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

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Abstract

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 of 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 inherent in any transaction. Although there are several similarities in our findings, merchant distributors and growers 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 emphasizing the 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.

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. 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 (the firm’s capacity to extract valuable information from its business network). 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 individual 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 buyer-supplier relationship. To that end, we analyze 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 collected 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, 2002). 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 information from the business network on long-term buyer-supplier relationships.

2. Theoretical framework and research hypotheses

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, there has been a lack of a framework 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.

**Figure 1. Theoretical Framework**
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 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 regard 1) trade conditions, e.g. price information of other deals (Sebenius, 2002), and contribute to defining sales and purchase strategies (Stern et al., 1996). 2) But also more proprietary and tacit types of information, 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). 3) 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 quickly and 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 behavior 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 behavior 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 of 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 Weitz, 1992). 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 behavior. 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, 1990) 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.

3. Research hypotheses

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. Networks may influence trust in three ways. First, the information obtained through the network safeguards firms against opportunism and market uncertainties (Uzzi, 1996). Network members diligently transmit information about unacceptable behavior, thus providing a mechanism for monitoring potential opportunistic behaviors. Network connections also foster common beliefs and values among member firms, leading to goal congruence and reducing the risk of opportunism. Second, the social structure of the network stimulates trust, because firms acting in a positive atmosphere are more inclined to trust. When a transaction is made with a firm of known reputation and capabilities, there is an associated implication that social bonds will guard against trouble (Thorelli, 1986). Third, network members may act as a referral for a given counterpart, since they might be dealing with the same counterpart (Burt, 2001). For instance, through connections with colleagues, a supplier could obtain valuable information by which to monitor the actions of a buyer, since the connected firms are likely to be dealing with the same buyer.

Transaction-specific investments (TSI) refer to the degree to which an asset cannot be redeployed to alternative uses and by alternative users without sacrifice of productive value (Williamson, 1996). Such investments go beyond the boundaries of the firm and are aimed at exploiting efficiencies of coordination of activities between partners. The company’s network will not blindly support counterpart’s destructive actions, especially when the counterpart’s actions may compromise economic investments or outcomes for everyone in the network. Moreover, even in cases where there is general agreement within the network about the criticality of such a destructive action, the focal firm is likely to be cautious about how its response will be perceived among members of a close-knit group (Granovetter, 1985). Without the network, firms can hardly maintain an up-to-date assessment of the integrity of a counterpart’s actions and performance.

Information transmitted through the network encourages firms to engage in joint action. Information about sales conditions and process coordination, gathered outside a relationship may support the solving of problems. Future plans and strategic decisions can be based partially on information on trends and product demands obtained from the network. Information obtained through the network cultivates flexibility. Firms with access to information tend to develop positive bilateral expectations of their fellow network members, which makes them inclined to adapt as circumstances change (in response to, e.g., market fluctuations or shifting counterpart demands). 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. Flexibility is an expected behavioral norm, which establishes a positive attitude to adopt requests for adjustment (Macneil, 1978). We expect that:

H1-H4: The more information a firm obtains from the network, the more the network will encourage either tangible (e.g. transaction-specific investments, H1), or intangible investments, e.g. in terms of trust (H2), and collaborative behavior (joint action, H3 and flexibility, H4) in a buyer-supplier relationship.
The impact of trust on the buyer-supplier relationship

Considering the benefits of trust, we posit a positive causal path from trust to collaborative behavior. 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 an ongoing relationship. Joint actions offer advantages in problem solving and planning because partners in a trusting buyer-supplier relationship collectively have a greater store of knowledge, experience and creativity to identify and solve problems as well as to set up effective planning. Once trust is established, firms learn that coordinated, joint efforts lead to outcomes that exceed what the firm could achieve if it acted solely in its own interest (Anderson and Narus, 1990). This suggests that firms that trust one another will exchange relevant, comprehensive, accurate and timely information and thereby jointly contribute to problem-solving and planning efforts (Zand, 1972). If the focal company trusts its partner, it will be more willing to react flexible to changing conditions or demands of the partner (Morgan and Hunt, 1994). Trusting relationships are especially important in the ambiguous situations that often characterize buyer-supplier relationships. If a company feels that its partner’s behavior is in the interest of the relationship as a whole, and not only in the interest of the partner, the flexibility norm of exchange will be high. 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 behavior will be in a buyer-supplier relationship.

The impact of TSI and flexibility on joint action

There might be two effects of TSI over joint actions. Firstly, joint actions may serve to safeguard high TSI. This is because joint actions create 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. To some extent, almost any firm’s investment entails some specialized knowledge that needs sophisticated coordination effort. Heide and John’s (1990) study of equipment manufacturers and suppliers provided empirical evidence for this notion. They found that higher TSI of manufacturers was associated with increased joint problem solving and planning as a way to effectively coordinate activities and resources in the relationship.

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). Firms may set formal and rigid guidelines about how a problem should be solved, yet such rigidity reduces creativity in the teamwork (Calantone et al., 1998). As problems emerge, it is the partners’ flexibility that fosters teamwork. This is because the parties in a relationship that adopt the norm of flexibility favor joint action rather than individual responses (Macneil, 1978). Since adjustments can be executed to internal plans, planning is continually attuned to trade conditions (e.g., varying quantities from order to order) (Macneil, 1981). Although incomplete, plans remain important because they formulate common goals and lay the foundation for the flexibility necessary for reformulating plans in the future. 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 a buyer-supplier relationship.
The impact of collaborative behavior 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 Speckman, 1994). When parties engage in joint problem solving, mutually satisfactory solutions to problems are likely to be found, thereby enhancing the success of the buyer-supplier relationship. In joint problem solving, a firm often tries to persuade another to adopt a particular solution to a conflict situation. These persuasive attempts are generally more constructive than the use of coercion or domination (Deutsch, 1969). Joint planning reduces the risk of unexpected problems, in turn reducing the need for a sophisticated monitoring apparatus. Since future contingencies, and consequential duties and responsibilities in a relationship, are made explicit in plans ex ante, the time and resources so often spent to solve a conflict are reduced to a great extent. Planning together with the counterpart actually operates as an aid or frame of reference and can replace contracts, which are costly to write and enforce. In addition, the flexibility of firms may enhance their performance (Bello and Gilliland, 1997; Cannon et al., 2000). Flexibility enables parties to adjust to each other’s needs and requests. The establishment of a bilateral mode of governance, in the form of the flexibility of both parties to make adjustments, is likely to increase the effectiveness and efficiency with which tasks are performed (Lusch and Brown, 1996). In a bilateral system, individual goals are reached through joint accomplishment, and concern for the long-term benefits of the system serves to restrain individual tendencies toward self-interest (Heide, 1994). That is, because the parties have a collective incentive to maintain the buyer-supplier relationship, the buyer and supplier engage in flexible behaviors, and the resulting decision-making tends to enhance performance. Thus, we expect that:

\[ H9 \text{ and } H10: \text{The higher the collaborative behavior of the partners in a buyer-supplier relationship, the better the perceived performance.} \]

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 discussed in this § 2. Noteworthy, however, is that some variables mutually affect each other. For example, good performance might have a direct positive effect 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. The level of transaction-specific investment 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 analysis.

3. Research design and measures

Study domain
The potted plant and flower industry is one of the most important sectors in the Dutch agribusiness with a 2001 sales volume of over €3 billion, accounting for more than 65% of the world trade in flowers and plants (Ministry of Agriculture, Nature and Food Quality 2002). 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 about 9,000 growers achieve a fast productivity growth due to improved greenhouses, better
cultural 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 foliages 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 centers. 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, for instance, 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, 2002). 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-third of the potted plants and flowers is traded via the auction clock. The present paper focuses on the other channel, called ‘fixed lines’. This channel is growing very fast in the potted plants 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 Likert 7-point response format were 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 such as young plants and seeds and firms that supply fertilizers, chemical products, pots, vases, etc.) and downstream the supply chain (other buyers e.g. wholesalers, flower exporters, cash-and-carry and garden centers, 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 quality; 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 (1990), 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 that 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 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), also used by Doney and Cannon (1997), and Zaheer et al. (1998).

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, using techniques reported in Anderson and Gerbing (1988). Appendix A shows that in all cases Cronbach's alpha was sufficiently high (> .7) to warrant confidence in the internal consistency of the scales. The correlations between the constructs shown in the tables 1 and 2 did not suggest problems of pairwise co-linearity that would preclude the use of all constructs in one equation. Researchers commonly use a cut-off of 0.80 for correlations among variables for dismissing multi-collinearity 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 modeling 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 (for more details on the estimation, correlation matrix and validity tests, see Claro, 2004).

4 Results

Table 1 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 buyers’ sample the effect of network information on trust is negative, contrary to our hypothesis (H2), and what was posited in previous research. Furthermore, as hypothesized, the network exerts an indirect positive effect on joint action and has a direct positive impact on flexibility (H3 and H4). 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 behavior, 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 finding more in detail in § 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 interfirm 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.

Table 1. Summary of the tests of the hypotheses

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

a. Only profitability measure

Although there are several similarities in our findings, buyers and suppliers clearly show different patterns in their approach 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 2).

Figure 2. The buyer’s approach to performance
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 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. Literature about purchasing management emphasizes that only few suppliers provide the items critical to the success of the buyer’s offerings. Failure in even one of these relationships can be critical to a firm’s operation. Considering the situation that buyers have not much alternatives to get the specific potted plants, buyers who follow the “hard” approach are more likely to achieve success.

In contrast, figure 3 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 to the wishes of the buying counterpart. Suppliers that take these “soft’ elements into account are likely to be successful in a buyer-supplier relationship.

**Figure 3. The supplier’s approach to performance**

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 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 to find 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 for 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 at a number of advantages for firms to set up close relationships with counterparts, building relationships and 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 about the conditions that evoke the need to craft and manage collaborative, long-term relationships and networks.

Reference List


