Inter-organizational cooperation and organizational innovativeness: Is *collaborative community* the answer?

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Abstract

This explorative study investigates the relationship between inter-organizational cooperation and organizational innovativeness within an explorative study. In this respect, several scholars have argued that the trust-based collaborative community is and appropriate form of cooperation for dealing with complex, knowledge-intensive assets. The notion of trust in capitalism, however, causes theoretical contradictions. This paper tries to overcome these by synthesizing constructs from classical organization theory within a trustful context. Next to this, the trust thesis is tested. In addition, this paper tries to provide answers to the question of how inter-organizational cooperation influences organizational innovativeness by building a comprehensive framework of inter-organizational cooperation. Both the trust thesis and framework are tested by using an experimental vignette design. The results from the multilevel analysis indicate that trust is the most significant dimension within inter-organizational cooperation that positively influences organizational innovativeness. In addition, the results suggest that the more inter-organizational cooperation approaches the collaborative community form, the greater its positive influence on innovativeness. Yet, when the trust dimension is fulfilled, the findings show little difference in terms of innovation outcomes between partnership types. Since this study was merely explorative, more research is needed in order to investigate if, and how, different dimensions of inter-organizational cooperation interact.

Keywords: innovation; inter-organizational cooperation; collaborative community; organizational trust; vignette studies.

Several authors have argued that, since the emergence and proliferation of the knowledge economy, there has been a shift from innovation as a competitive advantage (Crossan & Apaydin, 2010) towards innovation as a cooperative advantage (Koster, 2016; Contractor & Lorange, 2002; Dyer & Singh, 1998). In this light, some scholars argue that a *trust*-based *collaborative community* mode is the appropriate organizational design for inter-organizational cooperation (Snow, Fjeldstad, Lettl, & Miles, 2011; Bøllingtoft, Donaldson, Huber, Håkonsson, & Snow, 2011; Adler, Kwon, & Heckscher, 2008). However, placing trust and community in a capitalistic context causes a theoretical paradox. Besides, since they are based on Williamson's (1981; 1975) classic market-hierarchy framework, conceptualizations within classical organization theory face difficulties in explaining inter-organizational cooperation, (Gilson, Sabel, & Scott, 2009).

Therefore, this paper first tries to theoretically explain *why* inter-organizational organization might have a positive effect on organizational innovativeness. It does so by solving the paradox of trust in capitalism and by synthesizing classical theoretical constructs within a trustful context to explain organizational incentives for cooperation. Second, this paper will test the trust thesis (Adler, 2001). However, solely using the argument of trust does not suffice in answering the second question with which this paper is concerned: *how* does inter-organizational cooperation influence organizational innovativeness? So far, little is known about inter-organizational cooperation and its relation with organizational innovativeness (Pouwels & Koster, 2017; Koster, 2016). For identifying significant dimensions and preconditions for successful inter-organizational cooperation, it is important to gain knowledge about how organizations cooperate in. Identifying such preconditions might help future managers in making appropriate decisions about relationships with other organizations. Third, therefore, this paper tries to build a comprehensive framework for inter-organizational cooperation, based on eight dimensions of inter-organizational cooperation. Hence, the research questions to be asked are:

How does inter-organizational cooperation stimulate organizational innovativeness; and is the trust-based collaborative community the answer?

Theoretical framework

The first section of the theoretical framework, discusses innovation and its perception as a cooperative advantage. In the following section, this paper elaborates on the theoretical contradictions associated with cooperation and trust. The third section tries to synthesize classical theoretical constructs within a trustful context to explain why contemporary organizations have to engage in inter-organizational cooperation. This section is followed by a taxonomy of organizational modes, based on Adler (2001). Besides, the concept of collaborative community will be further discussed. The final section argues that solely the argument of trust does not suffice for answering *how* inter-organizational cooperation influences organizational innovativeness and proposes a comprehensive framework for inter-organizational cooperation.

Innovation defined

Innovation is a typical conceptual catchall. Very broadly, innovation is defined as "the process of introducing new ideas to the firm, which results in increased firm performance" (Rogers, 1998, p. 2). Next to this, innovation is often seen as the generation and diffusion of knowledge, which contributes to organizational adaptation and product development (Snow, Fjeldstad, Lettl, & Miles, 2011; Powell & Snellman, 2004; Sveiby, 2001; Leonard & Sensiper, 1998). From the vast body of innovation literature, four distinct types can be derived: (1) product or service innovation; (2) process innovation; (3) market innovation; and (4) organizational or business-model innovation (Pouwels & Koster, 2017; Crossan & Apaydin, 2010; Pittaway, Robertson, Munir, Deyner, & Neely, 2004; Boer & During, 2001). To briefly discuss these types, this paper makes use of Schumpeter's (1934) taxonomy as interpreted by Pouwels & Koster (2017).

Product or service innovation is defined as the introduction of new products or services, or improvements in existing products or services. It is associated with product differentiation and technological competitiveness. *Process innovation* is defined as the introduction of new methods of production or sale, or adjusting and improving these methods. It is associated with price competitiveness. *Market innovation* is defined as either opening or widening new markets, or 'changing the rules of the game' in existing markets. *Organizational or business-model innovation* is defined as exploring and implementing new forms of organization, or improvements in the business-model. Like process innovation, organizational innovation is associated with price competitiveness (Pouwels & Koster, 2017; Schumpeter, 1934).

Innovation in the knowledge economy: from competitive to cooperative advantage

Innovation is widely seen as the critical source of competitive advantage (Crossan & Apaydin, 2010). Innovation capabilities are core determinants for organizational performance. In addition, knowledge is the key resource required for innovation (Marr, Schiuma, & Neely, 2004). Knowledge leads to organizational innovative capabilities, which, in turn, lead organizations to develop core competencies and a competitive advantage (Prahalad & Hamel, 1990). In the knowledge economy, generally defined as "production and services based on knowledge-intensive activities that contribute to an accelerated pace of technical and scientific advance, as well as to its rapid obsolescence" (Powell & Snellman, 2004, p. 199), the salience of innovation has grown considerably. In the knowledge economy, innovation has become both opportunity and heavy urgency for organizations (Koster, 2016). Opportunity since knowledge-based assets and skills required for innovation are widespread; urgency since innovation capabilities determine organizational survival (Crossan & Apaydin, 2010).

In this light, several authors argue that there has been a shift from innovation as a competitive advantage towards a cooperative advantage (Koster, 2016; Alexiev, Volberda, & Van den Bosch, 2016; Contractor & Lorange, 2002; Dyer & Singh, 1998). Resources and organizational assets required for innovation have become increasingly complex and knowledge-intensive (Koster, 2016), which makes managing and coordinating them increasingly challenging. In this respect, scholars stress the distinction of *explicit* knowledge and *tacit* knowledge. Tacit knowledge is implicit, unconscious knowledge embedded in individual, group, and organizational routines (Koster, 2016; Adler, Kwon, & Heckscher, 2008; Smith, 2001; Bontis, 1999; Leonard & Sensiper, 1998). It is this tacit knowledge that has become so determining for innovation and therefore for performance, yet is so difficult for organizations to coordinate (Adler, 2001).

Howbeit, numerous studies found that trust considerably enhances the generation and diffusion of tacit knowledge in organizations (Scott & Davis, 2007; Adler & Heckscher, 2006; Kramer, 1999; Dyer & Singh, 1998). In this light, several authors argue that a *collaborative community* form of organizations, with the coordination mechanism of trust, is the appropriate design for diffusing the knowledge required for innovation (Snow et al., 2011; Bøllingtoft et al., 2011; Nowell, 2010; Hartley, 2010; Adler et al., 2008; Bickmore, 2005). However, the concept of inter-organizational cooperation seems difficult to explain within organization theory (Alexiev et al., 2016). In addition, the concepts of trust and community in a capitalistic context raise

considerable theoretical contradictions. Moreover, as this paper will show below, they contrast a considerable deal of classical organization theory.

Structuration and coordination and the problem of trust

The shift towards cooperative advantage can be partly explained by recent trends in conceptualizations of organizational structuration and coordination. Throughout recent decades, scholarship perceived considerable changes in coordination and structuration of organizations and economic relations. However, these conceptualizations have long been based on the market-hierarchy dichotomy, which assumes a trustless world (Adler, 2001). Two theoretical problems are related with this decreased explanatory power of classical organization theory (Gilson, Sabel, & Scott, 2009).

First, prior scholarship conceptualized structuration and coordination in ideal type, mutually exclusive forms (Adler, 2001). Traditionally, organizations and economic relations were perceived to be governed through either *market* or *hierarchy* structures, with coordination mechanisms of respectively *price* and *authority* (Williamson, 1981; 1975). This framework, however, increasingly faced difficulties in explaining hybrid market-hierarchy organizational forms (Adler, 2001). In addition, from the 80s, research already began to suggest the existence of *clan* structures, based on *trust* as a coordination mechanism (Ouchi, 1980). Yet, the conceptualization of clans faces similar conceptual problems. In Ouchi's work, trust is proposed as an alternative mechanism, thereby rejecting both price and authority mechanisms.

Second, whereas inter-organizational cooperation cannot be seen apart from trust (Mayer, Davis, & Schoorman, 1995), the market-hierarchy dichotomy does not see cooperation as a possible component of economic relations, but rejects it instead. During the 90s, scholarship saw the diffusion of hybrid market-hierarchy and *network* forms of organizations (Zenger & Hesterly, 1997; Scott, 1992; Powell, 1990). Yet, these forms are based on the market-hierarchy dichotomy, which assumes rational, self-interested economic actors with opportunistic behavior (Geyskens, Steenkamp, & Kumar, 2006). Thus, the conceptualization of the network form (Powell, 1990) does not suffice. Fundamentally, *Network Theory* (NT) stresses that trust is needed for networks to exist (Brass, Galaskiewicz, Greve, & Tsai, 2004; Pittaway et al., 2004). Powell's (1990) concept of network structures is however built upon the assumption of distrust, which makes it incompatible with NT.

Synthesizing theories

Nevertheless, this paper argues that a synthesis of few classical constructs does explain why organizations have to work together in the knowledge economy, yet it does so on a trustless base and thus do not suffice. Although *Transaction Cost Theory* (TCT) is based on the market-hierarchy dichotomy (Geyskens et al., 2006), it is still plausible to expect that its following claim is true: when asset-specificity and complexity of a transaction increase, organizations do better by outsourcing (Williamson, 1981). Within *Resource Dependence Theory* (RDT) as well, it is asserted that organizations look for resources within other organizations (Pfeffer & Salancik, 1978). RDT asserts that organizational performance depends on access to external resources, and capabilities to transform these into assets (Pfeffer & Salancik, 1978). And since organizations thrive on a *fit* between their structure and the environment (e.g. other organizations), organizations adjust their structuration and coordination to their environment (Mintzberg, 1980).

In addition, RDT stresses the importance of *exchange* networks among organizations (Alexiev et al., 2016). Small firm networks and strategic alliances provide benefits for organizations, like access to information, relevant labor and resources, and an increased firm-level specialization (Pouwels & Koster, 2017; Scott & Davis, 2007). Next to this, research shows that the more linkages organizations have, the more likely they are to develop cooperative activities. Board linkages with others help organizations to gain access to more organizations, which results in more potential partners for collaborative activities (Guo & Acer, 2005, p. 348). Moreover, NT asserts that these networks only thrive on the basis of trust.

Solving the trust paradox and overcoming conceptual duality

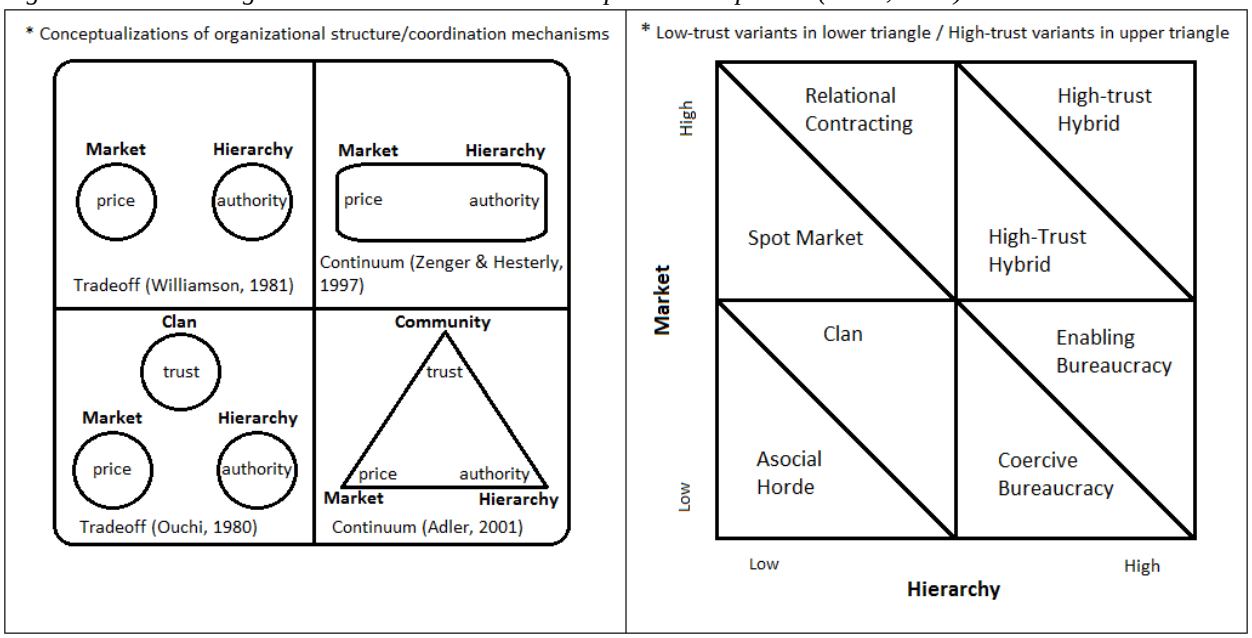
This is where the trust argument becomes salient. "Ideally, market and hierarchy are both insufficient means for organizations in dealing with the intensified importance of knowledge (Adler, 2001, p. 217). "Trust however, facilitates an enlarged scope of knowledge generation and sharing, as well as it dramatically reduces transaction costs associated by market and hierarchy" (p. 219). And "where trust enables to act on the basis of reliance on others, the collaborative community provides a basis for this confidence, by establishing and enforcing mutual expectations" (Adler & Heckscher, 2006, p. 13).

But whereas some scholars accept trust as an appropriate coordination mechanism, others utterly reject its existence by arguing that "the basic structure of capitalism – its fundamentally

competitive and exploitive nature, its instrumental and contractual *Gesellschaft* character – makes any idea of a trust-based community in industry a fantasy" (as noted by Adler, 2015, p. 446). Accepting this, however, would lead theorization back to the market-hierarchy dichotomy, which does not represent economic reality either. By following the notion of *embeddedness* (Granovetter, 1985), scholars assert that, in capitalist economy, economic actors and their economic relations are not merely instrumental and impersonal. Their behavior and decisions are not solely guided by rational interests, but as well by the social institutions in which they are embedded (Fligstein & Dauter, 2007; Dobbin, 2007).

By moving beyond conceptual duality, Adler (2001) proposed a framework in which markets, hierarchies, and communities are not mutually exclusive (see figure 1). In fact, they form a continuum of possible outcomes of organizational structuration and coordination (Adler, 2001). Therefore, it is acknowledge that ideal, trust-based community forms do not exist. Market and hierarchy forces continue to be part in economic relations (Adler, 2015; Bøllingtoft et al., 2011; Nowell, 2010; Adler et al., 2008; Bickmore, 2005).

Figure 1: Trends in organizational structures and conceptual developments (Adler, 2001).



Modes of organizational structuration and coordination

In clans and asocial hordes, both market and hierarchy mechanisms are absent. In the asocial horde, the mechanism of trust is also absent, leaving it a mode without any coordination. In clans,

the market and hierarchy mechanism are replaced by trust. According to Ouchi (1980, p. 135), both markets and hierarchies can fail. Markets fail if opportunism and uncertainty take over, whereas bureaucracies fail where performance evaluation reaches a certain level of ambiguity. In clans, common values and beliefs act as building blocks for trust. Nevertheless, the clan is characterized by high exclusiveness and low tolerance for diversity, and thus creates an inhospitable context for innovation (Adler, 2015, p. 447).

In enabling and coercive bureaucracies, market mechanisms are absent. Therefore, we can speak of *vertical integrations* (Baker, Gibbons, & Murphey, 2002). Hierarchical structures are in place when the downstream party (the lead firm) owns the asset or becomes the owner by acquisition of the upstream party (Baker et al., 2002, p. 50). The main purposes of bureaucracies are maximizing efficiency and establishing stability in organizations (Adler & Borys, 1996). Yet, this can happen under different conditions. Under conditions of trust, the bureaucracy *enables* participants to create and share knowledge, as well as to develop informal relations along the formal structure (Adler & Borys, 1996). In coercive bureaucracies, or capitalist firms (Adler, 2015, p. 447), hierarchical control destroys informal knowledge diffusion.

Spot market and relational contracting. In the spot market mode of organizations, pure market logic and mechanisms are in place. In this trustless environment, no extra value through knowledge diffusion is to be expected (Colledge, 2005). In spot market modes, firms impose sharp market discipline on their suppliers by aggressively demanding lower prices and rapidly moving to cut off suppliers who cannot deliver (Adler, 2001). The relational contract, in contrast, is a market-based contract based upon a relationship of trust between two parties. In the relational contract, informal relations are in place (Adler, 2001). When the upstream party (supplier) owns the asset in a trustful context, we speak of relational contracting (Baker et al., 2002, p. 53). In the relational contract, the supplier owns the asset, whereas in the enabling bureaucracy, the lead firm owns the asset (Baker et al., 2002).

The low-trust hybrid entails a low-trust combination of market and hierarchical mechanisms. Firms are trying to force improvements upon their supplier base by introducing more complex 'hierarchical contracts' into their market relations. Such hierarchical elements do not only control product specifications, but also the suppliers' internal processes (Adler, 2001). In the low-trust hybrid mode, improvements are forced upon suppliers.

Low-trust and high-trust hybrids: towards the collaborative community

In the high-trust hybrid mode (which Adler calls the *collaborative community*), however, improvements emerge out of trustful conditions (Adler et al., 2008; Adler & Heckscher, 2006). Like in the clan mode, common values and beliefs act as the building blocks for trust as a coordination mechanism. Yet, as noted before, both hierarchy and market mechanisms remain present. Hierarchically structured organizations are efficient in performing routine tasks, yet face difficulties in innovative new tasks which require new knowledge to be generated or used (Adler, 2001). In the competitive context of market structures with price mechanisms, the generation of new knowledge is often optimized by intellectual property rights, which fundamentally block its diffusion (Adler, 2001). Trust, in contrast, facilitates an enlarged scope of knowledge generation and diffusion, as well as it significantly reduces transaction costs (Adler, 2001).

Within the collaborative community, trust acts as the main coordination mechanism, whereas hierarchical rules maintain stability, and market dynamics assure flexibility (Adler et al., 2008). Therefore, the *collaborative community* can be defined in the following way: (1) *structure* wise: an organic division of labor, coordinated through conscious collaboration, and both horizontal and vertical collaborative interdependencies; (2) contribution to and concern for the process; (3) honesty as bases for *trust*; and (4) value-rationality with values of simultaneously high collectivism and individualism as bases for *legitimate authority* (Adler et al., 2008).

Towards answering the 'how' question

However, solely using trust as a main argument does not suffice in answering *how* inter-organizational cooperation can be designed. As Mayer et al. (1995) state, trust is not to be confused with cooperation. If it was sufficient, after all, there should be no expected difference between clans, enabling bureaucracies, relational contracts, and collaborative communities in terms of innovation outcomes. Moreover, this paper seeks to investigate the process of inter-organizational cooperation. It does so by synthesizing different dimensions of inter-organizational cooperation into a comprehensive framework, in which the market dynamics, the trust dimension, and the hierarchical stability dimension complement with components of the *collaborative process* framework (Ansell & Gash, 2008; Provan & Kenis, 2008) and dimensions of inter-organizational cooperation (Koster, Korte, & Van de Goorbergh, 2016).

There has to be noted that a one-way, positive relationship between inter-organizational cooperation and organizational innovativeness does not exist. Several risks for participating organizations are involved in the process (Pouwels & Koster, 2017; Ansell & Gash, 2008; Provan & Kenis, 2008). Ansell & Gash (2008, p. 550) provide a framework for these risks and include preconditions for successful collaborative *governance*. Accordingly, successful collaboration depends on starting conditions, such as resource and power asymmetries; the institutional design, such as formal rules guiding the collaborative process; facilitative leadership; and the nature of the collaborative process itself. Yet, by examining collaborative governance initiatives, Ansell & Gash assume the collaborative process to have a coercive character. This is likely to the case in those situations that Adler (2001) described as *coercive bureaucracy* and the *low-trust hybrid*. In contrast, the argument of trust allows to assume more voluntary organizational incentives to cooperate. This is also the case within the definition of *collaboration.*

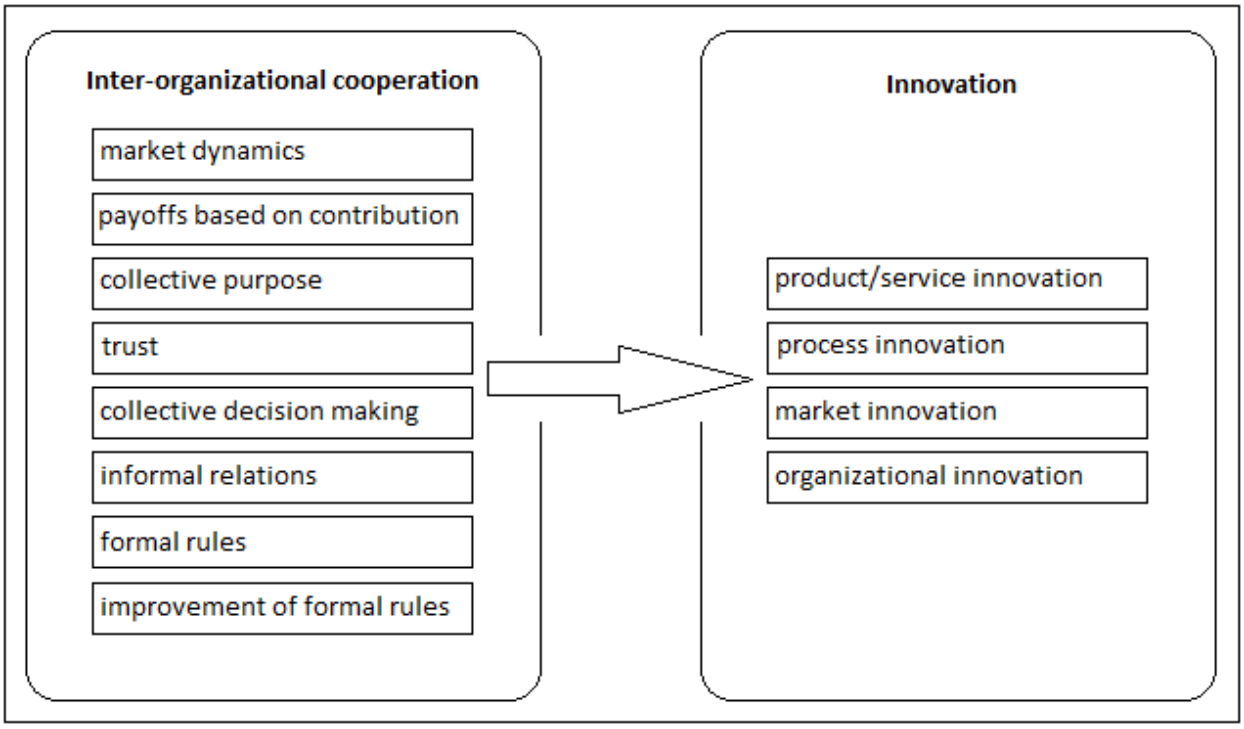
Collaboration is generally defined as "the presence of mutual influence between actors, open and direct communications and conflict resolution, and support for innovation and experimentation" (Aram & Morgan, 1976, p. 1127). In an explorative study, Koster, Korte & Van de Goorbergh (2016) developed a useful framework for inter-organizational cooperation, based on the following six dimensions: (1) the extent to which payoff divisions are based on participants' efforts in the collaboration; (2) the level of mutual acknowledgement of a collective purpose; (3) the extent to which formal rules guide the collaboration; (4) the extent to which these rules are continuously improved as result of intermediate outcomes; (5) the extent to which informal relations, aimed on innovation, exist in the collaboration; and (6) the extent to which collective decision making is arranged in the collaboration. However, Koster et al. (2016) do not make explicit the roles of trust and market dynamics in the process. Based on the arguments discussed in previous sections, this paper comprehends the collaborative framework into the following dimensions:

1. The extent to which market dynamics, leading to flexibility are in place in the collaboration;
2. The extent to which payoff divisions are based on participants' efforts in the collaboration;
3. The extent to which there is a mutual acknowledgement of a collective purpose;
4. The extent to which the partnership is based on trust;
5. The level of collective decision making in the partnership;
6. The extent to which informal relations, aimed on innovation, exist in the collaboration;
7. The extent to which formal rules guide the collaboration;
8. The extent to which these rules are continuously improved as result of intermediate outcomes.

Conceptual model and hypotheses

Based on these dimensions, the following conceptual model is used for investigating the relationship between inter-organizational cooperation and organizational innovativeness (figure 2). To test the conceptual model, the eight different organizational modes as conceptualized by Adler (2001) are used. This is done by conceptualizing each organizational mode as a partnership with distinct characteristics.

Figure 2: Conceptual model of inter-organizational cooperation



In addition, this section gives a brief conclusion of the theoretical considerations, from which the hypotheses are derived. Innovation is widely seen as a critical source of competitive advantage. Knowledge-based assets lead to innovation capabilities. However, when assets become so complex and knowledge-intense, organizations have to find different ways for coordination. A proposed way of dealing with this is trust as a coordination mechanism. Therefore, this paper tests the following hypotheses:

H1: In partnerships under *trustful conditions*, innovational outcomes are more likely to be successful than in partnerships under *trustless conditions.*

H1a: In the *clan* type of partnerships, innovational outcomes are more likely to be successful than in the *asocial horde* type of partnerships.

H1b: In the *relational contracting* type of partnerships, innovational outcomes are more likely to be successful than in the *spot market* type of partnerships.

H1c: In the *enabling bureaucracy* type of partnerships, innovational outcomes are more likely to be successful than in the *coercive bureaucracy* type of partnerships.

H1d: In the *high-trust hybrid* type of partnerships, innovational outcomes are more likely to be successful than in the *low-trust hybrid* type of partnerships.

In addition, this paper tests the conceptual model as displayed in figure 3, thereby arguing that, from the asocial horde towards the collaborative community, there is improvement in the dimensions. Whereas in the asocial horde all the dimensions score low, in the collaborative community all dimensions score high (see table 1 in methodology section). This paper argues that from the asocial horde, with no coordination at all, towards coercive organizational modes with hierarchical control, innovation outcomes will improve. Moreover, towards trust coordinated modes and finally towards the high-trust hybrid, innovation outcomes will improve as well. Therefore, the following hypotheses are stated:

H2: The more a partnership approaches the *high-trust hybrid* type, the more likely innovational outcomes of the partnership will be successful.

H2a: within trustful conditions, the more a partnership approaches the *high-trust hybrid* type, the more likely innovational outcomes of the partnership will be successful.

Methodology: experimental vignette design

The research uses a quantitative experimental vignette design complemented by a traditional survey based on Atzmüller & Steiner (2010). For an example of experimental vignettes in social science, see Van Adrichem & Koster (2013). In this research, the experimental vignette component is designed to measure respondents' *subjective prediction of innovation outcomes*. In order to secure both the internal and external validity of measurements, the experimental vignette is complemented by a traditional survey component, which measures respondent-specific characteristics. In the case of this research, these measures will function as control variables. The vignette design entails a pool with eight different condition-sets, which are built around the following imaginary situation:

> "Imagine a situation in which you are the executive of a company which needs to innovate. To innovate, specific knowledge and skills are required. Not all required knowledge and skills are available within your company. However, in other companies they are. You can do two things: (1) buy the required knowledge and skills from other companies, or (2) cooperate with other companies to gain the required knowledge and skills. In the next part of this experiment you will receive three different combinations of conditions under which the described situation occurs. Under each of these condition-sets, you are an executive in search of knowledge and skills required for innovation."

Within the situation described above, eight different condition-sets are constructed (see table 1), representing the eight organizational modes as described in previous sections. In the vignette design, the asocial horde represents the lowest level of cooperation. The high-trust hybrid represents the highest level of cooperation. Besides, the organizational modes with trust represent a higher level of cooperation than the organizational modes without trust (see table 3 for the operationalization of the *Cooperation-level* variable).

Out of the eight different condition-sets, respondents are assigned to three randomly selected sets. After having received each condition-set, respondents are asked to predict the success of each type of innovation will be on a 1-to-10 scale. To secure respondents' awareness of the different types of innovation, a short introduction of the four types is given at forehand. As well, during the experiment, each vignette respondents are provided with a summary of the four types at the bottom of the page. This extra summary is provided because, after the first pilot of the experiment, the test-respondent indicated that there was too much text to remember given the short notice. Therefore, in order to measure more exactly, the summary is repeated in each vignette, an example is as following:

Product or service innovation is defined as the introduction of a new product or service, or an improved version of already existing products or services.

Process innovation is defined as the introduction of new methods of the production or sale process, or adjusting and improving these methods.

Market innovation is defined as either the opening of a new market or 'changing the rules of the game' in an existing market.

Organizational or business-model innovation is defined as exploring and implementing new forms of organization.

Based on the condition-variable matrix in table 1, the vignettes are constructed by using the following representations of the values that the eight dimensions can have.

Table 1: Representations of variable scores in vignettes.

Variable	Variable score	Representation
Market dynamics	0 = low	There is just one supplier in the market. Therefore, your organization has to buy the required knowledge and skills only from another organization.
	1 = high	There are more suppliers in the market. Therefore, your organization can choose with which supplier to engage in a partnership.
Payoff division based on contributions	0 = low	The payoffs generated by the innovation as a result of the partnership all go to the leading organization.
	1 = high	The payoffs generated by the innovation as a result of the partnership are fairly divided, based on contributions in the process.
Collective purpose	0 = low	The other organization does not care about the success of the innovation. There is no collective purpose in the partnership.
	1 = high	For both you and the partner organization, innovation is the main aim of the partnership.
Trust	0 = low	You do not know the people of the other organization, and therefore you do not know if you can trust these people.
	1 = high	You know the people of the other organization, and therefore you know that you can trust these people.
Collective decision making	0 = low	In the partnership, all decisions are made by the leading organization.
	1 = high	In the partnership, all decisions are collectively made by the organizations involved in the collaboration.
Informal relations aimed for innovation	0 = low	In the partnership, there are no informal relations existing between the people of your organization and the people of the other organization.
	1 = high	Next to the formal rules, the relationship is characterized by highly informal relations, which aim for innovation.
Formal rules	0 = low	There are no formal rules in the partnership. The relationship is thus not guided by any.
	1 = high	The partnership is guided by formal rules. Both your organization and the partner organization adhere to these rules.
Continuous improvement of formal rules	0 = low	The formal rules of the partnership, if any, are not adjusted as a result of intermediate outcomes in the collaboration.
	1 = high	While the formal rules of the partnership are guiding, they are easily adjusted as a result of intermediate outcomes in the partnership.

Data collection and respondent characteristics

The survey and vignette design are built in *Qualtricks*, an online survey tool designed for quantitative research. The survey link was spread through social media channels, such as Linkedin and Facebook, to collect data. Next to this, respondents are approached in a targeted way. The data collection covered a time span of 17 days. In total, 85 respondents have entered the survey. After closing the survey link, it turned out that 52 respondents have answered at least one condition-set in the vignette experiment, and are therefore useful for the analysis. The final N for the analysis is 52 respondents with a total of 147 Vignettes. Therefore, the N in the analysis is 147. Respondent information and general statistics are displayed below in table 2.

Table 2: Respondent statistics.

Age			**Education level**		
Representation	***Frequency***	***Percentage***	***Representation***	***Frequency***	***Percentage***
-25	24	16,3	Ground school	0	0,0
26-30	53	36,1	High School	0	0,0
31-40	13	8,8	College	21	14,3
41-50	15	10,2	University	105	71,4
50+	42	28,6	University+	21	14,3
Economic sector of organization			**Organization size**		
Representation	***Frequency***	***Percentage***	***Representation***	***Frequency***	***Percentage***
Public sector	59	40,1	0-15 employees	30	20,4
Private sector	79	53,7	16-30 employees	6	4,1
Mixed sector	9	6,1	31-45 employees	6	4,1
			46-60 employees	19	12,9
			60+ employees	86	58,5
Duration of employment			**Level of decision making authority**		
Representation	***Frequency***	***Percentage***	***Representation***	***Frequency***	***Percentage***
0-1 years	44	29,9	Never	3	2,0
1-2 years	21	14,3	Barely	36	24,5
2-3 years	11	7,5	Regularly	45	28,6
3-4 years	9	6,1	Often	51	34,7
4+ years	62	42,2	Always/I take them	15	10,2
Experience with situations setting			**Livelihood of setting**		
Representation	***Frequency***	***Percentage***	***Representation***	***Frequency***	***Percentage***
No experience	57	38,8	Unnatural	12	8,9
Little experience	69	46,9	Neutral	72	49,0
Much experience	9	6,1	Natural	51	34,7

N = 52 respondents; based on 147 vignettes.

Research design and analysis

A multilevel analysis is used to test each main and sub hypothesis. In the multilevel model, the individual respondent represents level 2. The independent variables represent level 1. In order to distinguish between individual respondents when measuring effects on the vignette level, each respondent is given a unique respondent ID. In this way, the multilevel analysis design allows to take personal characteristics into account when analyzing effects on the vignette level. In each test, the analysis is set up in three stages. In the first stage, the independent variable will be tested in an empty model (0). The results (model-fit and intercept) of the empty model act as a reference for the results of the following two stages. In the second model (1), control variables are added at level 1. In the third stage (model 2), the independent variable, which is a cooperation scale derived from the vignette conditions, is added at level 1. Within the analysis of the independent variable at level 1, the condition-set that represents the least cooperation will function as the reference category.

Operationalization

<u>*The dependent variable*</u> in the multilevel analysis is *Innovation-scale*. This scale contains the four items measured in the vignette experiment: *service-product-innovation, process-innovation, market-innovation,* and *organizational-business-model-innovation*. As mentioned above, the four items are measured on a 1-to-10 scale. A reliability analysis shows there is considerably little variance between the four items (Cronbach's Alpha = 0,855). Moreover, a factor analysis of the four items shows that all four items are placed in the same component. The variable *Innovation-scale* is operationalized by dividing the sum of *service-product-innovation, process-innovation, market-innovation,* and *organizational-business-model-innovation* by four. Therefore, *Innovation-scale* ranges from 1-10, where the value 1 represents 'very unsuccessful innovation outcome', and the value 10 represents 'very successful innovation outcome'.

<u>*Independent* variables.</u> The condition-sets in the vignette experiment are defined by the six dimensions developed by Koster et al. (2016) and the explicit dimensions of trust and market dynamics (see table 3). In the research, the independent variable differs for each tested hypothesis. However, the basis for each independent variable is the variable *Cooperation-level*. The cooperation level ranges from 0 to 7, where the value 0 represents the asocial horde, and the value 7 represents the high-trust hybrid (see table 2 for the further operationalization). To test H1, the variable *Cooperation-level* is recoded into the dummy variable *Trustful-vs-trustless-conditions*. In

this variable, the values 0 - 3 from *Cooperation-level* (asocial horde, coercive bureaucracy, spot market, and low-trust hybrid) represent the reference category, and are therefore be recoded into value = 1. The values 4 – 7 in *Cooperation-level* (clan, enabling bureaucracy, relational contracting, and high-trust hybrid) are recoded into value = 0.

Hypothesis 1a-d are also tested by using dummy variables based on the dimension of trust. To test H1a, a dummy variable based on *Cooperation-level* is computed, in which the asocial horde represents the value 1 (reference category), and the clan will represent the value 0. To test H1b, a dummy variable is computed, in which the coercive bureaucracy represents the value 1 (reference category), and the enabling bureaucracy represents the value 0. To test H1c, a dummy variable is computed, in which the spot market represents the value 1 (reference category), and the relational contract represents the value 0. To test H1d, a dummy variable is computed, in which the low-trust hybrid represents the value 1 (reference category), and high-trust hybrid represents the value 0.

Table 3: condition-variable matrix and operationalization of independent variable 'Cooperation level'.

Condition-set / **Variable**	***Asocial horde***	***Coercive bureau-***	***Spot market***	***Low-trust h.***	***Clan***	***Enabling bureau-***	***Relational contract***	***High-trust h.***
Market dynamics	0	0	1	1	0	0	1	1
Payoff division	0	0	0	0	1	0	1	1
Collective purpose	0	0	0	0	1	0	1	1
Trust	0	0	0	0	1	1	1	1
Collective decision making	0	0	0	1	1	1	1	1
Informal relations	0	0	0	0	1	1	1	1
Formal rules	0	1	0	1	0	1	0	1
Improvement formal rules	0	0	0	0	0	1	0	1

Condition-set	***Operationalized value***	***Operationalized value multilevel***
Asocial horde	0	7
Coercive bureaucracy	1	6
Spot market	2	5
Low-trust hybrid	3	4
Clan	4	3
Enabling bureaucracy	5	2
Relational contracting	6	1
High-trust hybrid	7	0

To test H2, the independent variable is computed based on the extent to which the condition-set represents inter-organizational cooperation. In *Cooperation-level*, the social horde represents the

value 0, and the high-trust hybrid represents the value 7. To conduct the multilevel analysis with the asocial horde functioning as a reference category, the values of *Cooperation-level* are recoded in the opposite direction (see table 3). To test H2a, the independent variable *Cooperation-level-within-trust* is computed. In this variable, the values 0 - 3 from *Cooperation-level* (asocial horde, coercive bureaucracy, spot market, and low-trust hybrid) are recoded into 'system missing'. The value 4 (clan) is recoded into 1, the value 5 (enabling bureaucracy) is recoded into 2, the value 6 (relational contracting) is recoded into 3, and the value 7 (high-trust hybrid) is recoded into 4 (reference category).

Control variables. The analyses are controlled for two personal characteristics, *Organization-size* of the organization the respondent's organization, and *Decision-authority*, which measures respondents' level of decision authority within his or her organization. It is expected that organization size positively affects innovation outcomes (Damanpour, 1992). The variable *Organization-size* ranges from 1-5, in which the value one represents 0-15 employees, and the value 5 represents 60+ employees on a scale of +15 employees per step. As for decision authority, it is expected that the measured effects will be stronger for respondents with higher levels of decision authority, since these respondents may be able to understand the condition-sets better. *Decision-authority* ranges from 1-5, in which the value 0 represents no decision authority and the value 5 represents full authority/I take the decisions.

Furthermore, the analyses are controlled for two evaluative control variables: *Experience-setting*, and *Evaluation-setting. Experience-setting* measures the experience respondents have in comparable settings. Respondents are asked how much experience they have with comparable settings in real life. This variable ranges from 0-2, where the value 0 represents no experience and the value 2 represents much experience. *Evaluation-setting* measures the livelihood of the vignette as perceived by the respondent. Respondents were asked how natural they think the condition-sets provided are. This variable ranges from 0-2, where the value 0 represents not natural, and the value 2 represents natural (see table 2 for descriptive statistics of the control variables).

Results

In this section, the results of the multilevel analyses are displayed. Since this research entails an experimental design where the dependent variable is the *subjective* expectation of the success of innovation outcomes, stricter demarcation criteria are in place. Therefore, hypotheses will be supported if the significance level reaches $p < 0.001$ (***). In cases where the significance level is $p < 0.01$ (**), and $p < 0.05$(*), the hypotheses will only be partly supported.

H1

The results of the multilevel analysis between partnerships with trust and partnerships without trust are presented in table 4. In model 0, the mean score of the dependent variable *Innovation-scale* is 5.89. The control variables *organization size*, *decision authority*, *personal experience*, and *vignette evaluation* are added in model 1.

Table 4: Multilevel analysis of trustful versus trustless partnership conditions (H1).

Model	(0)		(1)		(2)	
	b	(s.e.)	b	(s.e.)	b	(s.e.)
Individual (level 2)						
Characteristics						
Organization size			0,10	(0,11)	0,19	(0,09)
Decision authority			0,40 *	(0,17)	0,41*	(0,15)
Vignette control						
Personal experience			0,32	(0,28)	0,22	(0,24)
Vignette evaluation			0,26	(0,27)	0,35	(0,24)
Vignette (level 1)						
Partnership conditions						
No trust (reference)					--- ---	---
Trust					2,03***	(0,26)
Intercept	5,89 ***	(0,45)	3,64 ***	(0,96)	2,09*	(0,88)
Model fit						
-2*log likelihood	594.021		547.337		499.072	
-2*log likelihood deviance			46.684***		48.265***	
Variance level 2	3,18	(0,45)	3,29	(0,41)	2,14	(0,32)
Variance level 1	0,14	(0,29)	0,00	(0,00)	0,16	(0,22)

* = p<0.05; ** = p<0.01; *** = p<0.001.

N = 52 respondents; 147 vignettes.

With respect to model 0, adding the control variables produces a significant improvement of the model fit (the -2*log likelihood deviance of 46.684 is significant under $p < 0.001$). Moreover, as expected, the personal variable *decision authority* has a positive effect in both model 1 ($b = 0.40$; $p < 0.05$) and model 2 ($b = 0.41$; $p < 0.05$). Yet, its significance does not pass the $p < 0.001$ criterion. To test H1, the dummy variable *Trustful-vs-trustless* is added in model 2. To start with, this produces a significant improvement of the model fit (the -2*log likelihood deviance of 48.265 is significant under $p < 0.001$). Furthermore, the value 'trustful' has a significant positive effect on *Innovation-scale* ($b = 2.03$; $p < 0.001$) with respect to the value 'trustless', which is the reference category. This means that support is found for H1.

H1a-d

The results of the multilevel analyses between respectively *asocial horde* versus *clan*, *coercive-* versus *enabling bureaucracy*, *spot market* versus *relational contracting*, and l*ow-trust-* versus *high-trust hybrid* are presented in table 5. To test H1a, the dummy variable *Asocial-vs-clan* is added in model 2a. To start with, this produces a significant improvement of the model fit (the -2*log likelihood deviance of 446.078 is significant under $p < 0.001$). The personal variable *decision authority* has a positive effect in model 2a ($b = 0.65$; $p < 0.05$). Yet, its significance does not pass the $p < 0.001$ criterion. Furthermore, the value 'clan' has a positive effect on *Innovation-scale* ($b = 3.35$; $p < 0.05$) with respect to 'asocial horde', which is the reference category. Yet, its significance does not pass the $p < 0.001$ criterion. Therefore, support is only partly found for H1a.

To test H1b, the dummy variable *Coercive-vs-enabling* is added in model 2c. This also produces a significant improvement of the model fit (the -2*log likelihood deviance of 421.608 is significant under $p < 0.001$). Furthermore, the value 'enabling bureaucracy' has a positive effect on *Innovation-scale* ($b = 1.01$; $p < 0.07$) with respect to the value 'coercive'. Yet, this effect is not significant. Therefore, this result means that no support is found for H1b.

To test H1c, the dummy variable *Spot-vs-relational* is added in model 2b. This produces a significant improvement of the model fit (the -2*log likelihood deviance of 423.017 is significant under $p < 0.001$). Furthermore, the value 'relational contract' has a positive effect on *Innovation-scale* ($b = 2.28$; $p < 0.001$) with respect to the value 'spot market', which is the reference category. Moreover, its significance passes the $p < 0.001$ criterion. Therefore, support is found for H1c.

To test H1d, the dummy variable *Low-trust-vs-high-trust* is added in model 2d. This also produces a significant improvement of the model fit (the -2*log likelihood deviance of 439.641 is significant under $p < 0.001$). Furthermore, the value 'high-trust hybrid' has a positive effect on *Innovation-scale* ($b = 2.48$; $p < 0.001$) with respect to the value 'low-trust hybrid'. Moreover, its significance passes the $p < 0.001$ criterion. Therefore, support is found for H1d.

Table 5: multilevel analysis of paired trustful versus trustless partnerships (H1a-d)

Model	(2a)		(2b)		(2c)		(2d)	
	b	(s.e.)	b	(s.e.)	b	(s.e.)	b	(s.e.)
Individual (level 2)								
Characteristics								
Organization size	0.07	(0.17)	0.31	(0.21)	0.05	(0.15)	0.39	(0.21)
Decision authority	0.65 *	(0.28)	0.25	(0.31)	0.24	(0.29)	0.43	(0.35)
Vignette control								
Personal experience	0.04	(0.48)	-0.08	(0.43)	0.69	(0.40)	0.26	(0.68)
Vignette evaluation	0.05	(0.43)	0.91	(0.46)	0.19	(0.44)	0.54	(0.68)
Vignette (level 1)								
Partnership conditions								
Asocial horde (reference)	---	---						
Clan	3.35 *	(0.12)						
Coercive bureaucracy (reference)			---	---				
Enabling bureaucracy			1.01	(0.53)				
Spot market (reference)					---	---		
Relational contracting					2.28 ***	(0.51)		
Low-trust hybrid (reference)							---	---
High-trust hybrid							2.48 ***	(0.53)
Intercept	0.94	(1.57)			2.80	(1.58)	0.87	(1.79)
Model fit								
-2*log likelihood	110.259 (a)		125.729 (a)		124.320 (a)		107.969 (a)	
-2*log likelihood deviance	446.078***		421.608***		423.017***		439.641***	
Variance level 2	1.98	(0.31)	2.37	(0.62)	1.98	(0.51)	1.64	(0.81)
Variance level 1	0.17	(0.22)	0.00	(0.00)	0.00	(0.00)	0.66	(0.81)

* = p<0.05; ** = p<0.01; *** = p<0.001.
N = 52 respondents; 147 Vignettes.
(a) = With respect to model (1)

H2

The results of the multilevel analysis between all partnerships are presented in table 6. To test H2, the variable *Cooperation-level ML*, with the reference category 'asocial horde', is added in model 2. This also produces a significant improvement of the model fit (the -2*log likelihood deviance of 64.612 is significant under $p < 0.001$). Moreover, as expected, the personal variable *decision authority* has a positive effect in model 1 ($b = 0.44$; $p < 0.01$). Yet, its significance does not pass the $p < 0.001$ criterion. Next to this, the results show that the intercept in model 2 is 0.86. This indicates that *Innovation-scale* scores considerably lower where *Cooperation-level ML* scores low. This result supports H2: *Innovation-scale* scores higher as *Cooperation-level ML* scores higher.

With respect to 'asocial horde', the reference category in model 2, the value 'coercive bureaucracy' has a positive effect on *Innovation-scale* ($b = 1.93$; $p < 0.01$). Yet, this effect is not significant under the $p < 0.001$ criterion. Therefore, this effect is only partly significant. With respect to the value 'asocial horde', the value 'spot market' has a positive effect on *Innovation-scale* ($b = 0.73$; n.s.). Yet, this effect is not significant under the $p < 0.05$ criterion. With respect to the reference category 'asocial horde', the value 'low-trust hybrid' also has a positive effect on *Innovation-scale* ($b = 1.28$; $p < 0.05$). Yet, its significance does not pass the $p < 0.001$ criterion. Concluding on the trustless values, one could state that the effects on *Innovation-scale* do improve as the level of cooperation rises. Yet, none of the abovementioned effects passes the $p < 0.001$ criterion. Therefore, the effects of all trustless partnerships are insignificant. Moreover, within the trustless partnerships, the parameter (b) does not increase according to the increase of the level of cooperation.

This differs for the trustful partnership values. The value 'clan' has a significant positive effect on *Innovation-scale* ($b = 3.09$; $p < 0.001$). The value 'enabling bureaucracy' as well has a significant positive effect on *Innovation-scale* ($b = 2.84$; $p < 0.001$). With respect to 'asocial horde', the value 'relational contracting' also has a significant positive effect on *Innovation-scale* ($b = 3.21$; $p < 0.001$). And with respect to 'asocial horde', the value 'high-trust hybrid' also has a significant positive effect on *Innovation-scale* ($b = 3.49$; $p < 0.001$). In the case of trustful partnerships, the results show that, indeed, as the partnership moves towards the value 'high-trust hybrid', the parameter (b) increases. This is however not the case between the values 'clan' ($b = 3.09$; $p < 0.001$) and 'enabling bureaucracy' ($b = 2.84$; $p < 0.001$).

Table 6: Multilevel analysis of all partnerships (H2) and trustful partnerships (H2a).

model	(2)		(2a)	
	b	(s.e.)	b	(s.e.)
Individual (level 2)				
Characteristics				
Organization size	0.18	(0.09)	0.27*	(0.09)
Decision authority	0.44**	(0.15)	0.41*	(0.16)
Vignette control				
Personal experience	0.22	(0.24)	0.07	(0.27)
Vignette evaluation	0.38	(0.23)	0.75*	(0.24)
Vignette (level 1)				
Partnership conditions				
Asocial horde (reference)	--- ---	---		
Coercive bureaucracy	1.93**	(0.55)		
Spot market	0.73	(0.59)		
Low-trust hybrid	1.28*	(0.57)		
Clan	3.09***	(0.54)	-0.29	(0.40)
Enabling bureaucracy	2.84***	(0.56)	-0.55	(0.40)
Relational contracting	3.21***	(0.54)	-0.15	(0.42)
High-trust hybrid	3.49***	(0.58)	--- ---	---
Intercept	0.86	(0.95)	3.68***	(0.88)
Model fit				
-2*log likelihood	482.725 (a)		244.503 (a)	
-2*log likelihood deviance	64.612***		302.834***	
Variance level 2	1.98	(0.31)	1.30	(0.34)
Variance level 1	0.17	(0.22)	0.12	(0.31)

* = p<0.05; ** = p<0.01; *** = p<0.001.
N = 52 respondents; 147 Vignettes.
(a) = With respect to model (1)

Concluding on the analysis, it could be argued that H2 is supported by the results. The results however show some difficulties. First, the effects within trustless values are not significant under the $p < 0.001$ criterion. Second, within the trustless values, there is no gradual improvement of the parameter (*b*). Thirdly, within the trustful values, in spite of them all having significant effects under $p < 0.001$, their parameter does not increase gradually between the values 'clan' and 'enabling bureaucracy'. On the other hand, with exception of the value 'spot market', the positive effects *Innovation-scale* are significant under at least $p < 0.05$. In addition, the increasing positive

effects of ‘clan’, ‘relational contracting’, ‘enabling bureaucracy’, and ‘high-trust hybrid’ are significant under $p < 0.001$.

H2a

The results of the multilevel analysis within trustful partnership conditions are presented in table 6. To test H2a, the variable *Cooperation-level-within-trust* is added in model 2a. In this variable, the value ‘high-trust hybrid’ is the reference category. Adding the variable *Cooperation-level-within-trust* also produces a significant improvement of the model fit (the -2*log likelihood deviance of 302.834 is significant under $p < 0.001$). Furthermore, in model 2, the personal control variable *organization size* has a positive effect on *Innovation-scale* ($b = 0.27$; $p < 0.05$). Yet, its significance does not pass the $p < 0.001$ criterion. Next to this, the personal control variable *decision authority* has a positive effect on *Innovation-scale* ($b = 0.41$; $p < 0.05$). Besides, the control variable *Vignette evaluation* has a positive effect on *Innovation-scale* ($b = 0.75$; $p < 0.05$).

With respect to ‘high-trust hybrid’, the value ‘relational contracting’ has a negative effect on *Innovation-scale* ($b = -0.15$; n.s.). Yet, this effect is not significant. The value ‘enabling bureaucracy’ also has a negative effect on *Innovation-scale* ($b = -0.55$; n.s.). Yet, this effect is also not significant. With respect to ‘high-trust hybrid’, the value ‘clan’ also has a negative effect on *Innovation-scale* ($b = -0.29$; n.s.). Yet, as well, this effect is not significant. Although, as expected, the effects with respect to the reference category are all negative, they are not significant under $p < 0.05$. Therefore, this means that no support is found for H2a.

Conclusion and discussion

This paper had several aims. First, a synthesis of classical theoretical constructs was built within a trustful context to explain *why* inter-organizational cooperation takes place. In this light, this paper tried to solve the paradox of trust in capitalism. Therefore, secondly, this paper tested the trust thesis (Adler, 2001) with an explorative study on *subjective* predictions of innovation outcomes. Besides, the main aim of this paper was to investigate *how* inter-organizational cooperation influences innovation outcomes. Therefore, this paper tried to build a comprehensive framework for inter-organizational cooperation. Thus, the most important conclusions that can be drawn from this research are that: (1) trust is the most significant determinant of the success of innovation outcomes in partnerships; (2) the collaborative community type of partnership has the highest positive effect on innovation outcomes; (3) yet, when trust is fulfilled, there is little difference in terms of innovation outcomes between partnership forms.

Main conclusions

The one dimension that comes forward the most explicit in this relationship is *trust*. Based on Adler's work, the first hypothesis stated that trustful forms of partnerships do better in terms of innovation outcomes than trustless types of partnerships. In most partnership types, the trustful variant does better in terms of innovation outcomes than the trustless variant. This conclusion is in line with Adler (2001, pp. 217-219) and with numerous other studies that found that trust considerably enhances the generation and diffusion of tacit knowledge in organizations (Adler & Heckscher, 2006; Kramer, 1999; Dyer & Singh, 1998). Therefore, this paper concludes that trust can indeed be seen as a possible coordination mechanism for organizations in dealing with complex, knowledge-intensive assets.

The second conclusion is that the way in which inter-organizational cooperation is designed matters for innovation outcomes. As a partnership approaches the *collaborative community* form, its positive effect on organizational innovativeness increases. Therefore, the framework for inter-organizational cooperation tells us something about *how* organizations can design partnership in their quest for innovation. The results suggest that, of all tested partnership forms, the *collaborative community* (high-trust hybrid) indeed has the most positive effect on innovation outcomes. However, in this respect, trust also has to be seen as the most significant determinant. Between trustful partnership types, no significant difference in the relation between

inter-organizational cooperation and organizational innovativeness outcomes was found. Thus, it might be that solely using the dimensions of trust, market dynamics, and hierarchical stability is sufficient for answering the *how* question. This would however mean that the other dimensions have no part in answering how organizations can design partnerships. Yet, we see that when since trust interacts with other dimensions of collaboration (Ansell & Gash, 2008; Provan & Kenis, 2008), it might also be that, under trustful conditions, dimensions like informal relations, collective purpose and process contribution are more likely to reach a higher extent (Adler et al., 2008; Adler & Heckscher, 2006). More specific research is needed to investigate how these dimensions act.

Another conclusion drawn from the results is that within partnership types, market dynamics tend to be of higher significance than hierarchical stability. The results of both H1b, H1c, and H2 show that relational contracting has a higher positive effect on innovation outcomes than the enabling bureaucracy. This suggests two things. First, partnerships based on equal power divisions between participating organizations are more likely to be successful than hierarchically structured partnerships. Second, this result is in line with the argument that the market mechanism becomes more salient when complexity of assets is increasing (Geyskens et al., 2006). Also, this is in line with the argument that market dynamics in partnerships secure flexibility and diversity (Gilson et al., 2009; Adler, 2001).

Finally, the results indicate that the kind of innovation does not matter within the effect of inter-organizational cooperation on innovation outcomes (see section *dependent variable* in methodology), which contrasts the findings of Pouwels & Koster (2017). A reason for this might be that respondents could not appropriately differentiate between the four types. A second reason might be the small N of the dataset. With 52 respondents and total of 147 vignettes, conclusions must be drawn cautiously. Another reason might be that the aim of the partnership was not specified sufficiently for respondents. Nevertheless, the types of innovation are related (Pouwels & Koster, 2017). Besides, as they show, the success of a certain type of innovation also depends on whether the partnership was specifically aimed for a certain type of innovation.

Reflection and further recommendations

Nevertheless, this research knows certain flaws. First, since the research was conducted by using a prefixed experimental vignette design, it was not possible to see how the different dimensions of partnerships interact. Moreover, respondent feedback often indicated difficulties in answering the

questions. Mostly, this is because the vignettes did not elaborate on mechanism for the different types of innovation. From the theory can be derived that trust facilitates informal relations, contributes to the acknowledgement of a collective purpose, and thus enhance knowledge diffusion (Alexiev et al., 2016; Ansell & Gash, 2008; Kramer, 1999). Yet, further research is needed in order to investigate if, and how, these dimensions interact. Besides, Pouwels & Koster (2017) show that the kind of innovation can matter in the relationship between inter-organizational cooperation and organizational innovativeness. This study did not find considerable differences between those types, since it did not primarily focus on these mechanisms. Therefore, it is necessary to investigate whether, and if, different mechanisms are in place for different types of innovation.

Third, this explorative study measured the *subjective* prediction of innovation outcomes. Given this, the results have some difficulties, since only ten percent of the respondents is actually a top manager in his or her organization, and only six percent of the respondents has indicated to have much experience in settings as described by the vignettes (see table 2). In addition, the control variable *decision authority* had a significant effect on the results. Therefore, further research needs to be targeted mainly at the higher decision making levels of organizations, where people have more experience with making decisions about how to cooperate with other organizations when needed. Finally, more data is needed to draw conclusions about how inter-organizational cooperation influences organizational innovativeness. This study was based on an N of 52 respondents and 147 vignettes. Effects and interactions between dimensions might be more visible if they were to be tested with more specific data.

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