production and handling processes (e.g., perishable products). Thus, we expect that:

H7 and H8: The higher the degree of TSI (H7) and flexibility (H8), the higher the degree of joint action will be in the focal buyer-supplier relationship.

The impact of collaborative behaviour on performance

Firms engaged in joint actions are likely to perform well. Previous research has found that firms engaged in joint action with a mutual interest in finding ways to add value or save costs gain competitive advantage (Anderson and Narus, 1990; Mohr and Spekman, 1994). Thus, we expect that:

H9 and H10: The higher the collaborative behaviour of the partners in the focal buyer-supplier relationship, the better both the perceived and the business performance will be.

3. Research design and measures

Study domain

The potted plant and flower industry is one of the most important sectors in Dutch agribusiness with a 2001 sales volume of over €3 billion, accounting for more than 65% of the world trade in flowers and plants (Elshof, 1998, Ministry of Agriculture, Nature and Food Quality 2001). Per capita cut flower consumption in Europe averages €35.50 compared to €28.30 in the United States. In recent years, the export has increased dramatically, not only have cut flower exports to countries in Europe increased, a sharp increase is also evident to the large market of Russia. Rail transport is increasingly used for longer distances within Europe. The approximately 9,000 growers achieve a fast productivity growth due to improved greenhouses, better cultivation methods, controlled lighting and automation of vital

processes to regulate climate and humidity. The products of this industry can be divided into two main groups: cut flowers and foliage plants and potted plants and flowers. In the Netherlands, potted plants and flowers are grown largely under glass. They are divided into potted foliage plants and flowering plants. Foliage plants make up 40% of Dutch potted plant production. The most important of these is the *Ficus*, with sales of about €40 million in 2002. Other important potted foliage plants are *Dracaena*, *Hedera*, *Schefflera* and palms. The most important cut flower is the rose, with sales of about €700 million in 2002. Other cut flower products are chrysanthemum, tulips, lilies and gerberas. Some of these cut products reach the end consumer as bouquets created by specialized wholesalers or florists and through supermarkets and open-air markets.

The buyers, generally called merchant distributors, are firms such as wholesalers, cash-and-carries and garden centres. Among the about 1,500 merchant distributors concentration is very much the watchword: the largest 4% (those with sales of more than €12 million) control nearly half of the purchases. Florists are the dominant retailers in the industry, representing 52% of the outlets, street sellers account for 27% of outlets, followed by supermarkets. But in some countries supermarkets account for the majority of sales, 45% in the UK and even 65% in Switzerland (Lannings, 2000).

The Netherlands is renowned for its auctions. More than 92% of the trade between suppliers and buyers in this sector is affected under the services of the auctions (Ministry of Agriculture and Food Quality, 2001). The two largest, namely Aalsmeer and Flora Holland, account for more than 80% of the total trade between suppliers and buyers. The auctions offer infrastructure for the trade in two distinct channels, namely fixed lines and the auction clock. The Dutch auction clock system works via the price-reduction principle, in which the price is adjusted downward until the product is sold to the first buyer to respond. About 90% of the Dutch cut flowers and two-thirds of the potted plants and flowers are traded via the auction clock. The present paper focuses on the other channel, called 'fixed lines'. This channel is growing very rapidly in the potted plant and flower sector. Nowadays, this channel includes about one-third of the total potted plant and flower sales, as opposed to less than 5% only five years ago (Kalenzi, 2000). It is expected to continue to grow in the future, because the fixed lines present advantages for both buyers and suppliers. Buyers are assured of the necessary quantity of potted plants, delivered at the requested date, time and place and at a fixed price. Suppliers know the price they will get, since it is negotiated in advance. In this way, they are no longer dependent on the auction clock with its unpredictable prices and fluctuation of volumes.

Data collection and research instrument

The data were collected in 2002. The Aalsmeer Auction provided a list of 600 supplier companies and 350 buyer companies. The list was screened to eliminate non-qualifying companies. The supplier list was found to contain 32 non-eligible companies (e.g., foreign companies, liquidated companies and duplicate addresses) and the buyer list 8 non-eligible companies, which were excluded from the final list. Our data collection effort yielded 202 responses of supplier companies, of which 28 were incomplete questionnaires and non-eligible companies (31% response rate). From the buyers we received 67 usable questionnaires (20% response rate). A standardized survey questionnaire (the Florel questionnaire) was used that consists of 60 precoded questions. For most of the items the Likert 7-point response format was used, and a limited number of items were assessed with 2 to 5-point response formats. The questions address the relationship between the respondent and a regular counterpart via fixed line transactions. Before the data collection started the questionnaire was tested in a case study design, including 5 supplier companies (5 to 45 employees) and 4 buyers companies (180 to 550 employees). The input from a panel composed of faculty members and industry experts was also particularly helpful in creating the different measurement scales and individual items.

Research measures and data analysis

The business network construct refers to sets of connected relationships that are contingent (informational benefits) upon each other and that influence a focal buyer-supplier relationship (Cook and Emerson, 1978). The business network then reflects the average strength of the information obtained from the business network. The measure for network connections was developed based on Anderson et al. (1994), and Blankenburg et al. (1999). To capture all the potential sets of connected relationships, five network subgroups were identified located upstream (input suppliers of products such as young plants and seeds and firms that supply fertilizers, chemical products, pots, vases, etc.) and downstream in the supply chain (other buyers e.g. wholesalers, flower exporters, cash-and-carries and garden centres, and buyers' customers, such as supermarkets, flower shops and wholesalers abroad) and third parties (agents of the auction who have strong bonds with both suppliers and buyers). The informational benefits of each network subgroup refer to support in three areas: setting prices, quantities and qualities; coordinating production processes and logistic operations; and foreseeing possible future actions of the counterpart.

Transaction-specific investments (TSI) are defined as one party's perception of the extent to which an investment was made specifically for a transaction with one or a limited number of companies. Items about the Human and Physical TSI were included in the questionnaire. *Human TSI* refers to investments made in human resources, such as staff training, and other business practices specifically intended for operating with the selected counterpart. This dimension was measured with a scale containing three items adapted from Heide and John (1984), and Bensaou and Venkatraman (1995). The dimension of *physical TSI* refers to investments in equipment, machinery and special docks and wagons. A two-item scale measured this dimension. *Trust* refers to the belief that the other partner is honest and sincere and will not deliberately damage the relationship. Trust reflects the expectation that negotiations will be fair and commitments will be sustained (Anderson and Narus, 1990). Trust is captured in two dimensions, interpersonal and inter-organizational trust. *Interpersonal trust* refers to the trust placed by the respondent in the contact person of the selected partner. It was measured using a five-item scale. *Inter-organizational trust* refers to the trust placed in the organization of the selected partner. This dimension was assessed with six items adapted from Zaheer, McEvily and Perrone (1998). Collaboration refers to situations in which partners work together to achieve mutual goals (Anderson and Narus, 1990; Morgan and Hunt, 1994). The collaboration construct has two dimensions: the norm of flexibility and joint action. The norm of *flexibility* is defined as the extent to which a partner shows an accommodating response to changing circumstances (Heide, 1994). Flexibility to make adjustments

is measured by three items describing the partners' expectations of one another. *Joint action* was calculated by measuring the degree of joint planning and joint problem solving. Joint planning is defined as the extent to which future contingencies, and consequential duties and responsibilities in a relationship, have been made explicit ex ante. The four-item scale refers to joint goal setting and making demand forecasts together. This is in line with Heide and John (1990). Joint problem solving is defined as the extent to which joint activities are organized to resolve disagreements, technical failures and other unexpected situations (Lusch and Brown, 1996). The four-item scale was adopted from Heide and Miner (1992).

A multidimensional measure of *performance* was used, two measures of financial performance, profitability and the sales growth rate, were combined with one affective dimension, *perceived satisfaction*. This dimension is defined as the assessment of the respondent's satisfaction regarding how well the business relationship with the selected partner achieves the expectations. Perceived satisfaction was measured by a six-item scale adapted from Bensaou and Venkatraman (1995), which was also used by Doney and Cannon (1997), and Zaheer et al. (1998). Appendix A provides an overview of the items used in the questionnaire. We carefully checked the validity (discriminant, convergent and content) and reliability using Cronbach's alpha, composite reliability, and extracted variance of the measures and the sample's non-response bias. Appendix A shows that in all cases Cronbach's alpha was sufficiently high ($> .7$) to warrant confidence in the internal consistency of the scales. Researchers commonly use a cut-off of 0.80 for correlations among variables for dismissing multi-collinearity

Table 1. Spearman rank correlation matrix, and mean and standard deviation of the supplier sample.

	Mean	SD	Net	Hum	Phy	CSJA	OrgT	PerT	FA1	FA2	FA3	P1	P2
Business network (Net)	2.76	.94											
Human specific investments (Hum)	3.32	1.36	.30										
Physical specific investments (Phy)	3.48	1.85	.26	.54									
Joint action (CSJA)	4.26	1.10	.32	.41	.32								
Inter-organizational trust (OrgT)	5.31	1.16	.07	.36	.18	.57							
Interpersonal trust (PerT)	4.70	1.13	.10	.19	.23	.49	.60						
Flexibility to make adjustments (FA1)	4.94	1.87	.06	.19	.10	.44	.35	.22					
Flexibility to make adjustments (FA2)	3.60	1.94	.10	.17	.06	.43	.41	.31	.28				
Flexibility to make adjustments (FA3)	4.92	1.86	.23	.29	.16	.57	.52	.34	.43	.31			
Perceived satisfaction (P1)	5.28	1.00	.01	.23	.16	.44	.68	.41	.29	.36	.35		
Profitability (P2)	4.45	1.90	.02	-.05	.04	.08	.29	.11	.09	.23	.13	.36	
Growth rate in % (P3)	9.14	15.15	-.05	.05	-.01	.21	.18	.02	.18	.06	.20	.14	.18

Note: Bolded correlation coefficients are significant at a 5%, and underlined coefficients at 1% level.

problems (Malhotra, 1999). As can be seen in table 1 and 2, all correlations are below .60, except for three correlations that fall below .78. Also the other validity and reliability checks were positive.

Different statistical methods were used to analyse the data. The bivariate procedures included one-way ANOVA, Kruskal-Wallis test, and Spearman rank correlation. The multivariate procedures included factor analysis, and structural equation modelling in Lisrel 8.50 (Jöreskog and Sörbom, 1996). Structural equation modelling is a powerful method for testing causal models because it enables the simultaneous evaluation of the individual paths constituting the model, total effects and the complete model's goodness of fit (Hair et al, 1995). Two models were estimated, one of the supplier sample, and another of the buyer sample (Figure 2 and 3).

4. Results

The companies are not very large. Only 10% of the supplier and the buyer companies count more than 60 employees, and 50% have fewer than 15 employees. The sales difference between suppliers and buyers is apparent. While 51% of the buyers record an annual sales volume of more than €5 million, 42% of suppliers make less than €800,000 annually. However, a cross-tab of supplier size with the size of its selected buyer shows an interesting result. There is a large concentration of suppliers dealing with relatively smaller buyers. Interestingly, a cross-tab of the buyer sample shows that the buyers also deal with relatively smaller suppliers. Apparently, companies feel comfortable and therefore tend to engage in long-term relationships with partners that resemble the company in size.

The particular importance of these long-term relationships for the respondents is stressed by the fact that the indicated length of the long-term relationship with the selected partner in the supplier sample averages more than 8 years (sd: 5.6) and in the buyer sample over 7 years (sd: 4.67). It ranges from 1 to 30 years in the supplier sample and from 2 to 21 years in the buyer sample. 79% of the buyers have maintained this relationship for up to 10 years, while slightly fewer suppliers (70%) report having maintained a 10-year relationship.

We included a dependency variable in the questionnaire to assess the respondents' perceptions of the number of alternative counterparts in the market. In the supplier sample, 62% of respondents perceive that there are many alternative buyers in the market. In contrast to this, only 38% of the buyers perceive that there are many alternative suppliers in the market. This is in accordance with the observation that, due to the specialization of the potted plant suppliers, buyers have only limited alternatives. So, despite the fact that there are many more supplier than buyer companies, we can speculate that suppliers are less dependent and have less fear of becoming locked into an unfavourable counterpart relationship.

Tables 1 and 2 show the Spearman rank correlation, and the mean and standard deviation for the constructs of the supplier and buyer sample, respectively. Buyers seem to perform better than suppliers. We call special attention to the sales growth rate over the last three years. It shows that the buyer sales are growing at about 14%, while the supplier sales grow at an average of 10%. The standard deviations indicate that some of the companies show a negative growth, while others are growing at a staggering rate of 50%. It is

Table 2. Spearman rank correlation matrix, and mean and standard deviation of the buyer sample.

	Mean	SD	Net	Hum	Phy	CSJA	OrgT	PerT	FA1	FA2	FA3	P1	P2
Business network (Net)	3.04	1.12											
Human specific investment (Hum)	3.32	1.69	.36										
Physical specific investments (Phy)	3.14	1.77	.32	.74									
Joint action (CSJA)	4.53	1.34	.26	.57	.43								
Inter-organizational trust (OrgT)	5.37	1.06	-.26	.05	-.02	.32							
Interpersonal trust (PerT)	5.09	1.07	-.10	.20	.20	.32	.51						
Flexibility to make adjustments 1 (FA1)	5.44	1.60	.13	.48	.33	.48	.31	.14					
Flexibility to make adjustments 2 (FA2)	4.71	1.88	.32	.55	.44	.57	.32	.31	.50				
Flexibility to make adjustments 3 (FA3)	4.57	2.08	.36	.41	.30	.63	.23	.17	.30	.55			
Perceived satisfaction (P1)	5.52	.94	-.26	.15	.06	.31	.78	.40	.36	.27	.06		
Profitability (P2)	5.03	1.75	.09	-.03	.02	.21	-.12	.14	.07	.06	-.01	-.11	
Growth rate (P3)	13.86	18.80	.01	.11	.10	.10	.08	-.05	.09	.06	.14	.12	.07

Note: Bolded correlation coefficients are significant at 5%, and underlined coefficients at 1% level.

striking that the respondents in both samples did not indicate a high level for the different constructs (except for trust). For instance, in both samples the means of the usefulness of business network information and the human- and physical-specific investment levels are both below 4.0 on our 7-point scale. Also, the flexibility to make adjustments falls below the middle point in the supplier sample. Comparing the mean of the business network construct, buyers (3.04) appear to obtain somewhat more useful information from the network than the suppliers (2.76). Buyers exhibit a clearly higher level of trust in the counterpart (5.37 for inter-organizational and 5.09 for interpersonal trust) compared to 5.31 and 4.70, respectively, in the supplier sample.

As expected, in both samples we found significant correlations between the usefulness of network information and several constructs of the buyer-supplier relationship and ultimately performance. The network construct appears to be positively associated with both dimensions of transaction-specific investments and joint action. Surprisingly, in the buyer sample, network is negatively associated with perceived satisfaction and inter-organizational trust. The highest correlation was found between inter-organizational trust and perceived satisfaction. In the supplier sample, both dimensions of trust are positively associated with perceived satisfaction, growth rate and profitability. Flexibility is also associated with the performance measures. In the buyer sample, flexibility is associated with perceived satisfaction but not with the other measures of performance.

Figure 2 shows the results of a constrained model of our theoretical framework, where the non-significant paths of the estimated model (i.e., from business network to joint action and from trust to joint action) are set to zero. Anderson and Gerbing (1988) recommend this procedure and suggest a chi-square difference test (CDT) for nested models to test the null hypothesis (i.e., *alternative constrained model - theoretical model* = 0).

The model presented in Figure 2 turned out to provide the best fit of the observed correlations between the concepts. It shows that several paths are significant and that the overall model fit is good. Furthermore, the analysis of the total effects (i.e. the sum of the indirect and the direct effects of one construct on another), shows that although there are no direct paths estimated in Figure 2, indirect effects can be calculated between the business network and trust, and between trust and joint action (data not shown, see Claro 2004).

Figure 3 shows the results of the structural equation model for the buyer sample. The overall goodness of fit indices could not be calculated in the theoretical model because the model did not converge after the iterations. We then tested a similar alternative model in which the composite performance variable was replaced by the two measures of performance (growth rate and profitability). As can be seen from the results of the alternative model in Figure 3, several paths are significant and the overall model fit is good. In order to provide greater confidence in the explanatory strength of the model in Figure 3, we tested our model against an alternative constrained model (not significant

Figure 2. The alternative constrained model of the importance of network information for buyer-supplier collaboration and performance: the supplier perspective.

$$\chi^2 = 64.47 \text{ (} P > 0.01 \text{) } df = 28; \text{ GFI} = 0.90; \text{ AGFI} = 0.78; \text{ RMSR} = 0.07; \text{ NFI} = 0.76; \text{ NNFI} = 0.75$$

Figure 3. The alternative theoretical model of the importance of network information for buyer-supplier collaboration and performance: the buyer perspective.

paths set to zero). After a CDT, the model presented in Figure 3 was revealed to be a more parsimonious model than the alternative constrained model.

Table 3 provides an overview of the tests of the hypotheses. It clearly shows that the information that firms obtain from the network affects the long-term buyer-supplier relationship. The network encourages firms to invest in assets specifically meant for transactions with a counterpart

(H1). In the supplier sample, we found that the network fosters trust, whereas in the buyer sample the effect of network information on trust is negative, in contrast to our hypothesis, and what was posited in previous research (H2). Furthermore, as hypothesized, the network exerts an indirect positive effect on joint action and has a direct positive impact on flexibility (H3 and H4).

Table 3. Summary of the tests of the hypotheses.

Hypotheses	Supplier Sample	Buyer Sample
Information obtained from the business network is positively related to:		
H1: Transaction-specific investments	Supported	Supported
H2: Trust	Supported	Negative significant effect
H3: Joint action	Indirect effect	Indirect effect
H4: Flexibility to make adjustments	Supported	Supported
The buyer-supplier relationship		
H5: Trust is positively related to joint action	Significant indirect impact	Significant indirect impact
H6: Trust is positively related to flexibility	Supported	Supported
H7: Transaction-specific investments are positively related to joint action	Supported	Supported
H8: Flexibility is positively related to joint action	Supported	Not supported
Impact of collaboration on performance		
H9: Joint action is positively related to performance	Negative significant effect	Supported ^a
H10: Flexibility is positively related to performance	Supported	Not supported

a. Only profitability measure

Trust indirectly influences joint action and directly impacts flexibility in a positive way, as hypothesized (H5 and H6). As expected, transaction-specific investment offers coordination and further integration of activities and resources, which promotes joint problem solving and joint planning (i.e., joint action, H6). According to the argumentation of our hypothesis (H7) and previous research (Dyer and Singh, 1998), the joint action response also functions as a mechanism to safeguard a firm against opportunistic behaviour, considering the vulnerable position of the investor firm. The effect of flexibility was supported in the supplier sample. In contrast, there was no significant effect of flexibility on joint action in the buyer sample (H8). In the supplier sample, there was a surprising negative effect of joint action on performance, while in the buyer sample, we found that joint action positively influences the profitability of the respondent firms (H9). Finally, for flexibility we found that it was negatively related in the supplier sample and positively related to performance in the buyer sample (H10). We will discuss these findings more in detail in section 5.

5. Discussion and conclusions

Recently, scholars have suggested that to understand fully the nature of a dyadic relationship, greater attention must be directed to the network context. In this study we drew on emerging perspectives on inter-firm governance and networks to develop a theoretical framework. In the estimated models, we found several positive impacts of the information obtained from the business network on the dimensions of a long-term buyer-supplier relationship, such as transaction-specific investments, trust and the norm of flexibility. Also, an indirect effect of the network was found on joint action. Regarding performance, a collaborative, long-term relationship appears to lead to success (both operational and financial). The result of this research supports our rationale that the business network

compensates for the information asymmetry assumed in transaction cost economics. The monitoring and enforcement of an agreement allows firms to move from market-based exchanges to collaborative relationships without additional transaction costs or loss of performance. A grower or distributor accesses information that reduces the information asymmetry and allows for efficient collaboration. The lack of information precludes the ability of a firm to foresee future actions of a counterpart. Therefore, this study provides empirical evidence to conclude that business network information enables trust, transaction-specific investments and collaboration, and, ultimately, performance.

Although there are several similarities in our findings, buyers and suppliers clearly show different patterns in their approaches to achieve performance. If we look at the positive signs in our equation models we can conclude that, while the most successful buyers tend to focus on the 'hard', tangible approach (business network information, via transaction-specific investments and joint action to financial performance, see Figure 4), the most successful suppliers tend to focus on the 'soft' elements (business network information to foster trust and via norms of flexibility to tangible [financial] and intangible [perceived satisfaction] performance [see Figure 5]).

High-performing buyers use network information to foster transaction-specific investments. Buyers then engage in joint planning and joint problem solving to safeguard these investments. These large companies are clearly not interested in the day-to-day operation of the supplier. If the buyers are active in assessing information from the network, it is primarily because they want to monitor the counterpart's willingness to develop or adapt its offerings to their requirements. Considering the situation that buyers do not have many alternatives to get the specific potted plants, buyers who follow the 'hard' approach are more likely to achieve success.

Figure 4. The buyer's approach to performance.

Figure 5. The supplier's approach to performance.

In contrast, Figure 5 shows the successful suppliers' 'soft' approach. The network plays a central role here, because the suppliers use the information obtained in the network to build-up trust in the relationship with the much larger buyer company. In line with the framework of customer relationship management (Rigby et al., 2002), the successful suppliers are flexible to accommodate the wishes of the buying counterpart. Suppliers that take these 'soft' elements into account are likely to be successful in a buyer-supplier relationship.

Limitations and suggestions for further research

The analysis presented in this paper should be evaluated in the light of some limitations, which lead to suggestions for further research. Firstly, for hypotheses-testing purposes, we decided to test our framework in a particular (and homogeneous) context: the Dutch potted plant and flower industry. Restricting the context served the dual purpose of controlling for extraneous sources of variation and developing grounded measures. Therefore, caution should be used in extrapolating our results to other contexts. Secondly, the network effects focused on the information that firms obtain from the business network. We encourage future research to further explore the network effect in terms of gaining control and resources or finding opportunities. Thirdly, the issue of contracts or other formal documentation was not considered in the theoretical framework. Because the companies in our sample opt for private orders, we suggest that the role of contracts be considered in another business context (in terms of contract law, letter of intent or other form of document). Fourthly, our results regarding the different performance strategies of buyers and suppliers show that there is a perceived power balance when dealing in fixed line transactions. Future studies should carefully consider the concept of power balance and dependency when using our framework in other industries. Finally, our study used a cross-sectional design, thus preventing the investigation of the dynamic effects. However, proof of causal relationships requires a longitudinal research design. Further work along this line is therefore encouraged.

Managerial implications

The implications of our study are best viewed within the context of the trend toward close, long-term buyer-supplier relationships. Quite often the social capital that is inherent to such close relationships is considered a desirable goal. We therefore started our article by asking ourselves: *How important is the social capital compared to the human and structural capital of a firm? In other words: Should managers concentrate on increasing the social capital, or is it more*

appropriate to concentrate more on human and structural capital, taking the limited manager's time and resources into account? Based on our results we advise managers to be very cautious in finding the optimal balance between human, social and structural resources. The basic postulate in our work is that a firm may coordinate relationships with a counterpart by means of collaboration and, in some instances, by trust and transaction-specific investments. However, this is not always desirable. In our focal industry, buyers and suppliers have looked for channels to reduce price and the unpredictability of volume, and moreover to reduce bottlenecks in delivery. Successful buyer and supplier companies have clearly chosen different strategies in this situation. Whereas the 'hard' tangible approach provided the best results for buyers, it was the 'soft' intangible approach that turned out to be the best approach for the suppliers, depending on the differences in their business contexts. So, although we can point to a number of advantages for firms to set up close relationships with counterparts, building relationships or networks involves investment of time and resources that might outweigh the benefits. For instance, given the costs associated with the shift away from spot-market exchange (e.g., the auction clock), the investment costs to achieve the social capital included in a long-term buyer-supplier relationship might be detrimental to performance. Managers may use these findings to check the adequacy of their business networks and their approach to relationship management. At the very least, our study should serve as a cautionary example of the conditions that evoke the need to craft and manage collaborative, long-term relationships and networks.

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Appendix A: The Florel Questionnaire

This appendix reports the items used in the questionnaires for respondents from the buyer companies and the supplier companies (between brackets). Respondents were asked to select a regular counterpart via fixed-line channel. We report the type of scales used and the Cronbach's alpha for the buyer and supplier companies.

Business Network (5 different subgroups with 5 information benefits; 7-point Likert scale, "not at all"- "very much")

- *First-tier suppliers network subgroup*, supplier sample $\alpha = .89$; buyer sample $\alpha = .97$
We get information from first-tier suppliers, which supports us:
 1. in defining prices of products for the selected buyer (supplier).
 2. in defining quantities of products to sell to the selected buyer (supplier).
 3. with the logistic operations of products that we sell to the selected buyer (supplier).
 4. with the production process of the products that we sell to the selected buyer (supplier).
 5. to foresee future actions of the selected buyer (supplier).
- *Other suppliers network subgroup*, supplier sample $\alpha = .81$; buyer sample $\alpha = .93$
We get information from other suppliers, which supports us:
 6. in defining prices of products for the selected buyer (supplier).
 7. in defining quantities of products to sell to the selected buyer (supplier).
 8. with the logistic operations of products that we sell to the selected buyer (supplier).
 9. with the production process of the products that we sell to the selected buyer (supplier).
 10. to foresee future actions of the selected buyer (supplier).
- *Other buyers network subgroup*, supplier sample $\alpha = .84$; buyer sample $\alpha = .93$
We get information from other buyers, which supports us:
 11. in defining prices of products for the selected buyer (supplier).
 12. in defining quantities of products to sell to the selected buyer (supplier).
 13. with the logistic operations of products that we sell to the selected buyer (supplier).
 14. with the production process of the products that we sell to the selected buyer (supplier).
 15. to foresee future actions of the selected buyer (supplier).
- *Buyer's customers network subgroup*, supplier sample $\alpha = .95$; buyer sample $\alpha = .92$
We get information from buyer's customers, which supports us:
 16. in defining prices of products for the selected buyer (supplier).
 17. in defining quantities of products to sell to the selected buyer (supplier).
 18. with the logistic operations of products that we sell to the selected buyer (supplier).
 19. with the production process of the products that we sell to the selected buyer (supplier).
 20. to foresee future actions of the selected buyer (supplier).
- *Auction agents network subgroup*, supplier sample $\alpha = .91$; buyer sample $\alpha = .92$
We get information from agents of the cooperative, which supports us:
 21. in defining prices of products for the selected buyer (supplier).
 22. in defining quantities of products to sell to the selected buyer (supplier).
 23. with the logistic operations of products that we sell to the selected buyer (supplier).
 24. with the production process of the products that we sell to the selected buyer (supplier).
 25. to foresee future actions of the selected buyer (supplier).

Physical transaction specificity (7-point Likert scale, "not true at all"- "totally true")

supplier sample $\alpha = .79$; buyer sample $\alpha = .80$

1. In our company, we have made significant investments to deliver products to the selected buyer (supplier).
2. We have made significant investments to handle internally the products that are ordered by the selected buyer (supplier)

Human transaction specificity (7- point Likert scale, "not true at all"- "totally true")

supplier sample $\alpha = .68$; buyer sample $\alpha = .83$

1. We have invested time and efforts to learn about the business practices of the selected buyer (supplier).
2. If we switch to another buyer (supplier) we would lose a lot of investments that we have made to sell to the selected buyer (supplier).
3. If we decided to stop working with this buyer (supplier), we would be wasting a lot of knowledge regarding the buyer (supplier)'s method of operation.

Interpersonal trust (7-point Likert scale, "not true at all"- "totally true")

supplier sample $\alpha = .75$; buyer sample $\alpha = .79$

1. Our company's contact person (purchasing agent) has always been evenhanded in negotiations with us.
2. In our company, we have faith in the contact person to look out for our interests even when it is costly to do so.
3. Our company's contact person is trustworthy.
4. In our company, we have faith in the contact person to look out for our interests even when it is costly to do so.
5. In our company, we would feel a sense of betrayal if the contact person's performance would be below my expectations.
(dropped after validation procedure)

Inter-organizational trust (7-point Likert scale, "not true at all"- "totally true")

supplier sample $\alpha = .83$; buyer sample $\alpha = .78$

1. We expect this buyer (supplier) to be working with us for a long time.
2. The selected buyer (supplier) has always been evenhanded in his negotiations with us.
3. The selected buyer (supplier) may use opportunities that arise to profit at our expense. (Reversed scale) (item dropped)
4. Based on experience, we can with complete confidence rely on the selected buyer (supplier) to keep promises made to us.
5. We are hesitant to transact with the selected buyer (supplier) when the order specifications are vague. (Reversed scale) (item dropped)

The selected buyer (supplier) is trustworthy.

Joint action (7-point Likert scale, "not at all"- "very much")

- *Joint planning*, supplier sample $\alpha = .70$; buyer sample $\alpha = .85$

1. Our company plans volume demands for the next seasons together with this buyer (supplier).
2. Our company plans the new products and varieties demands for the next seasons together with this buyer (supplier).
3. This buyer (supplier) provides us with sale forecasts for the products our company sells to them.
4. Our company shares long-term plans of our products with this buyer (supplier).

- *Joint problem solving*, supplier sample $\alpha = .87$; buyer sample $\alpha = .89$

1. This buyer (supplier) and our company deal with problems that arise in the course of the relationship together.
2. This buyer (supplier) and our company do not mind owing each other favors.
3. In most aspects of the relationship with this buyer (supplier), the responsibility for getting things done is shared.
4. This buyer (supplier) and our company are committed to improvements that may benefit the relationship as a whole.

Flexibility to make adjustments (7-point Likert scale, "not at all"- "very much")

supplier sample $\alpha = .60$; buyer sample $\alpha = .70$

1. Our company is flexible in response to changes in the relationship with this buyer (supplier).
 2. This buyer (supplier) makes adjustments to maintain the relationship with our company.
- When some unexpected situation arises, this buyer (supplier) and our company work out a new deal.

Performance

- *Perceived satisfaction* (7-point Likert scale, "very unsatisfied"-"very satisfied")
supplier sample $\alpha = .86$; buyer sample $\alpha = .91$

Indicate how satisfied you are with the following aspects of the relationship with the selected buyer(supplier) over the last 12 months:

1. The order frequency over the year. (Continuous supply over the year).
 2. Quantities of products per order. (Offered assortment of products).
 3. Communication quality with people of the selected buyer (supplier).
 4. Prices paid by this buyer for our products. (Prices of this supplier's products.)
 5. Quality of their purchasing department. (Quality of this supplier's products.)
 6. The way in which problems are solved
- *Growth rate* (single item)
 1. What was the development of your total sales volume over the last three years?
 - *Profitability* (single item; 7-point Likert scale, "not at all achieved"-"totally achieved")
 1. To what extent did you achieve the expected profitability with your pot plant business?