Co-market Orientation in Networks: Evidence from the Toruism Industry

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Chapter 1: Collective action in networks

Usually one takes for granted that a company is the unit of interest for production of customer benefits. Another way of producing such benefits is, however, through a network of self-governing companies that serve customers collectively. As an example, a tourist destination can operate as an integrated unit, such as Disney World, where the corporation serves most of the activities for their customers. On the other hand, a tourist destination can consist of several actors that, in a network, collectively form a tourist experience. For example, Oslo is a tourist destination. The latter is the subject of this research, i.e. situations where two or more companies together form customer benefits. Another example of this would be a shopping mall where different stores satisfy complementary needs, and where the combination of stores forms the total product, i.e. the mall. The arena for this project is illustrated by these examples, and consists of actors[1] who, in a value chain, offer complementary products[2] for the same group of customers.

As can be seen intuitively, organizing Oslo as an integrated tourist destination would be difficult. In economic terms this is because the transaction costs of bureaucracy exceed the gain from monitoring control (Williamson 1985). On the other hand, contractual arrangements can capture some of the coordination effort, as can be seen in shopping mall contracts, but unforeseen conditions and environmental changes make it impossible to capture every condition in a contract (Heide 1994), and formal contracts can be free ride (Nygaard 1992; Nygaard and Silkoset 2003; Rokkan 1997). Based on this, the purpose of this project is to investigate the coordination effort between two or more actors that operate in *co-producing*

[1] When referring to actors in this research, I mean the businesses and not the customers
[2] With products I also mean services and ideas.

networks, which serve the same group of customers (Ramírez 1999). In particular, the focus is on the coordination of self-governing actors in co-producing networks who perform a co-market orientation, and whether this coordination affects the actors' ability to adapt their products toward each other, and toward their collective customers.

Co-producing networks are characterized by specialized businesses offering complementary fragments of a customer's total product (Ramírez 1999). Thus, the sum of the fragments, documented by the different customer segments, is identified as the total product. A *total product* is created by two or more businesses and identified by the customer. Such fragmented markets are characterized by specialized businesses and occupied by divided or narrowed tasks (Dollinger 1990). In co-producing networks the customers have to transact with several suppliers to satisfy their demand (Stigler 1951). For example, a holidaymaker interacts with a travel agency, a transportation company, hotel, restaurants, and other activities, such as salmon fishing, beaver safari, museums and concerts. The customer's centre of attention is the trip in its entirety, i.e. the total product. Because the customer evaluates the total product, the network actors are affected by each other's behavior. This notion is well known in the collective action theory, which discusses volunteer participation for collective long-term goals (Olson 1965; Sandler and Hartley 2001), and in the free-riding literature, which discusses control mechanisms for participation (Jensen and Meckling 1976).

An individual actor can adapt its products to its customers, and/or the adaptation can be done collectively with the other actors in the co-producing network. Choice of behavior is important because the behavior affects the other actors that operate in the same network (Olson 1965; Ramírez 1999). Product adaptation requires information about the customer and the market (Day 1994b; Day 1991). Several studies (see Deshpandé 1999; Deshpandé, Farley, and Webster 1993; Kohli and Jaworski 1990; Narver and Slater 1990) have demonstrated that market

orientation is an effective tool regarding a company's ability to develop products adapted to customers' preferences. This is because market orientation in principle works as an information system to support managerial decisions (Day 1994a; Day 1994b; Deshpandé, Farley, and Webster 1993; Kohli and Jaworski 1990; Narver and Slater 1990). Further, in co-producing networks, where several actors serve the same customers through co-production, collective understanding about the customers is essential (Ramírez 1999). For instance, the presence of externalities demonstrates that there is a lack of coordination between the activities (Coase 1960). In such situations, one party might exploit the other parties for their own gain, but at the cost of the collective benefit (Olson 1965). However, the risk of sub-optimization and exploitation decreases with the level of system knowledge (Senge 1990). Therefore, the use of co-market orientation in this research builds on the assumption that the degree of co-market orientation covary with the degree of collective market knowledge. Day (1994b) demonstrates that the market learning processes of market oriented firms are distinguished by: open-minded inquiry based on the belief that all decisions are made from the market back; widespread information distribution that assures that relevant facts are available when needed; mutually informed mental models that guide interpretation and ensure that everyone pays attention to the essence and potential of the information; and an accessible memory of what has been learned. For instance, the agency theory demonstrate how divergence in actor goals hampers synchronized action (Eisenhardt 1989), whereas shared goals among members encourages collective actions (Ouchi 1979).

Information is a critical factor in the ability and motivation to cooperate (Akerlof 1970; Stiglitz 2000), whereas information impactedness and information asymmetry hampers coordination and adaptation (Jensen and Meckling 1976). Therefore, extensive information processing, as assumed in market orientation, becomes especially interesting in co-producing networks and, as a result, is the main subject in this research.

An example of adaptation derived from customer knowledge is Tromsø Museum. They cooperated with Destination Tromsø and opened their museum at night- time to adapt toward customers in a direct flight from England. The primary goal for these tourists was to watch polar light. If product offerings are desynchronised a tourist is likely to evaluate the destination negatively. The problem exists in other settings as well. For example, a shopping mall will get a negative reputation if one of the retailers free rides on customer service. Also, a customer will negatively evaluate a car brand if one of the manufacturers free rides on the quality on their components. Similarly, a computer brand will be evaluated negatively if the software, delivered by another company, does not work properly in conjunction with the hardware.

1.1 Business specialization

Coase (1937, p. 394) discusses the economic rationality behind specialization by asking the question 'why is not all production carried out by one big firm?' There are several explanations. First, as a firm gets larger, there may be decreasing returns on the entrepreneur function, that is the costs of organizing additional transactions within the firm may rise. Second, it may be that as the organized transactions increase, the entrepreneur fails to prioritize the factors of production where their value is greatest. Finally, Coase (1937) argues that the supply price of one or more of the factors of production may rise because the "other advantages" of a small firm are greater than those of a large firm. The firm tends to expand until the costs of organizing an extra transaction within the firm become equal to the costs of carrying out the same transaction by means of an exchange on the open market or the costs of organizing in another firm (Coase 1937). When firms specialize they concentrate and develop operations that supports their strengths (Stigler 1951). There are other reasons why firms do not want to integrate or extend their domain (for instance, serve several fragments of the customer's demand, e.g. that the Maihaugen museum in

Lillehammer does not want to offer accommodation), which include the following. The businesses have focused niche strategies (Porter 1980) or they have outsourced all activities outside the strategic core because of the transaction costs (Anderson, Day, and Rangan 1997). It can also be because of lack of knowledge and competence (Leonard-Barton 1992), lack of other resources such as machinery, equipment, natural resources, or the finance to invest in such resources (Pfeffer and Salancik 1978), or lack of knowledge to run a big company (Arrow 1974). In addition, it can be because of the history of the company (Boeker 1989), for example, a family firm which has been run for several generations (for instance, Friele, a family business in Norway, which through 200 years of history has focused on the quality of coffee beans), or the risk of damaging a corporate brand (Jap 1993). Thus, there exist several economic and strategic reasons why a company occupies a certain domain.

Utilization of resources can be connected to organizational efficiency, which is an internal standard of performance based on the measurement of how well the organization is performing its activities (Pfeffer and Salancik 1978). Organizational efficiency measures the ratio of resources utilized to output. It answers the question "how to do?" Focus is on how the internal organizational activities are being performed[3]. Efficiency therefore affects an actor's degree of specialization (Williamson 1985).

1.2 Product complementarity in co-production

Business specialization implies that different actors offer complementary fragments of a customer's need in co-producing networks. A usage complementary product

[3] The efficiency perspective has been criticized for treating organizations as a 'black box' or bundle of functions. The effectiveness perspective on the other hand, is criticized for its isolation from antecedent conditions and outcome. Organizational effectiveness is defined as a measure on the organizations ability to create acceptable outcomes and actions (Pfeffer and Salancik 1978). It is an external standard of how well an organization is meeting the demand of the various groups and organizations that are concerned with its activities. By this organizational effectiveness can be seen as a socio-political question to give answer to "what to do", a decision of which activities to perform.

implies that the product attributes fulfill each other in such a way that the total customer value is bigger than if the products had been offered to the market separately (Ramírez 1999). This understanding of value is not simply 'added' but is mutually 'created' and 're-created' among actors with different values. For co-production, Ramírez (1999) focuses on value co-produced by two or more actors, which is mutually beneficial, with and/or for other actors. Thus, the value creation in co-production is between seller and buyers, and between sellers for the purpose of buyers. When, for example, actors coordinate their market information through a collective brochure, the customer is provided with easy access to information about their activities. This enables the customer to make informed decisions about what activities would best suit their needs.

1.3 Collective action

Value creation between actors in co-producing networks requires coordinated action between the actors. Collective action comes into being when the efforts of two or more individuals are needed to accomplish an outcome (Olson 1965). Activities that involve the furtherance of the interests or well being of a group are often examples of collective action. Problems with collective action are typically characterized by interdependency among the participants, so that the contributions or efforts of one individual influence the contributions or efforts of others (Sandler 1992). Three problems with collective action exist. One is with coordination, which can be hampered because of free riding, and there are two adaptation problems, which are caused by sub-optimization and unsolved tasks (Olson 1965). These problems cause the network to be inefficient, and the utilization of the business resources declines.

The problems with coordination and adaptation between specialized businesses are rooted in the ability and motivation to cooperate (Coase 1937; Olson 1965). Ability and motivation to cooperate are dependent on information (Akerlof 1970; Stiglitz 2000), whereof information impactedness and information asymmetry

hamper coordination and adaptation (Jensen and Meckling 1976). For instance, where integration needs to take place, actors can hold back information in the selection process, which leads to misrepresentation (Bergen, Dutta, and Walker 1992). During hierarchical governance information can be held back with the purpose to shirk (Williamson 1985). When partners are operating in alliances, information can be held back with the intention of free riding on the other actors (Rokkan 1997), at their expense (Dahlstrom and Nygaard 1999). Similarly, information can be withheld to prevent the other actors misusing the information opportunistically (John 1984). Therefore, the ability and motivation to coordinate and adapt is fundamental to collective action among specialized businesses operating in co-producing networks.

1.4 Synchronizing and coordinating network actors

Market orientation has been shown to be an effective tool regarding businesses' adaptation toward the customer (see Atuahene-Gima 1995; Atuahene-Gima 1996; Cooper 1994; Day 1994a; Grewal and Tansuhaj 2001; Han, Kim, and Srivastava 1998; Hurley and Hult 1998; Kohli and Jaworski 1990; Li and Calantone 1998; Lukas and Ferrell 2000; Narver and Slater 1990). However, challenges come into being when a customer's evaluation of a business is affected by the other businesses in the same market, and where there is limited ability to control the other actors. Therefore, this project seeks to uncover the mechanism which is used to synchronize and coordinate self-governing actors in co-producing networks when they work together to perform a co-market orientation.

The problem in question in this project is:

What is the impact of a co-market orientation in networks?

As briefly mentioned earlier, the literature identifies *information* to be a key problem in achieving effective adaptation and coordination between specialized businesses (Stigler 1961). Information is needed to determine the best use of resources and appropriate adaptation. However, information is not freely available to everyone (Milgrom and Roberts 1992), and, based on this, information needed to coordinate actors has to be exchanged and participants have to give and receive information.

The project will focus on two factors regarding co-market-orientation among specialized actors in co-producing networks. Based on the problem of information asymmetry (Akerlof 1970; Stiglitz 2000), ex-ante factors will be investigated that affect the *coordination* of self-governing actors who perform a co-market orientation. For coordination, the factors investigated will be the use of formal contracts and the presence of social control, the latter being identified as a type of social capital, as well as the effect of structural position in the network. These factors form the independent, exogenous variables in the research model. Second, the outcome from co-market orientation in co-producing networks is examined. Here the focus turns to ex-post *adaptation* of co-producing actors who have a common purpose. Two factors regarding adaptation are investigated: the presence of investments which are to be used specifically to adapt the actor's offerings, and the effect that has on the collective customers. These variables, and the variable of co-market orientation, form the mediating and endogenous variables in the research model. The following sub-sections elaborate on the coordination and adaptation sub-questions.

1.4.1 Coordination of co-producing actors

Actors collaborate on the assumption that the ability and motivation to coordinate is present (Olson 1965). For coordination to be efficient it requires complete and shared information. The literature has identified bounded rationality (Simon 1972) and information asymmetry (Williamson 1975) to bungle coordination. The bounded rationality problem to secure complete information has been solved through loose coupling (Weick 1976), relational contracting (Heide and John 1992), implicit

contracting, and learning (Simon 1991). All of these are required to perform a coordination that can handle unforeseen conditions, and thus are more flexible than formal contractual arrangements. Information asymmetry has been solved through ex-ante extensive selection processing to uncover private information (Bergen, Dutta, and Walker 1992). The partner's motivation to coordinate is important in that it stops parties from cheating and/or shirking (Williamson 1985). For motivation to be present, the gain of coordination must exceed the costs of coordinating (Olson 1965). As a means of securing partner participation, literature on the subject has discussed coercive power (Olson 1965), integration (Williamson 1979), contracting (Van de Ven 1976), incentives (Jensen and Meckling 1976; Knoke 1988; Olson 1965), group size (Granovetter 1978; Olson 1965), social norms (Coleman 1988), and social structure (Chwe 1999; Coleman 1988) to prevent free riding. Challenges arise when the parties are self-governing actors who want to retain their autonomy. In such situations power cannot be used to direct the parties. Drawn from existing theory I will identify a means to coordinate co-market orientation among co-producing actors. Attention will be given to centralization and formalization, which will substitute fiat as a way of directing self-governing partners into a common direction (Van de Ven 1976; Williamson 1991). However, formal contracts can lead to free riding (Nygaard 1992; Nygaard and Silkoset 2003; Rokkan 1997), and environmental factors can make it impossible to capture future events in contracts (Heide 1994; Williamson 1985). Therefore, social capital (Coleman 1988), which reflects the social structural network in which the actors operate, is included. Thereby I will be able to investigate how societies affect the behavior of self-governing parties. Finally, the structural position of the actors in the network is included. As Olson (1965) indicates, group asymmetry, in terms of individual tastes and/or endowments, is related to collective failures.

Sub-question1): How do specialized actors in co-producing networks coordinate their businesses toward each other when they participate in a co-market orientation?

1.4.2 Adaptation of co-producing actors

The second factor of interest is the adaptation between actors in co-producing networks. The actors adapt their products toward each other to prevent sub-optimization, and toward their collective customers to prevent unsolved tasks. Product adaptation is undertaken to increase attractiveness to the customer. However, such attractiveness benefits all of the actors operating in the same market. Therefore, the adaptation is identified as a public good (Olson 1965). To reiterate, the motivation to engage in collective activities depends on the gain of coordination, thus the gain must exceed the cost of coordination (Olson 1965). The cost of coordination is identified as the resources used in contracting and adapting the product to the market. Customer adaptation requires information to be exchanged, and resources have to be allocated with the purpose of synchronizing activities and products. The adaptation requires coordinated effort by two or more individuals (Olson 1965; Sandler 1992). As such, the adaptation involves group actions intended to further the interests or well being of the members (Olson 1965; Sandler 1992). Based on this, I will investigate how specific investments in actor adaptation affect collective customer adaptation.

Second, the benefit from the adaptation is measured through customer value. This value is identified as the offering and benefit the customer receives from exchanging in the co-producing network. The offerings are evaluated by the price the customer has to give up to receive the total product (includes financial costs in addition to the use of time, and value and risk involved with the transaction of the total product), compared to alternative exchanges (Murphy and Enis 1986). Measured in a co-producing network setting, the customer value is defined through the

customer's evaluation of the total product - a total product that will vary with different levels of product adaptation and synchronization.

Sub-question 2): In a situation where specialized actors operate in a co producing network, what affect does adaptation from businesses with regard to the total product have on the customer's evaluation of the total product?

The following accomplish the two goals of this research. In Chapter two I identify co-market orientation as a type of collective action. The reason for doing so is that it enables us to use the logic of collective failure to identify failure to perform a co-market orientation in co-producing networks. By this, I have a well-established framework to use when testing my research questions. The next part in Chapter two is to identify factors that affect an actor's participation in co-market orientation, explore its link to adaptation, public goods and customer value. In Chapter three the hypotheses are discussed. It starts with a discussion of antecedents to co-market orientation, of this contractual control, social capital, and structural position, which is followed by a discussion of consequences, such as specific investments and customer value. The methodological part starts in Chapter four, where the concepts are evaluated and choices are made to test the theories put forward in the research model. This chapter includes the operationalization and measurement of the research constructs, followed by a discussion on the questionnaire design and control variables. Chapter five examines the data and validates the measures. A non-response and missing value analysis are performed to the measurement model. The construct of social capital and second order model of co-market orientation is validated, followed by a multitrait-multimethod analysis to test for convergent and divergent validity at the dyadic data level. In Chapter six the hypothesis in the theoretical model are tested. This test is three fold; it starts with a test for the single-firm sample, then it includes control variables, and the chapter ends with a test of the dyadic structural

model, using a multitrait-multimethod approach. In Chapter seven the research is summarized. It discusses the results from the research, its theoretical and managerial implications, and closes with a discussion of the limitations and makes suggestions for future research.

Chapter 2: Co-market orientation in networks

Of particular interest in this research is, firstly, the investigation of how specialized actors in co-producing networks coordinate with the purpose to perform a co-market orientation, and, secondly, whether co-market orientation among the actors affects the products offered in such networks. The use of collective action to explain co-market orientation enables us to grasp the problem through using a well-established theory to explain the questions in focus. Further, to investigate factors affecting collective failure, theories regarding contractual arrangement and theories within sociological economy, hereof social capital, are discussed. Finally, theory regarding specific investments, such as creation of public good, and the concept of customer value, is included. Therefore, the purpose of the theory chapter is threefold: first to identify co-market orientation as a type of collective action; second to identify factors that affect an actor's participation in co-market orientation; and third to explore concepts of adaptation, public goods and customer value. First, however, I will start with a brief discussion of the theoretical arrangements that influence the collective action situation.

This research builds on the basic principle that people in the economic world produce more if they cooperate by specializing in their productive activities and then transacting with one another to acquire the actual goods and services they desire (Milgrom and Roberts 1990). In co-producing networks the collective action comes into being when the efforts of two or more individuals are needed to accomplish an outcome. Collective action builds on one fundamental sociological question: when will a collectivity act to maximize its *collective* interest even though such behavior conflicts with a course of action that would maximize the short-term interest of each individual separately? (Marwell and Ames 1979, p. 1335, italics in original). The problem of collective action can be found in a variety of disciplines: as "irrationality of voting" in political science, the "free rider problem" in economics, and the "prisoner dilemma" in psychology. Economic theory builds on rational choice theory as motivation for participation in collective action. Rational choice theory is based on the assumption that human behavior is self-interested, so that achieving cooperation toward collective objectives is inherently problematic (Olson 1965). Hence, a basic tenet of Olson's (1965) formulation of the free rider problem is that a rational actor will abstain from contributing to a public good if his or her contribution has a negligible impact on the total amount of the good produced (and consequently a negligible impact on his or her consumption of the good).

Rational choice theory in collective action is exemplified by Coleman's (1990) simple, yet groundbreaking, question, "Why do rational actors create obligations?" Coleman's work is especially interesting in that he argues that actors enter into relations because they can achieve something in these relations that they could not achieve by themselves (p. 298). Thus, the value [of social capital as a concept] lies primarily in the fact that it identifies certain aspects of social structure by their function. When the relations among parties change in ways that facilitate action, social capital is created. Coleman (p. 302) writes that the public good, which it would

not be in an actor's self interest to create [the rational choice argument], is often generated as a by-product of relationships initially entered into because of their direct reward. Also, studies demonstrate that structural position affects thresholds for participating in collective action (Chwe 1999; Granovetter 1978).

In this research I propose that co-market orientation is a type of such collective action. It should be noted, however, that the concept of market orientation is an ambiguous one that has been defined in a variety of ways (see Deshpandé, Farley, and Webster 1993; Kohli and Jaworski 1990; Narver and Slater 1990; Webster 1988, among others). Further, the concept of 'co' market orientation is introduced in this research. Consequently, it is necessary to start the next section with an analysis of market orientation, followed by a discussion of this research's extension of market orientation into the collective action framework and the ensuing co-market orientation.

2.1 The 'orientation' in co-market orientation

By co-market orientation I mean the market orientation *activities* actors in co-producing networks perform together. Individual market orientation activities, on the other hand, are not coordinated with the other actors in the business network, but performed separately. Accordingly, it is relevant to anticipate that co-market orientation is less frequent than individual market orientation.

My treatment of co-market orientation builds on an implicit assumption that market orientation is identified from *behavioral orientation* (that is, activities, see Kohli and Jaworski 1990), rather than *philosophical orientation*, which focuses on the cognitive aspects of orientation. This statement is important when, at a later stage, I connect market orientation to the collective action theory. Accordingly, the 'orientation' in market orientation plays a crucial role when extending individual market orientation into co-market orientation. Dreher (1994) argues that the different interpretation of an orientation construct has advantages and disadvantages depending

on the objective of the research . To fully understand the consequences of this research's treatment of market orientation from the behavioral orientation paradigm, a more in-depth discussion of the two concepts of 'orientation' is consequently required. Therefore, the next section will discuss the two different paradigms on market orientation, the behavioral perspective and the philosophical perspective, from an inter-organizational point of view.

2.1.1 Two concepts of orientation

Behavioral orientation. The concept of behavioral orientation builds on two assumptions: that managers are rational actors, and that a phenomenon can be understood through breaking it down into components. Hence, from this point of view, co-market orientation in inter-organizational relations is expressed through the organization's rules and attitudes, which are developed *under* certain conditions of internal coordination, culture and philosophy (Dreher 1994). Here, co-market orientation leads us to understand that organizations have a deterministic function in their world (Thompson 1967). In other words, if managers in one organization perform a particular form of market orientation behavior on behalf of themselves and a cooperating organization, this behavior reflects a specific belief that is shared by the cooperating organization. For example, if one organization gathers customer satisfaction data (on behalf of a cooperating organization), the behavioral perspective of an orientation assumes that this behavior reflects a shared belief that customer satisfaction is important. Following this logic, the effects of co-market orientation as a cause can be discovered (or at least estimated) through "laws" regarding organizational functions and performance. The primary interest of such a rational/mechanistic perspective of co-market orientation is to identify the collective set of activities organizations undertake in order to perform a co-market orientation. In this way, the "manifestation" of the orientation is determined through the co-market orientation behavior (Dreher 1994).

To fully understand the notion of behavioral orientation in co-market orientation, a closer look into an individual organization's market orientation, within the behavioral orientation paradigm, is necessary. The behavioral orientation perspective came into focus after problems in implementing the marketing concept were experienced. Felton (1959) provided an extensive discussion regarding the implementation of the concept in the early stages of marketing concept research. Barksdale and Darden (1971) reported that many managers, while reporting they had accepted the philosophy of the marketing concept, indicated that they were frustrated in their attempts to implement it on a day-to-day basis. A growing interest in implementation of the marketing concept thus came into focus for researchers. In line with the rational behavior paradigm, Bell and Emory (1971) suggest taking specific action in order to implement the marketing concept. Shapiro (1988) even provided a market-oriented behavior "check-list" that includes providing information rapidly, making reasonable promises, meeting agreed on performance standards, and doing follow-ups. Kohli and Jaworski (1990) extended the understanding of market orientation as a behavior by breaking it down into specific behavioral components. These activities then represented guidelines that facilitated the day-to-day approach to performing market orientation.

As mentioned previously, co-market orientation from a behavioral orientation view finds its expression in certain inter-organizational rules and attitudes, and is developed under certain conditions of internal coordination, culture and philosophy (Dreher 1994). For instance, Kohli and Jaworski (1990) and Jaworski and Kohli (1993) emphasize the importance of organizational antecedents (e.g., top management emphasis on market orientation, interdepartmental conflicts) on relations to market orientation behaviors. The contribution of Kohli and Jaworski (1990) is important in three ways (Graves and Matsuno 1995). First, they lend support to the argument that implementing the marketing concept leads to a positive economic performance (e.g. Barksdale and Darden 1971; King 1965). Second, the

degree of abstraction is less when one measures observable phenomena, such as behavior, than for abstract constructs such as attitudes and philosophies. Therefore, the behavior tradition implies less measurement error. Third, the implications they offer are managerially relevant. The activity-based construct represents a set of behaviors which managers have control over. In short, the construct represents activity guidelines that facilitate the implementation and control of day-to-day operations. The activities necessary to implement co-market orientation are thus identified.

Philosophical orientation. The concept of philosophical orientation builds on an assumption that organizations are intertwined with their environment. Since members of a particular organization create their own subjective world, relations between causes and effects are seen as being idiosyncratic (Graves and Matsuno 1995). This organic perspective assumes that particular elements of a phenomenon are meaningful only in the context of the other elements, while the rational/mechanistic approach calls for breaking a phenomenon into components. In other words, co-market orientation is expressed through the cognitive and mental element, being influenced by the attitude the organization has towards the orientation in addition to its knowledge of and skill in performing this orientation (Dreher 1994). The organic perspective suggests that co-market orientation should be understood in terms of the organizations' shared views. This leads to co-market orientation influencing the organizations' strategy, activities, programs, and cooperation. As Dreher (1994) puts it, orientation in this sense can best be described as a phenomenon which is embedded in the cognitive sphere and influenced by personal factors, *leading to* a certain view of reality and forming organizational characteristics such as goals, strategies, structures, systems, and activities.

Discussions of individual market orientation in terms of a business philosophy or organizational culture reflect the view of orientation from the cognitive sphere and mental element (Graves and Matsuno 1995). In response to King's (1965) call for

research to investigate the state of implementation of this marketing concept, McNamara (1972) studied both acceptance of the marketing concept as a philosophy and actual implementation of the concept. He argues that acceptance of the concept is a necessary condition to its implementation. Webster (1988) emphasizes the importance of a corporate culture that values customer orientation. He argues that an organization could foster manifestations of the marketing concept and customer orientation by directing an adequate level of resources and development and reward programs to marketing personnel. Deshpandé and Webster (1989) and Deshpandé, Farley, and Webster (1993) describe the marketing concept in terms of organizational culture. Narver and Slater (1990) define market orientation as a culture that leads to certain outcomes that is, the creation of superior value for buyers, rather than a culture that has certain attributes. In terms of implementation of the market orientation, the subjective organic view suggests that an organization should adopt the philosophy or culture of market orientation.

Choice of orientation. This research's treatment of co-market orientation draws on the concept developed by Kohli and Jaworski (1990). There are several reasons for this. By treating co-market orientation as a behavior I are able to grasp the systems in process. Constructs such as culture, philosophy, and beliefs, which had been seen as the orientation phenomenon itself or as elements of the phenomenon in the philosophical perspective, are treated as influencing factors in the behavioral approach (Shapiro 1988). By treating co-market orientation as a behavior, the challenge will be to identify the integrative relationship among the factors that comprise the overall market orientation and specific marketing actions of an organization (Day 1994a). When identified they can be converted into capabilities and strategies that represent a sustainable competitive advantage for the organization. Thus, by viewing capabilities and resources in conjunction with co-market orientation, my understanding of its effects is broadened, without us having to include capabilities and resources as separate elements of the definition, something

Hunt and Morgan (1995) have been criticized for mixing. The behavior and its activities represent the orientation phenomenon in itself and its components, whereas the philosophical approach treats these as a consequence of the orientation. In other words, focus and strategies have become elements instead of consequences of the orientation.

Dreher (1994) elaborates on several pitfalls of the behavioral perspective. Co-market orientation from the philosophical orientation point of view would emphasize factors such as shared cultural values. For instance, Achrol, Scheer and Stern (1990) identify organizational compatibility, goal compatibility, partner commitment and trust as important characteristics of partner firms. The philosophical value/beliefs perspective on co-market orientation enables one to make a connection to organizational cognition, hereof schemata, scripts, cognitive maps, standard operating procedures, groupthink, theories in use, or frames of reference. The behavioral perspective on market orientation, reflecting market intelligence activities, does not guarantee marketing success (Diamantopoulos and Hart 1993). Beliefs and values have been demonstrated to be important for orientation as a phenomenon. Moreover, empirical tests of theories connecting beliefs and values on implementation are rather vague. When implementing a behavioral perspective on co-market orientation this will support a strategy-structure perspective. This decomposed understanding of co-market orientation builds on the behavioral school and industrial organization economics. This enables the determination of factors affecting co-market orientation in social networks, which is the purpose of this research.

2.1.2 Co-market orientation as a behavior

Interestingly, the collective action theory does not pay any attention to identifying the *process of coordination* between self-governing organizations (Olson 1965; Sandler 1992). Rather, it focuses on the result of the coordination, i.e. the creation of public goods, and the mechanism of securing participation in collective action, i.e. antecedents and consequences of collective action. Thus, the literature takes for

granted that organizations know what to coordinate. In this research I identify co-market orientation as one such coordination process. In other words, coordination is about processing market intelligence between organizations. Further, as a consequence of treating co-market orientation from the behavioral phenomenon point of view, the organizational coordination mechanism is manifested through the coordination of market orientation intelligence *activities* (Kohli and Jaworski 1990).

Few studies have investigated market orientation at the inter-organizational level (for exceptions see Baker, Simpson, and Siguaw 1999; Siguaw, Simpson, and Baker 1998). Therefore, to identify the dimensions in co-market orientation, it is defined through individual market orientation. The behavioral definitions of market orientation distinguish between measuring the motivation to perform the behavior (Narver and Slater 1990) and measuring the actual activities performed (Kohli and Jaworski 1990). The latter argues that a marketing concept attitude is necessary but not in itself sufficient if the organization lacks the capability to implement the intelligence processing activities (Kohli and Jaworski 1990). Kohli and Jaworski (1990) define market orientation as follows:

> ”Market orientation is the organizationwide *generation* of market intelligence pertaining to current and future customer needs, *dissemination* of the intelligence across departments, and organizationwide *responsiveness* to it” (Kohli and Jaworski 1990, p. 6, emphasis in original).

Co-market orientation in this vein is identified as the collective intelligence generation, collective intelligence exchange, and collective intelligence response of customers' needs and the influence of technology, competition and other environmental power. Information is collected from existing and future customers, from present and potential competitors and from environmental conditions, all of which affects the choice of end users (Kohli and Jaworski 1990). As a result, the

existence of co-market orientation among collaborating firms can be identified through their collective market intelligence activities. For instance Hansen (1999) identifies how greater openness affects a party's willingness to share important, even proprietary, information. In practice, this information exchange might include involving the other party in the early stages of product design, opening books and sharing cost information, discussing future product development plans, or providing joint supply and demand forecasts (Cannon and Perreault 1999). Therefore, from the behavioral phenomenon point of view, a co-market orientation involves gathering, exchanging, and responding to market intelligence (Kohli and Jaworski 1990) among organizations (Olson 1965).

The purpose of a co-market orientation is to investigate whether it is a tool for solving tasks that are not economically viable for one company separately, and/or whether it affects the coordination of separate market offerings. According to the collective action theory (Olson 1965), the motivation to participate in co-market orientation depends on whether the organization's contribution has an impact on the good produced. Consequently, the actors make rational considerations as to whether their contribution in co-market orientation has a significant impact on the output, and whether they can achieve this good without participation. Based on this, the purpose of the next chapter is to identify the background for problems with collective failure, hereof co-market orientation, in order to be able to identify the means to and consequences of the problems.

2.2 Problems of co-market orientation

Co-market orientation is treated as a type of collective action, based on behavioral orientation and rational choice theory. Thus, the logic behind failure of collective action is used to identify problems of co-market orientation in co-producing networks (Olson 1965). Motivating actors to participate in co-market orientation cause problems. This is because rational choice theory is based on the assumption that

human behavior is self-interested so that achieving cooperation toward co-market orientation is inherently problematic (Olson 1965). Hence, a basic tenet of Olson's (1965) formulation of the free rider problem is that a rational actor[4] will refrain from contribution to a co-market orientation if his or her contribution has a negligible impact on the total amount of the good produced (and consequently a negligible impact on his or her consumption of the good). Consequently, when actors decide whether or not to perform a co-market orientation, they base their decisions on a rational choice of alternatives (see Hart 1992) or, as Simon (1972) states, by bounded rationality, resulting in the assumption that an actor is a profit maximizer and adverse to risk. A goal for firms is, thus, either to overcome constraints in the network they operate, or to utilize opportunities in the same network (Galaskiewicz 1996).

According to rational choice theory, a company performs a co-market orientation if these actions have value for the company. This value might be directly connected to the utility of the object or matter at hand, or it might be based on certain other preferences. The actor consequently makes an assessment of the opportunity costs associated with performing a co-market orientation, keeping in mind the costs associated with *not* making their second-favorite choice, that is, performing an individual market orientation, or not being market oriented at all.

Rational choice theory has been criticized for categorizing individuals into one group, termed "individualism" (Udéhn 1993), whereas a mixed motivation for participation should be used. This criticism affects the logic of collective action as propounded by Olson (1965), since Olson's theory builds on the rational choice theory. This means that the theory of collective action purports the view of "either/

[4] Rational choice theory has discussed organizations as actors. Coleman (1990) extends rational choice theory beyond the level of individuals (see Park 1927) by discussing corporate actors as a type of collective "actor", such as modern corporations. The corporate actor behaves in ways that maximizes the collective unit, as opposed to social or human actors, who acts in the interest of the individual. The actions taken by the corporate actor may benefit or harm the individual, depending on what the individual's goals would have been.

or" rather than "how much?" Therefore, motives, other than self-interest have been argued to be a part of the explanation of collective action.

2.2.1 Source of the failure of co-market orientation

An actor's decision of whether or not to participate in a co-market orientation depends on the "notion of the privilege" of participating in this collective action (Olson 1965). A group is "privileged" when at least one individual derives sufficient net benefits from the co-market orientation to go for it alone (Sandler 1992). Failure to perform a co-market orientation is rooted in the two factors *group size* and *group asymmetry*. To understand this failure, each of these factors will be discussed below. Sandler (1992) lists the problems in the following way (p. 8-9):

1. Group size is, in part, a root cause of collective failure.
    a) Large groups may not provide themselves with a collective good; hence, no individual or coalition within the group may satisfy the sufficient condition of a privileged group.
    b) The larger the group, ceteris paribus, the greater the departure of individual uncoordinated behavior from optimality; that is, the more suboptimal is the equilibrium.
    c) The larger the group, the smaller the collective provision level.
2. Group asymmetry, in terms of individuals' tastes and/or endowments, is related to collective failure.
    a) Larger members (those with greater endowments) will bear a disproportionate burden of collective provision.
    b) Asymmetric groups are more likely to be privileged.

Point 1 concerns group size. Group size affects an actor's motivation to participate in a co-market orientation because the privilege decreases with the size of the co-producing network. Olson (1965) argues that larger groups are less likely, ceteris paribus, to be privileged than smaller groups in situations where the individual's

share of group benefit from collective action declines with group size (p. 33-34, 48). This holds in situations where an individual's benefit declines with group size but costs remain unchanged. Because of this, group size affects what benefit the actors obtain from participation in co-market orientation, which again affects whether some tasks will be solved through the co-market orientation, and whether the actor is motivated to adapt their goods for the common best, at the cost of individual short-term profit. Olson (1965) does not give any operational definition of optimum group size, but separates between a) a privileged group, which contains at least one individual or coalition whose benefits from collective action exceed the costs of association, even if these costs are solely borne by the individual or coalition. In a privileged group each member, or at least some of them, has an incentive to see that the collective good is provided. b) In an intermediate group the group is sufficiently small for members to be aware of those who assist collective action or not. No single member in such group gets a share of the benefit sufficient to give her an incentive to provide the good herself, but which does not have so many members that no one member will notice whether any other member is or is not helping to provide the collective good. c) In a large, or latent group, where the members are neither privileged nor intermediate, the individual cannot make a noticeable contribution to any group effort, and since no one in the group will react if she makes no contribution, she has no incentive to contribute (Olson 1965, p. 50). This research identifies co-producing networks as a type of *intermediate group*. This is because these networks consist of several actors (suppliers), but these actors operate toward the same customers. Therefore, there is reason to anticipate that they are aware of their fellow actors and the contribution they make. This anticipation is important when I proceed to connect social capital to the collective action problem (Coleman 1988).

Point 2 is about a member's endowment. Olson (1965) argues that heterogeneous actors promote privileges in a group. Thus, the greater disparity

between potential contributors, the greater privilege ensures that at least one member (that is, the most endowed) might derive sufficient benefits to bear the entire burden of collective provision alone. I see many examples of this in the tourist industry, such as at resorts where one main actor guides the development of the destination. Olson (1965) observed "there is accordingly a surprising tendency for the 'exploitation' of the great by the small" (p. 35), resulting in the free riding problem since, if the largest member of a group satisfies his or her collective good demand, the smaller members are likely to have their own demands satisfied free without the need to contribute. On the other hand, when the leading firm knows that the other firm is following their behavior because of a desire to exploit their market treatment, the leading firm can take advantage of the market and optimize with respect to themselves.

2.2.2 Types of coordination problems

Actors in co-producing networks are interdependent on each other through their collective customers, and since the actors are self-governing to each other, the problem of collective failure comes into being. In co-producing networks, business actors are specialized in different products and/or services. The sum of the products[5] utilized by end users in such networks is identified as a 'total product'. Co-producing networks can be identified as fragmented markets, characterized by specialized businesses that focus on divided or limited tasks (Dollinger 1990). In co-producing networks, customers have to transact with several suppliers to satisfy their demand (Stigler 1951). For example, a tourist on vacation may interact with a travel agency, a transportation company, providers of accommodation, restaurants, as well as countless other service providers. When one of these actors fails, the total product suffers. This interdependency between actors in co-producing networks generates the need for collective behavior. However, this interdependency is also the root of the problem of collective failure, as discussed in the previous chapter. Thus, business

[5] The sum of the products, i.e. the total product, varies with different segments.

specialization in co-producing networks creates three coordination problems of collective failure. Of these, two problems regard adaptation of an actor's products/services: a) the problem of unsolved tasks, and b) the problem of synchronization (sub-optimization), and one problem regards participation: c) the problem of free riding. Each of these three coordination problems is discussed below.

a) Unsolved tasks

Specialization can lead to unsynchronized offerings in co-producing networks, and several important tasks in the network risk not being solved if one single firm does not find it profitable to solve them (Olson 1965; Ouchi 1980). As an example from the travel industry, actors in a particular resort might collaborate to offer activities that otherwise would not be economically viable for one single actor to perform. Simple examples from a tourist resort are the construction and maintenance of parking spots, infrastructure, and the work of a booking company. These activities do not lead to a short-term profit for any of the companies, so tasks risk being not done, even though they are important in providing for the tourists. The rationality is rooted in the problem of privilege, where the group size and/or group asymmetry does not give any incentive to perform the tasks (Olson 1965).

A social institution can further limit the effect of a co-market orientation. For instance, laws, politics or norms stemming from legal, state, religious, educational or service institutions often make certain courses of action difficult or impossible for social actors to follow. Once again, the tourist industry can be used as an example. In a situation where local government fulfils the public good in a limited tourist resort, benefit from collaborating on a co-market orientation decreases, reducing the tourist organizations' motivation to perform a collective behavior in that area.

b) Sub-optimization

Co-market orientation fails when the pursuit of individual gains results in a suboptimal or inefficient outcome (Sandler 1992). Individual profit does not motivate

synchronized action (Olson 1965), and the problem of collective action comes into being when sub-optimal performance is not optimal for the common good. Because of this there does not exist any short-term incentive to participate in adaptation between the specialized businesses. As an example, uncoordinated activities between a ski lift company and a snow clearing company decrease the attractiveness of a ski resort by. This happens when, for example, the short-term incentive for the snow clearing company is to prioritize other roads than those leading to the ski lifts, in an effort to increase their own short-time effectiveness.

Another example is when a hotel at a tourist destination fills up its spare rooms with students. In this case, the hotel contributes positively to the rate of tourism at the destination (% of the revenue) (that is, investments in the public good), but decreases the other tourists' comfort because of noise and party music (externalities). In other words, a lack of coordination creates externalities in that the welfare fare in Pareto optimal is not fulfilled (Sandler 1992). Sub-optimization can be connected to the noncooperative games in the Nash equilibrium, where each individual pursues their own best payoffs without coordinating with others. According to this theory, an actor in a co-producing network decides his or her contribution level when confronted with the optimizing contribution levels of everyone else. Equilibrium is reached if all optimizing choices are mutually consistent in the sense that no one would want to change his or her behavior alone. Thus, sub-optimization of actors in co-producing networks is at the cost of the common best, and, in the worse case can be connected to the "Tragedy of the common", see Ingram and Inman (1996).

c) Free riding behavior

The problem of free riding is that when a number of self-interested parties are interested in one outcome that can only be brought about by effort that is more costly than the benefits it would provide to any of them, then, in the absence of explicit organization, there will be a failure to bring about that outcome, even when an appropriate allocation of effort would bring it about at a cost to each which is less

than the benefits each would experience (Coleman 1990, p. 273). It is in this vein Coleman (1990) and Olson (1965) support sanctions that encourage action, such as norms (e.g. closing networks) and selective incentives, rather than sanctions that discourage it, such as institutional design. This policy-oriented argument investigates a reduction in group size, closer contact between participants, and the use of coercion to engineer group compliance. The means of coordinating actors in co-producing networks is discussed in the next section.

2.3 Coordination of co-producing actors

As discussed previously, the problem with coordination and adaptation between specialized businesses in co-producing networks is rooted in the ability and motivation to cooperate (Coase 1937; Olson 1965). The research of a partner's motivation to coordinate in co-producing networks is important in that it discourages parties from cheating and shirking their obligations (Williamson 1985). For motivation to participate in collective action to be present, the gain of coordination (privilege) must exceed the costs of coordinating (Olson 1965), and when the rational choice is to free ride, means to secure participation must be introduced. Literature on the subject has discussed coercive power (Olson 1965), integration (Williamson 1979), contracting (Van de Ven 1976), incentives (Jensen and Meckling 1976; Knoke 1988; Olson 1965), group size (Granovetter 1978; Olson 1965), social norms (Coleman 1988), and social structure (Chwe 1999; Coleman 1988) to prevent free riding.

Olson (1965) contends that the failure of a collective action, in this research co-market orientation, may be overcome through selective incentives (giving private benefit inducements) and institutional design. This is done through minimizing the harm error from the two factors identified as the root of the collective failure; reducing group size and creating closer contact between participants, and the use of coercion to engineer group compliance. Regarding coercive power, Coleman (1990)

disagrees with the use of coercive power and argues that in collective decision-making the outcome of a decision is not the result of a choice made by a central authority, but depends on the virtually simultaneous individual choices of the relevant actors. Stinchcombe (1985) identified legal contracts as an alternative to integration to facilitate decision control.

A combination of the two control mechanisms: formal control and social control, is investigated as the coordination mechanism for co-market orientation in co-producing networks. While former research within the area of control mechanisms focused on each control variable in isolation (Ouchi 1979; Thompson 1967), Ouchi (1979) commented that the "problem of organization design is to discover that balance of socialization and measurement which most efficiently permits a particular organization to achieve cooperation among its members" (p. 846). Bradach and Eccles (1989) mapped price, authority, and trust as control mechanisms onto market, hierarchy, and network, respectively, and noted that these are ideal elements that in are reality often combined. Such combinations have been documented by Stinchcombe (1985), who described different hierarchical dimensions in oil-exploration project contracts; Eccles (1985), who described market forces and hierarchical authority at work in transfer pricing within firms; and Jaworski, Stathakopoulos, and Shanker (1993), who demonstrated how various combinations of marketing controls affect the psychological and behavioral responses of marketing managers. At the inter-organizational level, Achrol and Gundlach (1999) empirically demonstrated that legal and social governance mechanisms operate in relation to opportunism. They purported that there was an interaction effect between legal and social control mechanism, an effect who turned out to not to be significant. Because of previous research the two control mechanisms are investigated in this research, staring with the contractual control.

2.3.1 Contractual control

Coordination of actors for co-market orientation in co-producing networks through formal control is characterized as a management-initiated written control mechanism. This research's use of contractual arrangement as a formal control mechanism simulates the elements of hierarchical control. This builds on Stinchombe's (1985) theoretical extension of transaction cost economics, where he demonstrates that long-term market contracts can sometimes be used to safeguard long-lasting specific assets because the value of those assets can be safely depreciated over the time period. Such intervening arrangements between market and hierarchy have been described as hybrid arrangements, and neoclassic contract law regulates these kinds of relationships (Williamson 1991). Examples of such hybrid contractual arrangements are exchange arrangements or reciprocal trading arrangements, such as co-producing networks, and franchising (Heide and John 1988; Williamson 1991). Neoclassic contract law applies to contracts in co-producing networks because the parties to the transaction maintain their autonomy, but the actors are bilaterally dependent to a substantial degree. A contractual option to adapt toward disturbance is described as elastic contracting (Williamson 1991). A neoclassic contract in such a network would refer disputes to arbitration rather than the courts. The general proposition is that when the 'lawful' gains to be had by insistence upon literal enforcement exceed the discounted value of continuing the exchange relationship, deviation from the spirit of the contract can be anticipated.

The treatment of formal control in this research builds on contractual control among self-governing actors for the purpose of safeguarding against the hazard of opportunism (Williamson 1985, p. 32). This builds on the basic presumption that effects of governance on performance are contingent on the characteristics of the exchange (e.g., Noordewier, John, and Nevin 1990). Opportunism, in this context, is behavior by an economic agent that involves "self-interest seeking with guile" (Williamson 1975, p. 26). At the inter-organizational level, opportunism is not readily

monitored and sanctions are infrequent (Provan and Skinner 1989). This can result in suboptimalization in co-producing networks, as demonstrated by the Nash equilibrium (see Milgrom and Roberts 1992, p. 263), where each actors operate for their own best at the cost of the common. Because the exchange involves idiosyncratic investments (resources used to perform a co-market orientation), internal organization or hierarchy is predicted to be a more efficient form of governance than the market.

Formal control in this research builds on planning on the one hand, and developing rules, programs and procedures for task coordination on the other (March, Simon, and Guetzkow 1958). The planning involves presetting schedules, outcomes, and targets; rules, programs and procedures to provide a formal framework in the form of decisions made a priori for various likely scenarios. All of these serve the common purpose in co-producing networks of minimizing necessary communication and thereby simplifying decision-making, reducing uncertainty about future tasks, and preventing disputes (Provan and Skinner 1989). In formal alliances, hierarchical controls institutionalize, or formalize, interactions between partners (Van de Ven 1976). The centralization of hierarchical control clarifies boundaries on decisions and activities, and simplifies the decision- making (Galbraith 1977). In addition to regularizing meetings between partner representatives, such hierarchical controls may also formally designate roles for the partners (Stern and Reve 1980). Formalization makes the division of labor and the interaction between partners more predictable and allows for joint decisions to be made primarily by rules rather than exception (Gulati and Singh 1998).

The use of formal contracts has, however, some negative effects. A neoclassic contract in a co-producing network is perceived as an incomplete contract because of the partners' autonomy (Williamson 1991), and Buvik and John (2000) found that the contractual safeguard of investments in the initial stage of a bilateral relation is at the sacrifice of contractual elasticity. Relationships develop different norms through

time, and because it takes time to develop relations, norms are not yet operative at the initial stages of a relationship (Dwyer, Schurr, and Oh 1987). For instance, game theory demonstrates how relational norms will not be operative in the declining phase of a relationship (Buvik and John 2000). This is because the perception of continuity is not present (Heide and Miner 1992). Therefore Buvik and Grønhaug (2000) recommend that to maintain adaptation, and in the absence of a control mechanism, transaction specific investments should be reduced in the initial and declining phases of a relationship. Adapted to co-market orientation in co-producing networks, where collective action affects the actor's long-term profit, some degree of free riding and shirking (of obligations) should be accepted in situations where the costs of integrating are high, such as during high environmental uncertainty (Barney 1999), and in the initial and declining phases of a relationship (Buvik and John 2000). However, another means for coordination is through the actor's social network. Such a control mechanism is affected by the size of the network, and the strength of the bonds between the network actors. The social control mechanism operating in a co-producing network is discussed below.

2.3.2 Social control

According to sociologists, the social network in which exchange participants are embedded yields a fuller explanation of economic behavior than the formal contract structure (Achrol and Gundlach 1999, p. 108). In other words, social structure matters more than institutional structure. Further, studies have demonstrated that the social structure of how network actors are connected affects their behavior (Ahuja 2000; Burt 1992; Coleman 1988; Granovetter 1973; Olson 1965; Rindfleisch and Moorman 2001; Uzzi 1997). For that reason, an investigation of social structure is included in this research. The inclusion in this research is important since it reflects situations where authority control is difficult. Alternative control mechanisms could therefore have an impact.

Where the contractual control view focuses on governance structures as a control mechanism to protect resources in social networks, the social control perspective takes the opposite view and focuses on sanctions that encourage action (Coleman 1990; Galaskiewicz 1996; Olson 1965). For many, the benefits gained from collective action outweigh the loss in personal autonomy (Coleman 1973). This problem applies especially to groups that cannot compensate their participants for their involvement.

Actors in co-producing networks are partners in an intermediate group (Olson 1965), implying that the actors know about each other's existence. The ties between the actors affect their behavior and information flow (Baker 1984; Burt 1982). For instance, socioeconomics have demonstrated that the social structure of ties which economic actors are embedded in would influence the actors' subsequent action (Granovetter 1985). This follows their understanding of strength of network ties to be useful in finding out who is trustworthy; an important element in overcoming the problem of opportunism in marketing settings (Granovetter 1985; Powell 1990). In addition, innovation, access to new information, knowledge creation, and social coordination are also important effects of social networks (Burt 1992; Rindfleisch and Moorman 2001; Uzzi 1997).

Following socioeconomic theory, ties between actors in co-producing networks represent a value for the actors in the network. This value is identified as a social capital because the individual can use it to further their own interests (Coleman 1988; Granovetter 1985). The analysis of social capital in co-producing networks is therefore fundamentally concerned with the significance of relationships as a resource for social action (Burt 1992; Coleman 1988). The central proposition of social capital theory is that a network of relationships constitutes a valuable resource for the conduct of social affairs, providing their members with collectivity-owned capital, a 'credential' which entitles them to credit, in its various senses of the word (Nahapiet and Ghoshal 1998). The linking or disconnection to others in the network

gives the individual a strategic advantage as they are in a position to bridge or negotiate discourse between disparate and disconnected actors/cliques. In such an enablement view (Galaskiewicz 1996), social structures are regarded as opportunity structures which represent a source to unique resources (Coleman 1988).

Although its origins lie in the classical nineteenth-century sociology, the concept of social capital is closer to the more recent work of two sociologists, Pierre Bourdieu (1986) and the late James Coleman (1988). Bourdieu first used the term in the 1970s to refer to the advantages and opportunities accruing to people through membership in certain communities. Coleman used it to describe a resource of individuals that emerges from their social ties. Coleman cites the example of Jewish diamond merchants in New York, who save a great deal in lawyers' fees by conducting their transactions informally. Sacks of jewels worth thousands of dollars are lent for examination overnight without any paper signed. What makes these expeditious exchanges possible is the trust that associates will not shirk their obligations since they belong to the same tight social circles. Anyone found guilty of malfeasance can say good-bye to their future chances of ever taking part in this lucrative market again.

Adler and Kwon (2002) reviewed the concept of social capital and connects it to the location in the structure of actors social relations. Social relations are distinguished among three dimensions a) market relations, in which products and services are exchanged for money or bartered, b) hierarchical relations, in which obedience to authority is exchanged for material and spiritual security, and c) social relations, in which favors and fits are exchanged (p. 18). It is the third type of relationships that constitutes the dimension of social structure underlying social capital. The definitions of social capital varies between whether their focus is on a) an external focus: the relations an actor maintains with other actors (Baker 1990; Belliveau, O`Reilly, and Wade 1996; Bourdieu 1986; Bourdieu and Wacquant 1992; Boxman, De Graaf, and Flap 1991; Burt 1992; Knoke 1999; Portes 1998), b) an

internal focus: the structure of relations among actors within a collectivity (Brehm and Rahn 1997; Coleman 1988; Fukuyama 1997; Inglehart 1997; Portes and Sensenbrenner 1993; Putnam 1993; Thomas 1996), or c) both types of linkages (Loury 1992; Nahapiet and Ghoshal 1998; Pennar 1997; Schiff 1992; Woolcock 1998). A summary of definitions of social capital is included in Appendix A.

In this research, the perspective of external and internal focus is included. I define social capital as the sum of the actual and potential resources embedded within, available through, and derived from the network of relationships processed by an individual or social unit (Coleman 1988; Nahapiet and Ghoshal 1998). This definitions neutrality has the advantages that the distinction between the external and internal view, which is a matter of perspectives and unit of analysis, is eluded. The external and internal view is therefore not treated as exclusive, and external linkages to other firms and institutions are seen as influencing the behavior of a collective actor. This research's view of social capital therefore sees the social capital in the co-producing networks to consist of social resources embedded within relationships (Burt 1992; Greve and Salaff 2001), including shared norms and values associated within the relationships as part of the definition (Coleman 1988). As an individual resource, social capital is roughly analogous to other individual assets. For Coleman (1988), it differs from the financial capital found in bank accounts and the human capital inside people's heads by being rooted in interpersonal relations. This analogy should not be carried too far, however, because social capital has certain characteristics, such as the expectation of reciprocity, that distinguish it from the capital that appears on balance sheets.

Two dimensions of social network structures affect the creation of social capital in inter-organizational relationships: the strength of ties in *relational embeddedness*, and network structure in *knowledge redundancy* (Ahuja 2000; Burt 1992; Coleman 1988; Granovetter 1973; Olson 1965; Rindfleisch and Moorman 2001; Uzzi 1997). Based on these two dimensions, three types of social capital are

identified: structural social capital, relational social capital and cognitive social capital (Nahapiet and Ghoshal 1998). First, social structure, explaining how structural ties (both formal and informal) function, has a value because it gives access to new resources (Granovetter 1985; Uzzi 1997). Second, relations rooted in these relationships have a value through the trust and norms affecting an actor's behavior (Coleman 1988; Granovetter 1985; Putnam 1993). Finally, it has been suggested that social capital is a cognitive resource that emphasizes the ability to communicate and make a common interpretation of the environment developed through participation in a social community (Huber 1991; Kogut and Zander 1992; Nahapiet and Ghoshal 1998), its value stemming from the shared knowledge in the network. For instance studies have demonstrated that network linkages affect the content of the information exchanged (Hansen 1999).

The next sub-chapter reviews each of the two dimensions of social network structure, knowledge redundancy and relational embeddedness, as they relate to co-producing networks and their connection to resources derived though the three types of social capital. The three types of social capital and their relation to network structure and strength of ties are illustrated in Figure 2.1. The figure illustrates how different social structures are connected to different types of social capital. Cognitive social capital, for instance, can come into being when actors have a high level of redundant knowledge through operating at the same level in the market. This social capital is in contrast to structural social capital, which centers on structural holes, and can come into being when actors have a low level of redundant knowledge, meaning that they operate at different levels in the market, or what Scott (1991) labels different 'ego networks'. The figure also illustrates that relational social capital comes into being when network actors have a high level of relational embeddedness, meaning that they operate in closed networks. Thus, actors that operate in open networks do not have relational social capital. Each of the two dimensions in the

model, knowledge redundancy and relational embeddedness, are discussed in greater depth below[6].

Figure 2.1

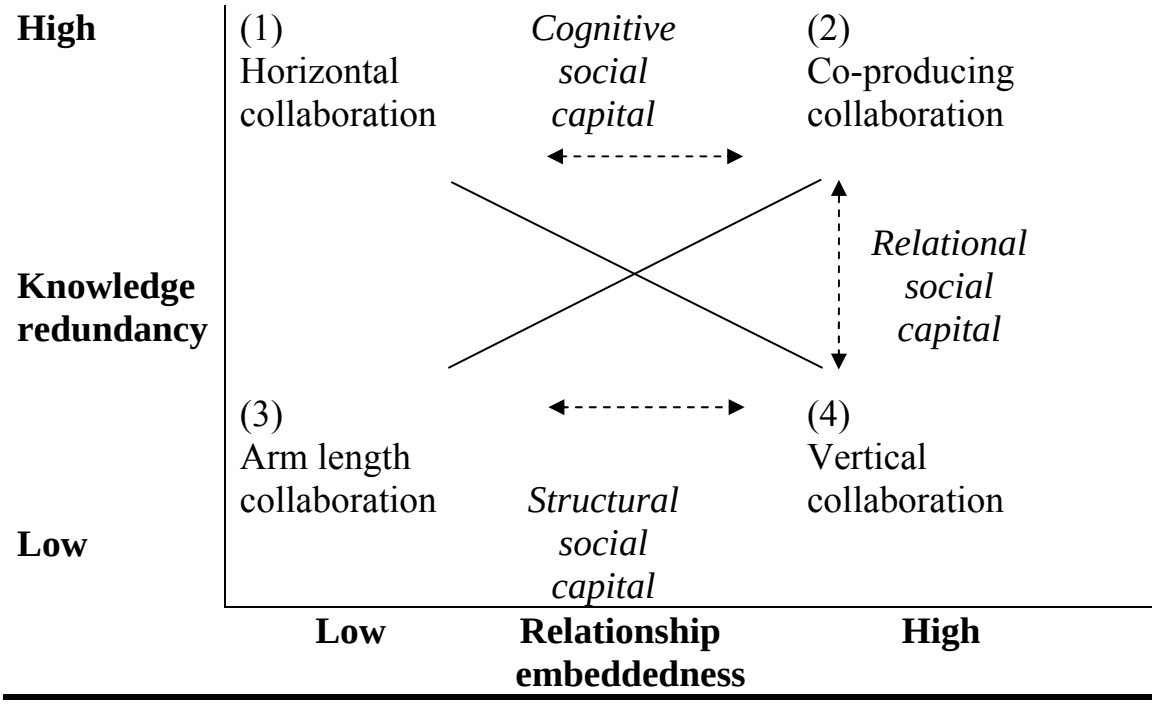

Figure 2.1 Dimensions of social capital in social networks.
Extended from Rindfleisch and Moorman (2001)

a) Knowledge redundancy

Co-producing networks are characterized by actors operating at the same level in the market. This means that the actors operate toward the same customers and offer complementary products. Such operations are in contrast to actors that define each other as either their customers or suppliers. When actors occupy similar social positions in the network, their knowledge is to a larger degree redundant than for actors that have dissimilar positions. Based on this, there is cause to anticipate that

[6] As can be seen from Figure 2.1 cognitive social capital and structural social capital is in contrast to each other. The cognitive social capital corresponds to co-producing networks and is therefore investigated in this research.

social actors with similar positions have some degree of redundant knowledge (Burt 1992; Krackhardt 1992).

Knowledge redundancy is a type of cognitive social capital, a resource based on the shared representations, interpretations, and system of meanings among the network parties through the existence of a shared language and vocabulary and the sharing of collective narratives (Nahapiet and Ghoshal 1998). This resource enables an increased capability to learn collectively (Huber 1991; Moorman and Miner 1997), and the absorptive capacity to interpret information collectively (Chwe 1999; Kogut and Zander 1992). The value is created because mental maps have to be shared for information to be interpreted into shared knowledge (March 1991). Redundant knowledge is, however, at the cost of innovation (Ahuja 2000; Rindfleisch and Moorman 2001) since similar positions eliminate structural holes, and it therefore hampers access to new information (Burt 1992) in contrast to the resources derived from structural social capital. In other words, because the co-producing network has cognitive social capital, structural social capital is absent. Also, the value of knowledge redundancy can be present in both open and closed networks.

b) Relational embeddedness

Among the dimensions of frequency and distance that reflect relational embeddedness (Hansen 1999), actors in co-producing networks that are characterized by high frequency and short distance have access to relational social capital through their relationships. According to Hansen (1999), strong ties require a short distance between actors and weak ties are characterized by a greater distance. Based on this, actors in co-producing networks that have a high degree of proximity and are motivated to collaborate view each other as partners in the co-production and not competitors in the same market. This is important because I then have situations where actors operating toward the same customers have a high degree of relational embeddedness. Though Rindfleisch and Moorman (2001) identify only vertical cooperating arrangements as obtaining relational embeddedness, their argument

builds on horizontal arrangements that are independent of each other. Unfortunately, Rindfleisch and Moorman (2001) do not include co-producing networks in their framework. Rather they empirically test and find evidence that horizontal alliance actors act as competitors, and that vertical alliance actors act as collaborators, based on their motivation behind the co-operation. I characterize co-producing networks as having the potential to have a high degree of relational embeddedness based on the existence of strong ties in these relations. Such understanding is in accordance with Gulati (1998), who argues that horizontal networks consisting of *competitors* will be threatened by opportunistic behavior, because they have a low degree of reciprocity. Reciprocity depends on whether the actors in the network view themselves as competitors or as collaborators, which again affects an actor's motivation to collaborate. Interdependency among co-producing actors has already been identified as a prerequisite for collective action in such networks, see Chapter 2.2.2.

Co-producing networks with strong interunit ties provide more opportunities for action between the actors than those with weak ties (Hansen 1999). There are two reasons for this. First, strong ties are associated with reciprocal arrangements in which advice and help flow in both directions. A firm has to exchange information and interact more frequently with firms to whom they are strongly tied, under the assumption that commitment to interaction is proportional to the strength of the relationship. Weakly tied firms, in contrast, escape the time-binding interaction because their relationship is less likely to be reciprocal. Weak ties are used in search activities but are less likely to be used in time-consuming activities. Second, strong inter-organizational ties result in more inertia than weak ones. More effort is required to search for new information and impulses when organizations step out of strong ties. Breaking these patterns requires relearning and the ability to search outside existing ties (Huber 1991), which in turn requires more of the firm (Nelson 1991).

Relational embeddedness is a resource to the actors because it affects a party's willingness to combine and exchange resources. Extensive relations between partners

foster the development of shared norms of behavior (Dyer and Noboeka 2000; Uzzi 1997; Walker, Kogut, and Shan 1997), and close ties between partners are likely to help in curbing opportunism (Coleman 1988; Walker, Kogut, and Shan 1997). My understanding of reciprocity builds on Rindfleisch and Moorman (2001) and Granovetter (1985), who define reciprocity as a proxy of relational embeddedness, identified by frequency.

Additionally, in closed networks, where an ego's partners are connected to each other, information about one actor's opportunistic acts diffuses rapidly to other related partners, and sanctions for deviant behavior are more easily imposed (Walker, Kogut, and Shan 1997). In such a highly interconnected system, deviant behavior is less likely to arise because the threat of reputation loss with respect to multiple partners will discourage firms from behaving opportunistically with any single partner (Ahuja 2000).

2.4 Adaptation of co-producing actors

Co-producing networks consist of specialized actors. Because specialization can lead to unsynchronized offerings in co-producing networks, several important tasks in the network risk not being solved if one single firm does not find it profitable to perform the tasks. Since sub-optimal performance in some cases is not optimal for the common best, the means for adapting product offerings from specialized actors is included. Therefore, the investments used to adapt products between actors in co-producing networks, and their effect on customer evaluation, is discussed. The discussion starts with an evaluation of the characteristics of products created through collective effort in co-producing networks: the public good.

2.4.1 Public goods

The type of good created from collective action in co-producing networks is characterized as public. This is because the good provides benefits that are non-

excludable and non-rival or indivisible between the network actors. This is in contrast to a private good, which possesses benefits that are fully excludable and rival between prospective users. More precisely, because the public good has a private enterprise, the goods are labeled a "privately owned public good" (Forster 1999). The characteristic of these goods is that they are different from common goods (such as ocean fish stock, fresh air, national parks, and pollution), which largely involve national or local governments.

The goods provided in co-producing networks through collective action are characterized by two dimensions: non-excludability and non-rivalry of benefits (Olson 1965). Non-excludability of benefits means that the benefit from a good is available to all in the co-producing network once the effort has been provided. In contrast, excludability exists only in cases where the owner or provider can withhold the benefits of a good without cost (Sandler 1992), and the good becomes private. The second concept used to define goods in co-producing networks is the non-rivalry of benefits. The good is non-rival or indivisible when one individual can consume a unit of the good without detracting in the slightest from the consumption opportunities still available for others from that same unit (Sandler 1992). In contrast, the benefits of a good are rival when the consumption of a unit of the good by a person uses up some of the available benefits.

The treatment of public goods in this research concerns those goods and services that are provided by private enterprise, but which are immediately accessible to those who have not contributed to their development. The coordinating activities of a public good occur over a large set of activities, including tool development and product design, value analyses and cost targeting, design of quality control and delivery systems, and long-term planning (Heide and John 1990). Van de Ven (1976) describes coordinating activities as occurring when two or more organizations transact resources (money, physical facilities and materials, customer or client referrals, technical staff services) among each other. To summarize, the result from

coordination between actors in co-producing networks is identified as a privately owned public good because the coordination among private actors increases the attractiveness of the customers in the network, and all actors in the network can benefit from the effort, independent of their participation or not.

The resources used to adapt toward each other to create the public good are identified as specific investments in the relation, and the next chapter identifies these investments in greater depth.

2.4.2 Specific investments

When co-producing networks experience problems with sub-optimization and unsolved tasks, a potential for product coordination exists. The adaptation is a result of the collective action in the network. Such adaptation requires the coordination of effort by two or more individuals (Sandler 1992), and in order for it to happen, resources must be allocated for this purpose. These resources are identified as the actors' specific investments in customer adaptation.

The specific investments among actors in a co-producing network differ from transaction specific investments in the transaction cost economy in that the network actors do not exchange resources vertically (Williamson 1985). Rather, the transaction is directed toward the customers, whereas the investments are made among firms at the same level in the market. Therefore, investment for product adaptation in co-producing networks is endogenous to the coordination of the co-producing actors (Ghosh and John 1999). In other words, the purpose of the investments is value creation (Cannon and Perreault 1999) and the specific investments are treated as endogenous to governance. Such treatment of investments is in accordance with Cannon and Perrault (1999) and their empirical work, and the IMP treatment of resources, see Håkansson (1995), but in contrast to the exogenous treatment of investments in transaction cost economy (Williamson 1985), where the governance structure is applied to protect the investments.

The investments used to adapt products toward each other in a co-producing network have a greater value than investments that have to be withdrawn and reinvested. Thus, transaction specific investment is any investment that is significantly more valuable in the particular exchange than in any alternative exchange (Williamson 1985). Williamson (1985) identifies such transaction specific assets as those assets (tangible and intangible) required to support exchange and which are specialized to the exchange relationship. To take an example, a firm may develop inventory practices to match that of a partner (such as a just-in-time system), redesign a product around a supplier's proprietary component, or invest in specific co-marketing programs (Cannon, Achrol, and Gundlach 2000). Transaction specific assets are distinct from general purpose assets (such as machinery and capital) in that they are tailored to the transaction (Williamson and Ouchi 1981). Asset specificity refers to the degree to which an asset can be redeployed to alternative use and to alternative users without sacrificing productive value (Williamson 1991). If the relationship were to be terminated, the value of these assets would be largely lost because their salvage value outside the relationship is very low. Transaction specific assets are valuable in that they eliminate competitive pressure, which is the major basis of the market superiority argument (Anderson 1985).

Williamson (1991) differentiates between six types of assets: (1) site specificity (for example, the location of Fed-Ex close to Amazon.com), (2) physical asset specificity (for example, the adaptation of machinery to produce components for a manufacturer), (3) human asset specificity (for example, training systems), (4) brand name capital, (5) dedicated assets, which are discrete investments for a general purpose, and (6) temporal specificity, which is similar to technological non-separability, and can be thought of as a type of site specificity in which timely responsiveness by on-site human assets is vital. The narrower the range, the more specific the asset. In some cases, certain dedicated equipment must be purchased in order to sell and/or service the principal's line effectively. In other cases, the

employees of the agency must be trained specifically for the product line of a particular principal.

In co-producing networks the asset specificities in focus are physical asset specificity, and activity asset specificity. 1) Physical investments represent what Williamson (1991) refers to as tangible assets. Examples of physical investments would be common investment in a parking spot at a tourist resort, or a round bus trip between different activities. If this collaboration collapses the business will lose the value it gained from investing in collective action. In co-producing networks, an alternative use to this kind of investment would be to develop individually, and therefore lose the *added value* gained from collective adaptation. Another example of physical investment is investment in a combined brochure at a resort. In this case, if the collaboration terminated, each company would have to invest in development and distribution by themselves. Individual action will reach fewer customers in their target group, and they will be less attractive for the customer because customers search for a total product (this assumption is made on the basis of the definition of customer value, where for instance the use of time in searching and evaluating alternatives is taken into account). Finally, in the case of a collective investment in a database system for customer information, if one actor were to end the collaboration, they would lose access to the information.

2) Activity investments represent tacit assets (Williamson 1991). Human investments, such as spending time at meetings to adapt schedules and openings times toward the customer, are examples of activity assets. It is relevant to predict that different types of assets will vary in frequency and size. For instance physical investments will often be less frequent but involve larger monetary investments. The decision to take such investments is mainly a top-level one. Activity investments, on the other hand, are predicted to be more frequent, with the amount of money involved being lower. They are characterized by human participation, and the level of acceptance is delegated further down the organization.

2.4.3 Customer value

Specialized actors in co-producing networks offer fragments of a customer's total product. Therefore the services, products and activities are complementary to each other. Usage of complementary products implies that the product attributes complement each other in such a way that the total customer value will be greater than if the products had been offered to the market separately (Ramírez 1999). This understanding of value is not simply 'added' but is mutually 'created' and 're-created' among actors with different values. By co-production, Ramírez (1999) focuses on value co-produced by two or more actors, with and for each other, as well as with and for other actors. Thus, the co-production is between seller and buyers, and between sellers with the purpose of buyers. Ramírez (1999) evaluates value from co-production with regard to its intellectual origin and implications for practice and research. In the traditional industrial view customer value was identified as the price the customer was willing to pay, where "in competitive terms, value is the amount buyers are willing to pay for what the firm provides them" (Porter 1985, p. 38). In the co-producing view, value is created, added, and recreated among actors. A value co-production view emphasizes that economic actors perform different roles in relation not only to different counterparts (as one's suppliers' customer and as one's customers' supplier), but also in relation to a single counterpart. For example, one economic actor A may simultaneously be (i) a supplier for another economic actor B, (ii) a customer of economic actor B, (iii) a competitor of B, (iv) a partner with B to co-produce value with and for a third economic actor C, and (v) a competitor of B's partners if A's own alliance with others competes with B's. This shows that with 'value co-production', researchers researching business definition can research how economic actors (i) design new offerings, joining actors in innovative co-productive relationships; and (ii) reconfigure the roles each co-producer holds in relation to others; resulting in (iii) new value creation systems (Ramírez 1999, p. 54). Combining complementary products in the way computer software manufacturers

have done has provoked renewed controversy in recent years, (Business Week 2001). A case in point is the way the hardware producer IBM, the software producer Microsoft and the integrator EDS bundled their products to increase customer benefit. Recently the mobile phone producer Ericsson and the innovative electronic component manufacturer Sony entered into a collaboration "SonyEricsson" to improve their competitive power (Forbes 2001).

Coordination of actors in co-producing networks can be identified as a type of co-marketing alliance. Such alliances are defined as showing a mutual recognition and understanding that the success of each firm depends in part on the other firm (Anderson and Narus 1990). Unlike buyer-seller or manufacturer-distributor partnerships, as in vertical coordination, co-marketing alliances are lateral relationships between firms at the same level in the value-added chain and represent Adler's (1966) definition of "symbiotic marketing". "Symbiotic marketing" is the concept of inter-organizational relationships between firms other than those linked by traditional marketer-marketing intermediary relationships (Adler 1966). Co-marketing alliances (as opposed to alliances formed for technological or financial reasons) are conceptualized, designed, and managed from the perspective of the customer (Varadarajan and Cunningham 1995). Varadarajan and Cunningham (1995) recommend *usage* complementarily, as opposed to resource complementarily (see Jap 1999), to be used as a basis for determining partner selection. Such a focus corresponds to the treatment of public good in this research.

In this research, customer value in co-producing networks is defined to be present when the benefits to the customer associated with a product or a service exceed the offering's life-cycle costs to the customer (Slater and Narver 2000). In other words, customer value is the benefit that exceeds the cost of the offering (Slater and Narver 2000), from search for alternatives, to exchange and usage. The variety definition of customer value differs based on whether value is identified as benefits or quality. It also differs in time, from the purchase definitions toward the experience

during, and/or after the use. Zeithaml (1988) defines customer value as the consumer's overall assessment of the utility of a product based on perceptions of what is received and what is given. Anderson and Narus (1998) define customer value as the perceived worth in monetary units of the set of economic, technical, service and social benefits received by a customer in exchange for the price paid for a product, taking into consideration the available suppliers' offerings and prices. Monroe (1990) defines customer perception of value as a trade off between the quality of benefits they perceive in the product relative to the sacrifice they perceive they make by paying the price. Woodruff (1997) emphasizes perceived preferences of evaluation and defines customer value as a customer's perceived preference for and evaluation of those product attributes, attribute performance, and consequences arising from use that facilitate (or block) achieving the customer's goals and purposes. The common denominator between these definitions is that customer value is inherent in or linked through use to a product. The definitions agree that customer value is something perceived by customers rather than objectively determined by a seller. However, the definitions differ in whether they define value as a quality or as a benefit. They also differ in time, from the decision to purchase toward the experience during or after use.

In this project I will draw on the product[8] classification scheme developed by Murphy and Enis (1986) and their dimension of price to identify the customer's effort and risk inherent in transactions. The Murphy and Enis (1986) framework is superior in that it is buyer oriented and bundles benefit/costs. Murphy and Enis (1986) identify the customer's price (what you have to give up to receive a product) as varying among the two dimensions of effort and risk, and as divided by monetary and non-monetary aspects. The inclusion of non-monetary elements supports the broad view on marketing, as stated by Kotler and Zaltman (1971, p. 9) that "Price includes

[8] In *product* they include goods, services and ideas.

money costs, opportunity costs, energy costs, and physical costs “ (p. 9). The Murphy and Enis framework is illustrated in Table 2.1.

First, effort is defined as the amount of money and time it take to purchase a product (Murphy and Enis 1986). Effort is divided into monetary effort and non-monetary effort. i) Monetary effort is divided into financial price, hereof cash, credit and countertrade. Monetary effort is thus a direct cost associated with an exchange. In a market transaction, this refers to the financial price paid for the product/service. ii) Non-monetary effort is divided into travel time (the time it takes to physically get to the store), shopping time (the time it takes a buyer to search for and evaluate a product), waiting time (the time it takes a buyer to get checked out of a store, waited on by a salesperson, waited on in a service firm, or to wait for ordered products), performance time (the time it takes to use a product or carry out a certain action) and monitoring time (the time it takes to remember to carry out a certain action). The agency theory has identified time to be an important transaction cost regarding partner selection (Bergen, Dutta, and Walker 1992). Such transaction costs are associated with screening and selection costs ex-ante, and measurement costs ex-post. In end-user transactions the customer spends time to travel to- and between the different outlets, in addition to time used to search for, and the evaluation of alternatives. Stigler (1961), for instance, identifies price to be one such information signal in the market.

Table 2.1

Dimensions		
	Effort	**Risk**
Monetary:	Financial	Financial
	Cash	Personal
	Credit	Organizational
	Countertrade	
Non-monetary:	Time	Consequences
	Travel	Social
	Shopping	Psychological
	Waiting	Physical
	Performance	Functional

Effort

Financial Price	
- Cash	Currency, checks, drafts, debit cards
- Credit	Credit cards, charge accounts, line or credit, accounts payable
- Countertrade	Barter, swap, or trade products
Travel time	The time it takes to physically get to the store (seller's location)
Shopping time	The time it takes a buyer to search for and evaluate a product
Waiting time	The time it takes a buyer to get checked out of a store, waited on by a salesperson, waited on in a service firm, or to wait for ordered products
Performance time	The time it takes to use a product or carry out a certain action
Monitoring time	The time it takes to remember to carry out a certain action

Risk	
Financial risk	The risk that the product will not be worth the financial price
Psychological risk	The risk that a poor product choice will harm a consumer's ego
Physical risk	The risk to the buyer's or others' safety in using products
Functional risk	The risk that the product will not perform as expected
Social risk	The risk that a product choice may result in embarrassment before one's friends/ family/ work group

Table 2.1 Effort and risk associated with customer's evaluation of value Based on Murphy and Enis (1986).

Second, risk is the buyer's subjective feeling about the monetary and non-monetary price of the product; more precisely, risk is the buyer's subjective assessment of the consequences of making a purchase mistake (Murphy and Enis 1986). The dimension of risk is divided into monetary risk, and non-monetary risk. i) The monetary dimension of risk represents an opportunity cost in the exchange through the risk that the product will not be worth the financial price, compared to other products/services. Maladaption costs are associated with failure to identify an appropriate supplier, or costs associated with a forgone transaction due to making a wrong decision (Dahlstrom and Nygaard 1999).

ii) Non-monetary risk is divided into psychological risk (the risk that a poor product choice will harm a consumer's ego), physical risk (the risk to the buyer's to others' safety in using products), functional risk (the risk that the product will not perform as expected, and social risk (the risk that a product choice may result in embarrassment before one's friends/family/work group). The level of non-monetary risk, hereof perceived risk, is therefore the subjective perception of making a

purchase mistake (Murphy and Enis 1986). The literature identifies collaboration among firms to reduce a customer's subjective risk. For instance, umbrella-branding transfers brand equity and reduce a customer's perception of social risk (Jap 1993), and trademarked chains in franchising (Nygaard and Silkoset 2003) reduce quality uncertainty in the market (Akerlof 1970).

2.5 Summary

To summarize, the conceptual model of particular interest in this research deals with coordination, collective action and public goods, and is illustrated in Figure 2.2. The model firstly illustrates that coordinating activities affect the fulfillment of a collective action. Collective action by this means affects the production of public goods in co-producing networks. The model further illustrates how coordination in my research comprises contractual arrangements and social capital, that collective action is co-market orientation, and finally, that a public good is identified through product adaptation. Based on this conceptual model, the next chapter will explore the hypotheses this framework puts forward.

Figure 2.2

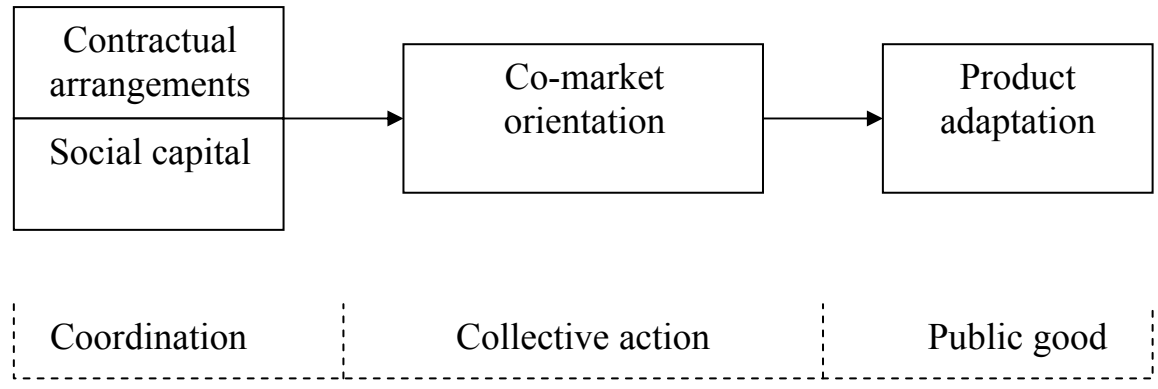

Figure 2.2 Conceptual model

Chapter 3: Antecedents and effects of co-market orientation

Based on the preceding discussion, including the framework introduced, this chapter argues for the derived hypotheses, which will be tested empirically. The chapter starts by discussing the antecedents to co-market orientation, and then goes on to discuss the effects of this co-market orientation.

3.1 Antecedents to co-market orientation

In co-producing networks, lack of exclusion of benefit facilitates free riding from non-participating actors (Olson 1965). To prevent this, the gains (privilege) of coordination must exceed the costs (Olson 1965). When the possibilities for free riding exist means to secure a partner's participation must be introduced. This chapter introduces and adapts the role of coercive power through contractual control, social control through social capital, and the role of social structure (Coleman 1988).

Contractual control is the formal control mechanism that simulates the elements of hierarchical control (Stinchcombe 1985). Centralization in hierarchical control clarifies boundaries on decisions and activities, and simplifies decision-making (Galbraith 1977), while formalization makes division of labor and interaction between partners more predictable and allows joint decisions to be made by rules rather than by exception (Gulati and Singh 1998).

Further, studies have demonstrated that the social structure through which network actors are connected affects their behavior (Hansen 1999; Rindfleisch and Moorman 2001; Uzzi 1997). Therefore, two dimensions of social control are investigated: relational embeddedness and knowledge redundancy, as types of social capital; and finally structural position, derived from collective action theory (Olson 1965). The discussion will start with contractual control.

3.1.1 Centralization

Centralization refers to the locus of decision-making in a collectivity (Van de Ven 1976). Centralization in intra-organizational studies is different from inter-organizational studies in that the latter stresses the research of social behavior among autonomous agencies under conditions of non-hierarchical authority (Van de Ven 1976). For situations with centralization in intra-organizational relationships,

centralization focuses on determining who governs, where and when they govern, and with what effect.

Thompson (1967) points out that effective exchange agreements, such as between firms in alliances, rely on prior consensus regarding the responsibilities of the parties involved, and a clear understanding of what each partner will do. Centralized decision-making reduces the potential for uncoordinated behavior among network members. Furthermore, it can lower opportunism and free riding (Ruekert and Walker 1985). However, there are also certain negative effects of centralization. The concentration of decision-making authority typically impairs effectiveness because it increases perceptions of bureaucratic structuring. This decreases the favorability of participants' attitudes toward the cooperative arrangement, and can actually result in increased opportunism (see John 1984; Nygaard and Silkoset 2003). One research at the inter-organizational level within market orientation has investigated centralization for its effect on market orientation. Jaworski and Kohli (1993) did not find that centralization facilitates market orientation. As a matter of fact, their research, using two different samples, identified centralization to hamper the three dimensions in market orientation.

At the inter-organizational level, legal contracts have proved to be an alternative mechanism to control, avoiding integration while having the same effects (Stinchcombe 1985). Empirical research has demonstrated that vertical integration leads to higher channel productivity and lower retail prices, whereas horizontal alliances shift channel power from the wholesaler to the retailer (Ytreberg and Reve 1989). Centralization provides a relatively high level of decision control by one party over another. Therefore, a party’s ability to participate in co-market orientation increases with the increased level of centralization. This is because the actors have accepted that decisions are ruled by the contracts. Accordingly, centralization leads to greater efficiency due to the ability of the decision-maker to plan, coordinate and control their market orientation activities. I hypothesize the following:

H1: Centralization has a positive effect on co-market orientation in co-producing networks.

3.1.2 Formalization

Formalization refers to the extent to which rules and procedures govern the relationship between inter-organizational partners (Van de Ven 1976). Formalization increases as the agreement is specified, written down, contractual, and mandatory (Van de Ven 1976). For instance, formalization is necessary for a clan team to develop shared goals (Ouchi 1979). In other words, formalization can be viewed as a form of fiat in relations characterized by the non-existence of bureaucratic authority (Williamson 1991). This corresponds to my situation where self-governing parties co-operate toward identified segments of customers. In the political economy framework, the interaction between power and efficiency has been investigated with relation to its effect on strategizing (Reve 1986). The contractual safeguard of investments in a bilateral relation has been found to be at the sacrifice of contractual elasticity (Buvik and Reve 2001). However, the political economy perspective has been criticized for not taking into account a partner's experience when relating over time (Dwyer, Schurr, and Oh 1987).

In contract theory, and as used in the transaction cost economy, formalization (the economic structure component in the political economy framework) fosters convergent expectations (Reve 1986). Wilkins and Ouchi (1983) describe how interaction between members is necessary for the participants to develop a common understanding and interpretation of the environment. Empirical findings, however, do not support formalization to have an effect on market orientation at the intra-organizational level (Jaworski and Kohli 1993). Questions have been raised about whether formalization enables the fulfillment of market orientation if it is measured as, for example, the degree of formal meetings necessary to disseminate intelligence

in an organization (Jaworski, Stathakopoulos, and Krishnan 1993). This corresponds to the inter-organizational treatment of formalization, which identifies duties and responsibilities for parties in a bilateral collaboration (Heide 1994), and in franchise contracts (Dahlstrom and Nygaard 1999). Formalization reduces the scope for political activities (Milgrom and Roberts 1988) and is a base for establishing common goals (Ouchi 1979). By this, formalization between inter-organizational partners reduces their ability to operate outside the proposed actions (Nygaard and Silkoset 2003).

The formalized connection between firms decreases information asymmetry in that it provides for information exchange through procedures on what and how to exchange information. Hence, when establishing a co-market orientation in a network of self-governing, specialized parties, formalization is necessary in order for parties to know what to do and when. Based on this I proposes the following:

> H2: Formalization has a positive effect on co-market orientation in co-producing networks

3.1.3 Relational embeddedness

By relational embeddedness I mean actors that are connected to each other through direct ties, with interaction being characterized by high frequency and low distance. This identification of social structure builds on Ahuja's (2000, p. 428) identification of network by (1) the number of direct ties maintained by a firm, (2) the number of indirect ties maintained by a firm (the firms it can reach in the network through its partner(s) and their partners), and (3) connection between partners (the degree to which a firm's partners are linked to each other, that is, whether there is a structural hole in the firm's ego network). The optimal structure of interfirm networks depends on the objective of the network. To take an example, direct ties may reduce innovation, but, as demonstrated by Ahuja (2000), too many structural holes may

decrease innovation output (Ahuja 2000, p. 451). He also demonstrates that a closed network is more beneficial for overcoming opportunism, while it has also been shown that network structure affects information transfer (Ahuja 2000; Hansen 1999; Rindfleisch and Moorman 2001).

The degree of personal relations describes the parties' willingness to combine and exchange resources. Extensive relations between partners can foster the development of shared norms of behavior (Dyer and Noboeka 2000; Uzzi 1997; Walker, Kogut, and Shan 1997). For instance, a wide range of studies has demonstrated that relational norms develop over time through close relationships (Buvik and John 2000; Dwyer, Schurr, and Oh 1987; Heide 1994; Heide and John 1992). These norms consist of partners showing flexibility, solidarity, mutuality, harmonization of conflict, and restraint in the use of power. The parties have, through experience, learned that the other parties can be trusted and are working for the common best. Such *reciprocity* prevents opportunistic behavior because partners know that unselfish effort, for the purpose of the common good, will be reciprocated (Granovetter 1985). Networks of collaborating actors perceive each other as partners, and the level of shared goals creates motivation for collaboration. Based on this, relational embeddedness is expected to prevent actors from opportunistic behavior (Gulati 1998).

As discussed above, networks with direct ties, developed over time, are characterized by trust, norms, and shared values (Coleman 1988; Nahapiet and Ghoshal 1998). It can be argued that trust is both an antecedent and consequence of cooperation. For instance, trust affects cooperation positively in that once trust is established, firms learn that coordinated, joint efforts will lead to outcomes that exceed what the firm would achieve if it acted solely in its own best interests (Axelrod 1984). Cooperation can also facilitate trust in that cooperation leads to trust, which in turn leads to a greater willingness to cooperate in the future, which then generates greater trust, and so on (Anderson and Narus 1984).

Among studies that have investigated the relationship between market orientation and relational norms at the inter-organizational level are Siguaw, Simpson, and Baker (1998). Based on economic theory and signaling, they found that supplier market-oriented behavior affects a distributor's market orientation, and that distributor market orientation affects trust and cooperative norms in the relationship. They did not report supplier market orientation as having a significant effect on distributor trust, or a negative effect on cooperative norms (Siguaw, Simpson, and Baker 1998).

Another effect of social structure is that when actors operate in a closed network, such as a local community, (identified as an intermediate group, see Chapter 2.2.1 at page 30), the actor's ability to exclude or socially force the other parties to collaborate on market orientation is present (Coleman 1988). In closed networks where an ego's partners are connected to each other, information about one party's opportunistic actions diffuses rapidly to other related partners, and sanctions for deviant behavior are more easily imposed. This is because close ties between partners are likely to help in curbing opportunism (Coleman 1988; Walker, Kogut, and Shan 1997). Further, in such a highly interconnected system, deviant behavior is less likely to arise because the threat of reputation loss with respect to multiple partners will discourage firms from behaving opportunistically with any single partner (Ahuja 2000).

The previous discussion identified relational embeddedness as facilitating co-market orientation based on two factors: reciprocity in direct ties and the risk of social exclusion in closed networks. I predict relational embeddedness to affect an actor's motivation to perform co-market orientation and thereby reduce free riding in the network.

H3: Relational embeddedness has a positive effect on co-market orientation in co-producing networks

3.1.4 Redundant knowledge

Redundant knowledge is the opposite of structural holes (Burt 1992). In social structures where the actors are connected to each other and share similar ego networks (Scott 1991), the actor's knowledge about the market is redundant. In such situations the degree of shared language, vocabulary and collective narratives is present (Nahapiet and Ghoshal 1998). Moreover, for parties to be willing to exchange sensitive information, as in co-market orientation, strong ties are required (Hansen 1999). This is because weak ties risk the possibility that information will be misused (John 1984). In addition, complex information requires strong ties to be transferred (Hansen 1999). This has been empirically demonstrated for complex product innovation (Rindfleisch and Moorman 2001). Under situations of information impactedness, the ability to sort out and transact relevant information is a critical factor for interpreting information.

Market-oriented businesses are sustain in developing market knowledge through their emphasis on and processing of market information (Day 1994b). The fulfillment of the market orientation process, however, requires the participation of the entire organization in processing the three market orientation activities: intelligence gathering, intelligence dissemination and intelligence response. Individuals in the organization cannot perform the three market orientation activities by themselves, and absence of participation in the business can obstruct the business from processing market orientation (Shapiro 1988). Transferring this understanding to the inter-organizational level, for market understanding to be developed in collaboration, each organization must participate in developing their collective knowledge level. Shared experience and organizational learning enables senior management to develop a shared dominant logic (Prahalad and Bettis 1986). This dominant logic is defined as "the way in which managers conceptualize the business and make critical resource allocation decisions - be it in technologies, product

development, distribution, advertising, or in human resource management… stored as a cognitive map (or set of schemas) among the dominant coalition… expressed as a learned problem-solving behavior" (Prahalad and Bettis 1986, p. 490 – 491). This dominant logic can then be used when developing co-market orientation among businesses in co-producing networks. Therefore, actors ability to develop a shared interpretation of the market (Huber 1991; Huber and Daft 1992) is determined by actors redundant knowledge, which affects partner's capability to interpret information collectively. This is because actors intelligence is develop from the actors level of absorptive capacity (Cohen and Levinthal 1990). Based on this I anticipate knowledge redundancy to affect the ability to interpret information in inter-organizational relations, which again affects the actors ability to perform co-market orientation.

To summarize, the previous discussion identified knowledge redundancy as facilitating co-market orientation based on improved level of shared interpretation. On the basis of this, I propose that knowledge redundancy affects an actor's ability to perform co-market orientation.

H4: Redundant knowledge has a positive effect on co-market orientation in co-producing networks.

3.1.5 Structural position

Olson (1965) predicts that actors with a leading position in a social network are more motivated to participate in collective action than less prominent actors. This is because the more endowed network member might derive sufficient benefit to, in collection, participate in the burden of the collective provision (i.e. an intermediate group). This, on the other hand, creates a situation where the less prominent actors lack the motivation to participate. In other words, the less endowed network members tend to exploit the greater endowed (Olson 1965). Therefore, if the most prominent

members of a group satisfies the demand for collective good by themselves, the smaller members are less likely to participate, and there will be a tendency to free ride.

Coordinated behavior can come into being even without any formal agreement. For instance, if the less prominent actors free ride, but follow the strategy of the leading actors because they anticipate that their behavior is well-considered and under the assumption that the main actors have much to lose if they act irrationally, coordinated behavior will be the result. Such behavior is, however, not reflected in collective investments with the purpose of adapting toward the customers, but rather through individual coordination. It is important to notice that structural position is not identical with company size. Therefore, later in the project, company size has been included as a control variable in the model. Based on this I predict the following:

H5: Structural position has a positive effect on co-market orientation in co-producing networks.

3.2 Effects of co-market orientation and specific investments

Failure of collective action can result in two adaptation problems: unsolved tasks and sub-optimalization (Olson 1965), in addition to the coordination problem of free riding, as discussed in the previous section. Therefore the problems of unsolved tasks and sub-optimalization are of interest in this section.

Co-producing networks offer fragments of complementary products. The literature has identified bounded rationality (Simon 1991) and information asymmetry as bungling coordination (Williamson 1975), and therefore, in order to perform a collective adaptation between actors, information must be exchanged.

Greater sharing of information leads to a better understanding of the outcomes of mutual behaviour (Kelley and Thibaut 1978). As demonstrated in the previous section, perceived risk of opportunistic behaviour and lack of motivation to collaborate will result in different degrees of information exchange, and thereby different degrees of co-market orientation in the various types of networks (networks with different types of structural ties, Ahuja 2000). Voluntary adaptation between the network actors can be compared to a co-marketing alliance, which is initiated with the goal of performing a synchronized adaptation toward the market (Adler 1966; Varadarajan and Rajaratnam 1986), as in symbiotic marketing. Such adaptation is twofold: adaptation between businesses and adaptation toward customers (Gulati and Singh 1998). Adaptation between businesses is identified through specific investments with the purpose of reducing the existence of unsolved tasks and sub-optimalization. The effect of adaptation is identified through changes in perceived customer value. The discussion starts with the specific investments necessary for adaptation among co-producing businesses, and then proceeds to elaborate on customer value.

3.2.1 Specific investments

Through the theory of collective action (Olson 1965), unsolved tasks and sub optimization are identified as a problem when organizations operate under specialization and co-production. The reason for the emergence of these problems is that such networks have to produce goods that are non-excludable and non-rival or indivisible between network actors.

Specific investments are identified as endogenous adaptation costs (Ghosh and John 1999). In the value-maximization perspective, which this research supports, investments are made with the requirements of the end users in mind, and governance mechanism to secure the investments is not in focus. Several theoretical directions support this view. For instance, Ghosh and John (1999) treat specific investments as endogenous by focusing on value maximization. The IMP group (Håkansson and

Snehota 1995) views adaptation as possibly exogenous or endogenous to (that is, a characteristic of) the relationship (Hallén, Johanson, and Seyed-Mohamed 1991). Because I treat the investments as a source to value creation (Ghosh and John 1999), these investments are endogenous to governance. This is in accordance with the empirical work of Cannon and Perrault (1999).

Innovative or adaptive behavior requires resources, and investments in adapting toward customers must be a priority. Further, the investments in resources and time necessary to develop a synchronized offering must be grounded in the knowledge and understanding of where and what to adapt to. A key problem in achieving effective coordination and adaptation is that the information needed to determine the best use of resources and appropriate adaptation is not freely available to everyone (Milgrom and Roberts 1992). Information must be exchanged between the parties, who must be prepared to both give and receive information. Following the theory of collective action (Olson 1965), actors may refrain from participating in public good on the grounds of prioritizing individual short-term profit at the cost of long- term collective interest. I propose that when parties in a co-production perform co-market orientation, their increased knowledge directs action and reduces disinvestments (Cohen and Levinthal 1990; Daft and Weick 1984; Lant, Milliken, and Batra 1992). For instance coordinating conditions in dyads, such as goal congruence, have been demonstrated to positively affect idiosyncratic investments (Jap 1999). Moreover, research has demonstrated the effects of shared knowledge (Cohen and Levinthal 1990; Huber 1991), value maximization (Ghosh and John 1999), transaction specific investments (Jap 1999), and incentive and motivation (Olson 1965) to solve the problem of adaptation in inter organizational relations.

The implications of co-market orientation in co-producing networks are the purposed effect on investments for product adaptation. As discussed previously, market orientation affects a party's knowledge of the market (Day 1994b). In such networks this knowledge is shared among the parties. In networks with weak demand

growth the businesses must exert more effort to have a clear understanding of how they can provide superior value by more effectively satisfying buyers need (Jaworski and Kohli 1993). Therefore, if one of the parties in the co-production refuses to perform a co-market orientation, their lack of participation will reduce the level of collective market knowledge in the co-producing network. I propose that when parties have collective market knowledge, developed through their co-market orientation, their investments for adapting toward their customers converge in that the parties develop a collective understanding of *what* to invest in and *why* to invest. For instance, a tourist resort will take joint responsibility by investing in activities that increase customer welfare, such as cleaning up the shore, participating in meetings to discuss adjustments to customer service, and, for instance, adjusting their opening times toward the other parties for the common best, even though this may conflict with individual short-term profit. Therefore, through investing in the common best, co-market orientation in co-producing networks affects a member's motivation and ability to perform long-term tasks that are not economically viable for any single party in the co-producing network in a short- term focus. I propose that co-market orientation increases a party's investments in collective solutions, such as public goods. I propose the following:

> H6: Co-market orientation has a positive effect on specific investments in co-producing networks

3.2.2 Customer value

Customer value is defined as the benefits minus costs a customer associates a product or a service (Slater and Narver 2000). In this project I draw on the product classification scheme developed by Murphy and Enis (1986) and their dimensions of price to identify a customer's costs when performing an exchange with a firm or an alliance. As discussed in Chapter 2.4.3 at page 52, the benefit/costs associated with

customer value are divided into effort and risk, further divided into monetary and non-monetary aspects. Studies have demonstrated that customers increase their purchase with suppliers who lower their customer transaction costs (Cannon and Homburg 2001). Among the studies that have investigated transaction costs in the market mechanism from the customer's point of view, are Grønhaug and Gilly (1991) who identify customer dissatisfaction as sunken ex-post transaction costs.

I predict that a customer's evaluation of a total product will be affected by the degree of adaptation among the [business] parties in a co-producing network. Information levels affect the ability to make choices. In the neoclassical model, everyone is assumed to know what prices are and where and when goods can be bought and sold. Finding a willing buyer or seller at the going price is assumed to be unproblematic. In reality, however, potential buyers and sellers may not even know of each other's existence (Milgrom and Roberts 1992, p. 76). Customers search for alternatives and compare offerings. Sellers spend a large amount of resources on marketing and other information activities in order to inform potential buyers about their offerings. When parties in a co-producing network synchronize their information and offerings toward their collective customers, the customer's uncertainty decreases. The degree of coordination will, for instance, affect the customer effort spent on screening and selecting sellers ex-ante, as effort associated with measurement is ex-post. Further, coordination of parties affects the information stream to customers. When synchronized information is provided to the market, the interpretation and categorization of information is less biased. Base on this I expect effort spent on adapting and synchronizing products to simplify a customer's information processing.

Empirical research has investigated the synchronizing effect of product combinations[9]. For instance Bucklin and Sengputa (1995) found that when projects and partners were matched, alliance effectiveness increased. Rao, Qu and Ruekert (1999) found that the signaling of unobservable product quality was strengthened in brand alleys, supporting the positive effect of product combinations. It has also been demonstrated that different types of product combinations affect customer preferences (Dhar and Sherman 1996), and that product complementarities positively affect customer evaluation (Samu, Krishnan, and Smith 1999). Organizational implications of new product success in internal and alliance-based processes have also been examined. A construct derived from related concepts of mutual adjustment, absorptive capacity and relational capability, was found to be a key factor affecting new product development success, independent of cooperative form (Sivadas and Dwyer 2000). In the tourist industry it has been found that for firms with a market penetration strategy seeking to increase their market share, the recommended solution would be to cement relationships with other firms with a high usage complementary (Dev, Klein, and Fisher 1996).

Let us take the example of a shopping mall. When a shopping mall invests in free parking spots, they decrease customer transaction costs in that they increase their availability for customers. When the shopping mall synchronizes and regulates its opening hours in the customer's interest, the customer evaluates this positively according to their needs, since this action reduces their performance time. An example from the tourist industry would be the collaboration between several parties to offer one single entrance pass. I have seen this among ski-lift operators investing in offering a ski-lift pass that can be used at several destinations, including a shuttle bus transporting the skiers to and from the different destinations. This reduces customer

[9] Much empirical research has been undertaken in the micro-economic literature, describing effects of product bundling on market price and monopoly power. An antitrust view is, however, not the focus of this project.

shopping time, but increases their financial risk in that the customer might end up not using the other alternatives after all (Gourville and Soman 2001). Customer search time decreases when a collaborating partner undertakes a physical investment in developing shared brochures and homepages on the Internet. Search time is also reduced through investment in collective action, such as a tourist office. A decrease in customer waiting time can be implemented by undertaking shared investments in storage systems and transportation. Time spent on instructing each business about the other businesses' offerings increases customer value through their access to information. Customers decrease their traveling time when retailers synchronize their location. In contrast, however, if the retailers' synchronization of location does not converge toward the customer, investments in such synchronization do not represent any value for the customer. I deduce the following propositions:

H7: Specific investment has a positive effect on customer value in co-producing networks

3.3 Research model

The previous discussion divided between the coordination effort necessary to perform co-market orientation, identified as the independent variables in the model, and the consequences of adaptation of actors in co-producing networks, identified as the dependent variables in the model. The independent variables are of the types: contractual control, consisting of centralization and formalization; and social control, consisting of relational embeddedness and knowledge redundancy, and finally structural position. Of the dependent variables, specific investments are identified as the resources used on firm adaptation, and, finally, customer value is identified as the effect adaptation has on customer evaluation. The research model identified in this research is illustrated in Figure 3.1.

Figure 3.1

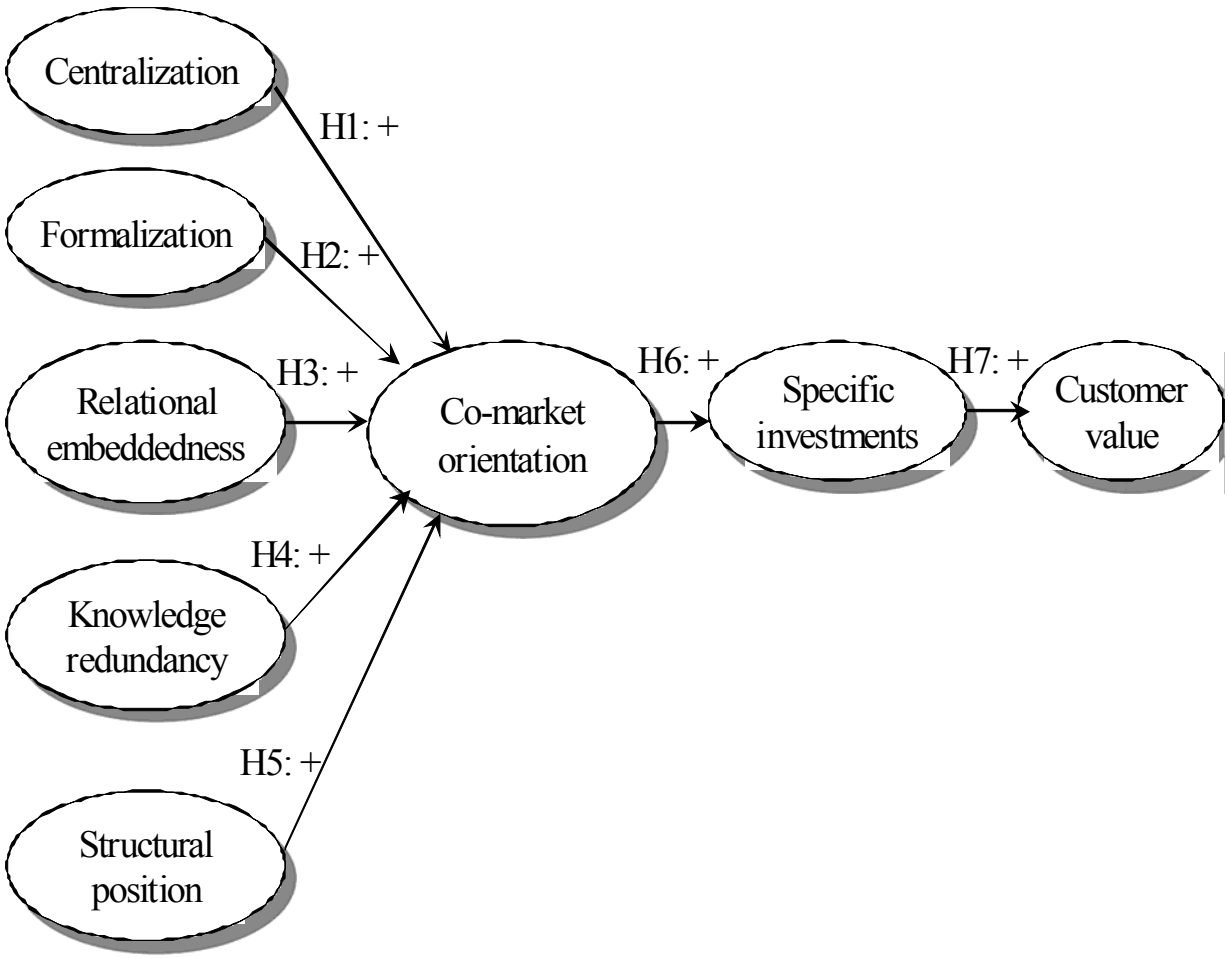

Figure 3.1 Research model

Chapter 4: Methodology

The purpose of the method chapter is to evaluate and make choices to test the theories put forward in the research model. It starts by addressing the choice of method and design, and follows with a discussion of setting and sample. Next the research constructs are operationalized and measured. Finally, there follows a discussion on questionnaire design and control variables.

4.1 Methods

The primary goal of this research is to test the hypothesis regarding the main effects of and antecedents to co-market orientation in co-producing networks. The subset of theories to be evaluated is the theory of collective action, contractual control, social network analysis and social capital, the concept of customer value, and the framework of market orientation. The theories/concepts in this research are well documented. This implies that one goal of the research is effect application: generalizing the sphere of influence of the theories (Calder, Phillips, and Tybout 1981), while placing less emphasis on testing theoretical applications which tests the explanations in theories. To ensure that the rendered abstract scientific explanations are tested, the procedure to ensure falsification is followed (Calder, Phillips, and Tybout 1981). This entails that the process of selecting research designs, selecting respondents, operationalizing variables, and choosing research setting is followed.

A preliminary qualitative research design was implemented in the form of eight in-depth interviews with managers within the tourist industry with the purpose of discussing the research problem and the research model. These interviews were then used when reviewing the theory to discuss the research model, in addition to adapting the items to the setting and developing the research questionnaires.

4.1.1 Choice of design

The focus in this research is on theoretical propositions involving causal relationships between constructs. There are five independent variables in this research: first and second – centralization and formalization, explained by the theory of contractual arrangements in the contractual theory (Williamson 1979); third and fourth – relational embeddedness and knowledge redundancy, explained by the theory of social capital (Coleman 1988); and fifth - structural position from the theory of

collective action (Olson 1965). Manipulation of centralization and formalization is difficult to perform due to the fact that these factors reflect organizational systems. Relational embeddedness and knowledge redundancy are time dependent variables. To take an example, previous operationalization of relational embeddedness has built on experience, repeated interaction and learning (see Rindfleisch and Moorman 2001 as example). This makes them less suitable to be manipulated in a true experiment. Finally, structural position can be bought through investments, or developed over time in the community. Thus, manipulation of this construct is not easy.

To test the research model, the design implemented for this project is descriptive. This design is suitable because it is not possible to randomly assign subjects of groups for practical reasons. The choice of descriptive design has an effect on the fulfillment of the three criteria for inferring causality in social science research (Popper 1959). In order to fulfill the criterion that X (independent variable) must precede Y (dependent variable) in time, well-established theories are used to build the hypothesis. Since theories describe how constructs are interconnected, and constructs acquire meaning only within the context of theory (Frankfort-Nachmias and Nachmias 1996), the theoretical framework is used to predict the direction of influence of the hypothesis. Further, Bollen (1989) evaluates the direction of the hypothesis to be less important than the other two standards for evaluating research designs: isolation and covariation. This is because the direction of the hypothesis builds upon the premise that the parameters have been identified and satisfy the requirements for isolation. Moreover, the metaphorical image behind the calculations of multiple-regression is that each independent variable has a unique (isolated) causal effect on the dependent variable. The inclusion of control variables (Mitchell 1985), favors isolation of the variance in the independent variable covariation. The latter is because correlated design enables testing for random and systematic measurement error (Jöreskog and Sörbom 1982) through multiple samples. Its weakness on internal validity is solved through data analysis techniques as a method of control (Frankfort-

Nachmias and Nachmias 1996). In this descriptive design the samples included were pairs of companies in a network, and their customers. Unfortunately, due to practical and economic reasons, the research could not be performed over an extended period of time to strengthen the test of causality.

The use of dyadic data in a descriptive design in this research is different from previous studies on networks, which have mainly used case studies (Gulati 1998; Uzzi 1997), or cross-sectional design (Rindfleisch and Moorman 2001). Since the research uses quantitative data, it facilitates the use of structural equation modeling when running the statistical test. Further, the inclusion of more than one respondent in each network opens for the opportunity to control for method error. This meets the critique from marketing literature, where criticism of previous studies is made for not taking method error into consideration when drawing conclusions (Bagozzi and Yi 1991; Campbell and Fiske 1959).

The use of monadic static research (data from one time period) reduces the confidence of the findings (Bagozzi 1996). Consequently, tracking relationships between constructs over successive periods would have augmented the design. To reduce the error of static research, the research has included companies of different ages, and networks with varying lengths of cooperation in the sample. By doing this, the research has striven to ensure that the theoretical test is performed on all evolution stages in co-producing networks.

4.1.2 Setting

Since the purpose of this research is to test the sphere of theories, a heterogeneous sample was included for the test (Calder, Phillips, and Tybout 1982). By selecting one industry it was possible to rule out effect from the industry, and this favours isolation (Cook and Campbell 1979). A sample that encompasses individual differences has the benefit of providing a variation in the focal theoretical variables. This increases the ability to generalize the research findings between different contexts (Lynch 1999). The drawback of using such a sample is that the variation

from extraneous variables reduces the internal validity (Calder, Phillips, and Tybout 1981). Control variables were therefore included to reduce this risk (Cook and Campbell 1979). A goal is therefore to choose research subjects, setting, and variables examined that is representative for their real-world counterparts (Calder, Phillips, and Tybout 1981, p. 206).

The empirical setting for this research is the Norwegian tourism industry. Specifically, the research setting comprises the relationship between companies and their customers in SIC code 55, the hotel and restaurant industry, SIC 92, entertainment and attractions, SIC 63, information and booking, SIC 62, air-travel, and SIC 61, transport by land. See Figure 4.2 on page 84 for a summary of categories and number of respondents.

Three main criteria were used in selecting this empirical context. First, in the setting all of the main independent variables are manifested to a varying degree. The Norwegian tourism industry is a very good illustration of an industry operating in co-producing networks. The companies in the industry vary in age, size, length of cooperation, and geographical location, favouring variation in the five areas of centralization, formalization, relational embeddedness, knowledge redundancy, and structural position. Second, the requirement of a context in which the customer experiences a 'total product', through interacting with several companies, is met. As an example, a tourist on vacation interacts with a travel agency, a transportation company, and providers of accommodation, restaurants, as well as many other service providers. Finally, the companies in the setting are self- governed (that is, not integrated, no equity cross-holdings etc). The industry is characterized by a low degree of marketing chain activities (Nygaard, Haugland, and Rokkan 2000). For example, in the sample of 288 companies, only 3.4% of the companies reported a share of interest in the other company. The empirical setting therefore supports the test of the theoretical model.

4.1.3 Sampling frame

To secure statistical representativeness of the sample, several methods were used to collect elements in the sampling frame. First, a list of 248 tourist and destination companies was received from Statens Nærings og Distriktsutviklingsfond (SND), (the public body responsible for stimulating local and regional development in Norway). A letter was sent to each of these companies, asking for the name and address of 10 of the major travel companies in their area. This was done to ensure the inclusion of companies that are defined as belonging in *other groups* than the travel industry in the sample. Typical examples of such businesses are grocery shops and transport companies at tourist destinations.

Second, a list of 3208 travel companies was received from Norges Turistråd (the Norwegian Tourist Board). Added to the responses from the previous letters to the destination/travel companies, the research ended up with a list of 3570 companies. In addition the research supplemented the names on the list with a list of 5206 companies received from a travel project at BI Norwegian School of Management. This list was based on the SIC codes previously identified. In this way, considerable effort has been made to ensure that the sampling frame in this project is complete.

The consequence of ensuring statistical representativeness in the sample is the reduced risk of making incorrect assumptions, thus favouring nomological validity (Cook and Campbell 1979). Statistical representativeness is important in descriptive design because this design builds on statistical analysis as a method of control. In other words, by securing statistical representativeness, the findings from this research can be attributed to testing the theory.

4.1.4 Designing and selecting samples

The choice of sample elements to be included was twofold. First, stratified sampling was used to ensure that both rural districts and cities were adequately represented in the sample. Then, elements in each of these clusters were randomly drawn for

participation in the research. By this, every element had a known, non-zero probability of selection. Second, a professional marketing analysis bureau used the CATI-system (computer assisted telephone interviewing) to phone managers/marketing directors in the randomly selected companies. If the manager agreed to participate, the marketing bureau asked about the names of three other companies that operate toward *the same customers* in the tourist market as they do. Next, two of the companies identified in the process above were also called to ask for their participation. If one of these companies declined, the third company was contacted to ask for its participation, see Figure 4.1. Throughout this process, the marketing analysis company continuously crosschecked the lists of names that agreed to participate against those names on the original list in order to avoid double recruiting.

The latter method can be defined as network sampling (Bagozzi 1996). Bagozzi (1996) points out two prerequisites for the use of network sampling. The first is that network informants are able to provide reasonably accurate information on the screening characteristics of all persons in the network. The research considers this assumption to be satisfied, which means that it expects managers in travel industries to know what needs the other firms in the co-production fulfill. The second prerequisite is the necessity of having an accurate estimate of the network size. This means that implicit in the selection process is the anticipation that the first company knows the names of the other companies that operate toward the same customer as they do. This builds on the anticipation that the industry consists of intermediate networks (Olson 1965). By asking for the names of three other companies, the research anticipates it to be reasonable that the company has this kind of information. The in-depth interviews with representatives in the industry confirm that it is reasonable to anticipate that these firms know which other firms operate in the travel industry in their local market, and what needs they fulfill. Additionally, previous studies within key informants have demonstrated that there is reason to believe that

managers do have the knowledge to evaluate its environment (John and Reve 1982). Each of the

Figure 4.1

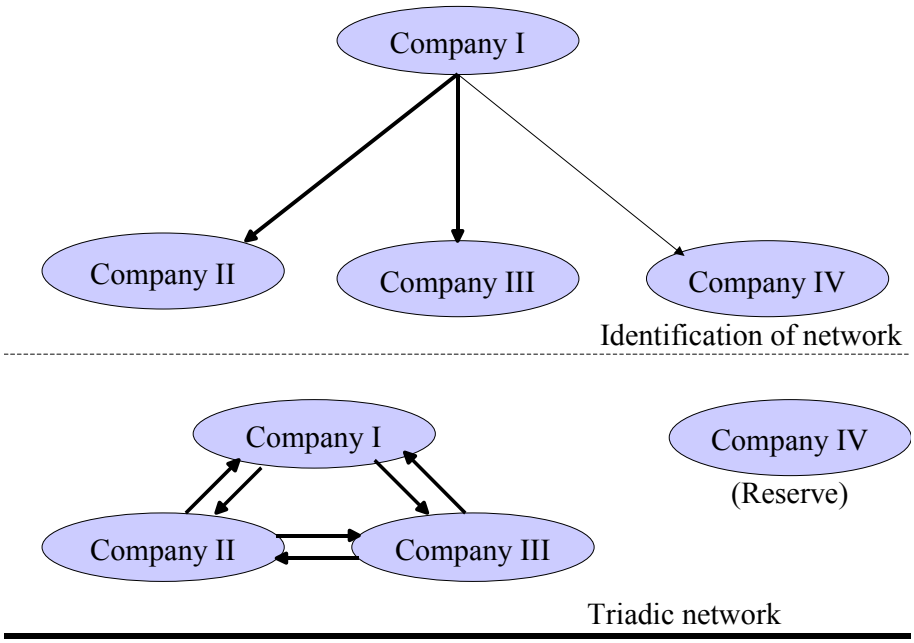

Figure 4.1 Identification of networks and triads

companies recruited in the sample was thereafter asked to pass on a questionnaire to their customers, with a sample of 10 customers in each company. As a reward, each of the companies that agreed to participate was offered a summary of the research when completed, in addition to participate in the draw of two x two ski-lift weekend tickets to Trysilfjellet.

The risk of sampling error (Bagozzi 1996) was reduced through efforts to ensure that respondents were included in the sampling frame. The sample selection combined several lists, in addition to combining two parallel methods for selecting participants. Prior research in the travel industry has to some degree primarily focused on the hotel industry (Gulbrandsen 1998; Nygaard, Haugland, and Rokkan 2000). A goal of this project has been to include other companies that operate in the

travel industry, as reflected through the process of developing a sample frame. The response categories are illustrated in Figure 4.2.

Those companies that questioned whether or not to participate in the research were to a large degree dominated by destination companies and museums. Destination companies are important actors in the travel industry, but often operate as indirect actors in the network of serving customers. The omission of some of these companies in the sample should therefore not cause problems when testing the theoretical model. Some museums, on the other hand, did not identify themselves as partners in a travel product and refused to participate. Finally, some small one-man companies refused to

Figure 4.2

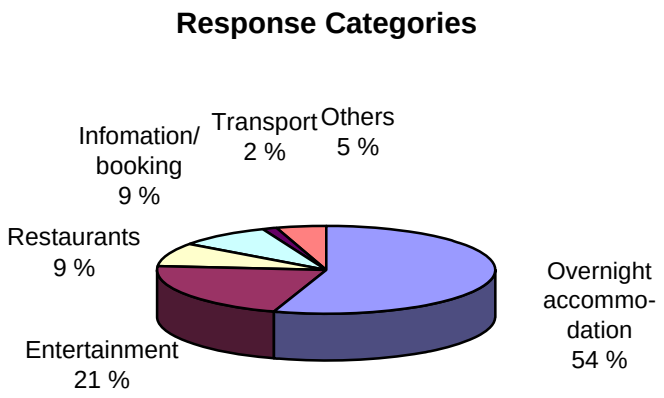

Figure 4.2 Response categories

answer the questionnaire because they did not see any connection between the type of questions asked and the day-to-day problems they experience. The distribution in age of the organizations, and length of cooperation in the sample is illustrated graphically in Figure 4.3 and Figure 4.4.

As summarized in Figure 4.5, it is shown that 30 of the companies in the research had one or no employees, 128 of the companies had between two

Figure 4.3

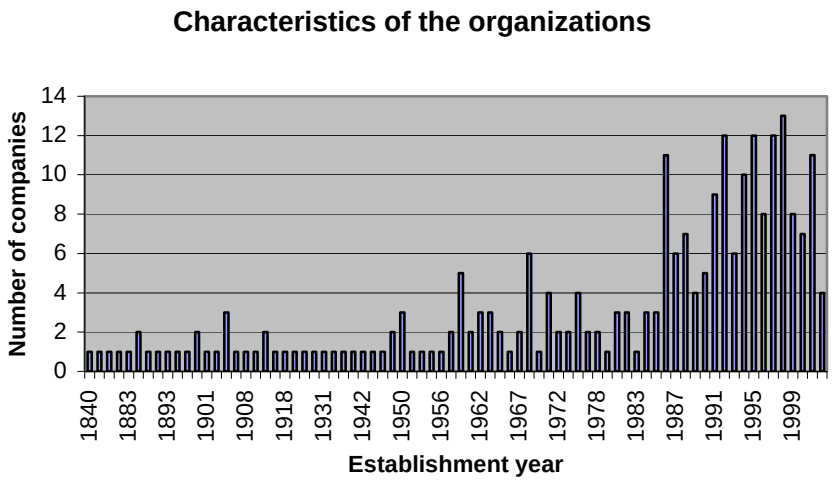

Figure 4.3 Age of the companies

Figure 4.4

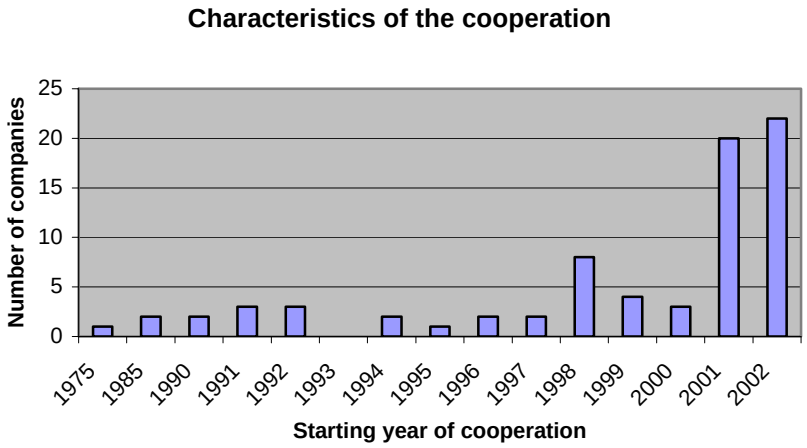

Figure 4.4 Years of cooperation

Figure 4.5

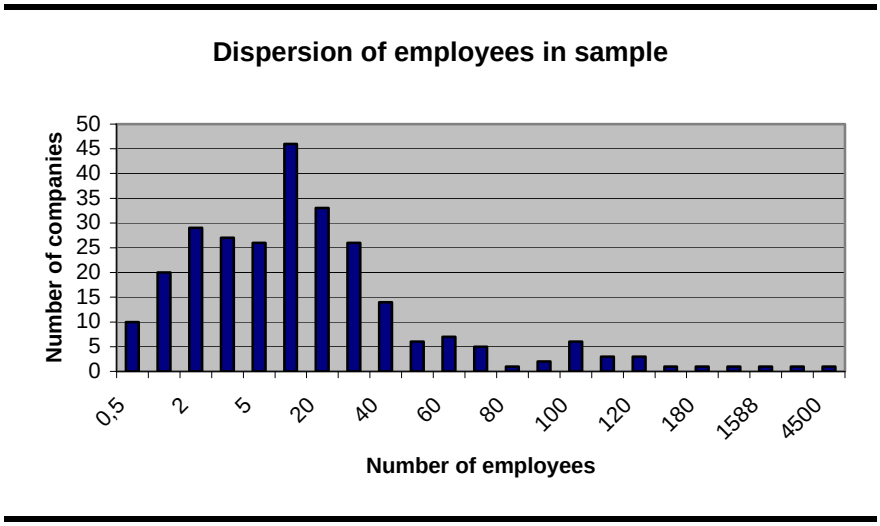

Figure 4.5 Number of employees

and ten employees, while 100 of the companies had between 20 and 100 employees. Finally, 12 companies had over 100 employees. The mean value in the sample is 55 employees, with a median of 8. The company with 4500 employees is NSB (Norwegian State Railways). The strategic unit measured at NSB was, however, local.

Non-response bias was tested using Armstrong and Overton's (1977) procedure of comparing responses. The non-respondents were asked to participate in a simplified questionnaire. In total, 27 questionnaires were received from this process. The independent-samples t-test procedure, which compares means for two groups of cases, was used. The mean values for the two groups are displayed in Table 4.1. Because the significance value for the Levene test was .00, the results that do not assume equal variances for both groups were used. From the table I can see that the significance value for the t-test for Equality of Means is high, (> .05). Because of this I cannot conclude that there is a significant difference between the two groups.

No significant differences were found in variables such as number of guests, sales volume, establishment year, and number of employees, suggesting that non-response bias may not be a problem when testing the theories. To take one example,

the significance level of number of guests is .327. This means that there is no significant difference between the number of guests for companies participating in the research, and those who does not participate.

Table 4.1

		Levene's Test for Equality of Variances		t-test for Equality of Means			Group Statistics table
		F	Sig.	T	Sig. (2-tailed)	Mean Difference	Group Mean
Number of guests	[a]	37.515	.000	-2.957	.003	-6336510	64950[c]
	[b]			-.999	.**327**	-6336510	6401461[d]
Sale	[a]	22.448	.000	-3.045	.003	-84	19[c]
	[b]			-1.123	.**272**	-84	104[d]
Establishment year	[a]	67.220	.000	4.477	.000	263	15[c]
	[b]			2.034	.**052**	263	45[d]
Number of employees	[a]	15.716	.000	-2.258	.025	-156	1950[c]
	[b]			-1.259	.**219**	-156	1687[d]

[a] = Equal variances assumed

[b] = Equal variances not assumed

[c] = Non-Response sample

[d] = Response sample

Table 4.1 Independent samples t test for differences in non-response

4.1.5 Data collection process

A professional marketing analysis bureau performed the data collection. To ensure correct recruiting procedure, personal instruction was performed to inform the manager and the assistants regarding the purpose and content of the project. In

addition, a written instruction guided the workers when performing the CATI-system call.

The process of collecting data progressed as follows. First, after recruiting managers or marketing managers by phone, the respondent received a seven-page questionnaire by mail, in addition to 10 one-page questionnaires directed to their customers. Two cover letters and two prepaid reply-envelopes followed the questionnaires. The questionnaires were sent in June- August. The managers were asked to reply within three weeks, while the customer questionnaires were given five weeks for completion. After approximately four weeks, the bureau performed a reminder phone call. The effort undertaken to locate respondents and minimize the refusal to respond to the questionnaire or questionnaire indicators, reduces the amount of non-sampling error in the research (Bagozzi 1996).

4.1.6 Sample size

In total, 248 triadic networks agreed to participate in this project, representing 744 companies. The final number of respondents, after phone reminders, was 288 companies, giving us a response rate of 39%. Out of these, five networks were complete, with responses from all the three companies, while 91 networks were partially complete, with responses from two of the companies in the network. The response rate is summarized in Table 4.2 and illustrated in Figure 4.6.

Table 4.2

Recruited companies		744
Number of one-respondent networks	(Company I)	288
Number of one-respondent relations	(2 relations in each responses)	576
Number of two-respondent networks	(Company I and II)	91
Number of complete networks	(Company I, II and III)	5
Response rate	(744/288)	39%
Customer responses	(from 67 companies)	449

Table 4.2 Response rate

Figure 4.6

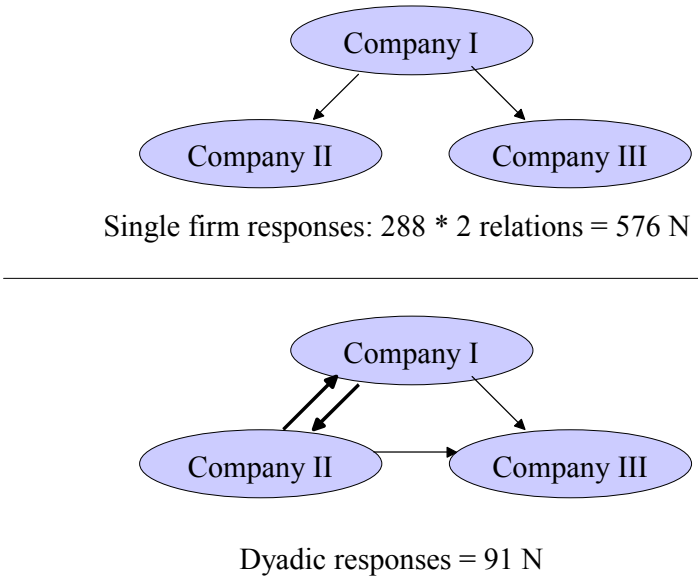

Figure 4.6 Single-firm response versus dyadic response

Sample size is important due to the design of the research being descriptive. This entails that statistical tests are used to determine what probability there is of a test concluding with falsification of the null hypothesis, which in turn depends on how far wrong the null hypothesis is and how large the sample is. The statistical analytical tool to be used is based on structural equation modeling (SEM) analysis. The reason for using SEM is that it makes it possible to simultaneously estimate a measurement model, specifying relations between measured variables and underlying latent variables, and to specify structural relations among the latent variables. The impressive flexibility of SEM further allows the research to model data structures that violate traditional model assumptions, such as heterogeneous error variances and correlated errors (Bagozzi 1996).

The total number of responses is 288 * 2 (relations in each response) = 576 responses. For the customer responses, the response rate was affected by a company's willingness to pass out the questionnaire to their customers, in addition to seasonable conditions. In total, 449 customer questionnaires were received from 67 companies. The low response rate could be due to season variation.

The aim of the sampling process is to gather enough elements to measure networks consisting of three companies in each, see Figure 4.1. The response rate was, however, not satisfactory to achieve this aim. As a result, further analysis had to be based on a dyadic approach.

The number of path coefficients in the research model in this research is seven (seven hypotheses), in addition to ten error terms among the independent variables. The total number of path coefficients is then 10 + 7 = 17. SEM analysis is sensitive to sample size, and a rule of thumb given by Bentler (1990) is to have at least five cases per parameter estimate (including error terms as well as path coefficients). When multiplying the seventeen path coefficients by five cases, the sample size for running a SEM analysis, according to Bentler (1990) should be at least 85 cases. This implies that the sample size passes the level for both the single-firms and for the dyadic

approach, reducing the confounding effect of sampling error (Bagozzi 1996). A reduction in sampling error is desirable because the error invalidates the testing of the theories (Jöreskog 1973), and the effort undertaken to reduce error leads to a reduction in the failure to estimate biased and inconsistent estimates of the structural coefficients in the linear equations.

4.2 Measures

For the theoretical model, the research followed Churchill's (1979) eight steps in the measurement process for each of the constructs. (1) In chapter 4.2 the research specifies the domains and gives the meaning of the constructs, and then (2) generates a sample of indicators that captures the domains defined. The research then follows the process of (3) collecting data, (4) purifying measures, (5) collecting data, (6) assessing reliability, (7) assessing validity, and (8) developing norms (p. 66). The steps are paired with those of Bollen (1989) which includes (1) give the meaning of the concept, (2) identify the dimensions and latent variables to represent it, (3) form measures, and (4) specify the relation between the measures and the latent variables (p. 180).

To reduce the error from omitted variable bias, that is, when important determinants of a key dependent variable are not measured, a combination of in-depth interviews with managers from the industry, the use of previous operationalization of the constructs, and extensive comments by a professional marketing research faculty, has been undertaken. The following subchapters will review the definition and operationalization of each of the constructs in the theoretical model. The items marked with (R) are reversed.

4.2.1 Co-market orientation

The treatment of market orientation in this research builds upon the behavioral perspective, implying that market orientation is defined as an organizational strategic

choice (Dreher 1994; Graves and Matsuno 1995). Co-market orientation is defined through the following three behavior dimensions: collective intelligence gathering, collective intelligence dissemination, and collective reaction to the intelligence. The measurement and operationalization of market orientation has been a subject in a number of studies (Jaworski and Kohli 1993; Kohli, Jaworski, and Kumar 1993; Matsuno, Mentzer, and Rentz 2000). Matsuno, Mentzer and Rentz (2000) exceed Kohli and Jaworski's original MARKOR scale by not only including customers and competitors but also other market factors that dominate the market environment.

Collective intelligence gathering refers to the collection and assessment of both customer needs and preferences (existing and future), and the forces (that is, tasks and macro environment) that influence the development and refinement of those needs (Kohli and Jaworski 1990, p. 4). Importantly, at the intra-organization level, multiple departments should engage in this activity because each has a unique market lens (Cohen and Levinthal 1990). When several organizations seek to perform co-market orientation, each of them has to gather or take the responsibility to gather market information in their particular market. Market intelligence gathering occurs both formally and informally. An example of formal market intelligence gathering is when organizations collaborate in the form of formal market analysis. An example of informal market intelligence gathering is when organizations capture information, for instance, in situations where employees have direct contact with customers.

Intelligence generation refers to the collection and assessment of both customer needs/preferences and the forces (that is, task and macro environment) that influence the development and refinement of those needs. At inter-organizational level, intelligence generation is tapped by asking each of the parties about the degree to which they, in coordination with the other parties, perform a number of market orientation activities. The items were measured according to the extent the organization, in coordination with the other party, performed the following activities:

Collective intelligence gathering: In coordination with the other company:

1. Meetings with customers at least once a year to find out what products or services they will need in the future.
2. Individuals from the manufacturing department interacting directly with customers to learn how to serve them better.
3. Extensive in-house market research.
4. Early detection of customers' product preferences
5. The polling of end- users at least once a year to assess the quality of products and services.
6. Frequent contact with or surveying of those that can influence end users' purchases (such as travel companies and destination companies).
7. Collection of industry information through informal means (such as lunches with industry friends and conversations with trade partners).
8. Several departments independently generating intelligence on their competitors
9. Early detection of fundamental shifts in the industry (such as competition, technology, regulation).
10. Periodical review of the likely effect on customers of changes in the business environment (such as regulation)

Collective intelligence dissemination refers to the process and extent of market intelligence exchange among organizations (Kohli and Jaworski 1990). The dissemination of intelligence occurs both formally and informally. When several organizations seek to collectively perform market orientation, their willingness and ability to exchange market intelligence is essential. Channels for intelligence exchange must exist. These channels can be both formal, for example meetings and formal transfer of information, and informal, for example telephone calls and e-mail.

Intelligence dissemination refers to the process and extent of market intelligence exchange within a given organization. At an inter-organizational level,

intelligence dissemination is tapped by asking to what extent the organization, in coordination with the other party, performs the following activities:

Collective intelligence dissemination: With the other company:

1. Plenty of informal "hall talk" concerning competitors' tactics or strategies.
2. Interdepartmental meetings at least once a quarter to discuss market trends and developments.
3. Marketing personnel spending time discussing customers' future needs with other functional departments.
4. Periodical circulation of documents (such as reports, newsletters) that provide information on customers.
5. Rapid update of other parties when something important happens to a major customer or market.
6. Dissemination of data on customer satisfaction on a regular basis.
7. Optimal communication between marketing and manufacturing departments concerning market developments.
8. Rapid interdepartmental updates when one department finds out important information about its competitors.
9. Cross-functional meetings to discuss market trends and developments (such as customers, competition, suppliers) (Matsuno, Mentzer, and Rentz 2000).
10. Regular interdepartmental meetings to update knowledge of regulatory requirements (Matsuno, Mentzer, and Rentz 2000).
11. Technical staff in one business unit spending sufficient time on sharing information about technology for new products with the other parties (Matsuno, Mentzer, and Rentz 2000).
12. Rapid dissemination of market information to other parties (Matsuno, Mentzer, and Rentz 2000).

Collective intelligence response is action taken on the intelligence gathered and disseminated. On the planning side, the focus is on the extent to which the marketplace need play a prominent role in the assessment of market segments and development of market programs (Kohli and Jaworski 1990). Action taken on the basis of market intelligence concerns the speed and coordination with which the marketing programs are implemented. For self-governing organizations to take synchronized action, they must have access to the same intelligence and must operate based on the same knowledge level. Among others, agreement on segments, direction for market development, time for implementing strategies are all examples of coordinated responses (Jap 2001).

Intelligence responsiveness is action taken on the intelligence gathered and disseminated. On the planning side, the focus is on the degree to which the marketplace need play a prominent role in the assessment of market segments and development of market programs. Action taken on the basis of market intelligence concerns the speed and coordination with which marketing programs are planned (Kohli and Jaworski 1990). At an inter-organizational level, intelligence response is tapped by asking to what extent the organization, in coordination with the other party, performs the following activities:

Collective intelligence response: planning: With the other company:

1. Far too much time is spent on deciding how to respond to our competitors' price changes (R)
2. Principles of market segmentation drive new product development efforts
3. For one reason or another changes in customers' product or service needs are ignored (R)
4. The making of periodical reviews of product development efforts to ensure that they are in line with what customers want

5. Business plans are driven more by market research than by technological advances
6. Several departments meet periodically to plan a response to changes taking place in the business environment.
7. The product lines sold depend more on internal politics than real market needs (R).

Collective intelligence response: implementation: *With the other company:*

8. If a major competitor were to launch an intensive campaign targeted at our customers, a response would be implemented immediately.
9. If a major competitor were to launch an intensive campaign targeted at their own customers, a response would be implemented immediately.
10. Activities are well coordinated
11. Formal procedures for handling customer complaints are in place
12. Rapid implementation of a major marketing plan is possible
13. Significant changes in the competitors' offerings can be responded to quickly.
14. Immediate corrective action can be taken if customers are unhappy with the quality of service
15. Concerted efforts to modify a product or service in case of changes in customer demand are made.
16. New products and services arrive on the market before those of our competitors
17. Solutions and ideas are copied from other companies (R)
18. Service compares favorably with our competitors

4.2.2 Centralization

Centralization refers to the locus of decision-making in a collectivity (Van de Ven 1976). Centralization is measured as the perceived degree of influence an organization has in making decisions that are binding upon its members (Van de Ven

1976). One research has tested centralization and market orientation. When measuring centralization at the intra-organizational level, Jaworski and Kohli (1993) used the scale of Aiken and Hage (1966) and measured the degree of hierarchical authority within the organization. The measure was replicated in Matsuno, Mentzer and Özsomer (2002). Other studies that have measured centralization are Heide and Weiss (1995), Reve and Stern (1986), and the measure of power by Bucklin and Sengupta (1993), Emerson (1962), Gaski (1984) and Etgar (1976). The measure of centralization captures the degree of contractual control, and the use of power to restrain the other party in the co-operating network is implemented. This is in accordance with Buckling and Sengupta's (1993) use of constraints in co-marketing alliances, and is adapted in this research. The following items measure centralization:

The other company has control over our decisions regarding:

1. Changes in our customer service
2. Changes in our opening times
3. Changes on our products/service
4. Changes in our marketing/communication
5. Changes in our employees (numbers, training etc)
6. Other forms of changes we make

4.2.3 Formalization

Formalization refers to the extent to which rules and procedures govern the relationship between inter-organizational partners (Van de Ven 1976). Formalization increases as the agreement is specified, written down, contractual, and mandatory. Formalization as a measure is well established in the literature, examples of empirical work being John (1984), Heide and John (1995), Cannon, Achrol and Gundlach (2000), Bucklin and Sengupta (1992), Spekman and Stern (1979), and Dahlstrøm and Nygaard (1999).

Formalization has been used in a market orientation research. Jaworski and Kohli (1993) used the scale of formalization identified by Aiken and Hage (1966) when measuring it in an intra-organizational setting. The measure was replicated in Matsuno, Mentzer and Özsomer (2002). However, this scale builds on a definition of formalization at the intra-organizational level as being the degree to which jobs in the organization are coded, and rules observed. To measure formalization at the inter-organizational level, I follow Cannon and Homburg (2001) and Cannon, Achrol and Gundlach's (2000) measure on legal bonds, which refers to the extent to which detailed and binding contractual agreements are used to specify the roles and obligations of the parties. The following taps the construct of formalization:

1. The degree of specific, well-detailed agreements
2. The degree of formal agreements that detail the obligations of both parties
3. The degree of detailed contractual agreements

4.2.4 Relational embeddedness

At individual level strong ties (embeddedness) are defined to include affective responses, such as those made toward close friends and family. Within organizational and inter-organizational levels, embeddedness is distinguished among the dimensions of frequency and distance. Relational embeddedness arises through a history of interactions, trust, norms, and shared values (Nahapiet and Ghoshal 1998). The construct of relational embeddedness is measured through Rindfleisch and Moorman's (2001) four items of relational embeddedness, in addition to the measures of cooperative norms by Cannon, Achrol and Gundlach's (2000). Their measure follows those of social contracts by Macneil (1980) and covers the core set of five dimensions: flexibility, solidarity, mutuality, harmonization of conflict, and restraint in use of power.

1. We feel indebted to our collaboration for what it has done for us
2. Our managers share close social relations with the managers from the other company
3. Our relationship with our collaborators can be defined as “mutually gratifying”
4. We expect that I will be working with our collaborators far into the future
5. We must work together to be successful
6. Each side is concerned about the other’s profitability
7. Both sides are willing to make cooperative changes
8. One party will not take advantage of a strong bargaining position
9. We do not mind owing each other favors
10. No matter who is at fault, problems are joint responsibilities

4.2.5 Knowledge redundancy

Knowledge redundancy is the structural aspect of ties (Rindfleisch and Moorman 2001). Access to information affects knowledge redundancy, and actors that operate at the same level in the network have redundant knowledge. Therefore, the construct of knowledge redundancy measures the degree to which actors have access to the same information. Rindfleisch and Moorman (2001) use items that center on information, experience and competency when measuring knowledge redundancy. The items developed here to measure knowledge redundancy are extended from their research.

1. We offer very similar products/services
2. We have experience from identical customer segments
3. Our products/services are developed from very similar resources
4. We derive knowledge from identical customer segments
5. We offer products/services to identical customer segments
6. We derive knowledge from identical types of products/services

7. The market knowledge of their employees is identical to the market knowledge of our employees
8. We have the same competence within the products/services
9. We have experience from identical types of products/services

4.2.6 Structural position

By structural position I mean an actor's degree of privilege (Olson 1965). According to Olson (1965) the more endowed an actor is, the higher the degree of motivation is for solving problems through collective action. To measure structural position four indicators taps the concept of endowment. These indicators are developed from Freeman's (1979) notion of centrality in social structures. An actor with high degree centrality maintains contacts with numerous other network actors (Freeman 1979). Therefore, actors have higher centrality to the extent they can gain access to and/or influence over others (Scott 1991). These items are different from company size, which is included as a control variable later in the research.

1. We have the most central position in our market
2. We guide the development in our market
3. Our company is important for customers compared to the other companies in the same market.
4. Other companies in the same market must take this company into consideration.

4.2.7 Specific investments in customer adaptation

A transaction-specific investment is any investment that is significantly more valuable in a particular exchange than in any alternative exchange (Williamson 1985). In relation to the two types of specific investments, adaptation and sunk costs,

my focus is on adaptation within a relationship. This adaptation is specific in that it tends to concern long-term accommodation that involves investments or permanent changes in rules and procedures designed to meet a particular customer's needs (Hallén, Johanson, and Seyed-Mohamed 1991). Those adaptations thus contrast with flexibility.

Cannon and Homburg (2001) and Cannon, Achrol and Gundlach (2000) measure relation-specific adaptation through the effort in changes in inventory and distribution, marketing, product features, personnel, and capital equipment and tools. Supplier's adaptation thus varies across these areas.

In this research I tap adaptation in physical and human asset specificity. The following adaptations from one party toward the other are measured:

Activity investments in adapting:

1. opening times
2. season start and end
3. personnel
4. types of activities
5. marketing
6. training of employees
7. purchasing

Physical investments in adapting:

8. products
9. service
10. accountancy
11. computer systems
12. equipment and tools
13. infrastructure
14. other types of adaptation

4.2.8 Customer value

The types of products investigated in this research are shopping goods (Murphy and Enis 1986), and experience goods (Darby and Karni 1973; Nelson 1978). Shopping goods are goods that are characterized by the fact that buyers are willing to spend a significant amount of time and money in searching for and evaluating these products. When making a product choice, consumers for these high-involvement products perceive increased levels of risk and effort compared to preference and convenience products, but decreased levels compared to specialty products (Murphy and Enis 1986). Experience goods are goods whose attributes can only be discerned after purchase and consumption. An experience good is characterized by lower perceived risk, lower information search and fewer behavioral intentions than credence service (where product attributes cannot be judged confidently by the consumer even after purchase and consumption), but higher than search-based services (where product attributes can be evaluated prior to purchase) (Mitra, Reiss, and Capella 1999). Mitra, Reiss and Capella's (1999) identification of experience services as consisting of table-service at a restaurant, watching a play or opera, for example, corresponds to the type of consumer choices identified in this research.

This research uses the customer's level of effort and risk to identify their costs of making a product choice (Murphy and Enis 1986). Effort is defined as the amount of money and time it takes to purchase a product, and is divided into non-monetary effort, such as time, and financial effort, such as money. Financial price is measured by asking managers to compare the price a consumer has to pay to make an exchange in their co-producing networks with the one that has to be paid to their competitors. When taking the co-producing network as a unit of analysis, the research measures effort by asking managers to evaluate the time it takes for a consumer to search for information, evaluate alternatives, and choose a product which is offered in conjunction with another company, compared to those products offered by

competitors. Performance time is measured by asking the manager to evaluate the length a consumer stays compared to competing companies.

Risk is the buyer's subjective feeling about the monetary and non-monetary price of the product. More precisely, risk is the buyer's subjective assessment of the consequences of making a purchasing mistake. A consumer's subjective feeling about the non-monetary price of the product is measured by asking them to evaluate the consequences of making a wrong choice. Financial risk is measured through a consumer's evaluation of whether the product will be worth the financial price. To measure effort and risk, the following items have been included when asking the company:

Non-monetary effort:

1. Time spent searching for, evaluating, and making a choice as to our products/service, compared with those of a competitor (that is, through access to brochures, the Internet, etc).
2. Time spent at the destination compared with competing destinations

Non-monetary risk:

3. Perceived psychological risk in the event of making a wrong product/service choice.

Monetary effort:

4. Perception of price paid for the product/service, compared to that of the competitors

Monetary risk:

5. Perceived risk associated with the financial price the customer pays for the product/service

Items to measure the customers are as follows:

Monetary effort:

1. How much money they have spent on the trip

Monetary risk:

2. Whether the products/service concerned was worth its price

Non-monetary effort:

3. The amount of time spent choosing the trip.
4. The amount of actual time spent on the trip

Non-monetary risk:

5. Whether they evaluate their choice about the trip to be the right one.

4.3 Questionnaire design

The design of the questionnaire in this research followed recommendations by Henjesand (1996), and the procedure of attribute-based multientity scaling (Olsen and Olsson 2002), see Figure 4.7. This means that for each attribute the questions in the questionnaire measure each of the entities simultaneously. For instance, specific investments undertaken in collective marketing were measured for each of the network companies, after which specific investments in the collective training of people were measured. The opposite of this is entity-based multientity scaling, which measures the entities separately for each set of attributes. This means that collective investments in marketing and personnel are measured for each company separately. The choice of attribute-based multientity scaling is based on Olson and Olsson (2002) who found that such scaling increases validity when testing attitudes in a country-of-origin setting. The scale in this research strives to follow previous empirical research within the constructs. However, to equalize the scales in the questionnaire, a seven-point Likert scale with an ordinal measurement scale was used for all of the multi-item constructs. The scale varies between 1 – strongly disagree to 7 – strongly agree.

Figure 4.7

Attribute-based multientity scaling		**Company I**	**Company II**
RE_1	We feel indebted to our collaboration for what it has done for us	1-2-3-4-5-6-7	1-2-3-4-5-6-7
RE_2	Our managers share close social relations with the managers from the other company	1-2-3-4-5-6-7	1-2-3-4-5-6-7
Entity-based multientity scaling			**Company I**
RE_1	We feel indebted to our collaboration for what it has done for us		1-2-3-4-5-6-7
RE_2	Our managers share close social relations with the managers from the other company		1-2-3-4-5-6-7
			Company II
RE_1	We feel indebted to our collaboration for what it has done for us		1-2-3-4-5-6-7
RE_2	Our managers share close social relations with the managers from the other company		1-2-3-4-5-6-7

Figure 4.7 Attribute based versus entity based multientity scaling

4.4 Control variables

The size of the companies has been included as a control variable in the research. The rationale behind this can be found in the theory of collective action. Collective action theory identifies asymmetry in endowment as a problem since such network members will bear a disproportionate burden of collective provision. To make sure that endowment is not mixed up with company size, the latter has been included in the test. Company size is measured through the number of employees in the company.

Chapter 5: Data examination and measure validation

The purpose of this chapter is to examine the data and validate measures. I start with a pre-examination of the data, including an evaluation of non-responses and missing value analysis, followed by the measurement model. Finally, an evaluation of estimation methods, assessment of overall model fit, test of the social capital framework and second-order factor model of co-market orientation is included. The sub-chapter ends with an analysis of construct validity, an MTMM analysis, and a test of discriminate validity.

5.1 Pre-examination of data

Three tests to pre-examine the data have been performed. These are the test of non-response, missing value analysis, and univariate statistics.

5.1.1 Non-response

To test for systematic respondent errors the research followed the recommendations by John and Reve (1982). The research questioned the informant regarding their interest in and knowledge of the questions asked. Figure 5.1 displays a histogram of the answers, showing a mean of 3.6 for interest, with a standard deviation of 1.57. Based on this, it can be established that the informants were motivated to answer the questions. The knowledge level of the informants has a mean of 4,7 with a standard deviation of 1.33, as shown in Figure 5.2. Eight cases reported very little knowledge about the subject asked. These cases have been deleted from further analysis. On the basis of this, it can be established that the informants had both the motivation and knowledge necessary to answer the questions asked. Further, outliers do not seem to be any problem in the data set.

Figure 5.1

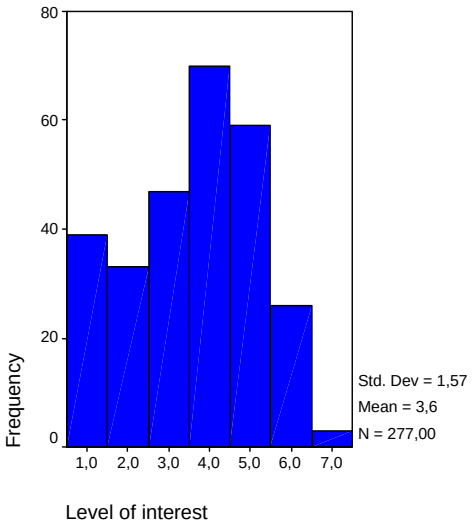

Figure 5.1 Respondents' level of interest

Figure 5.2

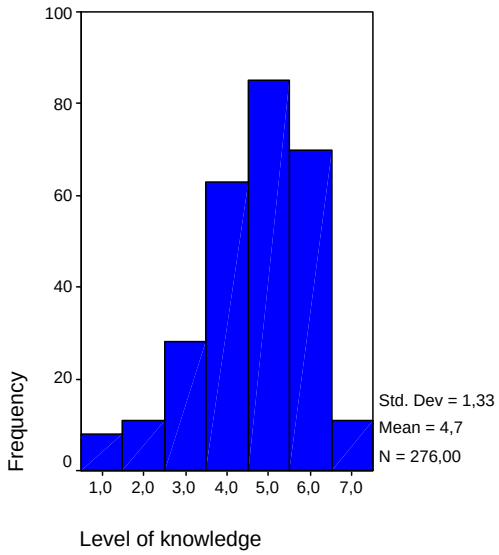

Figure 5.2 Respondents knowledge level

5.1.2 Missing value analysis

Two imputation techniques have been implemented to replace missing values in the data set. First, for those cases that reported *systematic* missing values for *all* of the items in one construct, the research imputed the value 1 [strongly disagree]. In other words, if the company did not report any value concerning their interaction with the other company, the research anticipated that there was no interaction at all. This method has been undertaken for the following constructs: co-market orientation, specific investments, centralization, formalization, and relational embeddedness. The reason why this situation has come into being is that in some instances Company I has identified two other companies II and III in the co-producing network, where these two companies (II and III) did not report to interact with each other. See Figure 4.1 at page 83 for illustration.

Second, for cases with completely *random* missing values, the research implemented the method of regression imputation. For instance, companies in a network might divide tasks between each other. One company might invest in adapting their opening times toward the other company, while the latter company focuses its investment on adapting their types of activities toward the first company. Even though one company does not invest in all the types of investments identified in the questionnaire; this does not mean that it does not invest at all. It follows that cases like this should not be deleted from further analysis, which is why this method of regression imputation has been implemented for the completely random missing constructs with multiple indicators.

The method of regression imputation is used because it is recommended in situations where data is missed completely at random for 6% or more of cases (Roth 1994). It is also recommended in situations where one has a sample size that is large enough to yield stable regression weights for imputation strategies (Donner 1982), which can be anticipated to be the case in this data set with 576 responses. For regression imputation, the factor structure of the data matrix is estimated factors from

the functions of other variables (Roth 1994). To reduce the risk of creating non-existing correlation in the factor structure, the method of regression weight(s) reported by the sample of indicators was estimated for each of the constructs, after which it was imputed to the raw data matrix. Such an approach would artificially underestimate variance and covariance statistics slightly, and thus strengthen test of power (Bollen 1989).

The reason why I stress the need to replace missing observations is that it can be problematic in analysis (Bollen 1989; Myrtveit, Stensrud, and Olsson 2001), and some series measures cannot be computed if there are missing values in the series (Kamakura and Wedel 1997), as is the situation with dyadic data. A review of studies within social science demonstrates that as many as 73% of the studies do not discuss non-response (Roth 1994). Of those that did, 39% argued that no missing data technique was needed, 13% implemented listwise deletion, and 15% used parwise deletion, while only 1% implemented mean substitution. No research reported other techniques. These figures are alarming when one takes into account the fact that different techniques have different levels of appropriateness dependent on condition codes. For other techniques, listwise deletion may result in discarding a large proportion of the data. For instance, it biases the distribution in the sample, and non-missing values of variables for the dropped cases will not be utilized. Parwise deletion forms a sample covariance matrix by using all cases with non-missing values to compute each covariance or variance. However, the choice of sample in a covariance structure analysis through parwise deletion is ambiguous since the elements of the covariance matrix are determined by different numbers of cases (Bollen 1989). Parwise deletion may lead to mathematically inconsistent correlations, or a covariance matrix that is not positively definite. Replacing missing values with estimates from the sample mean or median of the observed variables increases the risk of heteroscedasticity for the error term in the equation, because the error variance in such cases is greater for those cases with estimated value. Further, the distribution

of the missing values is unlikely to be normal even if the distribution of the sample cases is normal (Bollen 1989). The method of imputation by similar cases, as used by Stump and Heide (1996), is not relevant in this research because there is no reason to anticipate company characteristics to predict network cooperation.

5.1.3 Univariate statistics

Analysis of structural equation modeling builds on the assumption of multivariate normally distributed data. First, univariate statistics at item level are investigated. According to Muthen and Kaplan (1985), variables with skewness and kurtosis of between –1 and 1 appear to provide acceptable model estimates. Skewness and kurtosis above absolute value 1 decrease the reliability of the data analysis. In the univariate statistics, the statistical properties are within the limits, with a somewhat excessive kurtosis for three of the items: item numbers one and two in customer value, with a kurtosis of 3.272 and 2.188, and item one in relational embeddedness, with a kurtosis of 2.384. The univariate statistics at item level are given in Table 5.1.

Table 5.1

Items:	Mean	Standard Deviation	Skewness	Kurtosis
Customer Value				
X_1	2.867	1.416	0.369	-0.092
X_2	5.967	1.120	-1.697	3.272
X_3	5.751	1.342	-1.486	2.188
X_4	3.355	1.521	-0.048	-0.477
X_5	2.950	1.318	0.052	-0.161
Specific Investments				
X_6	2.501	1.947	0.912	-0.604
X_7	2.575	2.019	0.904	-0.613

X_8	2.369	1.834	1.018	-0.238
X_9	2.858	2.129	0.609	-1.159
X_{10}	3.088	2.170	0.404	-1.358
X_{11}	2.492	1.890	0.927	-0.429
X_{12}	2.176	1.702	1.221	0.258
X_{13}	2.711	2.034	0.713	-0.928
X_{14}	2.664	1.992	0.747	-0.826
X_{15}	1.852	1.425	1.558	1.441
X_{16}	2.016	1.627	1.503	1.225
X_{17}	1.909	1.492	1.564	1.555
X_{18}	2.130	1.688	1.278	0.518
X_{19}	2.366	1.684	0.792	-0.668
Co-market orientation				
X_{20}	2.148	1.356	1.023	-0.101
X_{21}	1.994	1.318	1.233	0.389
X_{22}	2.301	1.548	0.851	-0.596

Items:	**Mean**	**Standard Deviation**	**Skewness**	**Kurtosis**
Centralization				
X_{23}	2.441	1.981	0.979	-0.497
X_{24}	2.426	2.034	1.054	-0.397
X_{25}	2.601	2.060	0.809	-0.901
X_{26}	2.631	2.008	0.746	-0.960
X_{27}	2.050	1.720	1.440	0.782
X_{28}	2.250	1.805	1.152	0.018
Formalization				
X_{29}	2.448	2.146	1.059	-0.490

X_{30}	2.269	2.048	1.294	0.113
X_{31}	1.978	1.823	1.653	1.322
Relational Embeddedness				
X_{32}	1.732	1.353	1.820	2.384
X_{33}	2.954	2.041	0.444	-1.261
X_{34}	3.790	2.258	-0.093	-1.508
X_{35}	3.822	2.159	-0.185	-1.428
X_{36}	4.065	2.355	-0.228	-1.526
X_{37}	3.506	2.158	0.067	-1.455
X_{38}	3.406	2.063	0.100	-1.381
X_{39}	3.686	2.193	0.010	-1.428
X_{40}	4.383	2.172	-0.548	-1.143
X_{41}	3.373	2.062	0.168	-1.332
Knowledge Redundancy				
X_{42}	3.079	1.934	0.461	-1.051
X_{43}	4.271	1.911	-0.425	-0.852
X_{44}	4.440	1.865	-0.479	-0.679
X_{45}	3.600	1.894	0.096	-1.078
X_{46}	3.556	1.587	-0.002	-0.611
X_{47}	3.114	1.679	0.401	-0.699
X_{48}	4.122	1.721	-0.297	-0.657
X_{49}	3.699	1.663	-0.170	-0.784
X_{50}	3.552	1.632	-0.073	-0.776
Structural Position				
X_{51}	4.299	1.709	-0.175	-0.748

X_{52}	3.891	1.594	-0.271	-0.607
X_{53}	5.077	1.264	-0.675	0.795
X_{54}	1.694	2.994	0.456	-0.718

Table 5.1 Univariate statistics at item level

Table 5.2

Variable:	**Mean**	**Standard Deviation**	**Skewness**	**Kurtosis**
Consumer Value	4.176	.751	-.256	2.164
Specific Investments	2.416	1.538	.765	-.567
Co-market orientation	2.145	1.310	1.059	.007
Centralization	2.399	1.764	.976	-.314
Formalization	2.238	1.864	1.265	.253
Relational Embeddedness	3.469	1.726	-.186	-1.247
Knowledge Redundancy	3.720	1.392	-.070	-.517
Structural Position	4.065	1.222	-.151	-.267

Table 5.2 Multivariate normality

Large deviation from the assumption that observed variables are multivariate normally distributed may cause problems with regard to statistical conclusion validity (Bollen 1989, p.418). When testing at the overall construct level, as reported in Table

5.2, the customer value construct showed the highest kurtosis of 2.164. To sum up, the research evaluates the univariate statistics as not including any extreme, devastating, values, and no further action has been undertaken to transform the data.

5.2 The measurement model

The structure in the measurement model chapter starts with a discussion of the choice of estimation method, followed by a discussion of overall model fit. Next, a second-order factor model of co-market orientation is developed for the purpose of implementation in the confirmatory factor analysis when identifying convergent validity and reliability. Finally, MTMM analysis and discriminate validity are investigated.

5.2.1 Estimation method

The method of Maximum Likelihood (ML) has been implemented as the estimation method of analysis in this project. The reason for this is that ML is based on the assumption of multivariate normality of the observed variables and leads to estimates that are consistent, asymptotically unbiased, asymptotically efficient, and asymptotically normally distributed (Bagozzi 1996). However, multivariate normality assumes that each variable has zero skewness (third-order moment) and zero kurtosis (fourth-order moment). This assumption of multivariate normality is not fulfilled when using ordinal scales, whereas the alternative, Weighted Least Squares (WLS) (Browne and Cudeck 1993), requires an unattainably large sample, >2000, and Generalized Least Squares (GLS), which is superior in empirical fit, lacks theoretical fit (Olsson, Troye, and Howell 1999). Based on the previous discussion, a full-information estimation approach, hereof ML, is implemented to test the research model (Anderson and Gerbing 1988).

5.2.2 Test of the social capital framework

In Chapter 2.3.2 the research proposed that the two dimensions of social capital were characterized by the two constructs embeddedness and knowledge redundancy, whereas the degree of competitors vs. collaborators, and different vs. same market level affected the presence of the constructs. In contrast to Rindfleisch and Moorman (2001), the research proposed that social capital existed in the cell [same level * collaborators] (upper right corner in Figure 2.1 at page 44) through the existence of co-marketing alliances. This anticipation is tested in Table 5.3, and demonstrates that even actors that operate at a horizontal level can perceive each other as collaborators (correlation on .336).

Table 5.3

	Collaborators	Competitors
Vertical	.370 [a]	-.184
	(.000) [b]	(.000)
Horizontal	**.336**	.362
	(.000)	(.000)

[a] = Correlation coefficient

[b] = Significance level (2-tailed)

Table 5.3 Correlation between elements in the social structure

The dimensions of competitors vs. collaborators, and different vs. same market level were tested separately and not in a continuum such as Rindfleisch and Moorman (2001) do. This is because I anticipate that the companies can have different roles simultaneously. A Fisher Z-test for testing the different types of social capital was performed, using the following equations: embeddedness = *f*(collaborators > competitors), knowledge redundancy = *f*(same level > different level). The results

from the test support the proposition that the degree of relational embeddedness is more strongly correlated to collaborators than competitors, and that knowledge redundancy is more strongly correlated to the horizontal level than the vertical level. The results are summarized in Table 5.4.

Table 5.4

Relational embeddedness		**Knowledge redundancy**	
Collaborators	**.675** [a]	Vertical level	.164
	(.000) [b]		(.001)
Competitors	-.097	Horizontal level	**.573**
	(.037)		(.000)
Fisher Z-test	13.834 [c]		7.248

[a] = Correlation coefficient

[b] = Significance (2-tailed)

[c] = One tailed Fisher Z-test >= 2,33, Sig. = .001

Table 5.4 Fisher Z -test of social capital

5.2.3 Test of the second-order factor model of market orientation

To test co-market orientation it is first necessary to establish whether there is a difference between this construct and individual market orientation. To test this proposal I tested the correlation between the dimensions in each of the two definitions. As can be seen from Table 5.5 the lack of correlation between individual market orientation and co-market orientation clearly indicates that the two constructs should be treated separately.

Further, I tested whether the three dimensions in co-market orientation inter-correlated. As shown Table 5.6 the correlation between the constructs is satisfactory

with values on .7 and .8. This supports the convergent validity for the co-market orientation construct.

Table 5.5

	Co-market orientation:		
Individual Market Orientation:	Intelligence gathering	Intelligence dissemination	Intelligence response
Intelligence gathering	**-.033** [a]	-.070	-.050
	(.636) [b]	(.332)	(.486)
Intelligence dissemination	-.092	**-.080**	-.073
	(.217)	(.265)	(.320)
Intelligence response	-.057	-.062	**-.052**
	(.445)	(.394)	(.477)

[a] = Correlation coefficient

[b] = Significance level (2-tailed)

Table 5.5 Correlation matrix for individual and co-market orientation

Table 5.6

	Collective intelligence gathering	Collective intelligence dissemination
Collective intelligence Dissemination	**.814**[a] (.000)[b]	
Collective intelligence Response	**.768** (.000)	**.779** (.000)

[a] = Correlation coefficient

[b] = Significance level

Table 5.6 Correlation matrix for inter- dimensional co-market orientation

To further test the construct, a confirmatory factor analysis (CFA) using EQS/Windows 5.7b (Bentler and Wu 1993) was performed to identify the three dimensions of co-market orientation. Questions have been raised as to whether the items measuring market orientation are formative or reflective. In line with the work of Matsuno and Mentzer (2000), Matsuno, Mentzer and Rentz (2000), and Kohli, Jaworski and Kumar (1993), this research treated the items for each of the dimensions as reflective, and followed this by treating each of the three dimensions as a second-order factor model, reflecting the construct market orientation, see Figure 5.3. Bollen and Lennox (1991) discuss the consequences of indicators that reflect (reflective effect measurement model) versus those that influence (causal measurement model) a construct. The most widely-accepted premise in classical measurement theory is that reflective measures are characterized by internal consistency among indicators, recognized through positive correlation between the

indicators (Bollen and Lennox 1991), which is the situation in my research (the correlation matrix is not reported).

Matsuno, Mentzer and Rentz (2000) evaluated the MARKOR scale developed by Kohli, Jaworski and Kumar (1993). As discussed in chapter 4.2.1, the 32 indicators developed by Kohli and Jaworski were supplemented by five indicators developed by Matsuno, Mentzer and Rentz.

Collective intelligence generation. The 10 indicators representing collective intelligence generation reported satisfactory factor loadings and overall model fit for the single-firm analysis of the network. The factor loading was stable at .7 and .8 level. Composite reliability for intelligence generation is satisfactory at .944. The fit indices were satisfactory with CFI at .934, see Table 5.7.

Collective intelligence dissemination. All the 12 indicators measuring collective intelligence dissemination reported satisfactory factor loadings at levels of .7 and .8 Composite reliability for intelligence dissemination is .965. CFI for the dissemination dimension is .911.

Figure 5.3

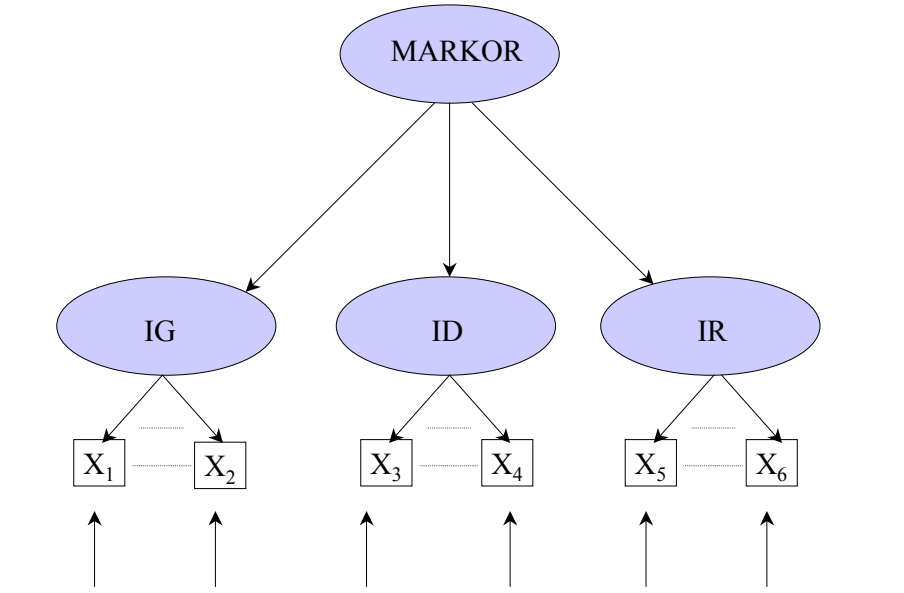

Figure 5.3 Second-order factor structure

From Matsuno, Mentzer and Rentz (2000)

Collective intelligence response. For collective intelligence response, four out of 17 indicators reported problems with low factor loadings. Not surprisingly this was for the recoded indicators. Three of the indicators were from the MARKOR scale of Kohli and Jaworski, while one was from the revised scale of Matsuno, Mentzer and Rentz. The actual items are number 1, 3, 7 and 16. After carefully evaluating the risk of disrupting the validity of the construct in this research, it was decided not to include the indicators in the further analysis. This decision is based on the evaluation that including the indicators would create a bias in the analysis, in addition to the fact that the remaining indicators for collective intelligence responsiveness number 13 items. The remaining indicators reported satisfactory factor loadings, at the .8 levels, and a composite reliability of .974. The CFI for collective intelligence responsiveness is .920, and is thus satisfactory.

Table 5.7

Items:	Parameter (error)	T-value	Composite Reliability	Shared Variance
Intelligence Generation			.944	.632
X_1	.729[b] ----	-- [a]		
X_2	.792 (.057)[c]	18.18		
X_3	.671 (.054)	15.25		
X_4	.862 (.063)	19.92		
X_5	.784 (.054)	17.98		
X_6	.760 (.071)	17.39		
X_7	.662 (.071)	15.02		
X_8	.884 (.054)	19.47		
X_9	.896 (.061)	20.75		
X_{10}	.867 (.069)	20.04		
Intelligence Dissemination			.965	.695
X_{11}	.812 ----	--		
X_{12}	.759 (.046)	19.893		
X_{13}	.867 (.041)	24.208		
X_{14}	.792 (.039)	21.142		
X_{15}	.816 (.054)	22.075		
X_{16}	.860 (.049)	23.916		
X_{17}	.894 (.046)	25.393		
X_{18}	.884 (.044)	24.969		
X_{19}	.874 (.041)	24.500		
X_{20}	.805 (.038)	21.666		
X_{21}	.770 (.036)	20.317		

X_{22}	.862 (.049)	23.990	
Intelligence Responsiveness		.974	.742
X_{23}	Excluded		
X_{24}	.816 ----	--	
X_{25}	Excluded		
X_{26}	.888 (.043)	25.472	
X_{27}	.862 (.036)	24.292	
X_{28}	.826 (.043)	22.714	
X_{29}	Excluded		
X_{30}	.870 (.045)	24.616	
X_{31}	.897 (.041)	25.879	
X_{32}	.831 (.042)	22.933	
X_{33}	.880 (.047)	25.079	
X_{34}	.859 (.040)	24.152	
X_{35}	.865 (.051)	24.412	
X_{36}	.885 (.046)	25.336	
X_{37}	.855 (.039)	23.945	
X_{38}	Excluded		
X_{39}	.858 (.040)	24.096	

Items:	Parameter (error)	T-value	Composite Reliability	Shared Variance
Second-order factor model			.923	.801
CMO-IG	.894 ----	--		
CMO-ID	.926 (.033)	30.360		
CMO-IR	.864 (.040)	27.362		

[a] = These items are fixed to 1.00 for the purpose of scaling.

[b] = Standardized factor loadings.

[c] = Standard error.

CMO-IG = Collective intelligence generation, CMO-ID = Collective intelligence dissemination, CMO-IR = Collective intelligence responsiveness

Table 5.7 Dimensions of a co-market orientation

The second-order model of co-market orientation. When testing the three dimensions in the second-order factor model of co-market orientation, the following was found. The dimension of collective intelligence gathering reported a standardized factor loading of .894, collective intelligence dissemination had a standardized factor loading of .926, and collective intelligence response reported a standardized factor loading of .864. The reliability for the second order co-market orientation construct is .923 with a shared variance on .801. *To sum up*, co-market orientation is measured by 10 + 12 + 13 indicators. The fit indices in this research are a bit lower than Matsuno, Mentzer and Rentz (2000), who reported values of CFI = 1.00, CFI = .94, and CFI = .99, successively. I created the dimensions of co-market orientation by computing constructs that consisted of adding together the items in each of the dimensions. I evaluate the second-order model of co-market orientation in this research to be satisfactory, and the three dimensions of co-market orientation: collective intelligence

generation, collective intelligence dissemination, and collective intelligence responsiveness, are implemented in the confirmatory factor analysis in the measurement model.

5.2.4 Test of customer value

A test of the correlation between customer values as measured by customer response and the response given by the companies was not satisfactory, see Table 5.8. One explanation for this could be that, when measuring customer value, the construct used different items when asking the company than when asking the customers themselves. When asking the company, the operationalization was based on psychographics, while when asking the customers themselves it was based on objective measures, such as the amount of time spent at a destination; the time spent on searching for, evaluating, and choosing a destination; and the amount of money spent on the trip. As discussed earlier, the number of customer responses was from only 67 companies. The data from the companies is therefore used in the further analysis.

Table 5.8

Customer value:	Correlation (Significance level)
Search time	.058 (.105)
Time at place	.011 (.765)
Price	016 (.651)
Financial risk	.005 (.887)
Social risk	-.050 (.158)

Table 5.8 Test of customer value between customer and company responses

5.2.5 Construct validity

The research implements the approach of classical test theory where multiple indicators covary due to a common underlying cause (the latent variable) and the procedure of validity and reliability assessment (Bollen and Lennox 1991; Churchill 1979). Additionally, the two-step approach developed by Anderson and Gerbing (1988) is used to assess the factor structure for the measures and theoretical relationship. There are several reasons why this approach was chosen. It allows both for the separate testing of the specifications of relations between latent constructs and observed variables as well as for the testing of the specifications of relations between latent constructs. Moreover, it encourages having multiple indicators for a latent construct, and the separate focus on the measurement model reduces the risk of overidentification. The measurement model enables the manifestation of the latent variables prior to testing the structural model. If, in contrast, only one test is performed, the identification of lack of fit cannot be attributed due to misspecification of the measurement model or the structural relations among the latent variables (Bagozzi 1996).

The research implemented confirmatory factor analysis (CFA) using EQS/Windows 5.7b (Bentler and Wu 1993) for each of the samples in the network. This assesses convergent validity in the measurement model by determining the significance of each indicator's estimated pattern coefficient on its posited underlying construct factor (greater than twice its standard error) (Anderson and Gerbing 1988). The purification of multiple iterations of reliability evaluation, confirmatory analysis, and item-by-item substantive evaluation was performed in order to estimate the items' loading significance for the single- form sample. After deleting unknowledgeable informants, as well as cases with a large amount of missing values, the analysis was run for the measurement model for the single-firm data matrix, resulting in the number of cases being N = 515.

The Chi-square test for the initial measurement models was χ^2 (df) = 5935.078 (1348), p = .001. Because the Chi-square tests the null hypothesis that the estimated variance-covariance matrix deviates from the sample variance-covariance matrix only because of sampling error (Bagozzi 1996), a significant Chi-square means that the given model's covariance structure is significantly different from the observed covariance matrix. What this means is that the Chi-square value should not be significant if there is a good model fit, while a significant Chi-square indicates the lack of a satisfactory model fit. Therefore, the Chi-square test does not support the model.

However, there are three ways in which the Chi-square test may be misleading. First, the more complex the model, the more likely there is to be a good fit. Second, the power (that is the probability of rejecting a false H_0) of the Chi-square test to detect discrepancies between Σ and $\Sigma(\theta)$ partially depends on sample size. The estimate of Chi-square increases in direct proportion to (N - 1), and the power of the test increases as N increases. In other words, Chi-square tends to be large in large samples if the model does not hold. Third, the Chi-square fit index is very sensitive to deviations from the assumption of multivariate normality (Bollen 1989). Because of this, additional fit statistics are included.

The goodness of fit index (GFI) and adjusted goodness of fit index (AGFI) was as follows: GFI = .685 and AGFI = .653. The GFI (Jöreskog and Sörbom 1989) is analogous to R-square, and reports the percentage of observed covariance explained by the covariance implied by the model. That is, R^2 in multiple regression deals with error variance, whereas GFI deals with error in reproducing the variance-covariance matrix. GFI often runs higher than other fit models, and therefore .95 has been suggested as the cutoff. AGFI is a variant of GFI which uses mean squares instead of the total sum of squares in the numerator and denominator. For AGFI .90 has been suggested as the cut off (Hu and Bentler 1999). When following GFI and AGFI the model is not satisfactory.

Two other fit indices are included: comparative fit index (CFI) and root mean square error of approximation (RMSEA). The test reported CFI = .828 and RMSEA = .081. The CFI compares the existing model fit with a null model that assumes the latent variables in the model are uncorrelated (the 'independent model'). Bagozzi (1996) evaluates CFI as proposed by Bentler (1990) to hold the greatest promise for accurate assessment of overall model fit. CFI is normed to fall between 0 and 1 and should be independent of sample size. The logic of CFI is that no more complicated model can be hypothesized for the data if the data supports the mutual uncorrelatedness model (Tanaka 1993). A value of .90 indicates that 90% of the covariance in the data can be reproduced by the given model. Regarding RMSEA, it is also called discrepancy per degree of freedom. RMSEA does not require a comparison with a null model and thus does not require the posit of a plausible model. RMSEA corrects for model complexity because the degrees of freedom is in its determinant. RMSEA is one of the fit indexes that are less markedly affected by sample size. Hu and Bentler (1999) suggest RMESA <= .06 as the cutoff for a good model fit. However, it has been suggested that there is good model fit if RMSEA is less than or equal to .05, and adequate fit if RMSEA is less than or equal to .08 (Bagozzi 1996).

Table 5.9

Items:	**Parameter (error)**	**T-value**	**Composite Reliability**	**Shared Variance**
Customer Value			.764	.430
X_1	.701[b] ----	-- [a]		
X_2	-.317 (.057) [c]	-6.703		
X_3	-.310 (.064)	-6.559		
X_4	.861 (.077)	17.164		
X_5	.848 (.066)	17.027		

Specific Investments			.967	.676
X_9	.807 --	--		
X_{10}	.832 (.048)	22.481		
X_{11}	.848 (.043)	23.113		
X_{12}	.867 (.049)	23.914		
X_{13}	.799 (.052)	21.205		
X_{14}	.881 (.043)	24.491		
X_{15}	.798 (.041)	21.188		
X_{16}	.857 (.047)	23.480		
X_{17}	.890 (.045)	24.882		
X_{18}	.768 (.035)	20.061		
X_{19}	.760 (.040)	19.789		
X_{20}	.775 (.036)	20.342		
X_{21}	.760 (.041)	19.779		
X_{22}	.852 (.039)	23.304		
Co-market orientation			.924	.801
X_6	.886 --	--		
X_7	.910 (.033)	29.900		
X_8	.889 (.040)	28.642		
Centralization				
X_{23}	.917 --	--	.960	.802
X_{24}	.897 (.030)	33.579		
X_{25}	.938 (.028)	38.445		
X_{26}	.875 (.031)	31.386		
X_{27}	.831 (.028)	27.716		
X_{28}	.911 (.026)	35.087		
Formalization			.920	.793

X_{29}	.878 --	--		
X_{30}	.958 (.033)	31.553		
X_{31}	.831 (.032)	25.167		
Items:	**Parameter (error)**	**T-value**	**Composite Reliability**	**Shared Variance**
Relational Embeddedness			.947	.646
X_{32}	.486 --	--		
X_{33}	.739 (.209)	11.002		
X_{34}	.902 (.260)	11.910		
X_{35}	.919 (.252)	11.991		
X_{36}	.839 (.259)	11.599		
X_{37}	.841 (.238)	11.608		
X_{38}	.864 (.231)	11.729		
X_{39}	.760 (.228)	11.137		
X_{40}	.841 (.240)	11.609		
X_{41}	.760 (.214)	11.139		
Knowledge Redundancy			.925	.580
X_{42}	.730 --	--		
X_{43}	.690 (.060)	15.447		
X_{44}	.725 (.059)	16.269		
X_{45}	.812 (.059)	18.347		
X_{46}	.730 (.050)	16.385		
X_{47}	.711 (.053)	15.933		
X_{48}	.808 (.054)	18.245		
X_{49}	.843 (.052)	19.079		
X_{50}	.790 (.051)	17.804		

Structural Position			.784	.483
X_{51}	.785 --	--		
X_{52}	.814 (.063)	15.235		
X_{53}	.567 (.045)	11.752		
X_{54}	.575 (.061)	11.923		

χ^2	5935.078
Degrees of freedom	1348
p value	.001
GFI	.685
AGFI	.653
CFI	.828
RMSEA	.081

Number of cases = 515

[a] = These items are fixed to 1.00 for the purpose of scaling.

[b] = Standardized factor loadings.

[c] = Standard error.

Table 5.9 Single-firm measurement model

Based on the previous findings, and the large number of items in this research, I do not consider the fit statistics to provide adequate evidence to adjust the items in the model. The reason is that I priority construct validity, and deleting items in constructs is a serious threat to this. Even though two of the items in customer value, financial and psychological risk, are at the .3 levels, the items are too important to be excluded. I will therefore move on to investigate the reliability of and variance in the constructs to further validate the model. To summarize, the measurement model reported satisfactory fit: Chi-square (df) = 5935.078 (1348), p = .001, GFI = .685,

AGFI = .653, CFI = .828, RMSEA = .081. The 90% confidence interval of RMSEA is (.079 - .083), see Table 5.9.

a) Reliability analysis

Composite reliability was calculated using the procedures outlined by Fornell and Larcker (1981). The formula for construct reliability is $CN_\eta = \left(\sum \lambda y_i\right)^2 \Big/ \left(\left(\sum \lambda y_i\right)^2 + \left(\sum \varepsilon_i\right)\right)$ for construct η, where λy = standardized loading for scale item y_i, and ε_i = measurement error for scale item y_i. As can be seen from the formula, reliability is the squared correlation between a construct and its measures. The composite reliability in the analysis varies between .764 and .967, which is within the accepted level of .70 (Fornell and Larcker 1981; Nunnally 1978).

Average variance extracted is a more conservative measure than composite reliability (Fornell and Larcker 1981), and was calculated using the following formula: $V_\eta = \sum \lambda y_i{}^2 \Big/ \left(\sum \lambda y_i{}^2 + \sum \varepsilon_i\right)$. Bagozzi and Yi (1988) recommend variance extracted to be above .50. Two constructs reported average variance extracted below the recommended level: customer value at .430 and structural position at .483. In other words, the ratio of the true scores‘ variance to the observed variables’ variance is questionable, resulting in unsatisfactory internal consistency. The rest of the constructs reported satisfactory reliability and shared variance.

5.2.6 MTMM analysis

To address the problem of systematic method error, which comes into being because the correlation between methods in the dyadic sample is always 1, the use of multitrait- multimethod was implemented (MTMM). This enables the distinguishing of substantive (that is, trait) variance from unwanted method variance, which is variance attributable to the measurement procedure(s) rather than to the construct of

interest. By this it is possible to control for the fact that each attempt to measure a concept is contaminated by irrelevant aspects of the method employed.

The following steps were undertaken when running a CFA in MTMM (Bagozzi 1996 p. 360-363), based on the assumption that measurement models contain stochastic error terms that are usually interpreted to be the sum of specific factors and random measurement errors in the observable indicators (Bagozzi and Yi 1991). (a) The multiple indicators for each of the theoretical constructs were computed into a single- item construct (labeled trait factor). As a result, the trait factors in the theoretical model consist of single indicators in the MTMM analysis, see Figure 5.4. (b) The one-item traits from each of the two company samples (Company I and Company II) were then added to a measurement model using CFA. Thus, each of the theoretical constructs in the measurement model was represented by trait factors from each of the two parties in the network. (c) The variance of the constructs was fixed at 1.00, and covariation between the trait factors and covariation between the two method factors was fixed in order no longer to covary. This was done to prevent random error from confounding specific error in the disturbances. That is, correlations among method factors represent the convergence of the general trait factor, and correlations among method factors may also represent the convergence of the general trait factor across *methods*, rather than the true relationships among methods (Bagozzi 1996 p.350). Finally, the random error for the constructs is fixed at >.0. This is done to avoid linear dependency among constructs in the analysis, a situation that comes into being because the theoretical constructs are measured by psychometric data, which in turn necessitates the inclusion of random error.

Figure 5.4

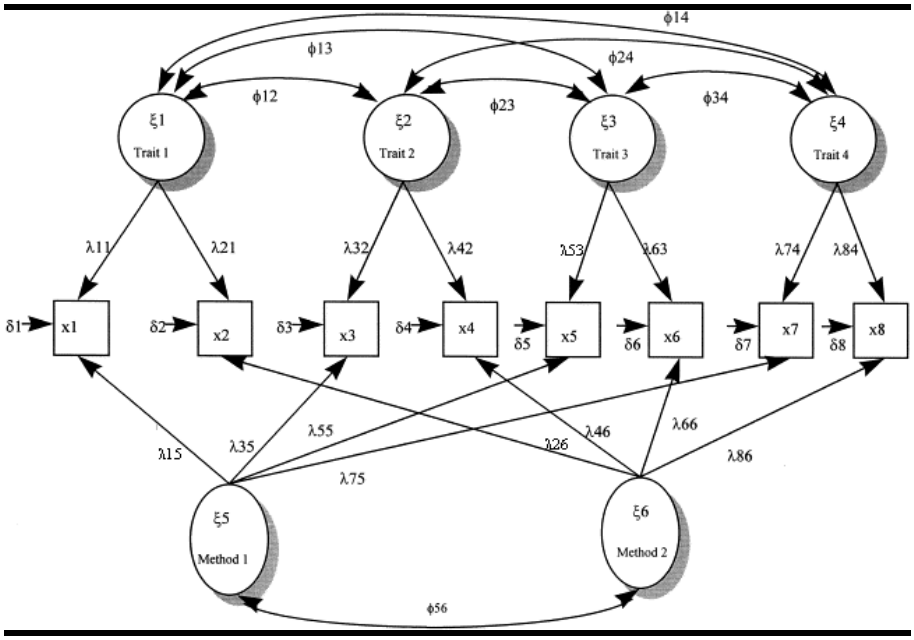

Figure 5.4 The MTMM matrix in CFA

CFA enables the calculation of the proportions of trait, method and error (Bagozzi and Yi 1991). Table 5.10 reports convergent validity, measured by the parameter estimates and factor loading for each dyadic construct; construct composite reliability; and shared variance when controlling for method variance for the two companies. All the t-values of the estimated factor loading of the constructs are within the accepted level. For the theoretical scales, no construct reported composite reliability above

Table 5.10

Scale		Parameter (error)		T values	Comp. Reliab.	Shared Variance
CV	*Company I*	.625[a]	(.069)	6.328	.292	.212
	Company II	.181	(.070)	1.297		
INV	*Company I*	.451	(.137)	5.706	.575	.415
	Company II	-.167	(.130)	-1.830		
CMO	*Company I*	.607	(.107)	7.874	.326	.219
	Company II	-.262	(.093)	-3.252		
CENT	*Company I*	.471	(.137)	6.379	.214	.134
	Company II	.216	(.126)	2.747		
FORM	*Company I*	.191	(.128)	2.655	.331	.245
	Company II	.673	(.126)	8.703		
EMBED	*Company I*	.604	(.116)	9.445	.272	.197
	Company II	.171	(.096)	3.002		
KNOW	*Company I*	.686	(.128)	8.541	.535	.369
	Company II	.518	(.108)	5.481		
POSIT	*Company I*	.765	(.109)	9.047	.575	.415
	Company II	-.494	(.089)	-4.674		
Company I	--	.332	(.071)	3.116		
	--	.769	(.157)	8.479		
	--	.645	(.130)	6.875		
	--	.777	(.165)	8.723		
	--	.881	(.147)	10.728		
	--	.738	(.164)	8.170		
	--	.536	(.145)	5.891		

	--		.381	(.125)	3.947
Company II		--	.363	(.052)	3.489
	--		.821	(.123)	9.515
	--		.790	(.100)	9.166
	--		.849	(.135)	10.122
	--		.567	(.157)	5.897
	--		.930	(.132)	11.876
	--		.514	(.103)	5.693
	--		.347	(.080)	3.636

[a] = Standardized factor loadings

Table 5.10 Dyadic measurement mode with MTMM

the recommended level. Compared to the reliability reported in Table 5.9 (page 132) this is a demonstration of how shared method variance affects validity.

Convergent validity correlation among all the dyadic constructs (n = 91) is reported in Table 5.11. The correlation between the dyadic pairs of constructs is very low, well below the required values, and contradicts previous studies with multiple informants across dyads (John and Reve 1982). This implies that the constructs do not have convergent validity at the overall construct level, a situation indicating the necessity to implement the control for method variance to purify constructs. This situation also highlights the necessity to run the structural model for the single-firm sample in addition to the dyadic approach, a process that has also been recommended by Bagozzi (1996).

Table 5.11

Constructs		**Correlation**
Customer Value	*Company I vs. Company II*	.216 (.037)[a]
Specific Investments	*Company I vs. Company II*	.177 (.087)
Co-market orientation	*Company I vs. Company II*	.063 (.554)
Centralization	*Company I vs. Company II*	.216 (.036)
Formalization	*Company I vs. Company II*	.134 (.198)
Relational Embeddedness	*Company I vs. Company II*	.069 (.506)
Knowledge Redundancy	*Company I vs. Company II*	.021 (.562)
Structural Position	*Company I vs. Company II*	-.002 (.955)

[a] = Significance level

Table 5.11 Correlation between the dyadic constructs

Table 5.12 reports the apportioning of variance (Phillips 1981) due to trait, method, and error for the scale measurement of the model tested. To a very high degree, the portion of method variance dominates the constructs. This signals the importance of controlling for method to purify measures for further analysis (Bagozzi and Yi 1991; Campbell and Fiske 1959; Phillips 1981). To take two examples, formalization in the Company I sample reports a method variance of .606 and relational embeddedness in the Company II sample reports a trait variance of .089. Shared method variance is a major validity threat that may influence test results (Bagozzi and Yi 1991; Campbell and Fiske 1959; Phillips 1981). Despite previous emphasis on shared method problems (Churchill 1979), few studies in marketing and management have actually taken the problem into serious consideration (Bagozzi and Yi 1991). The control for method variance in this research therefore increases its validity.

Table 5.12

	Variance Component		
	Trait	**Method**	**Error**
Company I:			
Customer Value	.360	.191	.448
Specific Investments	.215	.366	.419
Co-market orientation	.305	.324	.371
Centralization	.264	.436	.300
Formalization	.131	.606	.262
Relational Embeddedness	.286	.350	.364
Knowledge Redundancy	.367	.287	.345
Structural Position	.518	.258	.225
Company II:			
Customer Value	.130	.261	.609
Specific Investments	.107	.528	.365
Co-market orientation	.132	.399	.469
Centralization	.137	.538	.326
Formalization	.424	.357	.219
Relational Embeddedness	.089	.484	.427
Knowledge Redundancy	.284	.282	.434
Structural Position	.410	.288	.301

Table 5.12 Partitioning of variance due to trait, method and error

Given multiple measures obtained by multiple methods, construct validation is assessed through an inspection of the multitrait-multimethod (MTMM) matrix, where the correlation matrix for different concepts (that is, traits) is measured by different methods (Campbell and Fiske 1959). Campbell and Fiske (1959) recommend the

MTMM approach to control for measurement errors. Measurement error components can have serious influences on empirical results, yielding potentially misleading conclusions (Bagozzi and Yi 1991; Campbell and Fiske 1959). When the same method is used to measure different constructs, shared method variance always inflates the observed between-measure correlation. Working with dyadic data in this research enables us to control for measurement effects to facilitate convergent and discriminate validity.

Bagozzi and Yi (1991) argue that CFA is shown to overcome most limitations inherent in the Campbell and Fiske procedures. When applied to MTMM matrix data, the CFA model hypothesizes that the total variation in measures can be expressed as a linear combination of trait, method, and error effects (Jöreskog 1974). Nevertheless, it is well documented in marketing literature that CFA models have had difficulty analyzing MTMM data, whether for lack of fit, inadmissible estimates, or lack of convergence (Bagozzi 1996). In addition, one must consider the additive versus the multiplicative effect of method factors on trait factors (Kumar and Dillon 1992). Thus, the choice of a particular covariance structure model cannot be predicated on fit considerations alone, but rather must be made in the context of the measurement model presumed to underlie the observations. As a matter of fact, a good fitting CFA model in the case of MTMM should treated with caution since the apparent method effects are really confounded by trait effects from a general trait factor (Bagozzi 1996).

5.2.7 Discriminate validity

Three different tests of discriminate validity were performed. First, discriminate validity was tested for the single-firm sample. Models where all traits were allowed to correlate were compared against a series of models where intertrait correlation was set to unity (Fornell and Larcker 1981). The results are presented in Table 5.13. Each case reported significant Chi-square differences between the models. To take one example, the test of discrimination between formalization and centralization is

statistically significant: (χ^2 (df) = 694 (1), p<. 05). The correlation matrixes for the single-firm matrix are reported in Table 5.14.

Second, following Bagozzi, Yi and Phillips (1991) the procedure of a one-factor versus a two-factor confirmatory model was adopted to assess discriminate validity using EQS. A Chi-square difference test for one versus two factor model was conducted. As an example, the one-factor solution between relational embeddedness and customer value, χ^2 (1355) = 6681.032, reported a worse fit than did a model treating relational embeddedness and customer value as two separate factors, χ^2 (1348) = 5935.078, see Table 5.15 for the Chi-square differences. The Chi-square difference test was satisfactory.

Third, to test the discriminate validity of the overall constructs, the research computed constructs from pairs of scales in the dyad. For example, knowledge redundancy for Company I and Company II in a network were added to the construct 'knowledge redundancy'. For the test to compare models where all traits were allowed to correlate with a series of models where intertrait correlation was set to unity, each case reported significant Chi-square differences between the models. For example, the test of discrimination between knowledge redundancy and co-market orientation is statistically significant: χ^2 (1) = 137.795, p<. 05, see Table 5.16 for the findings.

In sum, the tests of discriminate validity provide evidence to assume that the constructs are different from each other, and thus, non-redundant.

Table 5.13

Covariances		Chi-square(df)	
CV	INV	782	(1)
CV	CMO	433	(1)
CV	CENT	840	(1)
CV	FORM	818	(1)
CV	EMBED	740	(1)
CV	POSIT	630	(1)
CV	KNOW	903	(1)
INV	CMO	934	(1)
INV	CENT	2206	(1)
INV	FORM	687	(1)
INV	EMBED	2710	(1)
INV	POSIT	672	(1)
INV	KNOW	2488	(1)
CMO	CENT	1006	(1)
CMO	FORM	642	(1)
CMO	EMBED	862	(1)
CMO	POSIT	624	(1)
CMO	KNOW	1224	(1)
CENT	FORM	694	(1)
CENT	EMBED	2522	(1)
CENT	KNOW	3078	(1)
CENT	POSIT	756	(1)
FORM	EMBED	684	(1)

FORM	KNOW	975	(1)
FORM	POSIT	655	(1)
EMBED	KNOW	2470	(1)
EMBED	POSIT	626	(1)
KNOW	POSIT	715	(1)

Table 5.13 Divergent validity through united intertrait correlation

Table 5.14

	CV	INV	CMO	CENT	FORM	EMBED	KNOW
INV	.285[a]						
	(.000)[b]						
CMO	.431	.534					
	(.000)	(.000)					
CENT	.232	.567	.509				
	(.000)	(.000)	(.000)				
FORM	.248	.541	.535	.525			
	(.000)	(.000)	(.000)	(.000)			
EMBED	.265	.585	.542	.470	.529		
	(.000)	(.000)	(.000)	(.000)	(.000)		
KNOW	.099	.298	.214	.184	.165	.294	
	(.024)	(.000)	(.000)	(.000)	(.000)	(.000)	
POSIT	.075	.158	.180	.078	.177	.166	.003
	(.087)	(.000)	(.000)	(.077)	(.000)	(.000)	(.952)

[a] = Correlation coefficient

[b] = Level of significance, two tailed

Table 5.14 Correlation matrix for single-firm data

Table 5.15

Constructs:		One-factor vs two-factor	
		Chi-square	**(df)**
CV	INV	735.410	(7)
CV	CMO	398.313	(7)
CV	CENT	772.921	(7)
CV	FORM	755.685	(7)
CV	EMBED	745.954	(7)
CV	KNOW	902.350	(7)
CV	POSIT	575.985	(7)
INV	CMO	1068.876	(7)
INV	CENT	2474.164	(7)
INV	FORM	961.100	(7)
INV	EMBED	2738.579	(7)
INV	KNOW	2466.229	(7)
INV	POSIT	564.775	(7)
CMO	CENT	1127.139	(7)
CMO	FORM	882.670	(7)
CMO	EMBED	1031.033	(7)
CMO	KNOW	1481.112	(7)
CMO	POSIT	550.988	(7)
CENT	FORM	970.777	(7)
CENT	EMBED	2841.367	(7)
CENT	KNOW	3554.106	(7)
CENT	POSIT	585.774	(7)
FORM	EMBED	970.638	(7)

FORM	KNOW	1402.566	(7)
FORM	POSIT	555.747	(7)
EMBED	KNOW	2461.287	(7)
EMBED	POSIT	556.680	(7)
KNOW	POSIT	604.050	(7)

Table 5.15 Divergent validity for one- versus two-factor solutions

Table 5.16

Covariances		Chi-square (df)
CV	INV	84.270 (1)
CV	CMO	21.221 (1)
CV	CENT	179.408 (1)
CV	FORM	151.868 (1)
CV	EMBED	125.849 (1)
CV	POSIT	26.100 (1)
CV	KNOW	96.669 (1)
INV	CMO	62.807 (1)
INV	CENT	42.962 (1)
INV	FORM	121.054 (1)
INV	EMBED	68.752 (1)
INV	POSIT	109.254 (1)
INV	KNOW	191.844 (1)
CMO	CENT	93.581 (1)
CMO	FORM	148.895 (1)
CMO	EMBED	53.601 (1)
CMO	POSIT	71.081 (1)
CMO	KNOW	137.795 (1)
CENT	FORM	92.569 (1)
CENT	EMBED	128.368 (1)
CENT	KNOW	282.058 (1)
CENT	POSIT	243.974 (1)

FORM	EMBED	116.520 (1)
FORM	KNOWL	264.482 (1)
FORM	POSIT	197.544 (1)
EMBED	KNOW	209.111 (1)
EMBED	POSIT	164.720 (1)
KNOW	POSIT	192.166 (1)

Table 5.16 Divergent validity at construct level

5.2.8 Summing up the measurement model

The CFA for the sample reported satisfactory fit for the factor loadings, the convergent validity, and the reliability measures. Further, the tests of the second-order factor model of co-market orientation confirmed the dimensions to be imputed into the measurement model. The fit indices for the single-firm measurement model were somewhat satisfactory, taking into consideration the choice of prioritizing construct validity at the cost of overall model fit. The only items that were excluded were four items in co-market orientation responsiveness. The research concluded with 5 indicators for customer value, 14 indicators for specific investments, 6 indicators for centralization, 3 indicators for formalization, 10 indicators for relational embeddedness, 9 indicators for knowledge redundancy, and finally 4 indicators for structural position. The items are summarized in Table 5.17.

Table 5.17

Constructs	Initial version	Final version
Customer Value	5	5
Specific Investments	14	14
Collective MO Intelligence generation	10	10
Collective MO Intelligence dissemination	12	12
Collective MO Intelligence response	17	13
Centralization	6	6
Formalization	3	3
Relational Embeddedness	10	10
Knowledge Redundancy	9	9
Structural Position	4	4

Table 5.17 Number of items in final model

By implementing the measurement model into an MTMM analysis using CFA, the opportunity to apportion variance into trait, method, and error came into being. The test revealed, however, that scale variance at the overall construct level was not satisfactory. Discriminate validity was tested using three different methods, one for the single-firm samples, one for the construct level, and, finally, one for the overall construct level.

By using a dyadic approach, the test uncovered several weaknesses in the data which would not have been possible to detect with a single-firm focus. Taking this into consideration, the results verify the necessity to validate data before drawing conclusions at later stages. Based on the results, it was decided to run the structural model separately for the single-firm data, in addition to the dyadic approach, a method that has been recommended by Bagozzi (1996).

Chapter 6: Tests of the research model

The following chapter tests the proposed hypotheses in the theoretical model. The test is threefold. First the structural model is tested for the single-firm sample. After that, it is tested to include control variables. Finally the dyadic structural model using a MTMM approach is performed.

6.1 The structural model

The second step in Anderson and Gerbing's (1988) two-step approach to SEM is to conjoin the measurement model with the structural model. This method is chosen because it enables a comprehensive and confirmatory assessment of construct validity, as discussed previously. The structural model in the research therefore constitutes a confirmatory assessment of nomological validity (Anderson and Gerbing 1988).

Analysis of the structural relationships was performed by EQS/Windows 5.7b (Bentler 1985). The results of the structural relationships for the single-firm sample are presented in Table 6.1. The results from the single-firm analysis including the control variable are not discussed successively, but are summarized in Table 6.2. The results of the structural relationships for the dyadic MTMM approach are presented in Table 6.3. The results of the hypothesis are displayed as follows: the findings are presented for the single-firm sample (marked with $_S$); after that the results of the hypothesis are presented using the dyadic MTMM approach, (marked with $_D$).

Effects of contractual arrangements. The first set of hypotheses to be tested was the effect of independent variables on co-market orientation. The independent variables are categorized into three groups: contractual arrangements, social capital, and structural position. The research started the test by investigating the effects of contractual arrangements on co-market orientation. First, the degree of centralization was hypothesized to positively affect the level of co-market orientation in the co-producing network, H1. The statistical test of the single-firm sample supported the alternative hypothesis, ($\gamma_{31S} = .239$, $p < .01$), as did the statistical test from the dyadic approach, ($\gamma_{31D} = .597$, $p < .05$). Based on this, H1 is statistically supported. Hypothesis H2 contends that formalization positively affects co-market orientation. The statistical test for the single-firm sample supported the falsification of the null

hypothesis, (γ_{32S} = .261, p< .01). By using a dyadic approach, the statistical test did support the strength of the relationship between formalization and co-market orientation, but this statistical test was not significant. It therefore provided no support for falsifying the null hypothesis, (γ_{32D} = .063). Based on this, H2 is not supported statistically.

Effects of social capital. For the hypotheses regarding social capital, hypothesis H3 predicts relational embeddedness to have a positive effect on co-market orientation. The statistical test in the single-firm sample supported the rejection of the null hypothesis, (γ_{33S} = .298, p< .01), as did the test of the dyadic data (γ_{33D} = .548, p< .01). Thus, H3 is statistically supported. For knowledge redundancy, the research predicted that it would positively affect co-market orientation, H4. The statistical test of the single-firm sample supported this hypothesis, (γ_{34S} = .068, p< .01). For the dyadic approach, the statistical test supported the hypothesis, with the results being significant (γ_{34D} = .230, p< .10). To sum up, the statistical tests statistically support hypothesis H4.

Effects of network structure. Hypothesis H5 predicts a central structural position to have a positive effect on co-market orientation. The statistical test for the single-firm sample supported the hypothesis (γ_{35S} = .085, p< .05). The dyadic test of the hypothesis also supported the rejection of the null hypothesis (γ_{35D} = .179, p< .10). From this, the research can conclude that the statistical test of H5 is statistically supported.

Effects of co-market orientation. Hypothesis H6 pertains to the two constructs co-market orientation and specific investments. For hypothesis H6, the research proposes that co-market orientation in a co-producing network positively affects the mount of specific investments in the network. The statistical test for the single-firm sample supported the falsification of the null hypothesis, (β_{23S} = .604, p< .01). By using the dyadic approach, the test also supported the falsification of the null hypothesis (β_{23D} = .637, p< .01), and H6 is thus statistically supported.

Effects on customer value. The final hypothesis contends that specific investments affect the level of perceived customer value (H7). The hypothetical test contended that the more specific investments in a co-producing network, the higher the level of customer value. For the single-firm sample, the statistical test supported a falsification of the null hypothesis, (β_{12S} = .421, p< .01). For the dyadic approach, when controlling for measure error, the statistical test also supported the falsification of the null hypothesis (β_{12D} = .580, p< .05). Based on these results, the research concludes that H7 is statistically supported.

Control variable. When the control variable of company size was included in the single-firm analysis, the test results did not show a marked change. The results, including the control variable, are presented in Table 6.2.

6.1.1 Summing up the structural model

Seven out of seven hypotheses were supported in the analysis of the single-firm data, whereas in the test of the dyadic data six out of the seven hypotheses were supported. The hypothesis not supported in the dyadic approach was the link between formalization and co-market orientation. The findings are summarized in Table 6.4.

Table 6.1

Independent variables:	**Dependent variables**: Co-market orientation	Specific investments	Customer value
Centralization	.239[a](5.365)[b]		
Formalization	.261 (5.402)		
Relational embeddedness	.298 (5.725)		
Knowledge redundancy	.068 (2.171)		
Structural position	.085 (1.828)		
Co-market orientation		.604 (13.541)	
Specific investments			.421 (8.408)
R^2	.500	.365	.177

χ^2 = 6227.506, degrees of freedom = 1359, p value = .001, GFI .675, AGFI = .645, CFI = .817, RMSEA = .084

[a] = Standardized value

[b] = t values in parenthesis

Table 6.1 Structural model for single-firm analysis

Table 6.2

Independent variables:	**Dependent variables**: Co-market orientation	Specific investments	Customer value
Centralization	.246[a] (5.527)[b]		
Formalization	.272 (5.666)		
Relational embeddedness	.293 (5.581)		
Knowledge redundancy	.053 (1.409)		
Structural position	.111 (2.678)		
Co-market orientation		.604 (13.307)	
Specific investments			.415 (8.178)
Company Size	-.105 (-2.879)		
R^2	. 520	. 364	. 173
χ^2 = 6296.172, degrees of freedom = 1407, p value = .001, GFI .673, AGFI = .642, CFI = .812, RMSEA = .083			
[a] = Standardized value			
[b] = t values in parenthesis			

Table 6.2 Structural model for single-firm analysis, including control variable

Table 6.3

Independent variables:	**Dependent variables:** Co-market orientation	Specific investments	Customer value
Centralization	.597[a](2.119)[b]		
Formalization	.063 (.502)		
Relational embeddedness	.548 (2.364)		
Knowledge redundancy	.230 (1.292)		
Structural position	.179 (1.544)		
Co-market orientation		.637 (2.342)	
Specific investments			.580 (2.183)
R^2	.745	.336	. 405

χ^2 = 269.541, degrees of freedom = 97, p value = .001

[a] = Standardized value

[b] = t values in parenthesis

Table 6.3 Structural model of the dyadic data

Table 6.4

Hypothesis	**Independent**	**Dependent**	**Predicted**	**Single-firm**	**Dyad**
H1	CENT	CMO	+	+	+
H2	FORM	CMO	+	+	NS
H3	EMBEDD	CMO	+	+	+
H4	KNOWL	CMO	+	+	+
H5	POSIT	CMO	+	+	+
H6	CMO	INV	+	+	+
H7	INV	CV	+	+	+

Table 6.4 Summary of findings in the structural model

Chapter 7: Results and implications of the findings

The purpose of this chapter is to discuss the results from the research and its implications. First I evaluate the test of the construct, co-market orientation. Then the discussion of the effects of contractual control on co-market orientation follows. Next the effect of co-market orientation on specific investments is discussed, which is followed by a discussion of the effects of specific investments on customer value. The chapter is closed with a discussion of implications, limitations and future research.

7.1 Results

The question of interest in this research is "*What is the impact of a co-market orientation in co-producing networks?"* To accomplish this two sub questions were developed. First, how do specialized actors in co-producing networks coordinate their businesses toward each other when they participate in a co-market orientation? Second, in a situation where specialized actors operate in a co producing network, what affect does adaptation from businesses with regard to the total product have on the customer's evaluation of the total product? The first sub-question reflects the independent variables, factors that affect a co-market orientation, where the second sub-question reflects the dependent variables: co-market orientation, specific investments and customer value. Each of these factors is discussed in turn. However, the concept of 'collective' market orientation is also introduced in this research. Consequently, the first section is a summary about the empirical analysis of this concept.

7.1.1 Test of co-market orientation

The concept of co-market orientation is developed from the market orientation literature in conjunction with the theory of collective action (Kohli and Jaworski 1990; Olson 1965). The theory of collective action discusses the coordination effort between two or more actors with the purpose of the common. Thus, a co-market orientation is identified as a type of collective action, and is recognized through the collective performance of the three market orientation dimensions as defined by Kohli and Jaworski (1990). As a consequence of this, my treatment of market orientation builds upon a behavioral perspective, which implies that market orientation is defined as an organizational strategic choice (Dreher 1994; Graves and Matsuno 1995). By co-market orientation I mean the market orientation *activities* actors in co-producing networks perform together (Kohli and Jaworski 1990). Therefore, co-market orientation is defined through the three behavior dimensions, collective intelligence gathering, collective intelligence dissemination and collective reaction to the intelligence.

To test the concept of co-market orientation the content of the construct was discussed during in-depth interviews with managers from the tourist industry. The managers stressed especially the importance of disseminating intelligence between the actors. Further, three empirical tests were performed to test the construct. First, the three dimensions of *individual* market orientation were tested against its correlation with the three dimensions of a *co-market orientation* (see Table 5.5 at page 119). The analysis reported that there was no correlation between the two forms of market orientation, lending support to the idea that the two concepts of market orientation should be treated as separate constructs. Second, the inter-dimensional correlation between the three dimensions of co-market orientation reported a strong correlation (see Table 5.6 at page 120). Third, the second order factor model confirmed that the three dimensions of co-market orientation could be treated as reflective dimensions of a higher order model, see Table 5.7 at page 125. Based on the above analysis, the concept of co-market orientation was used for the further analysis in the research.

7.1.2 Effect of contractual control

This research is among the first to develop and test antecedents and effects of co-market orientation in co-producing networks. Co-market orientation is defined as a type of collective action, and factors affecting the coordination effort of self-governing actors are investigated. To fully understand this problem, I draw on collective action which builds on the fundamental sociological question: when will a collectivity act to maximize its *collective* interest even though such behavior conflicts with a course of action that would maximize the short-term interest of each individual separately (Marwell and Ames 1979)? This research tests the effect that contractual control and social structures have on the companies that operate within the network and how they affect actors' behavior. Contractual control was predicted to affect collective behavior through its ability to simulate the elements of hierarchical control (Stinchcombe 1985), and social control affects actors' behavior through the resources the actors can draw on from the relationships. The results from contractual control are discussed first, before discussing the effect of the actor's social network.

Contractual control was separated into centralization and formalization. It is proposed that the effect of centralization enables the firms to perform a co-market orientation. This is because it clarifies boundaries on decisions and activities and thereby simplifies the decision-making (Galbraith 1977). In the empirical test the hypothesis was supported for single-firm sample and for the dyadic analysis, see Table 7.1. The empirical findings therefore support that centralized decision-making reduces the potential for uncoordinated behavior among network members. It does so by reducing the actors' free riding and facilitates the performance of a co-market orientation.

The second contractual control mechanism investigated is the presence of formalization. Formalization refers to the extent to which rules and procedures govern the relationship between interorganizational partners (Van de Ven 1976), and facilitates the performance of a co-market orientation. This is because it identifies duties and responsibilities for parties in a bilateral collaboration (Heide 1994). In contract theory, and as used in the transaction cost economy, formalization fosters convergent expectations (Reve 1986). In my empirical analysis I found that formalization positively affects co-market orientation in the single-firm analysis, but the effect was not significant in the dyadic analysis. The analysis of the dyadic sample controls for method variance, and its results have a higher degree of validity than single-firm analysis. Therefore, in the dyadic analysis, I can, to a greater extent, anticipate that the effects can be traced to the effects from the construct, and not because of method variance. This exemplifies the necessity to include a more stringent method when analyzing survey data. Based on the dyadic test, I conclude that the empirical test does not demonstrate that formalization affects a co-market orientation.

A summary of the empirical test of contractual control demonstrates that when the parties implement a centralized decision mechanism this facilitates the performance of a co-market orientation. Formalization, on the other hand, does not seem to have any affect on a co-market orientation, see Table 7.1.

Table 7.1

	Dependent variable: Co-market orientation		
	Findings:		
Independent variables:	**Predicted**	**Single-firm**	**Dyad**
Contractual control			
Centralization	+	+	+
Formalization	+	+	NS

Table 7.1 Findings from contractual control

7.1.3 Effects of social capital

The second control mechanism is social capital. The central proposition of social capital theory is that a network of relationships constitutes a valuable resource for the conduct of social affairs. Such a resource provides members with the collectivity-owned capital, a 'credential' which entitles them to credit, in the various senses of the word. Social capital is separated into relational embeddedness and redundant knowledge, which is derived from a level in the market and closeness. First, a test of the two types of social capital was performed. As derived from existing theory (Ahuja 2000; Burt 1992; Granovetter 1973; Rindfleisch and Moorman 2001; Uzzi 1997), relational embeddedness exists under conditions of closeness and high frequency, which is measured through the actors' perceptions of each other as collaborators versus competitors (Rindfleisch and Moorman 2001). Knowledge redundancy is identified through the different levels in the market, where a horizontal level facilitates redundant knowledge and a vertical level facilitates structural holes (Rindfleisch and Moorman 2001). First I tested whether relational embeddedness was more strongly correlated to collaborators than competitors, and whether knowledge redundancy was more strongly correlated to actors at a horizontal level than a vertical level. The empirical test, illustrated in Table 7.2, supports my assumptions. In other words, when actors in a social network perceive themselves as collaborators in the network, they have a significantly higher frequency of interactions and lower distance

than actors who view themselves as competitors. When actors in a social network operate at a horizontal level, they have significantly more redundant knowledge than actors who operate at a vertical level in the market. Based on this, the constructs of relational embeddedness and knowledge redundancy, which are derived from the structural network in which the actors operate, are implemented in the model as two forms of social capital.

Table 7.2

	Findings:	
	Predicted	**Single-firm**
Relational embeddedness:		
Collaborators > Competitors	+	+
Knowledge redundancy:		
Horizontally > Vertically level	+	+

Table 7.2 Fisher Z-test of dimensions in social capital

Two features regarding relational embeddedness were predicted to facilitate the performance of co-market orientation: reciprocity of direct ties and the risk of social lockout in closed networks. The empirical analysis supports the prediction that relational embeddedness hampers opportunistic behavior and thereby facilitates collective behavior. Based on this, I can predict that the existence of reciprocity in social networks affects actors' behavior in a way that encourages them to work for the common. This is because the partners expect that unselfish effort will be returned, which is demonstrated in this test. Also, in closed networks, the information about one party's opportunistic act diffuses rapidly to other related partners and sanctions for deviant behavior are more easily imposed. Therefore, such networks reduce actors' tendency to free ride and the level of coordinated behavior is enforced.

The second type of social capital is redundant knowledge. Redundant knowledge is the opposite of structural holes, i.e. structures where the partners share ego networks (Scott 1991). The empirical analysis gives support for knowledge

redundancy to positively affect co-market orientation, i.e. the test is significant for the single-firm analysis and dyadic analysis, see Table 7.3. Therefore, when partners share ego networks, i.e. operate at a horizontal level in a co-producing network, they have similar information which enables them to convert information into similar knowledge. This is important because it affects the interpretation of information that transfer between the parties and their level of co-market orientation increases. Based on the regression analysis I can anticipate that actors at a horizontal level have a more favorable opportunity to perform a co-market orientation, such as in co-producing networks.

A summary of the empirical test of social control demonstrates that parties who are close and have a high frequency of interactions are associated with relational embeddedness, whereas parties operating at the same level in the market are associated with redundant knowledge. Relational embeddedness facilitates the performance of a co-market orientation through its redundancy and social norms, and knowledge redundancy gives support to its affect on co-market orientation through actors' shared interpretation.

Table 7.3

	Dependent variable: Co-market orientation		
		Findings:	
Independent variables:	**Predicted**	**Single-firm**	**Dyad**
Social capital			
Relational embeddedness	+	+	+
Knowledge redundancy	+	+	+

Table 7.3 Findings from social capital

7.1.4 Effect of structural position

The final factor, which is tested for its affect on a co-market orientation, is the structural position of the actors in the network. The empirical test provides support to

Olson's (1965) proposition that actors with a central position in the network are willing to bear larger costs of the collective provision. The rationale is that these actors are more motivated to perform the collective action because they are more prominent. Indirectly this proposition says that less prominent actors have a greater tendency to free ride. As can be seen from Table 7.4, the hypothesis is supported by the

Table 7.4

	Dependent variable:		
	Co-market orientation		
	Findings:		
Independent variable:	**Predicted**	**Single-firm**	**Dyad**
Structural position	+	+	+

Table 7.4 Findings from structural position

single-firm and the dyadic analysis. Therefore, the effect of structural position is supported in this research.

A summary of the empirical test of structural position supports the idea that centrally positioned actors tend to bear a larger degree of the burden of the collective actions.

7.1.5 Effect of co-market orientation

Regarding the effect of a co-market orientation in co-producing networks, this research has identified specific investments as a mediating variable on customer value. I start the discussion with the results from the effect of co-market orientation on specific investments.

The specific investments in this research are defined as adaptation costs, costs that are endogenous to governance. These investments are physical, such as investments in equipment, machinery and infrastructure, and investments in activities, such as human assets. Because the adaptation toward the customer increases the co-producing network's attractiveness, even for those who do not

participate in the investments, the investments are defined as a public good. This is because the adaptation produces goods that are non-excludable and non-rival or indivisible between all of the actors in the network.

As illustrated in Table 7.5, the empirical analysis supports the hypothesis that the degree of resources used in adaptation increases with the level of co-market orientation. Co-producing networks are identified as fragmented markets, which are characterized by the specialized businesses that are occupied with divided or narrowed tasks (Dollinger 1990). This situation leads to the problems of unsolved tasks and sub optimization (Olson 1965). To help solve these problems, this research demonstrates that the more co-market orientation is performed by the actors in the co-producing network, the more willing they are to use resources to adjust their products toward each other. Therefore, when the parties perform a co-market orientation they develop an understanding of what and why to invest. This understanding enables the actors to resolve unsolved tasks in coordination and it prevents the actors from operating in a sub optimizing way, even when this conflicts with

Table 7.5

	Dependent variable: Specific investments		
		Findings:	
Independent variable:	**Predicted**	**Single-firm**	**Dyad**
Co-market orientation	+	+	+

Table 7.5 Findings from co-market orientation

individual short term profit. Co-market orientation is, therefore, one answer to the coordination problems in co-producing networks.

To summarize, the empirical test of the effects from co-market orientation on specific investments is that it increases actors' knowledge of what and why to invest. As a result, the actors' are more likely to use resources to adapt to each other.

Consequently, co-market orientation reduces the occurrence of problems caused by unsolved tasks and sub-optimization in co-producing networks.

7.1.6 Effect of specific investments

As Deshpandé, Farley and Webster (1993) point out, the effects from customer orientation should be measured by asking customers themselves, rather than the organization's key informants. Therefore, participants were asked to pass out 10 questionnaires to each of their customers. Sixty-seven out of a possible 288 complied, which resulted in a total of 449 customer responses. Because of the low customer response rate, the companies' response of customer value was used for further analysis.

We predicted that the more resources companies used to adapt their products to each other to handle problems with unsolved tasks and sub-optimization, the more positive the evaluation from customers. This understanding of customer value is not simply 'added' but is mutually 'created' and 're-created' among actors with different values for complementary products (Ramírez 1999). The empirical analysis supported my prediction that specific investments positively affected customer value. For instance, my analysis demonstrates that when actors in co-producing networks use resources to synchronize their market information, the customer uses less time on search and evaluation. The empirical analysis also demonstrates that resources used for adapting products toward each other positively affects the customers' perception of the price they pay for the product. Also, the perception of physical and psychological risk is lowered through the coordination. Further, customers report that they stay longer at destinations where the actors have invested resources for adaptation.

A summary of the empirical test of the effects from specific investments on customer value is that it increases the customer's perception of value gained from the transaction. As a consequence, product adjustments made by the co-producing businesses, specifically for the customer, have a strong affect on the customer's evaluation of the total product, see Table 7.6.

Table 7.6

	Dependent variable: Customer value		
		Findings:	
Independent variable:	**Predicted**	**Single-firm**	**Dyad**
Specific investments	+	+	+

Table 7.6 Findings from specific investments

7.2 Conclusions, implications and future research

The following section discusses the conclusions, implications, and future research from the research. I start with a discussion of the research's conclusions.

7.2.1 Conclusions

The answer to sub-question one is that specialized actors in co-producing networks coordinate toward each other to develop a co-market orientation, through centralization in contractual control and through social capital, which is derived from the structures in the co-producing network, hereof relational embeddedness from closeness and high frequency of interactions, redundant knowledge through similar ego networks, and through actors' positions in the structural network. These factors therefore reduce the problem of free riding among the actors in the co-producing network since it motivates them to participate in a type of collective action. For centralization, the test proved that it enables the firms to perform a co-market orientation. This is because it clarifies boundaries on decisions and activities and thereby simplifies the decision-making (Galbraith 1977) through reducing the potential for uncoordinated behavior among the network members. For formalization, the test supported the single-firm analysis but not the dyadic analysis. Therefore I cannot predict that the extent of rules and procedures affects a co-market orientation. For social capital the research demonstrated that the social structures affect the

resources the actors could derive from their network. Especially, the research demonstrated that for networks where the actors share ego networks, i.e. operate at a horizontal level in a co-producing network, their extent of similar information enables them to convert information, which positively affects their behavior of co-market orientation. For relational embeddedness, the research discussed two effects: reciprocity and social lockout. First, the research demonstrates that the actors are more motivated to work for the common best when the network consisted of actors that had a high degree of reciprocity. Such reciprocity comes into being when the network is characterized by strong ties. Second, closed networks motivated for collective action because such networks included the threat to socially lock out actors that performed for individual best, at the cost of the common. Finally, the research demonstrated that those actors that had a central position in the network had to carry a larger degree of the collectively provision. This was because such actors were endowed, which means that they derived larger benefits from the collective provision than the others did.

The answer to sub-question two is that the effect of business adaptation regarding the total product is that a co-market orientation positively affects the production of public goods in the network. The actors therefore have shifted their goal from short-term individual profit to long term collective best. This enables the creation of activities that reduce the problem of unsolved tasks and sub-optimization, which exist in co-producing networks. Such adaptation positively affects customers' perception of value derived from such networks, as compared to networks with low adaptation. The research demonstrated that the more co-market orientation a co-producing network performed, the higher degree of specific investments the network members spent on adapting toward each other and toward their collective customers. Therefore, the network, in fact, performed action for creating public good by themselves. The research demonstrates that such performance has a positive effect on the value the customers evaluate, when transacting with the co-producing network, e.g. the total product. These findings are summarized in Table 7.7.

Table 7.7

		Findings:		
Independent:	**Dependent:**	**Predicted**	**Single-firm**	**Dyad**
Centralization	Collective MO	+	+	+
Formalization	Collective MO	+	+	NS
Relational embeddedness	Collective MO	+	+	+
Knowledge redundancy	Collective MO	+	+	+
Structural position	Collective MO	+	+	+
Specific investments	Customer value	+	+	+
Collective MO	Specific investments	+	+	+

Table 7.7 Summary of findings in the structural model

7.2.2 Implications

The next part considers the implications of the research. The chapter is divided into theoretical implications and managerial implications. The discussion starts with theoretical implications.

a) Theoretical implications

Research on market orientation has been in focus for decades. The focus has been on the philosophical foundation of market orientation (Drucker 1954), its definition and operationalization (see Deng and Dart 1994; Gray, Matear, Boshoff et al. 1998; Kohli and Jaworski 1990; Narver and Slater 1990; Wrenn 1997), the link between market orientation and performance and potential moderating effects (see Deshpandé, Farley, and Webster 1993; Greenley 1995; Han, Kim, and Srivastava 1998; Slater and Narver 1994), and market orientation in combination with organizational learning (Baker and Sinkula 1999; Day 1991; Hurley and Hult 1998; Siguaw, Brown, and Widing 1994; Slater and Narver 1995). Building on the existing market orientation literature, the intended contribution from this project is to test the implications of a co-market

orientation in co-producing networks. Few studies have investigated market orientation at the inter-organizational level. Among the few is research on how individual market orientation affects the supplier-distributor relationship (Siguaw, Simpson, and Baker 1998). No research, to my knowledge, has investigated the implications of co-market orientation in strategic alliances or in situations within co-producing networks. Because firms often create superior value for customers by collaborating with other organizations (Varadarajan and Rajaratnam 1986), see for example symbiotic marketing (Adler 1966), market-oriented firms that collaborate with other firms to compete must develop strategies for market orientation that is inter-firm rather than intra-firm in nature.

The identification and inclusion of a co-market orientation, derived from the theory of collective action, is developed in this research. This research is therefore among the first that connects collective action and market strategies. By doing so, this research develops and discusses new solutions to old problems by combining well-established theories.

The research also contributes by demonstrating the controlling effect of social norms on co-market orientation between actors in co-producing networks. Several studies have discussed the controlling effect of social norms on a partner's behavior (Coleman 1988; Greve and Salaff 2001; Gulati 1998; Maxwell 1999; Nahapiet and Ghoshal 1998; Putnam 1993); they also occur within marketing (Achrol 1997; Achrol and Gundlach 1999; Cannon, Achrol, and Gundlach 2000; Gundlach and Achrol 1993; Noordewier, John, and Nevin 1990; Rindfleisch and Moorman 2001). Further, contributions to network theory are increasing (Ahuja 2000; Uzzi 1997) and progress is also seen in the marketing literature (Achrol, Reve, and Stern 1982; Håkansson and Snehota 1995; Webster 1992). Despite this, the project will be one of the first to investigate the effect of social capital on an actor's behavior in situations where self-governing actors coordinate for co-market orientation. Among the few that have tested social capital in marketing using survey data are Rindfleisch and Moorman (2001) who tested the effect from social capital on development of new products.

Therefore, my research builds on their research and tests how social capital affects actors' performance in a co-market orientation.

The methodological contribution of this research is the empirical investigation of co-marketing alliances using dyadic data (John and Reve 1982). By investigating the situation of co-production in a network I have broadened the focus of empirical research within both market orientation and coordinating arrangements, such as contractual arrangements and social control. Analysis of the dyad, using MTMM, enables the control of standard error - conditions that have been asked for in marketing research (Bagozzi and Yi 1991).

b) Managerial implications

This research may have implications for collaboration in co-producing networks. The positive effect of co-market orientation and specific investments should increase managers' focus in that area, especially in co-producing networks which are characterized by public goods. The analysis also sheds light on the fact that the social network itself controls actor behavior. Actors in co-producing networks may reduce the level of costly control systems whenever the network structure provides the actors with information that affects actor behavior. The more prominent actors should also be aware of the high risk of non-participation from non-prominent actors in the network. My research may recommend more formal control through centralized decision-making and informal control from the social network, because of the motivation problem actors have for participating in collective action, such as the situation are in co-producing networks.

7.2.3 Limitations and future research

Limitations and future research are considered together because the limitations of any research should form the focus of future research. The section is divided into the theoretical perspective, research design, data collection and the measurements.

a) Theoretical perspectives

This research builds on the assumption that the actor performs rational choices. The rational choice theory, however, has been criticized for categorizing individuals into

one group, the "individualism" (Udéhn 1993), where a mixed motivation for participation should be used. This critique affects the logic of Olson's (1965) collective action because this theory builds on the rational choice theory. The theory of collective action therefore has a view on "either/or" rather than "how much?" An example of an extension of motivation for collective action is Knoke (1988, p. 315), who identifies three dimensions of motivation: rational choice, affective bounding and normative conformity, all of which affect involvement in collective action. Therefore, motives, other than self-interest have been argued to be part of the explanation of collective action. As a result, future research that conceptualises rationality would strengthen the understanding of rationality and, thereby, any theories that build on rational choice theory (for example, the theory of collective action), and clarify how different motivation for behavior affects the outcome.

A second limitation of the research is the fact that co-market orientation is viewed from the behavior orientation perspective. Even though this choice enables the determination of factors that affect co-market orientation in social networks, it does not allow for the investigation of corporate culture in co-market orientation (Webster 1988). Co-market orientation from the philosophy phenomenon point of view would emphasize factors such as shared cultural values. For instance, Achrol, Scheer and Stern (1990) identify organizational compatibility, goal compatibility, partner commitment and trust to be important characteristics of partner firms. By choosing the behavior perspective, this research could not identify how organizational cognition - schemata, scripts, cognitive maps, standard operating procedures, groupthink, theories in use, or frames of references - affects a co-market orientation. Therefore, future research that combines and/or contrasts these two orientations would be valuable.

b) Research design

Pair of companies in a series of co-producing networks have been investigated in this research. Some network researchers have, however, pointed out that it is necessary to map the entire network to capture the value from direct and indirect ties (Greve and Salaff 2001; Scott 1991). Future research should, therefore, take the research question

from this research and apply it to a structural network research. By doing so, a more in depth investigation of the effects that social network nodes and ties have on collective action could be undertaken (Scott 1991). For example, analysis could be done using the analytical tools KrackPlot and USInet.

Further, the data in this research is based on a descriptive design with only one time interval. Future research that implements longitudinal data would strengthen the test of direction of the hypothesis.

c) Data collection

This research assumes that managers are capable of and willing to share information through questionnaires. By following the recommendations of measuring dyadic relationships in marketing by John and Reve (1982), the questionnaire tested respondents' interest and knowledge to certify that they were reliable. Future research should test whether this reliability also holds for structural networks.

The time constraints of this project necessitated the data collection to be done during June - August. This is disadvantageous because the tourist setting in this research is seasonal. The customer data is therefore limited to summer-activities. Data from a full year would capture customer data from all types of companies within the industry. Such data would reinforce the validity of the research.

d) Measurement

One construct was new in this research, the notion of co-market orientation. The measurements for this construct are built on existing operationalization for individual market orientation. Even though the indicators reported satisfactory convergent and divergent validity, they should be exposed to future tests to strengthen their validity.

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Appendix A Definitions of Social Capital

Bourdieu (1986, p. 243)	Made up of social obligations ('connections'), which is convertible, in certain conditions, into economic capital and may be institutionalized in the form of a title of nobility
Bourdieu (1986, p. 248)	The aggregate of the actual or potential resources which are linked to possession of a durable network of more or less institutionalized relationships of mutual acquaintance or recognition
Baker (1990, p. 619)	A resource that actors derive from specific social structures and then use to pursue their interests; it is created by changes in the relationship among actors
Coleman (1990, p. 302)	Social capital is defined by its function. It is not a single entity, but a variety of different entities having two characteristics in common: they all consist of some aspect of social structure, and they facilitate certain actions of individuals who are within the structure
Boxman, De Graaf, & Flap (1991, p. 52)	The number of people who can be expected to provide support and the resources those people have at their disposal
Bourdieu and Wacquant (1992, p. 119)	The sum of the resources, actual or virtual, that accrue to an individual or a group by virtue of possessing a durable network of more or less institutionalized relationships of mutual acquaintance and recognition
Burt (1992, p. 9)	Friends, colleagues, and more general contacts through whom you receive opportunities to use your financial and human

	capital
Loury (1992, p. 100)	Naturally occurring social relationships among persons which promote or assist the acquisition of skills and traits valued in the marketplace… an asset which may be as significant as financial bequest in accounting for the maintenance of inequality in our society
Schiff (1992, p. 160)	The set of elements of the social structure that affects relations among people and are inputs or arguments of the production and/or utility function
Portes and Sensenbrenner (1993, p. 1323)	Those expectations for action within a collectivity that affect the economic goals and goal-seeking behavior of its members, even if these expectations are not oriented toward the economic sphere
Putnam (1993, p. 67)	Features of social organization such as networks, norms, and social trust that facilitate coordination and cooperation for mutual benefits
Belliveau, O`Reilly, and Wade (1996, p. 1572)	An individual's personal network and elite institutional affiliations
Thomas (1996, p. 11)	Those voluntary means and processes developed within civil society which promote development for the collective whole
Brehm and Rahn (1997, p. 999)	The web of cooperative relationships between citizens that facilitates resolution of collective action problems

Fukuyama (1997, p. 10)	The ability of people to work together for common purposes in groups and organizations
Inglehart (1997, p. 188)	A culture of trust and tolerance, in which extensive networks of voluntary associations emerge
Pennar (1997, p. 154)	The web of social relationships that influences individual behavior and thereby affects economic growth
Nahapiet and Ghoshal (1998, 243)	The sum of the actual and potential resources embedded within, available through, and derived from the network of relationships possessed by an individual or social unit. Social capital thus comprises both the network and the assets that may be mobilized through that network
Portes (1998, p. 6)	The ability of actors to secure benefits by virtue of memberships in social networks or other social structures
Woolcock (1998, p. 153)	The information, trust, and norms of reciprocity inhering in one's social networks
Knoke (1999, p. 18)	The process by which social actors create and mobilize their network connections within and between organizations to gain access to other social actors' resources