The implication of socialization and development in supply chain management
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Abstract

Supplier relationship management is the process that defines how a company interacts with its suppliers (Croxton, Garcia-Datugue et al., 2001). The relationship between the buyers and suppliers in supply networks is the fundamental building block of all business transactions (Cox 2004). The move towards closer relationships and the change in manufacturing paradigms has meant that firms are generally managing fewer (but larger) suppliers and these ‘mega’ suppliers by their very nature will require much closer management. There has been an increasing movement towards adopting the concept of supplier development both forward and backward (Cousins and Menguc, 2006). There are many reasons for building closer relationships between buyers and suppliers. All these reasons have to do with the stronger competitive market. Shortened product life cycles, fast-changing technologies, ever-increasing quality levels and cost-cutting are the competitive pressures (Krause and Ellram, 1997a).

Cousins and Menguc (2006) studied supply chain socialization and supplier integration and the impact of these mechanisms on supplier’s operational, communication en contractual performance. Supplier operational performance is concerned with issues such as delivery performance, lead times, inventory requirements, process improvement, conformance to specifications (Cousins and Menguc, 2006), cost, quality and the rate of new product introduction (Humphreys et al., 2004). Supplier communication performance refers to the degree which supplier’s share information with their customers. Information sharing is a very important item in the relationship between a buyer and supplier (Wagner and Boutellier, 2002; Martin and Grbac, 2003; Liker and Choi, 2004; Krause and Ellram, 1997; Goffin et al. 2006). Cousins and Menguc (2006) use the concept of ‘contractual conformance’ as a measurable outcome of the use of integration and socialization in the supply chain.

The main research question is: what is the impact of socialization mechanisms and supplier development on supplier’s performance? We make a split in two questions: what is the impact of supply chain socialization and supplier development on operational and communication performance and what is the impact of operational and communication performance on contractual performance.

Supply chain socialization is the process by which individuals in a buyer-supplier engagement acquire knowledge of the other enterprise’s social values and norms (Cousins et al., 2006). Socialization helps to build inter-personal relationships and trust within these exchange relationships, leading to a stock of relational capital which can be leverage to enhance the
supplier relationship (Cousins et al., 2006). Watts and Hahn (1993) define supplier development as: A long-term cooperative effort between a buying firm and its suppliers to upgrade the suppliers’ technical, quality, delivery and cost capabilities and to foster ongoing improvements.

To test the hypothesis a survey was conducted. Measures were selected and developed based on the research of Cousins and Menguc (2006), Wagner (2006 and 2006a) and Krause (1997 and 1999). Several studies have shown the impact of influence strategies and development efforts on suppliers’ and buyers’ performances and buyer-supplier relationships from the buyer perspective (Humphreys et al., 2004). However, the examination of influence strategies and supplier development and buyer-supplier relationships from the perspective of the supplier is still scarce (Cousins and Lawson, 2007; Goffin et al., 2006). This is the reason why we used the perspective of the supplier. In total 685 manufacturing and service companies in the Netherlands were invited to take part in the online questionnaire. After screening there were 52 usable questionnaires. To analyse the data we used SPSS and PLS. Because of a low Cronbach’s alpha and a low Composite Reliability, items had to be removed from the survey. The results should be interpreted with caution because of the relative small number of respondents. We also tested with a paired sample t-test if there was a significant difference for the increase of operational performance and communication performance between using socialization mechanisms within or without a supplier development program. We found no support for this. For the contractual performance the conclusion is also that there isn’t a significant difference between using socialization mechanisms and using a supplier development program.

The below figure presents the hypothesized model with the path coefficients.

* significance < 10% (two tailed test), ** significance < 5% (two tailed test), *** significance < 1% (two tailed test)

See the blue lines for supply chain socialization and the red lines for supplier development.
Concluding only the relationship between supplier’s operational performance and supplier’s contractual performance is supported for both supply chain socialization and supplier development.

This study has to been seen as a preliminary study. The $R^2$ values of supply chain socialization and supplier development in our model are very low. This means that the aspects explaining the contractual performance of suppliers is relatively small.

Other limitations of this study are: a small sample size, only suppliers from the Netherlands, no dyadic approach and 48% of the responding suppliers are steel or steel related companies.

The study by Cousins and Menguc (2006) shows that it is clear that socialization has a positive effect on how firms behave and conduct business. So managers should not dismiss the importance of investing in a socialization activity when they want to enjoy the benefits of collaboration (Cousins and Menguc, 2006). The results of this study were non-conclusive to a large extent.
1. Introduction

Increasingly demanding customers, globalization, accelerated competition, technological advances in the communication of information, decreased governmental regulation worldwide, and intensified environmental concerns are leading manufacturing firms toward adoption of the Supply Chain Management (SCM) philosophy. (Tracey & Tan 2001)

A recent review from Burgess, Singh & Koroglu (2006) shows that SCM is a relatively “young” field with exponential growth in interest from researchers. Effective SCM can improve a firm’s performance through several means including building strong supplier relationships that enhance a firm’s capability to respond to its customers more effectively (Martin & Grbac 2003).

The following definition of Supply Chain Management by the Global Supply Chain Forum is used by various scholars (Croxton, García-Datugue et al., 2001; Lambert & Cooper, 2000; Tracey, Lim et al., 2005): “Supply Chain Management is the integration of key business processes from end user through original suppliers that provides products, services, and information that add value for customers and other stakeholders”. The key element of SCM is activity integration (Alvarado & Kotzab 2001). The Global Supply Chain Forum identified eight key processes that make up the core of supply chain management: Customer Relationship Management, Customer Service Management, Demand Management, Order Fulfillment, Manufacturing Flow Management, Procurement, Product Development and Commercialization and Returns. Successful SCM requires a change from managing individual functions to integrating activities into key supply chain processes (Lambert & Cooper 2000). Croxton et al. (2001) mentioned that the term “Procurement” is a source of confusion. They renamed “Procurement” in “Supplier Relationship Management” and “Returns” in “Returns Management” in their model. For each of the eight processes they provided a more detailed description and their relationships to each other. Yet there are many research opportunities (Croxton, García-Datugue et al., 2001).

Supplier relationship management is the process that defines how a company interacts with its suppliers (Croxton, García-Datugue et al., 2001). The relationship between the buyers and suppliers in supply networks is the fundamental building block of all business transactions (Cox 2004). Firms can approach in a variety of ways on problems with their suppliers. These approaches include: supplier switching, vertical integration or supplier development. Supplier development is becoming increasingly important since the first option might not be viable due to unavailability of alternative suppliers or due to excessively high switching cost, and the
second option might require substantial investment and be in contradiction with firms’ intentions to focus on their core competencies. (Wagner 2006)

The move towards closer relationships and the change in manufacturing paradigms has meant that firms are generally managing fewer (but larger) suppliers and these ‘mega’ suppliers by their very nature will require much closer management. There has been an increasing movement towards adopting the concept of supply chain integration both forward and backward (Cousins and Menguc, 2006). Cousins and Menguc (2006) examined the role of two governance mechanism on the supply chain setting: integration and socialization (Gupta and Govindarajan, 2000). Their model (Cousins and Menguc, 2006) shows that supply chain socialization and supply chain integration have a positive effect on both supplier communication performance and supplier operational performance. Supply chain socialization and supply chain integration are also have a positive effect on the buyer’s perception of the supplier’s contractual conformance. As discussed in their limitations the calculated average variance extracted (Fornell and Larcker, 1981) were equal to, or higher than .50, except for socialization mechanism. Hence, there is a need for more research on the concept of ‘buyer-supplier socialization’ and the role socialization plays in developing more effective management of the supply chains.

Krause et al. (2007) studied the relationship between supplier development, commitment, social capital accumulation and performance improvement. They argue that more research is needed about buyer-supplier relationships and how their social capital dimensions relate to buying firm performance. In this study we replace integration by supplier development in the model of Cousins and Menguc (2006).

The main research question is: what is the impact of socialization mechanisms and supplier development on supplier’s performance? We make a split in two questions: what is the impact of supply chain socialization and supplier development on operational and communication performance and what is the impact of operational and communication performance on contractual performance.

In this study we argue that supply chain socialization and supplier development will have a positive effect on both supplier communication performance and supplier operational performance. Supply chain socialization and supplier development will also have a positive effect on the supplier’s contractual performance. Next to this we want to compare the outcomes on the performances for supplier development and for supply chain socialization. The expectation is that some performances will score higher for supplier development.
Following the performance of supply partnerships needs metrics to do this. Metrics are the instruments to evaluate and improve the supply partnerships (Gunasekaran et al., 2001). The key measures of performance used in the model of Cousins and Menguc (2006) are supplier communication performance and supplier operational performance. Supplier communication performance refers to the degree to which supplier’s share information with their customer (buyer). Supplier operational performance is concerned with communication issues such as delivery performance, lead times, and inventory requirements (Cousins & Menguc, 2006). These metrics will be communicated with the supplier to evaluate the relationship (Sánchez-Rodriquez et al., 2005). The concept of ‘contractual conformance’ in the model of Cousins and Menguc (2006) is used as a measurable outcome of the use of integration and socialization in the supply chain (Cousins and Menguc 2006).

Several studies have shown the impact of influence strategies and development efforts on suppliers’ and buyers’ performances and buyer-supplier relationships from the buyer perspective (Humphreys et al., 2004). However, the examination of influence strategies and supplier development and buyer-supplier relationships from the perspective of the supplier is still scarce (Cousins and Lawson, 2007; Goffin et al., 2006).

The next section provides a literature review, the hypotheses and the proposed model.

2. Literature review, proposed model and hypotheses

Cousins and Menguc (2006) propose that increasing the level of the buyer’s integration and socialization with the suppliers will enhance supplier’s operational and communication performance and, in turn, it will enhance the buyer’s perception of supplier’s contractual conformance. For this study, we would like to analyse the relationship between supplier development and socialization. So we propose that increasing the level of supplier development with the suppliers will also enhance supplier’s operational and communication performance, and, in turn, it will also enhance the supplier’s contractual conformance. We also want to study if there is a significant difference in the operational, communication and contractual performance between using socialization mechanisms or supplier development.

2.1 Supplier relationship management

In the Supply Chain Model of Croxton and Rogers (2001) two of the processes are: Customer Relationship Management and Supplier Relationship Management.
Customer Relationship Management process provides the structure for how the relationship with the customer is developed and maintained. Supplier relationship management is the process that defines how a company interacts with its supplier (Croxton, Rogers 2001). Supplier relationship management is a mirror image of customer relationship management. Each supplier agrees to a Product and Service Agreement (PSA) that defines the terms of the relationship. Supplier Relationship Management is about defining and managing these PSAs. Key suppliers work with customized PSAs; other suppliers with standard PSAs (Croxton, Rogers 2001). Customer Relationship Management (CRM) is focused on leveraging and exploiting the interaction with the customer to maximize customer satisfaction, ensure return business, and ultimately enhance customer profitability. Supplier Relationship Management (SRM) is focused on maximizing the value of a manufacturer’s supply base by providing an integrated and holistic set of management tools focused on the interaction of the manufacturer with its supplier (Hermann and Hodgson, 2001). In the modern ERP systems CRM and SRM are integrated. This can provide competitive advantage (Choy et al., 2004).

Morgan and Hunt (1994) define Relationship Marketing as: “Relationship Marketing refers to all marketing activities directed toward establishing, developing, and maintaining successful relational exchanges”. They categorized 4 forms of Partnerships which include ten forms of relationships of a Focal Firm with others: Supplier Partnerships which includes the partnering with goods suppliers or services suppliers. Lateral Partnerships which includes strategic alliances between firms and their Competitors, alliances between a firm and Non-profit organizations and partnerships between a firm and the Government. Buyer Partnerships which includes long-term exchanges between a firm and Ultimate Customers and relational exchanges with Intermediate Customers. Internal Partnerships which includes the exchanges between a firm and its Employees, with the Functional Departments and with the Business Units.

Duffy and Fearne (2004) define Partnerships as “an ongoing relationship between two firms involving a commitment over an extended time period and a mutual sharing of information and the risks and rewards of the relationship”. In the above categorising of Morgan and Hunt (1994) there are not always two firms involved. Another definition of partnership is: A partnership is a tailored business relationship based on mutual trust, openness, shared risk and shared rewards that yield a competitive advantage, resulting in business performance greater than would be achieved by the firms individually (Lambert et al., 1996). A partnership is going further than the most relationships.
Buyer-supplier relationships are often conceptualized as existing on a continuum ranging from primarily transactional ties to highly collaborative arrangements and numerous researchers have suggested characteristics that distinguish between the two extremes (Duffy, Fearne, 2004). In the literature there are various types of relationship classifications. They are going from an arm’s length relationship to a partnership. Characterisations of an arm’s length relationship are: simple products, interchangeable suppliers, discrete transactions, one time transactions (Wagner and Boutellier 2002), selling against standard terms and conditions (Lambert et al. 1996), no commitment and no joint operations (Saccani and Perona, 2007). In the case of a discrete transaction is the transaction separate from all other transactions between a buyer and supplier at the same time and before and after. On the other hand there are relational exchanges. In that case all the transactions do have a past and a future and there is a social relationship between the buyer and supplier (Dwyer et al., 1987). In the literature you can find different classifications for relationships. The most classifications are based on the same factors: the number of transactions, the longevity of the relationship (time dimensions), and the closeness between the firms. (See table 1)

A relationship is characterised by different phases and undergoes an ongoing development. Dwyer et al. (1987) mentioned 5 phases: Awareness, Exploration, Expansion, Commitment and Dissolution. The Awareness phase is the start of a relationship. This phase refers to the recognition from party A that B can be a feasible exchange partner. The Exploration phase refers to the search and trial phase in relational exchange. Communication is very important in this phase because of the norm developing and to clarify the expectations of the relationship. Commitment refers to an implicit or explicit pledge of relational continuity. The last phase is Dissolution (Dwyer et al. 1987). Switching cost acts like an exit barrier. Sharma and Patterson (2000) find in their study that the cost and pain of changing can save the relationship from dissolution. Morgan and Hunt (1994) argue that even though there are no alternatives for the relationship there will be cost incurred for termination. They define termination cost as: all expected losses from termination and result from the perceived lack of comparable potential alternative partners, relationship dissolution expenses, and/or substantial switching cost. Switching cost includes: search effort, financial penalties and the risk in choosing a new supplier.

Terpend et al. (2008) studied the publications about buyer-supplier relationships between 1986 and 2005. Their conclusion is that buying firms now expect more from there suppliers than they did in the past, but are also more willing to help suppliers if they need help.
Furthermore, suppliers have increased expectations regarding the investments that should be forthcoming from their buyers.

Supply chain socialization, supplier development and supply chain integration are all techniques to improve the buyer-supplier relationship.

Table 1: Relationship types

<table>
<thead>
<tr>
<th>Author</th>
<th>Relationship type</th>
<th>Relationship type</th>
<th>Impact</th>
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<tbody>
<tr>
<td>Saccani and Perona</td>
<td>Traditional Relationships</td>
<td>Low operational impact</td>
<td>Low exchange criticality</td>
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<tr>
<td>(2007)</td>
<td>Operational Relationships</td>
<td>High operational impact</td>
<td>Low exchange criticality</td>
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<td></td>
<td>Project-based Partnerships</td>
<td>Low operational impact</td>
<td>High exchange criticality</td>
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<td></td>
<td>Evolved partnerships</td>
<td>High operational impact</td>
<td>High exchange criticality</td>
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<tr>
<td>Rao and Perry</td>
<td>Single transaction</td>
<td></td>
<td></td>
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<tr>
<td>(2002)</td>
<td>Repeated transaction</td>
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<td></td>
<td>Soft buyer-seller relationships</td>
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<td></td>
<td>Contractual long term relationships</td>
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<td></td>
<td>Strategic alliances</td>
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<td></td>
<td>Networks</td>
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<tr>
<td>Cox</td>
<td>Adversarial arm’s length</td>
<td>Arm’s length, inequality</td>
<td></td>
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<tr>
<td>(2004)</td>
<td>Non-adversarial arm’s length</td>
<td>Arm’s length, equality</td>
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<tr>
<td></td>
<td>Non-adversarial Collaborative</td>
<td>Collaborative, equality</td>
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<td></td>
<td>Adversarial Collaborative</td>
<td>Collaborative, inequality</td>
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<tr>
<td>Lambert et al.</td>
<td>Arm’s length</td>
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<tr>
<td>(1996)</td>
<td>Short-term partnership</td>
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<td></td>
<td>Long-term partnership</td>
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<td>Long-term with no-end partnership</td>
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<td></td>
<td>Joint ventures</td>
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<td></td>
<td>Vertical integration</td>
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</table>

2.2 Direct effect of supplier performance

Cousins and Menguc (2006) are using the concept of ‘contractual conformance’ as a measurable outcome of the use of integration and socialization in the supply chain. Cox (2004) shows that there are four basic relationship management styles from Adversarial Arms-Length Relationship to Non-Adversarial Collaborative Relationship. For all these management styles the contractual basis will be different. The buyer and supplier can choose to operate on a fairly short-term contractual basis (Arms-Length Relationship) or to operate on a long-term contractual basis (Non-Adversarial Collaborative Relationship).
For performance measures The Balanced Scorecard (BSC) of Kaplan is very famous. The BSC is built around five perspectives: financial, customers, internal processes, innovation and improvement, and employees. Measuring the performance in a supply chain needs own metrics. Gunasekaran et al. (2001) argue that an efficient and effective performance evaluation of buyer and/or suppliers is not just enough; the extent of partnership that exists between them needs to be evaluated and improved, as well. They also argue that an evaluation based on the right criteria will result in a win-win partnership, leading to a more efficient and integrated supply chain. Based on their study they give all kind of metrics based on: plan performance, source performance, production performance and delivery performance. These are the four basic links that constitute the supply chain. In another study Gunasekaran et al. (2004) argue the following about the importance of performance measuring: Many companies have not succeeded in maximizing their supply chain’s potential because they have often failed to develop the performance measures and metrics needed to fully integrate their supply chain to maximize effectiveness and efficiency.

Cousins and Menguc (2006) identified two key measures of performance: supplier communication performance and supplier operational performance. Supplier communication performance refers to the degree which supplier’s share information with their customers. Information sharing is a very important item in the relationship between a buyer and supplier (Wagner and Boutellier, 2002; Martin and Grbac, 2003; Liker and Choi, 2004; Krause and Ellram, 1997; Goffin et al. 2006) although Car and Kaynak (2007) found that the direct relationship between information sharing between firms and supplier development support was not significant. Lascelles and Dale (1990) argue that suppliers and customers do not realise how poor they are at communicating with each other. In their study they found that the communication process was mostly one-way from customer to supplier.

The kind of relationship between the buyer and supplier (Arms-Length or Non-Adversarial Collaborative Relationship) will influence the information sharing. Supplier communication performance examines quality initiatives, problem solving, and technology exchange, as well as the level and type of information sharing (Cousins and Menguc, 2006).

Supplier operational performance is concerned with issues such as delivery performance, lead times, inventory requirements, process improvement, conformance to specifications (Cousins and Menguc, 2006), cost, quality and the rate of new product introduction (Humphreys et al., 2004). These items represent the feedback between the buyer and supplier. Prahinski and
Benton (2004) found that communication feedback between the buying firm and the supplier positively influences the buyer-supplier relationship.

**H1a.** Supply chain socialization: Increases in the supplier’s operational performance will enhance the level of contractual performance (Cousins and Menguc, 2006).

**H1b.** Supply chain socialization: Increases in the supplier’s communication performance will enhance the level of contractual performance (Cousins and Menguc, 2006).

**H2a.** Supplier development: Increases in the supplier’s operational performance will enhance the level of contractual conformance.

**H2b.** Supplier development: Increases in the supplier’s communication performance will enhance level of contractual performance.

### 2.3 Supply chain socialization

Organizational socialization is a process by which an individual comes to appreciate the values, abilities, expected behaviours, and social knowledge essential for assuming an organizational role and for participating as an organizational member. (Cousins et al., 2006)

In the organizational context the focus is on the role and behaviour of new employees. The new employees have to learn the ‘culture’ of the organization. Socialization is not only a process within an organisation this can also be a process between organisations: Socialization is the process of converting existing tacit knowledge into new tacit knowledge. It is usually achieved through shared experience and interacting with other people within or beyond organizational boundaries. Knowledge is dynamic, because it is created through social interactions among individuals and organizations (Chou, 2005).

Informal socializing ties can increase group effectiveness. Socializing can increase the level of trust between the members of the relationship and give them greater time, opportunity, and motivation to strengthen and broaden their relationship. The social capital concept highlights the idea that people with the “right” types of social connections can more effectively employ other types of capital they posses (such as financial resources, knowledge, skill, and abilities) to achieve their goals than can people or groups with social connections of a different type. People with the right connections occupy a position in the network of social exchanges that allows them to bring their resources to bear on problems in a more timely and effective manner (Oh et al., 2004). Nowadays we are living in a technological era. Working in virtual groups without meeting each other occurs more and more. Most of the communication will be done by e-mail or internet. It is not possible to observe actions and behaviors within the
group. The socialization process will be quite different. The tacit communication of norms, expectations, or standards must be substituted with explicit communication (Ahuja, Galvin, 2003).

Gupta and Govindarajan (2000) studied the effect of socialization on multi-national and joint ventures. In this context they use the next definition: Socialization is the level of interaction between, and communication of, various actors within and between firms, which leads to the building of personal familiarity, improved communication, and problem solving. For successful strategic alliances social capital is very important. Social capital is built through networks of personal relationships. Social capital increases the probability of strategic alliance success because of the trust and willingness to share resources among partners. Tacit knowledge is more successfully shared and used when the alliance is built on trust (Ireland et al., 2002). The last years there were some big merges. Some of these new firms did have problems because of the culture differences. These culture problems were underestimated. Culture differences are the most frequently quoted reason for failure in mergers and acquisitions.

For this study we use the next definition for socialization: Supply chain socialization is the process by which individuals in a buyer-supplier engagement acquire knowledge of the other enterprise’s social values and norms (Cousins et al., 2006). Socialization helps to build interpersonal relationships and trust within these exchange relationships, leading to a stock of relational capital which can be leverage to enhance the supplier relationship (Cousins et al., 2006). In contrast to the definition of Gupta and Govindarajan (2000) this definition is more specific for the buyer-supplier relation.

Cousins et al. (2006) argue that socialization processes enable each partner to learn about the other’s culture, establish whether there is the potential for alignment, and in some cases, adjust their behaviour accordingly to establish successful outcomes.

Geiger and Turley (2005) studied the socializing behaviours in business-to-business selling in the Republic of Ireland. They identified six functions of socializing behaviours: the social event as a preamble, the social event as a thank you card, the social event as an air filter (in case of customer complaints), the social event as an ice-breaker, the social event as a knowledge generator and the social event as an insurance policy (a buffer zone in times of conflict). They found that client socializing can be viewed as a valuable selling strategy aimed primarily at long-term business buildings as well as fostering and maintaining close client relationships. Next to the cultural context they mentioned that it is also important to look at
the ethical perceptions. It is important to keep the socializing to a level that is within industry standards. Sales personnel typically expect management to take the initiative in setting the boundaries for what constitutes ethical selling behaviour.

In the context of a buyer-supplier group relationship the socialization process can be split into formal and informal mechanism. The formal socialization process implies that there are designed structures created to communicate expectations and share useful information and knowledge between buyers and supplier. Informal socialization-based relationships often move outside of the physical setting of the workplace, inviting greater focus on the informal, expressive aspects of the relationship. Informal socialization tactics can increase the level of trust between the members of the relationship and give them greater time, opportunity, and motivation to strengthen and broaden their relationship (Cousins et al., 2006).

Increased trust as an outcome of the socialization process is mentioned by various scholars (Griffith et al., 2006; Ireland et al., 2002; Oh et al., 2004; Kingshott, 2006; Lippert and Davis, 2006; Chou, 2005; Geiger and Turley, 2005; Cousins and Menguc 2006). Other positive effects of the socialization process are: commitment (Kingshott, 2006; Geiger and Turley, 2005), willingness to share resources including knowledge (Ireland et al., 2002; Oh et al., 2004), improve group’s effectiveness (Oh et al., 2004), enhance equity, communication, friendliness and intimacy (Geiger and Turley, 2005). All these effects do have a positive effect on the relationship between the buyer and supplier.

In the literature there are many examples of socialization activities: social activities outside the workplace like invitations to the theatre, sponsored sport events or eating and drinking (Cousins and Menguc, 2006; Cousins et al., 2006; Geiger and Turley 2005; Oh et al., 2004), joint workshops, on-site visits, supplier meetings and conferences, joint team working (Cousins and Mengue, 2006; Cousins et al., 2006), co-location, matrix-style reporting structures, off-site meetings, communication guidelines, joint improved projects (Cousins et al., 2006), team building exercises, problem solving (e.g. kaizen workshops) (Cousins and Menguc, 2006), the use of apprentices and mentors to share experience and exchange best of practice, employee rotation across areas and brainstorming camps (Chou, 2005), job transfers (Gupta and Govindarajan, 2000).

**H3.** Increases in the extent of socialization mechanisms between the supplier and buyer will enhance the supplier’s: (a) operational performance and (b) communication performance (Cousins and Menguc, 2006).
2.4 Supplier development

There are many reasons for building closer relationships between buyers and suppliers. The most important are: efficiency or cost savings (Wagner, 2006; Liker, 2004; Goffin et al., 2006; Cannon and Perreault, 1999; Forker et al., 1999; Forker and Stannack, 2000), fewer quality defects, constant improvement in quality (Forker and Stannack, 2000; Goffin et al., 2006; Wagner and Boutellier, 2002; Lascelles and Dale, 1989; Rinehart et al., 2004; Cousins and Menguc 2006, Liker, 2004; Krause and Scanell, 2005), lower stock levels (Wagner and Boutellier, 2002; Rogers et al., 2007), reducing demand and lead times (Forker and Stannack, 2000; Wagner and Boutellier, 2002; Carr and Kaynak, 2007), developing new processes, product changes or new products faster (Goffin et al., 2006; Wagner and Boutellier, 2002; Liker and Choi, 2004; Lascelles and Dale, 1990; Ploetner and Ehret, 2006). All the reasons have to do with the stronger competitive market. Shortened product life cycles, fast-changing technologies, ever-increasing quality levels and cost-cutting are the competitive pressures (Krause and Ellram, 1997a). When you want to be better than the competitor you have to sell against the same or lower prices, deliver a product with the same or better quality, deliver the same or more services and you have to bring new products on the market earlier. Because of increased specialization and outsourcing the role of external suppliers has increased significantly (Morrissey and Pittaway, 2006). Some manufacturers are buying more and more components instead of producing them in their own factory. Therefore the role of the supplier is becoming more important. The performance outcomes of buyers are largely dependent on the performance outcomes of their suppliers. Examples of industries which use supplier development are: automobiles, aircraft, electronics, heavy machinery, machine tools and robotics (Krause et al., 2007). Liker and Choi (2004) compared the elements of Toyota’s partnering model and those of Honda. With these elements they organized a supplier-partnering hierarchy. The six steps are: Understand how your supplier work, Turn supplier rivalry into opportunity, Supervise your suppliers, Develop suppliers’ technical capabilities, Share information intensively but selectively and Conduct joint improvement activities. It is important to use all these elements and not one or two. (Liker and Choi, 2004) Lascelles and Dale (1989) give key steps involved in a supplier development program: establish and articulate program objectives, set priorities for action, identify key suppliers as potential long-term partners, and make plans to reduce the supplier base, communicate the program objectives and methodology to key suppliers, assess the capability of suppliers to meet purchase requirements, engage in advanced quality planning with suppliers, formally
recognize suppliers that achieved preferred status and develop an ongoing quality improvement relationship with suppliers, based on a free exchange of information.

Cox (2004) shows in his study four basic sourcing approaches which are available to buyers. He distinguishes the level of work scope with supplier and supply chain: First-tier or Supply chain and the focus of buyer relationship with the supplier: Reactive and Proactive. With this classification there are four options: Supplier Selection (First-tier, Reactive), Supplier development (First-tier, Proactive), Supply chain sourcing (Supply chain, Reactive) and Supply chain management (Supply chain, Proactive). Supplier selections: the buyer is selecting from the available suppliers on the basis of the currently perceived best trade-off between functionally and cost. This will be a short-term relationship. Supply chain sourcing is more time and resource intensive. The buyer is now selecting from not only the first-tier suppliers but from as many tier as possible from raw materials through the final delivery of the end product or service by the first-tier supplier. In case of supplier development the buyer and supplier will now, jointly, begin to make dedicated investments in the relationship and create technical bonds and relationship specific adaptations in order to create new products and service offerings (in terms of increased functionality and reduced costs of ownerships) than would have been the case in the absence of the joint long-term working relationship. In this case the buyer takes the lead. Cox (2004) defines supply chain management as: a sourcing technique that involves the buyer undertaking proactive supplier development work, not only at the first-tier of the supply chain but also at all the stages in the supply chain from the first-tier through the raw material supply. Only a few companies will be in a position to implement the last option. The very high costs and the lack of power of the buyer (Cox, 2004) are the main reasons for this.

Forker and Stannack (2000) define Supplier development as: 

supplier development is a collection of formal operations, found in some markets, bureaucracies and clans that are set in motion to improve supplier performance and capabilities. Krause and Ellram (1997) define supplier development as: “Any effort of a buying firm with its supplier to increase the performance and/or capabilities of the supplier and meet the buying firm’s supply needs”. They exclude developing a new source of supply (reverse marketing). The definition of Krause and Ellram (1997) is cited by many researchers: Humphreys et al (2004), Sánchez-Rodríguez et al. (2005) and Wagner (2006) are a few of them. Watts and Hahn (1993) use the next definition for supplier development: “A long-term cooperative effort between a buying firm and its suppliers to upgrade the suppliers’ technical, quality, delivery and cost
capabilities and to foster ongoing improvements.” In this study we will use the definition of Watts and Hahn (1993) because the definition of Krause and Ellram (1997) is more general and doesn’t show the difference between socialization and development enough.

Supplier development can be distinguished by the role the buying firm plays, i.e. according to the resources committed to a specific supplier. The term “direct supplier development” is used when the buying firm plays an active role and dedicates human and/or capital resources to a specific supplier. In the case of “indirect supplier development” the buying firm commits no or only limited resources to a specific supplier (Wagner 2006). Another classification is: “basic supplier development”, “moderate supplier development” and “advanced supplier development”. The difference between these three is the level of involvement, implementation complexity and the use of company resources (Sánchez-Roderiquez et al. 2005). Krause et al. (1998) make a split between Reactive supplier development and Strategic supplier development. In the case of Reactive supplier development firms are reacting on a supplier non-performance which became apparent through the firms’ supplier performance evaluation systems. In this case the there is an ad-hoc response on a single supplier. The scope of Strategic supplier development focuses on the entire supply base. They want a continuous improve of the long-term capabilities of suppliers of the most important purchased items or services. (Krause et al., 1998)

Activities that take place within the context of Supplier development are: introducing competition into the supply base, supplier evaluation as a prerequisite to further supplier development activities, recognition and awards, the promise of future benefits, training and education of the supplier’s personnel, exchange of personnel between the buying firm and the supplier, and direct investment in the supplier by the buying firm (Krause and Ellram, 1997a). Wagner (2006) mentioned the next direct supplier activities: Process-oriented advice, Know-how transfer, Strategic advice, Support of market entry, Transfer of staff, financial support, and Investments in supplier. For the last two items his study shows that firms are extremely reluctant to provide such support to their troubled suppliers. Buying firms will only provide capital resources to suppliers to finance tools or equipment needed to manufacture the buying firm’s products. His list of indirect supplier development activities: efforts to evaluate suppliers “ad hoc” on cost, product, delivery and technology, efforts to evaluate suppliers “formal” on cost, product delivery and technology, impact on firm performance. Factors how the firm evaluates suppliers and how the firm communicates with them are: tailored system, feedback of results, detailed system, firm’s strategic target, supplier days and supplier awards.
Supplier development is an ongoing process aimed at building-up an effective business relationship – a relationship which demands a greater and quicker exchange of information between both partners (Lascelles and Dale, 1990).

Critical factors for supplier development are: effective two-way communication, top management involvement, cross-functional teams, larger purchasing power (Humphreys et al., 2004; Krause and Ellram, 1997), emphasis on factors other than price, long-term perspective, supplier evaluation and supplier recognition (Krause and Ellram, 1997), supplier complacency, misguided supplier improvement objectives, lack of customer credibility (Lascelles and Dale, 1990). Lack of customer credibility in the eyes of the supplier means that the supplier needs to be convinced that a customer is serious about quality improvement and that this is demonstrated by the customer’s behaviour and attitudes. (Lascelles and Dale, 1990) When the communication isn’t effectively is the result that there is mistrust, fear, disappointment, frustration, and dishonest acts on both sides (Lascelles and Dale, 1989).

Ghijsen et al. (2009) studied the role of influence strategies and relationship-specific supplier development in the manufacturer-supplier context in the automotive industry. They recommended that managers should attach more importance to indirect and other direct influence strategies and capital-specific supplier development efforts to stimulate supplier satisfaction. At the same time, promises and human- and capital-specific development enhance the commitment of suppliers towards the manufacturers. Manufacturers should carefully select the type of influence strategy when coordinating their supply base (Ghijsen et al., 2009).

Cousins and Menguc (2006) argued in their study that supplier integration and the concepts of socialization are linked closely together. Socialization provides the mechanism to allow the integration activity to take place. For supplier development we can say the same. Socialization mechanisms are part of a supplier development program.

The impact of supplier development on the performance is studied by many authors. A few of them are: Carr and Kaynak, (2007), Humphreys et al., (2004) and Krause et al., (2007). In the most studies the conclusion is that there is a positive effect between supplier development and operational performance. Although, one of the findings of Carr and Kaynak (2007) is that the direct relation between supplier development support and financial performance is not significant. They think that the reason for this finding is that most of the firms in their sample were in the reactive stage of supplier development. They recommended that future research
must identify whether buying firms pursue a reactive supplier development approach or a strategic supplier development approach.

**H4.** Supplier development will enhance the supplier’s: (a) operational performance and (b) communication performance.

**H5.** Increases in the extent of socialization mechanisms within a supplier development program will enhance the supplier’s: (a) operational performance and (b) communication performance more than increases in the extent of socialization mechanisms without a supplier development program.

The proposed model is illustrated in Figure 1.

Fig. 1. Hypothesized model

3. **Method**

In this section we discuss the sample description, the selection and development of the measures (key variables and control variables) and the use of SPSS and PLS to analyse the collected data.

3.1 **Sample description**

To explore the previously stated propositions a survey was conducted. Emails were sent with a hyperlink to the online questionnaire.

A literature review was used to derive the hypothesized model. After that one academic expert and five other experts reviewed the questionnaire. They gave a few suggestions to improve the survey questionnaire.
The sampling frame included one list of manufacturers/suppliers mainly in the sections production of metal/steel, the production of machines and equipment, automotive companies, pharmaceutical companies and service companies. To collect the email addresses we used an extract of Amadeus with a selection of BIK codes and lists of members of Supplier networks from the internet. We tried to reach the President or the Manager sales of the companies.

Cousins and Menguc (2006) used for their study a list of companies from a variety of industries such as pharmaceutical, automotive, communication, financial services and transportation. They collected 142 usable questionnaires (27.3 % response rate). Carr and Kaynak (2007) studied communication methods, information sharing, supplier development and performance. They used a random sample of 1,000 firms taken from the Institute for Supply Management’s membership list. The majority of the 231 responding firms were manufacturing type organizations.

3.2 Measures

Measures were selected and developed based on the research of Cousins and Menguc (2006) and, where necessary, were adapted to fit to the current situation (see appendix B). We used multi-item scales to measure the key variables in the purposed model.

The key variables are:

Supplier socialization was measured with a five item five point Likert scale. Supplier operational performance was measured with a seven-item, five point Likert scale. Supplier communication performance was measured with a three-item, five point Likert scale. Supplier’s contractual performance was measured with a four-item, five point Likert scale. All the items are based on the research of Cousins and Menguc (2006).

Indirect Supplier Development was measured with a four item, five point Likert scale. Direct supplier Development was measured with an eight item, five point Likert scale. The items for direct and indirect supplier development are based on the research of Krause (1997 and 1999) and Wagner (2006) For all these items the Likert scale was: 1: strongly disagree, 5: strongly agree.

We include five variables which characterise the relation between a buyer and supplier: (1) buyer’s dependence on the supplier; (2) length of relationship with the supplier; (3) duration of current contract with the supplier; (4) relationship importance; (5) type of industry. Buyer’s dependence was measured by two items from Cousins and Menguc (2006). For this items the
five-point Likert scale (1: strongly disagree; 5: strongly agree) is used. For the relationship importance the five point Likert scale was: 1: very important, 5: very unimportant.

3.2.1 SPSS and PLS

The model was tested statistically by using SPSS and PLS (partial least squares) to make the calculations. PLS is a structural equation modelling (SEM) technique. (Gill-Garcia, 2005) PLS has the benefit that it can test factor models and path models simultaneously. The factor model is often referred to as the “outer model” or the “Measurement model” and the path model is also referred to as the “inner model” or the “structural model” (Gil-Garcia, 2005). The factor model and the path model each use specific linear equations. The factor model gives a linear equation between the indicators of a latent variable and the latent variable (unobserved constructs) itself. The path model in PLS shows a linear equation between the latent variables themselves. Another benefit of using PLS is that it can provide relevant information even with small sample sizes (Gil-Garcia, 2005).

The paper of Dunn et al. (1994) suggests a logistic research methodology for the scientific analysis and testing of latent variables. Validity and reliability are important factors to test and analyse latent variables.

- Content validity can be realised by carefully defining constructs from the literature.
- Reliability is most commonly estimated using Cronbach’s coefficient alpha ($0 \leq \alpha \leq 1$). A higher level of Cronbach’s alpha indicates a higher reliability of the scale. To test the reliability of the constructs the Composite reliability (CR) and the Average Variance Extracted (AVE) can be used. The composite reliability estimates the extent to which a set of latent construct indicators share in their measurement of a construct, whilst the average variance extracted is the amount of common variance among latent construct indicators (Hair et al., 1998).
- Construct validity: the degree to which there is agreement between two or more attempts to measure the same construct through dissimilar methods. Convergent validity and discriminant validity are the criteria most frequently used to support construct validity. Convergent validity is the degree to which there is agreement between two or more attempts to measure the same construct through dissimilar methods. Discriminant validity depends on the degree to which scales measure distinct constructs. When convergent validity and discriminant validity are found, construct
validity is supported (Dunn et al., 1994). However, one study can not establish construct validity as is “a function of precious studies, current studies and future research” (Dunn et al., 1994).

With H5 we want to test if increases in the extent of socialization mechanisms within a supplier development program will enhance the supplier’s: (a) operational performance and (b) communication performance more than increases in the extent of socialization mechanisms without a supplier development program. We use a paired sample t-test to determine the significance of the difference between the sets of paired data. The paired sample t-test compares the difference between the sample means and the null hypothesis. The standard error is the gauge of the variability between the sample means (Field, 2009). Another way to assess measurement model fit is to evaluate path estimates. In evaluating path estimates, sign (positive or negative), strength and significance should be aligned with theory (Shah et al. 2006).

4. Results

The survey was held by email among manufacturing and services companies in the Netherlands. Most of the companies are member of several networks of suppliers. The email addresses were searched on company websites. If possible the email addresses of persons are used. Unfortunately many times there is only a general email address on the websites. First, emails were sent to 555 companies. In the email there was a letter with a hyperlink to the online questionnaire. After two weeks a reminder email was sent. Second, there was sent an email to another 130 email addresses. Third, 50 companies were contacted by phone. The most often reason for non-response was company policy, followed by lack of time and the crises. Of the total of 685 contacted firms, 63 respondents completed the questionnaire (response rate of 9 percent). After screening the questionnaires 52 were usable (response rate of 7.6 percent).

Table 1a and 1b are showing some characteristics of the responding companies. Table 1a shows the number of employees, sector of the firm and the function of the responding people. The majority of the responding companies are firms ≤ 250 employees (42 of 52). Table 1b shows the annual turnover and the type of industry. Of the 52 responding firms 37 ones do have an annually turnover ≤ € 50mln.
Table 1a: Sample characteristics

<table>
<thead>
<tr>
<th>Number of employees</th>
<th>n</th>
<th>Sector</th>
<th>n</th>
<th>Department</th>
<th>n</th>
</tr>
</thead>
<tbody>
<tr>
<td>50 or less</td>
<td>23</td>
<td>Computers/communication/high tech</td>
<td></td>
<td>Vice-president or Director</td>
<td>16</td>
</tr>
<tr>
<td>51 – 250</td>
<td>19</td>
<td>Pharmaceutical industry</td>
<td>1</td>
<td>Director Sales</td>
<td>5</td>
</tr>
<tr>
<td>251 – 500</td>
<td>3</td>
<td>Automobile industry</td>
<td>2</td>
<td>Manager Sales</td>
<td>16</td>
</tr>
<tr>
<td>501 – 1000</td>
<td>3</td>
<td>Paper/packaging</td>
<td>1</td>
<td>Sales Department</td>
<td>7</td>
</tr>
<tr>
<td>1001 – 2000</td>
<td>1</td>
<td>Steel/steel processing</td>
<td>25</td>
<td>Otherwise</td>
<td>8</td>
</tr>
<tr>
<td>More than 2000</td>
<td>3</td>
<td>Services</td>
<td>4</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Other</td>
<td>17</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Scores on respectively the variables: “Number of employees?”, “What sector is your company active in?” and “What is your position within the company?”

Table 1b: Sample characteristics

<table>
<thead>
<tr>
<th>Turnover</th>
<th>n</th>
<th>Type of industry</th>
<th>n</th>
</tr>
</thead>
<tbody>
<tr>
<td>Less € 1mln</td>
<td>1</td>
<td>Production</td>
<td>45</td>
</tr>
<tr>
<td>€ 1 - € 5mln</td>
<td>15</td>
<td>Services</td>
<td>7</td>
</tr>
<tr>
<td>€ 5 - € 10mln</td>
<td>7</td>
<td></td>
<td></td>
</tr>
<tr>
<td>€ 10 - € 50mln</td>
<td>14</td>
<td></td>
<td></td>
</tr>
<tr>
<td>€ 50 - € 100mln</td>
<td>2</td>
<td></td>
<td></td>
</tr>
<tr>
<td>€ 100 - € 500mln</td>
<td>9</td>
<td></td>
<td></td>
</tr>
<tr>
<td>More than € 500mln</td>
<td>4</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Scores on respectively the variables: “What is the annual turnover of your company?” and “What is the type of industry of your company?”

Table 2a and 2b (see appendix B) shows the item analyses of the variables.

The tables only contain the items which were used for further analyses. Items were deleted because of the low Cronbach’s alpha or the low values for the Loading (< 0.50) and t-value. The low response is one of the (main) reasons for the large number of items which had to be removed. For a list with all the items see appendix A.

39 of the responding firms do use the both instruments Socialisation mechanisms and Supplier Development.

The values on skewness and kurtosis should be zero in a normal distribution. The further the value is from zero, the more likely it is that the data are not normally distributed. (Field, 2009) Partial Least Squares (PLS) is used to estimate the model. PLS first analyses the measurement model and then the structural model (Kijsanayotina et al., 2009). This technique can be applied when latent variables and their underlying items show skewness or kurtosis (Chin et al. 1996). Also, PLS deals with possible multicollinearity issues (Cassel et al. 1999).
Table 3a en table 3b presents the Average Variance Extracted the Composite Reliability the R square and the Cronbach’s Alpha.

<table>
<thead>
<tr>
<th>Variable</th>
<th>AVE</th>
<th>Comp. Reliability</th>
<th>R Square</th>
<th>Cronbach’s Alpha</th>
</tr>
</thead>
<tbody>
<tr>
<td>Socialisation mechanisms *)</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Supplier’s contractual performance</td>
<td>0.725</td>
<td>0.840</td>
<td>0.306</td>
<td>0.628</td>
</tr>
<tr>
<td>Supplier’s operational performance</td>
<td>0.623</td>
<td>0.831</td>
<td>0.131</td>
<td>0.698</td>
</tr>
<tr>
<td>Supplier’s communication performance</td>
<td>0.871</td>
<td>0.931</td>
<td>0.008</td>
<td>0.867</td>
</tr>
</tbody>
</table>

*) single item

Table 3b: Reliability: Supplier Development

<table>
<thead>
<tr>
<th>Variable</th>
<th>AVE</th>
<th>Comp. Reliability</th>
<th>R Square</th>
<th>Cronbach’s Alpha</th>
</tr>
</thead>
<tbody>
<tr>
<td>Supplier Development</td>
<td>0.677</td>
<td>0.861</td>
<td>-</td>
<td>0.759</td>
</tr>
<tr>
<td>Supplier’s contractual performance *)</td>
<td>-</td>
<td>-</td>
<td>0.119</td>
<td>-</td>
</tr>
<tr>
<td>Supplier’s operational performance</td>
<td>0.691</td>
<td>0.870</td>
<td>0.065</td>
<td>0.777</td>
</tr>
<tr>
<td>Supplier’s communication performance *)</td>
<td>-</td>
<td>-</td>
<td>0.027</td>
<td>-</td>
</tr>
</tbody>
</table>

*) single item

In the study of Cousins and Menguc (2006) all the values of the AVE are lower than in this study. In their study the AVE for Socialization mechanisms is even lower than 0.50 (0.42).

In their study the R² were as follow: Supplier’s communication performance 0.60, Supplier’s operational performance 0.64 and Supplier’s contractual performance 0.50. In the study of Cousins and Menguc (2006) these values are a combination of items for Socialization mechanisms and items for Supplier Integration.

4.1 Results PLS analyses

Table 4a and 4b presents the means, the standard deviations, the inter correlations of the variables and the value for the construct validity (main diagonal).
Table 4a: means, standard deviations, inter correlations of the variables and values for construct validity
Socialisation mechanisms (n=52) after deleting items

<table>
<thead>
<tr>
<th>Variable</th>
<th>Mean</th>
<th>S.D.</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Socialisation mechanisms</td>
<td>2.85</td>
<td>.73</td>
<td>-</td>
<td>-0.321</td>
<td>-0.362</td>
<td>-0.087</td>
</tr>
<tr>
<td>2. Supplier contractual performance</td>
<td>4.09</td>
<td>.55</td>
<td>0.851</td>
<td>0.551</td>
<td>0.176</td>
<td></td>
</tr>
<tr>
<td>3. Supplier’s operational performance</td>
<td>3.90</td>
<td>.53</td>
<td>-</td>
<td>0.790</td>
<td>0.256</td>
<td></td>
</tr>
<tr>
<td>4. Supplier’s communication performance</td>
<td>3.65</td>
<td>.60</td>
<td>-</td>
<td>-</td>
<td>0.935</td>
<td></td>
</tr>
</tbody>
</table>

Table 4b: means, standard deviations, inter correlations of the variables and values for construct validity
Supplier development (n=52) after deleting items

<table>
<thead>
<tr>
<th>Variable</th>
<th>Mean</th>
<th>S.D.</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Indirect supplier development</td>
<td>3.77</td>
<td>.51</td>
<td>0.823</td>
<td>0.032</td>
<td>-0.256</td>
<td>0.164</td>
</tr>
<tr>
<td>2. Supplier contractual performance</td>
<td>3.97</td>
<td>.61</td>
<td>-</td>
<td>0.345</td>
<td>0.121</td>
<td></td>
</tr>
<tr>
<td>3. Supplier’s operational performance</td>
<td>3.91</td>
<td>.42</td>
<td>-</td>
<td>0.831</td>
<td>0.282</td>
<td></td>
</tr>
<tr>
<td>4. Supplier’s communication performance</td>
<td>3.71</td>
<td>.36</td>
<td>-</td>
<td>-</td>
<td>0.822</td>
<td></td>
</tr>
</tbody>
</table>

Content Validity: All of the items were adapted from previous research (see appendix A)

Reliability: Cronbach’s alpha was used to measure the scale reliability. First the Cronbach’s alpha was calculated for all items. Because the values in the Inter-item correlation matrix were not all above the .3 some items were deleted (Field, 2009). As shown in Table 3a and 3b the Cronbach’s alpha of the constructs (after deleting items) were all higher than 0.6 (in a range of 0.628 to 0.867). Dunn et al (1994): Alpha levels higher than 0.70 indicate internal consistency among the items of a scale, alpha levels as low as 0.60 are acceptable for new scales. George and Mallery (2003) provide the following rules of thumb: “_ > .9 – Excellent, _ > .8 – Good, _ > .7 – Acceptable, _ > .6 – Questionable (p. 231). In this study we use a cut-off value of 0.6 (Modi and Mabert (2007), Vickery et al. (2003)).

Construct Validity: Convergent validity and discriminant validity are the criteria most frequently used to support construct validity (Dunn et al, 1994) Convergent validity can be assessed by the examination of the average variance extracted. (Gil-Garcia, 2005) Composite reliability above the 0.70 threshold and an extracted variance above the 0.50 threshold are recommended by Hair et al. (1998). All the AVE values are above the 0.50 and the CR values are above the 0.70 (see table 3a and 3b). The diagonal in table 4a and 4b shows that all
constructs were more strongly correlated with their own measures than with any other of the constructs. According to Gil-Garcia (2005) this is suggesting good convergent and discriminant validity.

5. Discussion

The purpose of this study was to test that supply chain socialization and supplier development will enhance the supplier’s operational performance and supplier’s communication performance and will increase the of supplier’s contractual performance. Tables 5a and 5b presents the path coefficient $\beta$, the t-value and if the hypotheses are supported. Only two hypotheses are supported. The results should be interpreted with caution because of the relative small number of respondents.

<table>
<thead>
<tr>
<th>Table 5a: Results PLS-analyses Socialisation mechanisms</th>
</tr>
</thead>
<tbody>
<tr>
<td>H1 a: Operational perf. $\rightarrow$ Contractual perf.</td>
</tr>
<tr>
<td>$B$</td>
</tr>
<tr>
<td>0.541</td>
</tr>
<tr>
<td>H1 b: Communication perf. $\rightarrow$ Contractual perf</td>
</tr>
<tr>
<td>H3 a: Socialization $\rightarrow$ Operational perf.</td>
</tr>
<tr>
<td>H3 b: Socialization $\rightarrow$ Communication perf.</td>
</tr>
</tbody>
</table>

* Significance $< 1\% t > 2.576$ (two-tailed test)

<table>
<thead>
<tr>
<th>Table 5b: Results PLS-analyses Supplier Development</th>
</tr>
</thead>
<tbody>
<tr>
<td>H2 a: Operational perf. $\rightarrow$ Contractual perf.</td>
</tr>
<tr>
<td>$B$</td>
</tr>
<tr>
<td>0.341</td>
</tr>
<tr>
<td>H2 b: Communication perf. $\rightarrow$ Contractual perf</td>
</tr>
<tr>
<td>H4 a: Development $\rightarrow$ Operational perf.</td>
</tr>
<tr>
<td>H4 b: Development $\rightarrow$ Communication perf.</td>
</tr>
</tbody>
</table>

* Significance $< 1\% t > 2.576$ (two-tailed test)

The difference between this study and the results of Cousins and Menguc (2006) are:

- They studied supply chain socialization and supply chain integration. In this study we studied supply chain socialization and supplier development.
- Their research is done from the buyer’s perspective; this study is done from the perspective of the supplier.
In their article they combined the results for socialisation and integration. This means that they show one path coefficient between supplier’s operational performance and supplier’s contractual performance and between supplier’s communication performance and supplier’s contractual performance. In this study we show the results separately for socialization and supplier development.

In this study only the relationship between supplier’s operational performance and supplier’s contractual performance is supported. In their study also the relationship between supplier’s communication performance and supplier’s contractual performance and the relationship of supply chain socialization with supplier’s operational performance and supplier’s communication performance are supported.

Figure 2 presents the hypothesized model with the path coefficients. See the blue lines for supply chain socialization and the red ones for supplier development.

**Fig 2. Hypothesized model with results.**

**H1a. Supply chain socialization:** Increases in the supplier’s operational performance will enhance the level of contractual performance (Cousins and Menguc, 2006).

**H1b. Supply chain socialization:** Increases in the supplier’s communication performance will enhance the level of contractual performance (Cousins and Menguc, 2006).

**H2a. Supplier development:** Increases in the supplier’s operational performance will enhance the level of contractual conformance.
H2b. Supplier development: Increases in the supplier’s communication performance will enhance level of contractual performance.

There is a positive significant relationship between operational performance and contractual performance for both supply chain socialization and supplier development. So H1a and H2a are supported. Cousins and Menguc (2006) combined supply chain socialization and supply chain integration for this hypothesis so we can’t compare this totally with their study although they show also a positive significant relationship.

For both supply chain socialization and supplier development there is no significant relationship between supplier’s communication performance and supplier’s contractual performance. The path coefficients are both positive but the t-values are too low. So there is no support for H1b and H2b. The relationship between communication performance and contractual performance is a subject about which is almost nothing to retrieve in existing literature.

H3. Increases in the extent of socialization mechanisms between the supplier and buyer will enhance the supplier’s: (a) operational performance and (b) communication performance.

H4. Supplier development will enhance the supplier’s: (a) operational performance and (b) communication performance.

The PLS analyses for H3a shows a negative path coefficient (β=-0.362) and a high positive t-value (5.200). So there is a significant negative relationship between supply chain socialization and operational performance. We are testing for a positive significant relationship, so H3a is not supported. There is also no support for H3b, the β (-0.362) is also negative. This is not in line with the study of Cousins and Menguc (2006). In their study H3a and H3b are supported. There is also no support for H4a and H4b. The path coefficient for H4b is positive (0.216) but the t-value is not significant.

This is not in line with the expectations. One of the main reasons to implement supply chain socialization or supplier development is improving performance although there are more studies not supporting this. In the study of Prahinski and Benton (2004) there was no support for the hypothesis that the buyer-supplier relationship has a positively influence on the supplier’s performance. A result of the study of Carr and Kaynak (2007) was: the direct
relationship between supplier development support and financial performance is not significant. In the study of Cousins and Menguc (2006) they found also no relationship between supplier integration and supplier’s operational performance.

The study of Geiger and Turley (2005) shows that it can be difficult to determine the exact return on investment for socializing expenditures, the evidence of their respondents suggests that this concern should not detract from the overall benefits of socialization on a client relationship.

Supplier communication performance refers to the degree which supplier’s share information with their customers. Information sharing is a very important item in the relationship between a buyer and supplier (Wagner and Boutellier, 2002; Martin and Grbac, 2003; Liker and Choi, 2004; Krause and Ellram, 1997; Goffin et al. 2006) although Car and Kaynak (2007) found that the direct relationship between information sharing between firms and supplier development support was not significant. This is in line with the result of this study.

**H5. Increases in the extent of socialization mechanisms within a supplier development program will enhance the supplier’s: (a) operational performance and (b) communication performance more than increases in the extent of socialization mechanisms without a supplier development program.**

There is no support for H5a and H5b. To test this we used the paired sample t-test. The outcomes are: for operational performance $t=1.192 \ p=0.239$, for communication performance $t=0.104 \ p=0.917$. Only with a $p <0.05$ (Field, 2009) we can conclude that there is a significantly difference between using socialization mechanisms within a supplier development and using socialization mechanisms without a supplier development program.

We calculated the paired sample t-test also for contractual performance: $t=1.130 \ p=0.264$. The conclusion is that also for contractual performance there isn’t a significantly difference between using socialization mechanisms and using a supplier development program.

In the survey we included some control variables. For all the control variables: buyer’s dependence ($t=0.753, \ p=0.455$), how important is the relationship with the buyer ($t=0.849, \ p=0.400$), which % of the turnover do you sell to this buyer ($t=1.138, \ p=0.261$), what is the length of the relationship with this buyer ($t=0.144, \ p=0.886$) and what is the duration of the current contract ($t=0.978, \ p=0.333$) we found with the paired sample t-test no significant difference between supply chain socialization and supplier development. This not in line with
the expectations. Especially for buyer’s dependence and relationship importance you will expect a significant difference between supplier development and supply chain socialization because a supplier development program needs more investments (in time and money) in the relationship. The relative low number of respondents could be the cause of these unsupported results.

6. Managerial implications

Several studies have shown the impact of influence strategies and development efforts on suppliers’ and buyers’ performances and buyer-supplier relationships (Humphreys et al., 2004). Managers should take attention to this. Although the results of this study were non-conclusive to a large extent, the study of Cousins and Menguc (2006) shows that it is clear that socialization has a positive effect on how firms behave and conduct business. So managers should not dismiss the importance of investing in a socialization activity when they want to enjoy the benefits of collaboration (Cousins and Menguc, 2006). The study of Cousins and Lawson (2007) illustrates the importance of socialization mechanisms as a means of bringing buyer and supplier closer together. The study of Geiger and Turley (2005) shows that it can be difficult to determine the exact return on investment for socializing expenditures, the evidence of their respondents suggests that this concern should not detract from the overall benefits of socialization on a client relationship.

7. Limitations, conclusions and future research directions

The purpose of this study was to test that increasing levels of supplier’s socialization and supplier development will enhance the supplier’s contractual performance through the mediating role of the supplier’s operational and communication performance. Support was found for the relationship between contractual performance and operational performance. We found no support for the relationship between supply chain socialization and operational performance, no support for the relationship between supply chain socialization and communication performance, no support for the relationship between supplier development and operational performance and no support for the relationship between supplier development and communication performance. We found also no support for the relationship between contractual performance and communication performance.
Several studies have shown the impact of influence strategies and development efforts on suppliers’ and buyers’ performances and buyer-supplier relationships from the buyer perspective (Humphreys et al., 2004). However, the examination of influence strategies and supplier development and buyer-supplier relationships from the perspective of the supplier is still scarce (Cousins and Lawson, 2007; Goffin et al., 2006). This study is done from the perspective of the supplier therefore this study provides new insights.

This study has several limitations. The sample size included 52 suppliers. This could be the reason that items had to be excluded for analysis. Maybe this influenced the result of this study. Another limitation is that we only involved suppliers from the Netherlands and 48% of the responding suppliers are representing steel or steel related companies. Further research is needed to replicate this study with larger and more representative samples. Future researchers should take necessary steps to obtain larger samples (Cousins and Menguc, 2006).

Second, we are not able to draw causal inferences because of the cross-sectional nature of the data. For example, it is possible that supplier’s performance in one point in time may influence the level of supplier development and the use of socializations mechanisms in another point of time. Hence, longitudinal data is needed for studying causation (Cousins and Menguc, 2006).

Another potential weakness of cross-sectional surveys is that social desirability may be driving the results, such that firms want to appear be doing everything correctly and so respond positively to all ratings. The means and standard deviations presented in table 2a and 2b suggest that there was a wide variety of responses across the different variables and that respondents, on average, were responding in the middle of the scales. This is suggesting that a desire to “look good” was not driving responses to the questionnaire (Martin and Grbac, 2003).

Third, we employed data from a single-source in this study (the supplier). The use of multiple informants or data collection on both sides of the dyadic buyer-supplier relationship could provide additional insights into the research topic and improve the quality of the data analysis (Wagner and Krause, 2008).

This study has to be seen as a preliminary study. We didn’t find significant difference between the use of supply chain socialization and supplier development. Maybe the items in the survey didn’t show enough the difference between supply chain socialization and supplier development. It is hard to find research about the relationship between communication
performance and contractual performance. Therefore more research is needed to test the model.

Because we had to exclude many items from the research we couldn’t study if there was a difference in the results for direct and indirect supplier development like in the studies of Ghijsen et al. (2009) and Wagner (2006). This is an opportunity for future research. Including supplier integration in the model would be interesting and can give more insight in the relationship between buyers and suppliers and the impact on performances.
References


Appendix A: Description of scaled measures

Socialization mechanisms
1. Social events
2. Joint workshops
3. On-site visits
4. Regular supplier conferences
5. Team building exercises

Supplier Development
Indirect:
1. Formal Supplier evaluation 3)
2. Feedback of supplier performance 1)
3. Raising performance expectations 1)
4. Buying from alternative suppliers to provide competition for current suppliers 3)

Direct:
1. On-site consultation 4)
2. Education and training programs 1)
3. Temporary personnel transfer 1)
4. The provision of equipment or capital 4)
5. Supplier certification 4)
6. Supplier recognition and awards 4)
7. Strategic advise 2)
8. Technical assistance 1)

Supplier’s contractual conformance
1. Supplier protects confidentiality or trade secrets
2. Supplier has committed the required resources (time, people and skills, technology)
3. Supplier would excel the call-of-duty
4. Supplier meets long-term contractual requirements

Buyer’s dependence
1. Few substitute product or services
2. Few alternative supplier of this product or service

Supplier’s operational performance
1. Total cost reduction
2. Time-to-market
3. Lead times
4. Conformance to specifications
5. Quality improvement
6. Delivery to schedule
7. Process improvement

Supplier’s communication performance
1. Communication effectiveness
2. Information exchange quality and timeliness
3. Feedback from Supplier
The items are based on Cousins and Menguc (2006) except:
1) Item based on Wagner (2006, a).
2) Item based on Wagner (2006).
3) Item based on Krause (1999)
4) Item based on Krause (1997)

Table 2a and 2b in appendix B presents the items which were used for analyses
Appendix B: Table 2a en 2b item analyses

### Table 2a: Item-analyses Socialisation mechanisms after deleting items

<table>
<thead>
<tr>
<th>Variable</th>
<th>Item-description</th>
<th>mean</th>
<th>st. dev.</th>
<th>loading</th>
<th>t-value</th>
<th>Skewness</th>
<th>Kurtosis</th>
</tr>
</thead>
<tbody>
<tr>
<td>Items socialisation mechanisms</td>
<td>Social events</td>
<td>2.75</td>
<td>1.027</td>
<td>-</td>
<td>-</td>
<td>-0.148</td>
<td>-0.707</td>
</tr>
<tr>
<td>Supplier’s contractual conformance</td>
<td>S. committed required resources</td>
<td>4.12</td>
<td>0.646</td>
<td>0.799</td>
<td>10.059</td>
<td>-0.563</td>
<td>1.330</td>
</tr>
<tr>
<td></td>
<td>S. meets long-term contractual requirements</td>
<td>4.06</td>
<td>0.639</td>
<td>0.900</td>
<td>31.588</td>
<td>-0.523</td>
<td>1.332</td>
</tr>
<tr>
<td>Supplier’s operational performance</td>
<td>Total cost reduction</td>
<td>3.90</td>
<td>0.533</td>
<td>0.681</td>
<td>5.268</td>
<td>-0.898</td>
<td>3.229</td>
</tr>
<tr>
<td></td>
<td>Time-to-market</td>
<td>3.84</td>
<td>0.801</td>
<td>0.826</td>
<td>20.244</td>
<td>-1.125</td>
<td>2.557</td>
</tr>
<tr>
<td></td>
<td>Lead times</td>
<td>3.96</td>
<td>0.656</td>
<td>0.852</td>
<td>26.866</td>
<td>0.046</td>
<td>-0.571</td>
</tr>
<tr>
<td>Supplier’s communication performance</td>
<td>Communication effectiveness</td>
<td>3.61</td>
<td>0.629</td>
<td>0.899</td>
<td>9.940</td>
<td>-0.428</td>
<td>0.207</td>
</tr>
<tr>
<td></td>
<td>Information exchange quality and timeliness</td>
<td>3.69</td>
<td>0.641</td>
<td>0.970</td>
<td>21.067</td>
<td>-0.516</td>
<td>0.560</td>
</tr>
</tbody>
</table>

### Table 2b: Item-analyses Supplier development after deleting items

<table>
<thead>
<tr>
<th>Variable</th>
<th>Item-description</th>
<th>mean</th>
<th>st. dev.</th>
<th>loading</th>
<th>t-value</th>
<th>Skewness</th>
<th>Kurtosis</th>
</tr>
</thead>
<tbody>
<tr>
<td>Indirect Supplier development</td>
<td>Formal supplier evaluation</td>
<td>3.73</td>
<td>0.686</td>
<td>0.671</td>
<td>3.074</td>
<td>-0.910</td>
<td>1.612</td>
</tr>
<tr>
<td></td>
<td>Feedback of supplier performance</td>
<td>3.80</td>
<td>0.567</td>
<td>0.894</td>
<td>5.538</td>
<td>-1.100</td>
<td>3.241</td>
</tr>
<tr>
<td></td>
<td>Raising performance expectations</td>
<td>3.78</td>
<td>0.610</td>
<td>0.884</td>
<td>5.153</td>
<td>-1.234</td>
<td>2.993</td>
</tr>
<tr>
<td>Supplier’s contractual conformance</td>
<td>S. committed required resources</td>
<td>3.97</td>
<td>0.610</td>
<td>-</td>
<td>-</td>
<td>-1.569</td>
<td>5.266</td>
</tr>
<tr>
<td>Supplier’s operational performance</td>
<td>Total cost reduction</td>
<td>3.86</td>
<td>0.529</td>
<td>0.854</td>
<td>14.919</td>
<td>-0.657</td>
<td>3.142</td>
</tr>
<tr>
<td></td>
<td>Time-to-market</td>
<td>3.71</td>
<td>0.702</td>
<td>0.830</td>
<td>12.629</td>
<td>-1.392</td>
<td>4.478</td>
</tr>
<tr>
<td></td>
<td>Lead times</td>
<td>3.94</td>
<td>0.522</td>
<td>0.809</td>
<td>11.794</td>
<td>0.056</td>
<td>0.926</td>
</tr>
<tr>
<td>Supplier’s communication performance</td>
<td>Communication effectiveness</td>
<td>3.66</td>
<td>0.425</td>
<td>-</td>
<td>-</td>
<td>-0.051</td>
<td>0.698</td>
</tr>
</tbody>
</table>