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# Partner selection, partner behavior, and business network performance

Business  
network  
performance

## An empirical study on German business networks

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### Abstract

**Purpose** – Business networks have to coordinate each of their partners' goals and expectations, as a lack of partner compatibility and goal incongruence could lead to conflict and opportunistic behavior. These potential problems highlight the relevance of partner selection as a means of minimizing opportunistic behavior by building trust in and commitment to a network that influences network performance. The purpose of this paper is to provide insights into partner selection as a management control mechanism, which controls the behavior and network performance of business network partners.

**Design/methodology/approach** – The paper provides an analysis of the effects of a well-executed partner selection on business networks' performance. The paper further analyzes the effects of the mediating role of trust within, commitment to, and the risk of opportunistic behavior in business networks. Consequently, the paper highlights the pivotal role of partner selection in business networks as a management control mechanism.

**Findings** – The results provide an exploratory empirical insights into the cause-and-effect relationship between partner selection, partners' behavior, and network performance. Partner selection has effects on trust, opportunism, and commitment. The selection of a partner is a very important managerial control task within business networks, as appropriate selection is a threshold condition for a successful business network.

**Research limitations/implications** – Since the study is based on empirical data collected by individuals, it could be open to general criticism regarding the methodology of broad empirical analysis. Time-lagging effects also remain unrevealed as the data represent only a point in time. Some effects cannot be verified indisputably, while the low variance in some of the construct results is only indicative of suggestions.

**Originality/value** – This paper provides insights into partner selection as a management control mechanism, which controls the behavior and network performance of business network partners.

**Keywords** Networking, Business performance, Partnership, Trust, Germany

**Paper type** Research paper

### 1. Introduction

Numerous influencing factors, like the growing dynamics of and turbulence in the business environment, have led to the disintegration of organizations' boundaries, as well as to the loss of these boundaries' unique character. Alternative organizational forms, especially business networks, have therefore become increasingly important in respect of acting in such an environment (Ashkenas *et al.*, 1995). In the business network context, there is a basic assumption that these networks can be more than



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a “zero-sum game” in which one network partner’s benefits are deducted from the others’ costs. In fact, business networks’ underlying hypothesis envisages an opportunity to link individual profit to “over additive” in the sense of a synergy realization. Dyer and Singh (1998, p. 662), define the realization of synergy as:

[...]relational rent as a supernormal profit jointly generated in an exchange relationship that cannot be generated by either firm in isolation and can only be created through the joint idiosyncratic contributions of the specific alliance partners.

A basic problem confronting business networks, is the coordination of each partner’s goals and expectations. A lack of partner compatibility and goal incongruence could lead to conflicts, as well as by opportunistic behavior. This highlights the relevance of partner selection as an opportunity to minimize the risk of opportunistic behavior by building trust in and commitment to a network that influences network performance. Partner selection is relevant to network performance, as it not only constitutes a business network’s uniqueness, but also determines the partners’ position and behavior within the network. The network strategy and structure are also determined by the partner selection. Supplier selection is, for example, one of the key decisions in supply management, as the supplier’s performance has a great impact on the productivity, quality, and competitiveness of the purchasing firm (Leenders and Fearon, 1993; Ellram, 1990; Pearson and Ellram, 1995). As new institutionalism argues that acting in a business environment is burdened with behavioral and environmental uncertainty, bounded rationality, and information asymmetries. Opportunistic behavior is therefore an inherent business network problem.

Baiman and Rajan (2002), for instance, have examined opportunism in buyer-supplier networks. They have found a trade-off between the advantages of an early and detailed information exchange between buyers and suppliers, the additional costs of such an information transfer, and the risk of a partner violating the information. Critics of this opportunistic approach argue, however, that the focus on opportunistic behavior has not been sufficiently discussed. Consequently, trust has been identified as an important issue in inter-organizational business relationships. In general, it can be assumed that a certain amount of trust is required as a threshold condition for successful inter-organizational cooperation, which management accounting research endorses (Dekker, 2004; Mouritsen and Thrane, 2006; Tomkins, 2001; Van der Meer-Kooistra and Vosselmann, 2000). In their literature review, Mouritsen and Thrane (2006) identify three patterns in the accounting-trust relationship. First, accounting systems create trust just as partners trust abstract systems. Other researchers regard trust as a specific control mechanism that leads to a decreased need for formal control systems. The third pattern identifies trust as a precondition for inter-organizational accounting. However, accounting instruments seem to play a vital role in the formation and management of business networks by helping to focus on and solve coordination problems.

Commitment to the network is regarded as another important aspect that affects the relationship between network partners, as it implies the renunciation of short-term opportunism and alignment with long-term value creation (Morgan and Hunt, 1994). Furthermore, it can be assumed that a lack of commitment could encourage opportunistic behavior. Consequently, partner selection determines the behavior of the network partners, as well as influencing the network performance.

The aim of this study is twofold: it examines the effects of well-executed partner selection on the performance of business networks, while also examining the mediating effects of the behavioral constructs trust, commitment, and opportunism on network performance. This study tests for these effects by means of the conceptualization and examination of a structural equation model. The results of the examination have an explanatory character rather than a confirmatory one, due to the study's underlying conditions, which will be explained in due course.

The structure of the paper is as follows: after this introduction, the theoretical pre-requisites for the following study are explained, and each construct's underlying terms and definitions discussed in Section 2. Thereafter, the research framework and hypotheses are derived from underlying theories. This is followed by a description of the empirical study and its results in Section 3. Based on these results, conclusions are drawn and future research implications discussed in Section 4.

## 2. Terms and definitions

Numerous theoretically deduced and/or empirically verified criteria have been presented as having an impact on cooperation's success (Das and Teng, 2002a, b; Oliver and Ebers, 1998). This study is based on the assumption that the behavioral aspects trust, commitment, and opportunism are significantly determined by partner selection. As shown in Figure 1, the research framework examines the effects of a well-executed partner selection on the behavioral constructs trust, commitment, and opportunism. In addition, the framework examines the effects of partner selection and the mentioned behavioral constructs on network performance.

Within the scope of (theoretical) cooperation research, there are various explanations for business networks. Initiatives like new institutionalism (specifically transaction cost economics and agency theory) and cooperative/non cooperative game theory are widely recognized as explaining the effects and different forms of cooperation. This study thus aims to develop and test a causal model. Based on the postulated coherences of different theories, hypotheses are then formulated. However, a holistic and comparative evaluation of all possible theoretical approaches does not

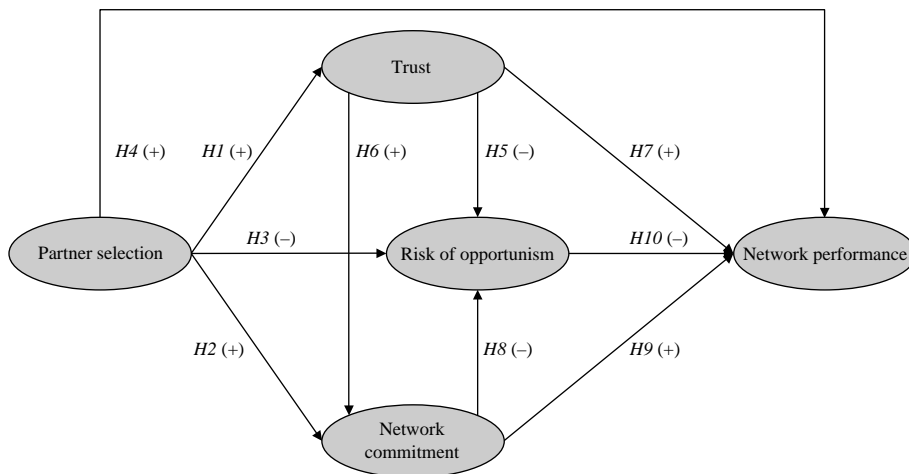


Figure 1.  
Research framework

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appears to be appropriate in this case, as this would lead to a new “network theory.” On the other hand, focusing on one theoretical perspective would restrict the research framework to already known relationships. Consequently, this study apply specific theory components selectively and not to apply an integrative network theory concept.

First, however, a precise definition is required of a business network, which is the study’s underlying examination object. Owing to the huge body of literature on cooperation in almost every scientific managerial and economic domain, there are many different definitions of networks (Sydow, 2003). In this study, business networks are differentiated as a special form of cooperation, whereas cooperation is a generic term for different forms of inter-organizational cooperation. A business network is therefore regarded as a voluntary-based inter-organizational cooperation between at least three companies, whose entrepreneurial autonomy is partially limited by the cooperation. This definition refers to three attributes: first, the voluntary character of the business network formation is a specific mechanism associated with business networks (Tomkins, 2001). Second, the limited decision-making autonomy is another attribute of business networks. On one hand, cooperating with partners while maintaining full autonomy does not therefore suit the network idea. On the other hand, total dependency would negate the voluntary nature of network formation. The third essential attribute is that at least three companies have to be involved in a business network.

### *2.1 Performance*

Many performance measures and criteria are found in cooperation research: one approach to measure cooperation performance is to use intangible, rather than subjective measurement dimensions such as the business partners’ “perceived satisfaction” or “achievement of objectives.” Another approach is to use more objective measurement dimensions like profitability or growth (Mohr and Spekman, 1994, for a synopsis of empirical studies on alliance performance and the underlying concepts of success see Das and Teng, 2002a). For confidentiality reasons and due to the difficulty of ensuring an objective data collection and comparability, no measurement of the absolute profit was conducted in the survey. Instead, the informants resorted to a subjective profit evaluation.

### *2.2 Partner selection and its effects*

Partner selection aims at identifying network partners’ potential for creating a joint value. Partner selection is thus tightly linked to business network formation and primarily refers to strategy, structure, and partner decisions (Galbraith, 1998; Easton, 1997). Only if value-adding potentials (in the sense of processes, competencies, resources, etc.) are identified that lead to benefits (in the sense of better output-input relations) in the process of cooperatively providing goods and services, will business networks be formed.

Hence, depending on the specific context, partner selection is associated with much negotiation and many decision parameters regarding (objectively and subjectively measurable) criteria like finance, contracts, information exchange, and organizational structures (e.g. supply management, and production). In the supply management context, Dickson (1966; for a meta-analysis, see Weber *et al.*, 1991) identifies 23 commonly used selection criteria (Table I). These financial and non-financial criteria

	Selection criteria	Business network performance
1	Delivery	<b>31</b>
2	Performance history	
3	Warranties and claims	
4	Production facilities	
5	Price/cost	
6	Technical capability	
7	Financial position	
8	Procedural compliance	
9	Communication system	
10	Reputation and position	
11	Desire of business	
12	Management and organization	
13	Operating controls	
14	Repair service	
15	Attitude	
16	Impression	
17	Packaging ability	
18	Labor relations record	
19	Geographical location	
20	Amount of past business	
21	Customer service	
22	Training aids	
23	Reciprocal arrangements	

**Table I.**  
Financial and non-financial selection criteria

Source: Dickson (1966)

can be interpreted as the partners' quantitative and qualitative performance measures that need to be evaluated. Management accounting instruments like net present value calculations or scoring methods may be used for this purpose. Ellram (1990, 1991) emphasizes the use of financial criteria (e.g. financial stability and economic performance) and managerial, organizational, and cultural criteria (e.g. strategic fit and top management compatibility), as well as technological/technology issues (e.g. design and manufacturing capabilities). Selecting potential network partners should be based on an analysis and evaluation of such criteria, as well as the overall fit. In respect of the latter, partner compatibility is a pivotal factor determining the behavior, strategy, and structure in business networks (Child and Faulkner, 1998; Dekker, 2004). Mismatches in strategy, structure, and culture are potential conflict areas and represent a permanent risk of opportunistic behavior. A continuous evaluation of potential and existing partners by means of a partner fit analysis is a necessary precondition for successful business networks.

It is possible to reduce the risk of potential conflicts by means of strategic fit, in other words, ensuring that partners are of the same size and/or have equal power. In a strategic fit situation, partners therefore have an equal need for resources and capabilities, and have complementary goals (or, at least, not conflicting goals). The most crucial point about strategic compatibility is that the partners' individual contributions should be offered in such a way as to give rise to cooperative competitive advantages. Partner selection should thus not only identify these (compatible)

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potentials, but also ways in which to ensure their adequate implementation. It is, of course, essential that potential partners should harbor a corresponding perception (Sydow, 2003). If partners do not harbor similar values, beliefs, and practices, they will be less likely to take advantage of the synergies. The essential issues in achieving a network's goals are that the partners' competences and intentions should correspond as this influences future resource allocation and network management. If partners' goals are not compatible, network coordination is very expensive, at risk, or even impossible (Sydow, 2003). Various publications identify goal congruence between partners as an important factor for the development of competences and network goal achievement (Anderson and Weitz, 1989; Das and Teng, 1998; Dekker, 2004; Child and Faulkner, 1998). This implies that an evaluation should be done to ensure that each partner will enjoy equal access to resources and capabilities. Heterogeneity and complementarities of resources and capabilities, as well as the possibility of combining them synergistically have to be assessed too. According to Dyer and Singh (1998), relational rents accrue from the capability to find partners with complementary resources and relational capital (e.g. the willingness and ability to act cooperatively).

Besides the business network goals, which are required for formal, a network culture is essential for informal control/coordination. In an ideal case, a network culture can evolve towards such a goal-setting process. The result of such a joint network goal system should be harmonized interests that minimize reasons for opportunistic behavior (Ouchi, 1980, 1979). In fact, clear network goals cannot prevent dysfunctional behavior, but they can help identify opportunistic behavior (Das and Teng, 1998). Relational rents can only be realized when organizations have compatible (formal) systems, as well as a compatible culture that fosters cooperative actions (Dyer and Singh, 1998). However, partner selection is not a single occurrence. There has to be a continuous positive and negative partner evaluation with regard to preserving or terminating the cooperation between them, thereby permanently protecting the network from opportunistic behavior by the partners. Furthermore, evaluation provides the adaptability and responsiveness that are important preconditions for successful business networks.

As discussed above, a crucial step in business network formation is the selection of the appropriate partners. This initial phase in the business network evolution begins with the recognition and evaluation of the benefits resulting from engaging with partners synergistically. Basically, potential partners are unknown entities trying to evaluate the value potentials related to the network. Trust only emerges in situations:

[...] where the trustworthy' party in the exchange relationship: (1) is known to reliably make good-faith efforts to behave in accordance with the prior commitments, (2) makes adjustments (e.g., as market condition change) in ways perceived as "fair" by the exchange partners, and (3) does not take excessive advantage of an exchange partner even when the opportunity is available (Dyer and Chu, 2003, p. 58).

If trust is an expectation, the distinction between trustworthiness and trust is based on the actual and perceived intentions, motives, and actions of the (potential) partner (McEvily *et al.*, 2003). Within the selection phase, network partners are therefore evaluated in terms of their strategic, cultural, organizational fit, etc. which reduces information asymmetry via signaling and screening mechanisms. In fact, by reducing information asymmetry via a well-executed partner selection, it is possible to reduce costs that emerge from adverse selection, moral hazard, and hold-up problems.

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The cooperation's possible synergistic rent potentials should also be evaluated. Moreover, as a result of partner selection, formal, and informal contracts should be specified. By closing such contracts, a mutual positive perception is developed, which increases belief in the partners' trustworthiness. In turn, the persuasiveness and efficiency of trust are positively influenced (McEvily *et al.*, 2003). In their empirical study on business relationships, Morgan and Hunt (1994) find that shared values have a positive effect on trust. Cultural sensitivity (from the perspective of US and Japanese firms), similarity (from a US firm perspective), and complementarity (from a US firm perspective) have a positive impact on the partners' trust within Japanese-US cooperative alliances (Johnson *et al.*, 1996). Thus, a well-executed partner selection has positive effects on trust within business networks:

*H1.* The better the partner selection for a network, the better the trust between the network partners.

As discussed above, the task of partner selection is to ensure a mutual understanding during the selection process. Defining a joint network strategy and building a joint network goal system may develop a better understanding of the implicit and/or explicit contract. Moreover, the larger and more idiosyncratic the resources by each partner are, the more significant the self-interest stake in the business network created for each partner is, the stronger the normative climate will be, which will in turn lead to greater long-term commitment (Grundlach *et al.*, 1995). Partners, who have a mutual understanding of how to coordinate their exchange activities in order to generate synergistic rents, are more prepared to invest (tangibly and intangibly) in the network and to extend cooperation by including other activities as well. Shared values evaluated within the partner selection phase contribute to the development of commitment, too (Dwyer *et al.*, 1987). As Holm *et al.* (1996) find in their empirical study of international business relationships, relationship commitment is strongly influenced by an understanding of the relationship. Very similarly, Morgan and Hunt (1994) find that shared values have a positive effect on relational commitment. Thus, network commitment can be expected to be positively affected by partner selection:

*H2.* The better the partner selection for a network, the stronger the commitment to the network.

A basic problem associated with business networks is the uncertainty about partners' future behavior. Opportunism arises when a partner's behavior differs from that of the other partners' implicit and/or explicit understanding of their contract. This underlines the importance of a well-executed partner selection to identify partners who (might) act opportunistically after a selection. Owing to the limited view of partners from the outside, partner selection has to seriously take strategic, cultural, financial aspects, etc. into consideration. Information asymmetries can then be reduced and communication between the partners fostered. By means of a positive selection that restricts the risk of future opportunistic behavior, partner selection thus increases the likelihood of identifying fitting and non-fitting partners in terms of intentions, norms, values, strategy, and structure. According to new institutionalism, the ability for opportunistic behavior is limited by reducing uncertainty and information asymmetry. This leads to:

*H3.* The better the partner selection for a network, the smaller the risk of opportunism.



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To recapitulate by taking the idea of fit into account, partner selection is relevant for network performance in terms of an input effect. It also constitutes the uniqueness of a business network and the partners' position within the network, as well as the network strategy and structure. Partner selection aims at determining the scope of an alliance and at identifying each partner's value-creating potentials. A combined network goal system and the development of a combined network strategy should be considered a necessary prerequisite for network performance. Thereby, a well-executed and suitable selection can ensure or even foster network performance. Partner compatibility regarding strategy, specific resources and competences are essential for partner performance, as they influence the synergistic rent potentials and the ability to realize them (Madhok and Tallman, 1998).

In his literature review, Geringer (1991) concludes that complementarity is critical for partner selection, as a lack of complementarity undermines effectiveness. Furthermore, partner selection is a precondition for a business network's formal and social controllability and affects its organizational design. The results of Bucklin and Sengupta's (1993) empirical study on marketing alliances identify organizational compatibility as a key performance indicator. As selection should be a continuous task to ensure a business network's adaptability and responsiveness, as well as to safeguard it from network partners' opportunistic behavior and to reduce agency and transaction costs. An effective selection can specifically increase the transaction value, as the partner fit is considered a precondition for a suitable network structure to enable mutual learning. Partner selection also has substantial effects on a business network's achievement potential, which consequently determinates network performance (Galbraith, 1998). This implies that partner selection is highly relevant in respect of high performance. This leads to the following hypothesis:

*H4.* The better the selection for a network, the higher the network performance.

### *2.3 Trust and its effects*

Trust is regarded as a precondition and pivotal part of a working relationship within business networks (Anderson and Narus, 1986, 1990; Child and Faulkner, 1998; Das and Teng, 1998; Zaheer and Venkatraman, 1995). According to Arrow (1972, p. 357), "virtually every commercial transaction has within itself an element of trust, certainly any transaction conducted over a period of time." Following Zand (1972, p. 230), trust may be defined:

[...] as consisting of actions that (a) increase one's vulnerability, (b) to another who is not under one's control, (c) in a situation in which the penalty (disutility) one suffers if the other that abuses that vulnerability is greater than the benefit (utility) one gains if the other does not abuse that vulnerability.

This definition encompasses more than a calculative view of trust, which considers only expectations of extended self-interest behavior (Carson *et al.*, 2003). According to this goodwill-based view of trust, a network partner is willing to rely on the non-opportunistic behavior of the other network partners (Ring and Van de Van, 1992, 1994; Anderson and Weitz, 1989; Moorman *et al.*, 1993).

Trust could therefore be interpreted as an inherent part of communication that accompanies in a "parasitic manner" (Bachmann, 2003). The advantages of trust as a control mechanism is proposed theoretically by Luhmann (2000). Trust results in

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ignoring a number of partners' behavioral options. Contrary to opportunism, trust contains a positive assumption about other partners' motives and intentions. Trust also means that a partner relies on the non-opportunistic behavior of others (Ring and Van de Van, 1992; Anderson and Weitz, 1989). Consequently, a trusting partner has to consider two possibilities: trust investment will pay-off or not. In turn, trust enables partners to engage appropriately in a business network by simplifying decision-making processes and mutual expectations (Bachmann, 2003). As this discussion points out, trust is another major determinant of relationships within business networks, which are determined, among others, by partner selection.

The impact of trust can be deduced from numerous theory statements. In order to reduce the costs and the risk of opportunism associated with business networks, organizations tend to create stable, preferential relationships characterized by trust and the rich exchange of information (Gulati and Gargiulo, 1999). Chiles and McMackin (1996) identify three dimensions of trust that constrain opportunistic behavior. From a social norms perspective, trust is generated as a result of social norms. Social norms generate shared expectations among people on various social levels. For example, inherent moral obligations generate trust, which in turn, constrains opportunistic behavior. According to a social embeddedness perspective, trust is generated as a result of personal relations that arise in the course of economic transactions. Inherent personal obligations generate trust, which in turn, also constrain opportunistic behavior.

According to the game theory perspective, trust is generated in a multi-period prisoners' dilemma. Rational self-interest-seeking and utility-maximizing individuals make future-value appraisals. If results indicate positive long-term benefits through cooperation, short-term opportunistic behavior will be minimized. Consequently, cooperative behavior is based on trust through the "shadow of the future" mechanism (Parkhe, 1993; Heide and Miner, 1992; Nooteboom *et al.*, 1997). Under these conditions, engaging in opportunistic behavior is contrary to each partner's interests. Therefore, it is mere economic calculus that generates trust, which, in turn, also constrains opportunistic behavior. This leads to the following hypothesis:

*H5.* The greater the trust between network partners, the smaller the risk of opportunism.

McEvily *et al.* (2003) argue that trust strengthens the network identity that fosters commitment by shaping expectations about the behavior and intentions of partners. A shared identity also increases the perception of interdependence on and a common fate with the network, which are key components of commitment and cooperation. According to the empirical study of Morgan and Hunt (1994), trust positively effects relational commitment. Tellefsen and Thomas (2005) find a positive relationship between (personal and organizational) trust and (personal and organizational) commitment in their study on business-to-business relationships. In their research on commitment in distributor-manufacturer relationships, Goodman and Dion (2001) find positive correlations between manufacturers' trustworthiness (which is a precondition for trust) and the distributor commitment level. This results in:

*H6.* The greater the trust between network partners, the stronger the network commitment.

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As discussed above, trust makes decision making more efficient by simplifying the acquisition and interpretation of information. Through a better appraisal of partner behavior and routines, trust guides actions that are more beneficial for the network under the assumption that the trusted partners will not exploit the trustee's vulnerability. McEvily *et al.* (2003) identify two major categories that capture many of the key causal chains through which trust affects organization. On one hand, "structuring" via trust means the development, maintenance, and modification of a system of relative positions, as well as of the links between the partners in a network. On the other hand, "mobilizing" encourages partners to contribute their resources, to combine and use them in joint activities, and to direct them towards the achievement of organizational goals. For example, knowledge sharing, flexibility, and adaptability are positively affected by trust that enables partners to generate transaction value (Zajac and Olsen, 1993). Competitive advantage and synergistic rents are, nevertheless, only maximized when partners cooperate.

New institutionalism infers (particularly within the framework of agency and transaction cost theory) that behavioral uncertainty and information asymmetry in cooperative relationships could lead to the possibility of opportunistic behavior. Behavioral uncertainty can, however, be reduced through the development of reciprocal trust. Cooperative relationships also become profitable through a decrease in transaction and agency costs (Jarillo, 1988). Trust reduces complexity and uncertainty, thus enabling the partners' positive mutual expectations and in turn reducing the necessity to guard against opportunistic behavior (via monitoring and safeguarding). Thus, due to trust, a cheaper, more acceptable, less time-consuming and more flexible (network) relationship design is possible.

Dyer and Chu (2003) find empirical evidence that trust not only reduces transaction costs and improves mutual information sharing, but also creates economic value in exchange relationships. Carson *et al.* (2003) find positive effects of that trust-based governance has positive effects on task performance in research and development collaboration, while Morgan and Hunt (1994) find that trust has a positive effect on cooperation. Not all the results of research into the trust-performance relationship are similar: in their empirical study, Zaheer *et al.* (1998) only find that inter-organizational trust has a direct effect on performance. This results in the following hypothesis:

- H7.* The greater the trust between network partners, the higher the network performance.

It should be noted that the development of trust is a long-term process with cost consequences (Parkhe, 1993). Furthermore, blind trust is associated with risks, like the unintended outflow of know-how, or the danger of losing the learning race (Gulati *et al.*, 2000). Despite these risks, the positive statements are dominant in the literature, which means that successful networks are distinguished by a high level of trust.

#### *2.4 Network commitment and its effects*

Similar to trust, commitment is considered an essential element of successful long-term business relationships (Morgan and Hunt, 1994). Commitment can be defined as "an implicit or explicit pledge of relational continuity between exchange partners" (Dwyer *et al.*, 1987, p. 19; as well as Moorman *et al.*, 1992; Morgan and Hunt, 1994). Continuity indicates the partners' willingness to maintain a partnership (Morgan and Hunt, 1994).

Thus, the acceptance of short-term sacrifices in order to realize long-term benefits seems to be inherent to the construct commitment. This mind-set is associated with the partners' willingness to invest (tangibly and intangibly) in network-specific assets, which demonstrates belief in the mutual future (Anderson and Weitz, 1992).

According to Grundlach *et al.*'s (1995) conceptualization, it is possible to identify an instrumental, attitudinal, and a temporal commitment component. As an instrumental component, commitment encompasses a calculative act of affirmative actions by a partner. Consequently, a self-interest stake is demonstrated in a business network (Grundlach *et al.*, 1995). As an attitudinal component, commitment can be described as attitude signaling the network partners' motivation and intention to develop and maintain a long-term relationship (Grundlach *et al.*, 1995). Commitment also embraces a temporal dimension in terms of the partners' intention to maintain the relationship in future (Grundlach *et al.*, 1995; Moorman *et al.*, 1992). In this context, partner selection – as an *ex ante* and *ex post* controlling instrument – determines commitment, since only partners with appropriate strategies, structures, and cultures are affiliated to the network.

As discussed above, network commitment thus implies a long-term orientation, based on the desire to maintain a successful relationship and the willingness to make short-term sacrifices to maintain this relationship (Hunt and Morgan, 1994; Anderson and Weitz, 1992). The basic assumption is that long-term benefits resulting from cooperation, solidarity, mutual interests, and harmonious conflict management will outweigh any short-term benefits from opportunistic behavior (Grundlach *et al.*, 1995). Furthermore, opportunistic behavior may lead to a negative image of a selfish, exploitative, and unreliable partner who restricts business actions in a business network context (Grundlach *et al.*, 1995). Committed network partners solve conflicts functionally and concentrate on positive behavior. Jap and Ganesan (2000) find empirical support that higher levels of commitment are associated with lower levels of conflict. Hunt and Morgan (1994) find direct relationships (like altruism, conscientiousness, and diligence) between global organizational commitment and organizational outcomes. Thus, we formulate the following hypothesis:

*H8.* The stronger a commitment to the network, the smaller the risk of opportunism.

Like trust, commitment is a threshold condition for business networks, but may also contribute to network performance. According to Morgan and Hunt (1994), competitive advantages result from the development of commitment and trust within a business network by:

- providing superior resources, opportunities, and benefits;
- maintaining high standards of shared values;
- communicating valuable information; and
- avoiding opportunistic behavior.

The longer the shadow of the future looms, the more partners are therefore committed to developing a business network. Locke *et al.* (1988) reveal that there is a relationship between goal commitment and performance in their review of theoretical and empirical literature. Jap and Ganesan (2000) find empirical support for a higher level of

commitment being associated with a higher level of relationship satisfaction, which includes financial returns. Holm *et al.* (1996) find empirical evidence that commitment has a strong impact on profitability. This leads to the following hypothesis:

*H9.* The stronger a commitment to the network, the higher the network performance.

### *2.5 Risk of opportunism and its effects*

Exchange relationships between network partners are a key point when examining business networks' influence on the network structure and performance. According to Giddens (1990), every relationship encompasses risk-taking. This risk results, for example, from the information gap regarding a (potential) partner's input and future behavior. Often, neither relationship quality nor its development over time can be anticipated. Another important aspect in this context is that benefits and liabilities are not generated simultaneously. Hence, network formation always includes the risk of opportunistic behavior, as the partners' input is always at risk.

Opportunistic behavior is a central construct in new institutionalism (Rindfleisch and Heide, 1997). Williamson (1975, p. 6) defines opportunism as "self-seeking interest with guile," which subsumes problems related to adverse selection, moral hazard, and hold-up, as well as other relationship-violating behaviors due to the self-interested maximization of benefits (Wathne and Heide, 2000). Williamson's definition of opportunism thus encompasses opportunism as an attitude and as a type of behavior. He thus treats opportunism as an inherent human assumption, as well as a behavioral outcome of the (organizational) environment (Ghoshal and Moran, 1996; Moran and Ghoshal, 1996). The rationale behind Williamson's view of opportunistic behavior is that it is positively related to benefits from opportunistic behavior and that it is negatively related to (formal) safeguards and the associated costs resulting from such behavior. Management control mechanisms like a suitable partner selection are considered to be capable of reducing the risk of opportunistic behavior (Wathne and Heide, 2000).

However, an *ex ante* evaluation and selection of partners is complicated due to the underlying assumption that, given the opportunity, network partners may act in self-interest (Rindfleisch and Heide, 1997). This is due to opportunism, which occurs when a partner negates an agreement or understanding (defined during the partner selection process) to take advantage of a given new opportunity. As such, "the essence of opportunistic behavior is deceit-oriented violation of implicit or explicit promises about one's appropriate or required role behavior" (John, 1984, p. 279). Wathne and Heide (2000) highlight that the most straightforward way of managing opportunism in business relationships is an *ex ante* partner selection, whereas the effectiveness depends on the relevance of the selection criteria.

Under conditions of an *ex ante* and *ex post* risk of opportunism (and of low trust) problems that affect efficiency and effectiveness are likely to occur in the exchange relationship between network partners. If the perceived risk of opportunism within a business network is sufficiently high, performance-relevant resources and competencies might not be combined in an over-additive sense. Nor might competition-relevant resources remain under control and the monitoring of the accordant partners be deployed for network purposes. In addition, opportunism could produce opportunity costs in the form of lost chances (Wathne and Heide, 2000). In respect of opportunism, Hill (1990) argues that "the safeguards needed to check

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opportunism, and internalisation as a response to opportunism dissipate the composite quasi rent.” This underlines that networks characterized by a high risk of opportunism are neither efficient nor effective:

*H10.* The higher the risk of opportunism in a network, the lower the network performance.

### 3. Empirical analysis

#### 3.1 Data collection and sample

The research framework was tested within data collected within a large empirical study. The data collection was carried out by means of a standardized, written questionnaire. This questionnaire was carefully tested by two pre-tests, in which the questionnaire design and content, as well as design of the questions were optimized in respect of comprehensibility, difficulty, alignment, etc. Besides professional experts and individuals from the targeted survey group, the questionnaire was also presented for examination to the German Federal Statistical Office and the Zentrum für Umfragen, Methoden und Analysen (Centre for Surveys, Methods and Analysis). Owing to the very different ways of understanding networks, the underlying definition (Section 2) of the study was predefined.

To define the survey unit, we drew on the results of an evaluation carried out by the German Federal Statistical Office in 2003. In this study, 8,555 German companies expressed opinions on business cooperation. Besides analyzing other cooperation forms, the study also analyzed the spread of business networks (networking), which cover the dominating form (15.6 percent), as well as franchising (9.7 percent) and joint ventures (6.7 percent) (Destatis, 2004). Two results were of specific relevance for the survey unit definition: first, no significant accumulation of business networks could be found in a particular industry (Destatis, 2004). Consequently, our study had to be carried out intersectionally. Second, the German Federal Statistical Office’s survey revealed that the occurrence of business cooperation correlates significantly with company size. In the category of companies with 250 and more employees, at least 69 percent cooperate, whereas the average percentage of cooperating businesses with fewer employees is far lower (Destatis, 2004). Consequently, large companies were identified as our study’s target group and every non-small or middle-sized enterprise in Germany was defined as part of population. The above-basic conditions thus allowed a full count of the sample companies, which corresponds to a total amount of 5,717.

Furthermore, heads of the management accounting departments were defined as the key informers due to their expert role in partner selection evaluation. Questionnaires were sent to each and addressed to them personally. If their names were not known, the questionnaires were addressed to the executives. Altogether 120 questionnaires were returned. About 11 questionnaires had to be omitted due to the great number of omitted values. This study is thus based on 109 questionnaires or an actual rate of return of 1.9 percent. If we assume that there is a 10.6 percent spread of networks within businesses with more than 250 employees (as the German Federal Statistical Office’s survey revealed) (Destatis, 2004)[1], an adjusted rate of return of 17.9 percent was achieved. This is an acceptable value[2]. Consequently, the representativeness of the following analysis is limited. However, in its role as the first large-scale empirical study on economic aspects of business networks in Germany, we regard this as acceptable.

3.2 Construct measurement

We developed exploratory tools to measure the construct as discussed above (see Tables AI-AV in the Appendix). As there is no comprehensive theory within the field of networks, only partial aspect are thus touched upon, which means that all the measurements are incomplete and contain mistakes. We did, however, carry out reflective measurements. Reflective measurements are preferred to formative ones if one keeps in mind that the measurements are not error-free. At short summary is provided of the measurement results in Table II. All indicators were measured by means of closed questions on a five-point Likert scale.

The reliability factor clearly exceeds the required minimum value of >0.6. The constructs' reliability also largely fulfills the required minimum occurrence of Cronbach's alpha of >0.7 except the opportunism construct. The same applies to the extracted average variance, which mostly equals the required value >0.5. The required minimum of >0.5 with regard to the explained variance is also achieved. Despite the partial shortfall of one required fit index, the measurement quality of all the constructs is largely considered acceptable. The discriminant validity was tested by means of the Fornell-Larcker ratio (Table III). All construct pairs, except that of "trust and opportunism," fulfill the Fornell-Larcker ratio <1. The discriminant validity of the construct pair "trust" and "risk of opportunism" can be textually accounted for: in respect of the discussion in Section 2, there is a high-negative correlation between trust and opportunism, as despite higher vulnerability, high levels of trust lead to lower levels of opportunistic behavior in business relationships. A closer examination of the items in respect of trust and opportunism points to a clear distinction in terms of the content (see Tables AIV and AV in the Appendix). The discriminant validity is not fulfilled quantitatively, but textually it can be considered as sufficient.

**Table II.**  
Construct measurement

Construct	Cronbach's alpha	Variance explained	Factor-reliability	Average variance extracted
Partner selection (three items)	0.73	0.62	0.72	0.46
Trust (three items)	0.73	0.64	0.75	0.51
Network commitment (three items)	0.74	0.82	0.77	0.55
Risk of opportunism (three items)	0.53	0.54	0.71	0.45
Network performance (four items)	0.74	0.77	0.77	0.54

**Table III.**  
Fornell-Larcker ratios for the model

	AVE	Partner selection	Trust	Network commitment	Risk of opportunism	Network performance
Partner selection	0.39	0.39	0.51	0.58	0.29	0.44
Trust	0.51	0.51	0.45	0.10	0.00	0.10
Network commitment	0.58	0.12	0.10	0.00	0.08	0.10
Risk of opportunism	0.29	0.33	1.88	0.00	0.08	0.10
Network performance	0.44	0.05	0.10	0.10	0.08	0.10

**Note:** AVE, average variance extracted

### 3.3 Hypotheses testing and results

The model was tested by means of the software package AMOS 5.0. On the whole, the global fit indices resulted in a satisfying model fit. The quotient is  $\chi^2$  and the degrees of freedom, 1.132; the RMSEA, 0.035; the AGFI, 0.848; and the CFI 0.972. All the fit indices, except the AGFI, point to a good global model fit.

In order to test the hypotheses, we calculated the direct and total effects. The total effect was calculated as the sum of the direct and indirect effects. The direct effects were defined as the standardized path coefficient of the direct relation between two variables, while the indirect effects were defined as a relation between two variables across one or more intermediate variables. The value of the indirect effects was determined by multiplying the standardized path coefficients and thereafter adding all the path results between two variables. Eight of the ten formulated hypotheses could thus be confirmed within the empirical study. The study thus had a confirmatory character. However, due to the low rate of return and the low-variance explanations of the commitment and performance constructs in the model (see discussion in Section 4), the study's representativeness and implications can only indicate a tendency. Table IV presents a summary of the direct, indirect and total effects.

## 4. Discussion, limitations and implications

This study aims at finding an explanation for the relationship between partner selection, partners' behavior in terms of trust, opportunism, and commitment, as well as the performance of business networks. A research framework was developed and tested within the first large empirical study on business networks in Germany. A structural equation model was developed that contains theoretically derived cause-and-effects relationships and is based on statements by new institutionalism, and strategic management, relationship marketing, organization theory, and social theory approaches, as well as game theory. Five of the ten hypotheses could be confirmed by means of direct effects. Moreover, another three hypotheses could be confirmed by means of total effects.

In respect of this analysis, we conclude that partners' behavior can largely be explained by partner selection. Partner selection has especially strong positive effects

Hypothesis	Mapping	Direct effect <sup>a</sup>	Indirect effect <sup>a</sup>	Total effect <sup>a</sup>
H1 (+)	✓ Partner selection ⇒ Trust	0.48	–	0.48
H2 (+)	✓ Partner selection ⇒ Network commitment	0.18	0.07	0.26
H3 (–)	✓ Partner selection ⇒ Risk of opportunism	0.04	–0.42	–0.39
H4 (+)	✓ Partner selection ⇒ Network performance	0.04	0.13	0.17
H5 (–)	✓ Trust ⇒ Risk of opportunism	–0.99	0.03	–0.96
H6 (+)	✓ Trust ⇒ Network commitment	0.15	–	0.15
H7 (+)	✓ Trust ⇒ Network performance	0.10	0.12	0.22
H8 (–)	Network commitment ⇒ Risk of opportunism	0.22	–	0.22
H9 (+)	✓ Network commitment ⇒ Network performance	0.19	–0.02	0.18
H10 (–)	Risk of opportunism ⇒ Network performance	–0.09	–	–0.09

**Notes:** <sup>a</sup>The specified effects are based on standardized mapping coefficients; ✓ hypothesis confirmed; (✓) hypothesis confirmed via total effects

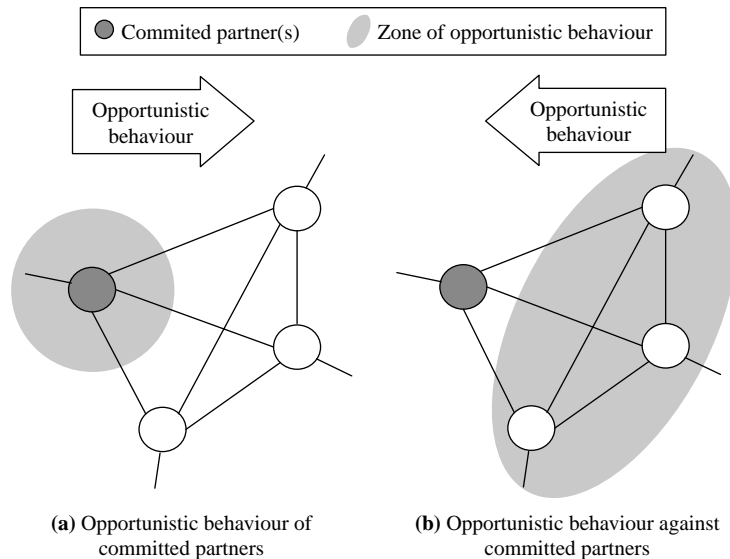
**Table IV.**  
Model effects



on trust (*H1*) and commitment (*H2*), as well as strong negative (indirect) effects on opportunism (*H3*). However, no direct partner selection impact could be confirmed in respect of network performance. Hence, partner selection determines the partners' behavior and affects the network performance indirectly (see the total effects of *H4*).

Behavior is obviously crucial to determine the effect of selection on performance. In keeping with the theory, a strong negative and direct trust effect on the risk of opportunism was identified (*H5*). However, analyzing this effects multidimensional constructs will provide deeper insights as within this study trust and opportunism seem to be the two sides of the same medal. The indirect trust effect on performance is primarily caused by the avoidance of opportunistic behavior ( $-0.96 * (-0.09) \approx +0.1$ ) and is of an approximately similar size as the direct trust effect (0.1) on performance. As postulated, trust also has a positive effect on the development of network commitment (*H6*) and thus positively influences network performance. The results show that trust has direct and indirect effects on network performance (*H7*). Network commitment has a positive direct impact on network performance (*H9*). Contrary to the postulated negative effect, a positive network commitment effect was found in respect of opportunism (*H8*). This leads to network commitment having a small negative effect on network performance ( $0.22 * (-0.09) \approx -0.02$ ) that is negligible in comparison to the direct effect of network commitment on network performance (0.19).

Partners' perception of asymmetric commitments may lead to conflict, dissatisfaction, and opportunistic tendencies, which may in turn erode the network-governing properties. Consequently, asymmetric commitments may have contrary effects on relationship quality and performance (Anderson and Weitz, 1992; Grundlach *et al.*, 1995; Achrol and Grundlach, 1999). As the items that describe the construct of commitment comprise questions on long-term engagement like linking individual strategies to the network or aligning the processes with the business network requirements, there are two possible explanations of this positive effect (Figure 2). On one hand, some partners may act more



**Figure 2.**  
Possible explanations  
for the commitment-  
opportunism relationship

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opportunistically, because they want to protect their material and non-material investments (network-specific investments) in the business network or they want to gain an adequate return on these investments. On the other hand, there may also be opportunistic behavior if partners perceive another partner's commitment in terms of specific investments. Owing to this strong commitment, an opportunity arises to act opportunistically without this action having consequences.

As the primary purpose of an alliance is not the consolidation of the partners' complementary assets but the acquisition of the partners' knowledge and know-how, competition may be inherent to the cooperation (Gulati, 1995). Khanna *et al.* (1998) "[...] show how asymmetric incentives to allocate resources to learning may arise, even when there are no *ex ante* asymmetries between firms."

Having also tested items containing questions on top management involvement and advancement, minor negative commitment effects could be identified in respect of opportunism, with the limitation of a lower significance.

Although the network commitment construct shows good local fit indices, more research is necessary to describe the complexity of commitment. However, the positive direct commitment-opportunism effect may allude to the conclusion that asymmetric commitments are an inherent part of German business networks.

A limitation of this study is the time lag between partner selection and partner behavior. In respect of the network lifecycle, partner selection is a pre-contractual mechanism activated by the signature on the contract leading to a post-contractual mechanism (Dwyer *et al.*, 1987; Jap and Ganesan, 2000). Trust and commitment are determined by partner selection, but the level of trust and commitment in the relationship (measured at a certain time) will also depend on the network history and management. However, as business networks are considered flexible entities and there is a continuous positive and negative partner selection, the results of our study remain valid. The strong negative effect that trust has on the risk of opportunism compared to the other effects has a distorting impact on the calculation of the indirect effects, and thus on the direct effects as well. The magnitude of opportunism's negative direct effect on network performance could not be indisputably confirmed (*H10*) nor could the magnitude of the positive direct effect of trust on performance. Although no verifiable direct effect could be found in respect of partner selection on network performance, the empirical results lead to the conclusion that a well-executed partner selection increases the partners' trust and network commitment, lowers the risk of opportunism, and thus indirectly affects the network performance by means of high levels of trust and commitment.

The effects of "partner selection on opportunism" and "partner selection on performance" cannot be irrefutably verified. Owing to the low variances of the commitment (0.08) and network performance (0.09) constructs, as explained in the model as a whole, the significance of these effects is limited and the results are only suggestions. These limitations imply that future research on partner selection is necessary, especially research concentrating on other constructs that determine network commitment, such as goal congruence, strategic relevance, or participation. This could lead to a higher variance in respect of the network commitment construct in the overall model.

Similarly, the variance of the network performance construct is determined by many other influencing factors in the overall model, especially tasks like regulation, allocation, and evaluation within business networks and external factors like market environment, etc. Such a model may just explain the high rate of the variance in the

overall model by integrating as many factors as possible that influence performance. This could explain the overall model's relatively low variance and provide implications for future research.

Despite of the limitations of this study, it provides empirical insights into the cause-and-effect relationship between partner selection, partners' behavior, and network performance. As partner selection has significant effects on trust, opportunism, and commitment, it is a very important managerial task within business networks. Through its determining of partners' behavior, an accurate partner selection is a threshold condition for successful business networks.

#### Notes

1. The value is calculated by multiplying the spreading of cooperation forms (68.8 percent) of businesses with more than 250 employees by the rate of cooperations in a network form (15.6 percent) (Destatis, 2004, p. 13 and p. 15).
2. The value is calculated as follows: only 10.6 percent of all 5,717 businesses participate in networks. The result is a corrected theoretical basic total of 606 businesses that cooperate within the whole population. The theoretical reflux rate is calculated as  $109/606 = 17.9$  percent. There is a possible bias resulting from the study not being able to ensure if that more than one answers did not refer to the same network.

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**Appendix**

Business  
network  
performance

Partner selection	Item-to-total correlation	Indicator reliability	t-value
How pivotal were the potential partners' competencies for partner selection	0.58	0.59	
How pivotal were the potential partners' resources for partner selection	0.42	0.42	4.92 *
How do you judge the importance of the partner selection for your special business network	0.50	0.39	4.72 *
How pivotal were the potential partners' similarities for partner selection		Eliminated	
How pivotal were the potential partners' synergy effects for partner selection		Eliminated	
How do you judge the contentedness with partner selection for your special business network		Eliminated	
How do you judge the effort regarding partner selection for your special business network		Eliminated	
Cronbach's alpha			0.73
Variance explained			0.63
Factor-reliability			0.72
Average variance extracted			0.46

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**Table AI.**  
Construct measurement  
"selection"

**Note:** \*Significance level 0.001

Trust	Item-to-total correlation	Indicator reliability	t-value
Knowledge is exchanged openly and freely over organizational boundaries	0.46	0.36	
Emerging problems and conflicts are addressed openly	0.57	0.50	5.26 *
The partners fulfill their duties, even if they are not controlled	0.56	0.58	5.29 *
Would you form a network with the same partners again		Eliminated	
The necessity of partnership control is extremely high (rev.)		Eliminated	
The fairness and honesty of network partners is extremely high		Eliminated	
Cronbach's alpha			0.72
Variance explained			0.64
Factor-reliability			0.75
Average variance extracted			0.51

**Table AII.**  
Construct measurement  
"trust"

**Note:** \*Significance level 0.001



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**Table AIII.**  
Construct measurement  
“commitment”

Commitment	Item-to-total correlation	Indicator reliability	<i>t</i> -value
The network evolution is pivotal for the long-term evolution of each partner	0.69	0.90	
The partners' strategies are aligned to the business network	0.63	0.56	5.90 *
Each partner has adjusted widely his processes to the business network's specialties	0.41	0.16	4.53 *
The top management participates in the business network		Eliminated	
The business network is encouraged by the top management		Eliminated	
The top management initiated the business network participation		Eliminated	
Cronbach's alpha			0.74
Variance explained			0.87
Factor-reliability			0.77
Average variance extracted			0.55

**Note:** \*Significance level 0.001

**Table AIV.**  
Construct measurement  
“opportunism”

Risk of opportunism	Item-to-total correlation	Indicator reliability	<i>t</i> -value
Self-interest seeking dominates within our business network	0.43	0.29	
The partners have an agreement about the network contracts' interpretation (rev.)	0.25	0.38	3.84 *
The risk of exploitation in the business network is extremely high	0.34	0.11	2.74 0.006
The individual relationships between the partners are very well (rev.)		Eliminated	
All Partners do all in their power to ensure the business network's success (rev.)		Eliminated	
The reliability of the partners (e.g. in terms of complying with conditions) (rev.)		Eliminated	
Firm and personnel policy dominate the relationship		Eliminated	
Cronbach's alpha			0.53
Variance explained			0.52
Factor-reliability			0.71
Average variance extracted			0.45

**Note:** \*Significance level 0.001

Network performance	Item-to-total correlation	Indicator reliability	t-value	Business network performance
Do you achieve the objectives regarding the value creation (degree of objectives' achievement)	0.59	0.48		<b>51</b>
Do you achieve the objectives regarding the increase in profit (degree of objectives' achievement)	0.71	0.75	7.01 *	
Do you achieve the objectives regarding the sales growth (degree of objectives' achievement)	0.66	0.52	6.40 *	
Do you achieve the objectives regarding the reduction of production costs (degree of objectives' achievement)	0.51	0.32	5.10 *	
Do you achieve the objectives regarding the reduction of overheads (degree of objectives' achievement)		Eliminated		
Do you achieve the objectives regarding the reduction of procurement costs (degree of objectives' achievement)		Eliminated		
Cronbach's alpha			0.80	
Variance explained			0.63	
Factor-reliability			0.77	
Average variance extracted			0.54	

**Note:** \*Significance level 0.001

**Table AV.**  
Construct measurement  
"network performance"

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