



# Governing for innovation in horizontal service cooperations

Governing for  
innovation

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## Abstract

**Purpose** – The purpose of this study is to provide insights into the role of governance mechanisms in fostering innovativeness in horizontal service cooperations.

**Design/methodology/approach** – Data were collected from 225 horizontal service cooperations in the logistics industry via an online survey. Structural equation modeling was used to analyze the empirical data.

**Findings** – The choice of governance measures helps to improve the innovativeness of service cooperations. The use of formalization and balanced mutual influence, combined with cultural similarity provides the basis for the development of new or enhanced services within the cooperation. In contexts that build on equity-based contracts, innovativeness is driven by the degree of mutual influence among partners.

**Research limitations/implications** – Empirical data were collected in a single industry (logistics) and in a single country (Germany). A confirmation of the results in different service settings is therefore encouraged.

**Practical implications** – This research emphasizes the importance of governance in facilitating innovation in service cooperations. By applying the right governance mechanisms in possible settings of co-opetition, managers can foster coordination and the exchange of knowledge and diminish opportunistic behavior among parties.

**Originality/value** – The research is extended by developing a model based on the knowledge of service innovation, cooperation performance and governance mechanisms and by empirically testing this model.

**Keywords** Co-operation, Innovation, Survey, Service operations, Organizational effectiveness, Horizontal management

**Paper type** Research paper

## 1. Introduction

Innovation is a major contributor to firm success in the service industry (Calantone *et al.*, 2002; Dilk *et al.*, 2008; Grawe *et al.*, 2009; Kandampully, 2002). To respond effectively to increasing levels of competition and value chain complexity, service companies need to devote substantial resources to process improvements and new service development (Oke, 2007). This need is facilitated by the growing share of outsourcing to the service sector that leads to a shift of innovation activities from focal firms to their service providers.

One option for service providers to address this need to increase innovation capabilities is via horizontal (intra-industry) cooperative relationships (Kale *et al.*, 2000; Muthusamy and White, 2006). It is not only a means for smaller service companies to remain competitive against larger competitors due to the possibility of increasing internal profitability and extending service portfolios (Glaister and Buckley, 1996).



Such relationships can also stimulate innovativeness as they allow companies to combine complementary capabilities as well as share development efforts, resulting in services that they could not provide on their own (Sampson, 2007; Walters and Rainbird, 2007). Past research shows that service firms already tend to use cooperative innovation more intensely than manufacturing firms (Tether, 2005).

Stimulating innovation is challenging for a single company (Kelly and Storey, 2000), and even more so when multiple companies are involved. First, the coordination and alignment of strategic goals and operational processes is difficult across companies (Ojasalo, 2008). Second, innovativeness within a cooperation relies upon the exchange of knowledge (Calantone *et al.*, 2002; Panayides and So, 2005) and, due to fear of opportunistic behavior, firms may be reluctant to share their knowledge with their partners; this reluctance can undermine innovativeness. This is especially the case for horizontal cooperation, where, by definition, the involved firms are actual or potential competitors, a setting often referred to as co-opetition (Dilk *et al.*, 2008; Ritala *et al.*, 2009).

The prevailing challenge in horizontal cooperation of service companies resides in the fact that there are very limited methods to protect against knowledge spillover, and as a result concerns for such spillovers become a central concern within horizontal collaborations (Ozman, 2009). Since intellectual property rights are not applicable to most services, service innovations can easily be imitated by competitors – especially by companies inside the horizontal cooperation who gain thorough insights and can expropriate firm-level know-how very quickly (Hurmelinna-Laukkanen and Ritala, 2010). Therefore, companies face higher risks when exchanging sensitive knowledge within service cooperations (Ritala *et al.*, 2009).

This dilemma of horizontal cooperation – its high innovation potential and its management challenges – motivates the central research question of this paper:

*RQ1.* How can governance mechanisms be utilized to foster innovativeness in horizontal service cooperations in order to enhance cooperation performance?

Recent research indicates that appropriate governance mechanisms foster both the innovativeness (Bosch-Sijtsema and Postma, 2009; Sivadas and Dwyer, 2009) and the success of cooperation (Dilk *et al.*, 2008; Muthusamy and White, 2005; Rutten *et al.*, 2009; Teng and Das, 2008). However, that research has either focused on general firm performance as the outcome variable (Schreiner *et al.*, 2009) or did not focus on the specific preconditions of service cooperations (Sampson, 2007). While some of these insights certainly can be transferred to this setting, the management of service innovation within cooperations poses additional challenges due to the specific features of services (i.e. intangibility, heterogeneity, inseparability, and perishability) (Ritala *et al.*, 2009). The necessity for individual research on service companies regarding the use of governance mechanisms is also supported by Hoetker and Mellewigt (2009), who concluded that different governance mechanisms are required for knowledge-based assets – which is the case for most service companies – compared to property-based assets.

We extend the research by integrating concepts on service innovation, cooperation performance, and governance mechanisms and test them empirically on a sample of 225 horizontal cooperations of service providers. They range from informal cooperations to equity joint ventures without a specific focus on innovation *per se*; rather, these arrangements were developed in order to offer, for example, joint services or engage in cooperative marketing and sales activities.

The objective of our research is to show how particular governance mechanisms improve outcomes of horizontal service cooperations in terms of innovativeness and how innovativeness improves cooperation performance. Specifically, we analyze the effects of three operational governance mechanisms (formalization, mutual influence, and cultural similarity) and the interplay of structural and operational governance. This corresponds to a recent call for research to understand how to manage innovation in cooperations (Ojasalo, 2008).

The remainder of this paper is organized as follows. The next section provides an overview of the governance mechanisms and conceptualizes how these mechanisms influence innovation and in turn performance of the cooperation. After a short description of the research methodology, the results are presented. Finally, we discuss our findings and their implications and outline directions for further research.

### 2. Conceptual framework

This section summarizes the focal constructs and develops the conceptual framework and the research model with its hypotheses (Figure 1). We begin by focusing on innovation and the performance of the cooperation as an outcome and then focus on operational and structural governance mechanisms and their interdependent roles in fostering innovativeness.

#### 2.1 The concepts of innovativeness and cooperation performance

Innovation has been shown to be a key driver of market performance and firm success (Calantone *et al.*, 2002; Dilk *et al.*, 2008; Grawe *et al.*, 2009; Wagner, 2008). While literature provides multiple perspectives on innovation, we follow the notion of “innovativeness” presented by Calantone *et al.* (2002). He proposes that innovativeness consists of two parts:

- (1) the willingness of the firm to be innovative; and
- (2) the actual outcome (Calantone *et al.*, 2002).

Thus, innovativeness is defined as the rate of adoption of innovation by the service provider and its willingness to change.

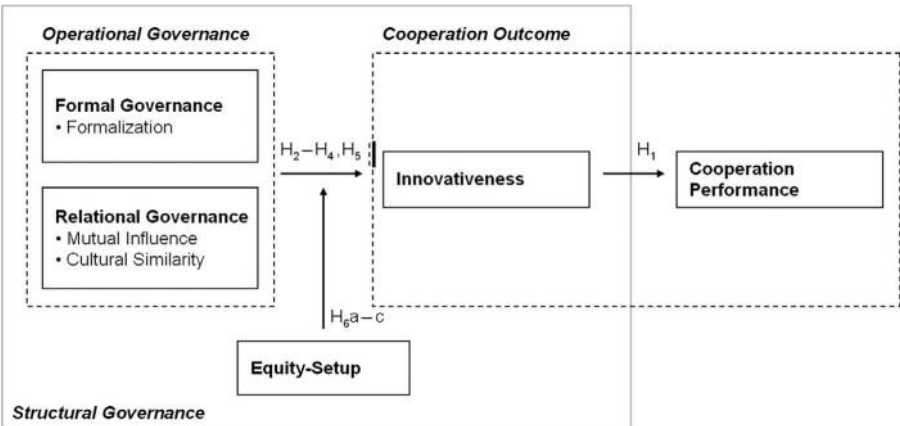


Figure 1. Conceptual model

In literature, there is no consensus on the concept of cooperation performance. One of the challenges of studying the performance of collaborative relationships is that measurement is difficult because the financial effects of such activities are difficult to observe and complex to allocate (Gulati, 1998; Saxton, 1997). Such an assessment is made even more difficult in the context of horizontal cooperations in the service sector due to the simultaneous production and delivery of services combined with the broad spectrum of desired outcomes (Cruijssen *et al.*, 2007; Glaister and Buckley, 1996). The outcomes can include gaining access to new markets, strengthening competitive positioning in current markets, and realizing economies of scale. As such, a good yardstick for the performance of such relationships is the extent that these horizontal ventures meet outcome expectations and predefined objectives (Ariño, 2002). We thus apply this understanding of cooperation performance.

The performance of an organization is strongly influenced by its innovativeness. By developing and offering new services, organizations gain competitive advantages needed to compete in their business environment (Calantone *et al.*, 2002; Dilk *et al.*, 2008; Kandampully, 2002). This in turn is built upon the ability to adapt more easily to new economic contexts, changes in customer behavior (Hult *et al.*, 2004), and access to new markets with additional revenue opportunities (Grawe *et al.*, 2009).

The positive effect of innovativeness on overall firm performance has been empirically confirmed by Hult and Calantone who analyzed both service and non-service settings (Calantone *et al.*, 2002; Hult *et al.*, 2004). The same relation can be shown, when focusing solely on service companies, as shown by several studies: Grawe *et al.* (2009) linked service innovation to market performance in the Chinese electronics industry, Maydeu-Olivares and Lado (2003) in the European insurance industry, and Panayides (2006) found innovativeness to lead to better performance of logistics service providers (LSP).

While research so far has focused on individual companies or units (e.g. strategic business units) within larger organizations, the underlying mechanisms also apply to Settings comprised of multiple service companies, as in the case of horizontal cooperations. We, therefore expect the same positive relationship between innovativeness and performance of the cooperative venture, and hypothesize:

*H1.* Innovativeness of a cooperation has a positive effect on the performance of horizontal service cooperations.

## 2.2 Governance mechanisms

Governance plays an important role in cooperations since governance impacts multiple domains, for example, through the design of control mechanisms and operational processes (Teng and Das, 2008) as well as influencing the value creation of the arrangement (Dyer and Singh, 1998). Such governance structures help:

- to coordinate cooperation activities in accordance with the predefined objectives of the cooperation; and
- to minimize the risk of opportunism among the cooperating parties – which has been recognized as the two most important tasks in managing such relationships (Hoetker and Mellewigt, 2009).

Research focusing on innovation has not shown major differences between service or manufacturing firms in the general approach to innovation or overall innovativeness (Forsman, 2011; Vargo and Lusch, 2004). However, major differences can be identified between these sectors concerning the role of several factors that form the basis of innovativeness, thus implying that the role of governance mechanisms will change when applied to horizontal collaborations amongst service providers.

First, compared to a manufacturing setting, innovation in service companies requires a higher level of external collaboration. This need for external involvement in service innovation is due to the key role the customer plays in a service setting. While customer involvement with innovation is important for manufacturers to ensure value creation (Edvardsson *et al.*, 2005), in the service setting the customer plays a key part in the service delivery process and is a distinct actor in the value creation process (Grönroos and Ravald, 2011). The critical role of the customer has become even more important given the increasing level of service outsourcing (Kianto *et al.*, 2009; Ritala *et al.*, 2009). In addition to such vertical collaborative activities, services firms are increasingly forming horizontal cooperations in order to develop and offer new services. These horizontal linkages allow service providers to share and combine resources and capabilities to enable higher levels of innovativeness (Forsman, 2011; Ritala *et al.*, 2009). Service firms additionally have tended to rely on higher levels of external expertise than manufacturing firms to develop new services as many of these firms lack the internal capabilities for innovation (Kelly and Storey, 2000). Taken together and combined with the fact that these horizontal linkages are with potentially competing companies, this creates a complex management scenario.

The second difference between innovation in the service versus the manufacturing sector is the ability to protect proprietary knowledge. Knowledge is an especially vital component of service delivery (Kianto *et al.*, 2009; Lindsay *et al.*, 2003). For services as well as for products, different means exist to protect the proprietary knowledge and to gain competitive advantage (Lane *et al.*, 2006; Vargo and Lusch, 2004), which determine the extent to which companies profit from the knowledge accumulated. Manufacturing firms have the advantage of being better able to protect proprietary knowledge by using intellectual property rights (e.g. patents). Such property rights are often not applicable to the knowledge assets belonging to service firms (Kianto *et al.*, 2009; Ritala *et al.*, 2009). In the context of horizontal cooperation amongst service providers, the sharing and access to information is a more salient concern than in product-oriented collaborative ventures. On the one hand, the cooperating companies need to open up for knowledge exchange; on the other hand, in a situation of co-opetition, they also have to protect their critical business knowledge. Since services can be easily imitated by a competitor, companies might hold back vital information for fear of opportunistic behavior (Hurmelinna-Laukkanen and Ritala, 2010; Ritala *et al.*, 2009; Sampson, 2007). Here, governance mechanisms improve innovativeness by establishing the structures for coordination and by creating a trustful and positive atmosphere (Ritala *et al.*, 2009; Dilk *et al.*, 2008).

The literature discusses two areas of governance that are especially salient in horizontal service operations:

- (1) operational; and
- (2) structural.

Operational governance includes both formal and relational governance mechanisms (Hoetker and Mellewigt, 2009) and refers to the post-formation cooperation management phase (Schreiner *et al.*, 2009). Formal governance is characterized by general rules, agreements, and contracts that are independent from personal relationships; relational governance is based on the interpersonal mechanisms that are aimed at fostering trust and social identification (Dekker, 2004; Hoetker and Mellewigt, 2009). With respect to innovation, both forms of operational governance are believed to facilitate coordination and reduce opportunistic behavior in a cooperation (Hoetker and Mellewigt, 2009).

In contrast, structural governance refers to the design-phase where the basis of the governance structure is defined (Schreiner *et al.*, 2009). Structural governance is represented by the contract and ownership model and ranges from loose agreements over minority-based contracts to joint ventures (Das and Teng, 2000; Gulati, 1998). Thus, structural governance influences the participation modes of the cooperation partners, the possible risks from opportunism, and the coordination requirements of the cooperation. This leads to the conclusion that the effectiveness of operational governance mechanisms evolves within the frame set out by structural governance.

### 2.3 Effects of operational governance

Within operational governance, our research focuses on three mechanisms:

- (1) formalization as part of formal governance as well as;
- (2) mutual influence; and
- (3) cultural similarity as part of relational governance, which – as outlined below – have already been shown to be highly relevant in cooperations.

Formalization, opposed to structural governance, covers the activities and processes of the cooperation on an operational level by “detailed tasks, activities, schedules and operating procedures for the alliance” (Murray and Kotabe, 2005, p. 1527). Thus, formalization influences the day-to-day interaction among the cooperation partners. Corresponding formal measures such as setting of goals, responsibilities, and tasks have, in the interview-based study of Dilk *et al.* (2008), been identified as success factors for innovation networks. Formalization helps partners both to achieve better coordination and to counteract opportunistic behavior (Hoetker and Mellewigt, 2009), thus serving as a basis for innovative activities.

Formalization has been identified by Galbraith (1973) as an important coordination mechanism that increases information-processing capacity and thus improves the ability to handle large amounts of information. The argument is mirrored by Murray and Kotabe (2005) who consider formalization as an important method to increase cooperation efficiency without hampering the knowledge exchange necessary for innovation as well as Mollenkopf *et al.* (2000) who show that formalization supports coordination and information dissemination in organizations.

In addition, formalization is also an effective way to reduce opportunistic behavior among the cooperating parties. As it sets clear limitations to the cooperation activities of each party, the possibility for one party to gain at the expense of others is restricted (Hoetker and Mellewigt, 2009). Moreover, formalization ensures that each party will consider the explicit consequences of violating defined standards (Lee and Cavusgil, 2006). This deters exploitation and helps to increase mutual confidence and trust

in the exchange relationship by limiting the risk and environmental uncertainty associated with the cooperation and its outcome (Bosch-Sijtsema and Postma, 2009; Dekker, 2004). Together with the reduced risk of opportunism, it has a strong positive effect on innovativeness (Hurmelinna-Laukkanen and Ritala, 2010; Ritala *et al.*, 2009). Thus, formalization encourages both parties to exchange sensitive information necessary for innovation and engage in common innovative activities (Bosch-Sijtsema and Postma, 2009; Hurmelinna-Laukkanen and Ritala, 2010).

In addition to facilitating coordination and reducing opportunism, formalization has a direct effect on innovativeness by fostering innovative potential at the start of the cooperation. When analyzing and defining common processes, the cooperating parties gain insights into each other's working modes and procedures and in that way gain knowledge and awareness regarding good and best practices, potential areas of improvement, and capabilities necessary for enhanced processes and services. Based on the above argument, we hypothesize:

*H2.* Formalization has a positive effect on service cooperation innovativeness.

Relational governance is based on trust building and enhanced partner selection mechanisms (Dekker, 2004). Like formal governance, it improves coordination and reduces opportunism (Hoetker and Mellewig, 2009). While trust can neither be forced nor controlled directly, it can be fostered by mechanisms that build the required confidence, as is the case with mutual decision making or common norms (Dekker, 2004; Zucker, 1986; Hoetker and Mellewig, 2009). Consequently, we view two distinct relational governance mechanisms in this research: mutual influence and cultural similarity of cooperating parties. These mechanisms have been shown as relevant antecedents of innovativeness and cooperation performance in recent empirical studies of vertical buyer-supplier cooperations (Bosch-Sijtsema and Postma, 2009; Linnarsson and Werr, 2004; Muthusamy and White, 2006).

Mutual influence has been identified as an important governance component by several scholars (Gundlach *et al.*, 1995; Muthusamy and White, 2005) as it describes how symmetrically or well-balanced the cooperation is organized when it comes to key decisions and major transactions. By allowing all parties to influence decisions about cooperation to the same degree, open communication, conflict resolution, and joint decision making are facilitated and encouraged which results in direct discussion of individual concerns or problems, better coordination, and increased effectiveness (Galbraith, 1973; Muthusamy and White, 2006; Li and Choi, 2009).

Reducing opportunism through mutual influence is also essential for innovativeness. A balance of power in the cooperation promotes an atmosphere of forbearance, mutual respect, and reciprocity that helps to compensate for the risks of opportunism. It creates trust and confidence (Hoetker and Mellewig, 2009; Muthusamy and White, 2005; Steensma and Lyles, 2000) and increases the willingness to cooperate and exchange information. This translates into a greater potential for joint learning and innovation (Muthusamy and White, 2005). The corresponding empirical observation has also been made by Fyrberg and Jürriado (2009) who emphasize that innovation potential is reduced when one partner dominates the cooperation. Simply put, balanced influence is a key enabler of learning and knowledge transfer (Muthusamy and White, 2005) and can thus enhance innovativeness (Hurley and Hult, 1998; Shang *et al.*, 2009). This will especially be

the case in rather complex and challenging settings as in horizontal service cooperations. Consequently, we posit:

*H3.* Mutual influence has a positive effect on service cooperation innovativeness.

Cultural similarity is expressed by shared norms and a common management style among cooperation partners. Sharing a “language” and understanding helps coordination since compatibility among partners facilitates decision making and communication in general (Kale *et al.*, 2000; Ritala *et al.*, 2009). A common culture among the cooperating parties is a relevant antecedent for innovative activities in cooperations (Kale *et al.*, 2000) as it ensures open exchange and strengthens the willingness to transfer knowledge for the sake of joint innovation activities (Sivadas and Dwyer, 2009). When cooperation partners have the same cultural background, they have a shared understanding of frameworks, schemes, and meanings; this prevents information loss when exchanging knowledge in interpersonal communication (Grant, 1996). White (2005) also supports this view as he accounts cultural distance for the additional costs necessary to facilitate coordination among cooperation partners as a result of training or administrative and process changes.

Beside the greater ease of coordination, cultural similarity also reduces the fear of opportunistic behavior (Schreiner *et al.*, 2009). As cooperation is built on personal and social interaction, a compatible corporate culture and shared norms will enhance trust between the cooperation partners (Tubin and Levin-Rozalis, 2008; Zucker, 1986). Thus, cultural similarity strongly motivates partners to open up within their cooperation towards exchanging knowledge among potentially competing parties. Consequently, cultural similarity strengthens the basis for innovativeness (Ritala *et al.*, 2009). This effect is confirmed by Bosch-Sijtsema and Postma (2009), who studied the governance mechanisms used in the construction industry, and by Dilk *et al.* (2008), who emphasized “soft and cultural factors” – in addition to relevant expertise and technical knowledge – in order to build an innovative cooperation. The above argumentation leads us to hypothesize:

*H4.* Cultural similarity has a positive effect on service cooperation innovativeness.

As cooperative relationships are embedded in a broader network of social relationships (Granovetter, 1985; Poppo and Zenger, 2002), it is agreed that they cannot be governed solely by formal provisions, but also require relational governance (Larson, 1992; Zaheer and Venkatraman, 1995). However, the role of relational governance is especially strong in service settings. This is indicated in the academic literature. For example, Kianto *et al.* (2009), viewing different forms of intellectual capital and its protection in service and manufacturing firms, concluded that relational factors are of higher importance in service companies. Hoetker and Mellewigt (2009), found that relational governance is particularly valuable when knowledge plays a key role in cooperation, which is more pronounced in service cooperations. A similar theme is echoed in the work of Ritala *et al.* (2009) who document that informal inter-personal and inter-firm relationships determine the success of horizontal service cooperations. Consequently, we posit that different from product-related cooperations, the relevance of relational governance in horizontal service cooperations is greater than that of formal governance:

*H5.* The positive effects of relational governance on service cooperation innovativeness are stronger than the positive effect of formal governance.



#### 2.4 Effects of structural governance

Structural governance mechanisms are the second pillar of cooperation governance and refer to the general contractual setup of the cooperation as specified *ex ante*. A common differentiation is between equity- and non-equity-based relationships (Murray and Kotabe, 2005). While the latter include both verbal and written contracts, the former includes different degrees of equity shares with respect to resources or legal entities and consequently is more formalized. Equity shares can either be a direct equity participation – typically a minority equity participation representing no more than 20 percent of the target firm’s equity (Pisano, 1989) – or a joint venture with balanced equity shares. The latter often involve separate legal entities and are based on clear hierarchical structures defining the influence of the individual partners (Dilk *et al.*, 2008).

In contrast to operational governance mechanisms, the choice of structural governance takes place during the initiation phase of a cooperation (Schreiner *et al.*, 2009). Several scholars have shown that the success of cooperations depends on the design of governance relevant for the specific environment (Lee and Cavusgil, 2006; Ouchi, 1979; Yin and Zajac, 2004). This means that structural governance presets the context of the cooperation (Teng and Das, 2008) and therefore influences the effect of all other actions or measures during the operations of the cooperation. This includes the effects of operational governance in the cooperation, where two main effects can be derived. First, structural governance reduces the extent of *ex post* coordination requirements; second, it reduces the risks that are associated with the opportunistic behavior.

Equity-based cooperations tend to have dedicated management functions (especially when organized as separate legal entity). This *ex ante* coordination makes later interaction and coordination within the cooperation easier (Sampson, 2007). Even though not all areas of cooperation activities might have been defined upfront, the incorporated mechanisms help to overcome challenges and differences on short notice (Kok and Creemers, 2008; Pisano, 1989). The initial setup of an ownership structure goes along with an upfront alignment of partner interests and a distinct predefinition of the allocation of benefits and the required contribution of partners (Gulati, 1995). By doing so, the additional *ex post* coordination needs and the risk concerning hidden agendas when later exchanging tacit know-how are reduced (Pisano, 1989).

Establishing an equity-based cooperation not only facilitates coordination by establishing a formal ownership model but also reduces the risk associated with any later opportunistic behavior. Ownership models imply significant investments in cooperation-related assets that might be at risk when opportunism occurs. Thus, exchange parties are highly interested in setting up deterrents such as “contingent claims contracts including nonperformance penalties, auditing provisions, lawsuit provisions, etc.” (Deeds and Hill, 1999, p. 143). Moreover, ownership models engender “mutual hostage” situations that automatically reduce the partners’ incentives to behave opportunistically (Williamson, 1975).

Thus, based on these two effects, we posit that within equity cooperations the effect of all operational governance mechanisms on cooperation innovativeness will be weaker than in non-equity-based cooperations. Consequently, it is hypothesized:

*H6a.* In equity-based cooperations formalization has a weaker influence on cooperation innovativeness than in non-equity-based cooperations.

H6b. In equity-based cooperations mutual influence has a weaker influence on cooperation innovativeness than in non-equity-based cooperations.

H6c. In equity-based cooperations, cultural similarity has a weaker influence on cooperation innovativeness than in non-equity-based cooperations.

### 3. Research methodology

#### 3.1 Research design and sample characteristics

In order to test the derived hypotheses, we decided to collect primary data from service companies via a key informant approach (Phillips and Bagozzi, 1986). In order to analyze the effects of governance mechanisms on innovativeness in horizontal service cooperations, we targeted senior managers of service companies that were potentially engaged in cooperations with other service providers. For comparability reasons, we decided to focus on only one service industry and chose third party logistics service. The logistics service industry seems appropriate for two main reasons: first, the logistics sector is one of the most important service industries and accounts for 5 percent of the GDP in Germany (Destatis, 2010). Second, as current research reveals, horizontal service cooperations are important to this industry as more and more LSP cooperate with other LSPs. Additionally, knowledge protection is of great relevance in this highly competitive industry.

The sample was derived from a commercial database (Hoppenstedt database) containing corporate information on firms with legal entities in Germany and an annual turnover of more than €1 million (approx. US\$ 1.3 million). We retrieved valid email addresses of the top managers for 3,686 logistics companies.

These managers received an email-invitation with a personalized link to our web-based survey. To ensure face validity, the survey was pretested with five logistics researchers and nine CEOs of LSPs. In total, 426 responses were received, a response rate of 11.6 percent. The respondents have an average professional experience within their company of more than 16 years and are hold senior management positions (53 percent of the respondents were executive managers, all others also hold leading management positions).

The questionnaires were checked for incomplete data, leaving 399 remaining responses. Of these, 225 responses originate from logistics service companies that are currently involved in a horizontal cooperation with other LSP. This share is typical for the logistics service industry, where between 50 and 60 percent of companies are engaged in horizontal cooperation. The responding companies cover the spectrum of small, medium, and large enterprises (Table I). The cooperations include both bi- and multi-lateral setups and are not focused on innovation *per se*, but instead were focused on operational goals such as joint service production, joint marketing and sales, and joint purchasing (Table II).

We tested for non-response bias by first comparing company demographics of the responding firms to those of the non-responding ones employing available data from the company database. Second, we compared responses for the early and late respondents (Armstrong and Overton, 1977). Third, we conducted a follow-up study with 250 randomly selected companies from our sample of non-respondents, leading to a response rate of 78 percent. We compared company demographics and response patterns from the follow-up participants to those of the primary participants.

All three tests suggest that non-response bias is not a concern since all *t*-tests were non-significant at the 95 percent confidence level.

To address concerns of common method bias (Podsakoff *et al.*, 2003) we first conducted Harman’s single factor test and then applied the marker variable procedure with a variable which is theoretically uncorrelated to at least one variable of our conceptual model (Podsakoff *et al.*, 2003). For this purpose, we used the measurement of “the possibility to access financial resources by cooperating” as marker variable. We found the lowest correlation of the marker variable to the items of the focal constructs to be 0.001 ( $p > 0.983$ ) which represents the upper bound for a potential common method variance. The results of both tests indicate that common method bias is not of relevance in this study.

3.2 Measurement scales

To operationalize the constructs included in our conceptual model, we used established measurement scales relying upon multi-item Likert-type scales. They are presented in the Appendix and described in the following.

Cooperation Innovativeness was measured based on the scale developed by Calantone *et al.* (2002) which determines the willingness of the cooperation to be innovative and the actual outcome. Cooperation performance was measured with the established performance scale of Saxton (1997). It identifies whether the partnership has achieved its goals, has enhanced core competencies and competitive advantages,

Sales revenue (in €)	<i>n</i>	%
1-5 million	38	16.9
> 5-25 million	89	39.6
> 25-100 million	48	21.3
> 100-500 million	30	13.3
> 500 million-5 billion	15	6.7
> 5 billion	5	2.2
Total	225	100.0

**Table I.**  
Company demographics of respondents

	<i>n</i>	%
<i>Number of cooperation partners</i>		
2	69	30.8
> 2	155	69.2
Total	224	100.0
<i>Field(s) of cooperation (functional areas that account for more than 25 percent of cooperation content)</i>		
Service delivery	125	55.6
Marketing	99	44.0
Purchasing	36	16.0
HR	15	6.7
IT	8	3.6
R&D	4	1.8
Finance	4	1.8

**Table II.**  
Cooperation demographics

and whether the focal cooperation partner is satisfied with the performance and the degree to which expectations have been met.

Formalization of the cooperation was measured based on a scale of Murray and Kotabe (2005) asking for standard operating procedures as well as for the existence of written documents that detail tasks, activities, and schedules. Mutual influence was captured via a scale developed by Muthusamy and White (2006) that determines whether cooperation partners have an equal say concerning cooperation transactions and an equal influence on each other. Cultural similarity was measured based on Kale *et al.* (2000) assessing the symmetry of the management and operating styles and their organizational cultures.

Structural governance was measured through a categorical variable with four categories that distinguish cooperations with:

- (1) verbal contracts;
- (2) written contracts without equity involvement;
- (3) minority equity-base; and
- (4) joint ventures, which corresponds to the four types of cooperation discussed in the literature (Frankel *et al.*, 1996; Teng and Das, 2008).

For the assessment of scale reliability and validity, we used SPSS 18.0 and Amos 18.0. The correlation matrix for all measurement indicators is displayed in the Appendix. For all scales the Cronbach's  $\alpha$  values (the Appendix) exceed the suggest level of 0.7 (Nunnally, 1978). We further conducted a confirmatory factor analysis (Anderson *et al.*, 1987). After eliminating one item from the innovativeness scale due to low indicator reliability, the model exhibited good fit:  $\chi^2/df = 1.970$ , CFI = 0.955, TLI = 0.937, RMSEA = 0.066, and SRMR = 0.041. All factor loadings were significant (at  $p < 0.001$ ), supporting convergent validity for the constructs (Bagozzi *et al.*, 1991). For each construct the composite reliability ranges from 0.73 to 0.85, which exceeds the required threshold of 0.6 (Bagozzi and Yi, 1988). Discriminant validity was assessed following Fornell and Larcker (1981). We assessed discriminant validity by comparing the average variance extracted (AVE) of each construct with each construct's squared correlations with all other constructs; in all cases AVE exceeded the largest squared correlation between constructs, demonstrating discriminant validity. Additionally, the AVE for all constructs exceeds 0.50, demonstrating convergent validity.

### 3.3 Hypotheses test results – base model

In the first step, we calculated the structural base model that relates to the relationships among the three governance constructs (formalization, mutual influence, and cultural similarity), innovativeness and cooperation performance as hypothesized in *H1-H5*. Structural equation modeling was used to assess the proposed model and showed good model fit:  $\chi^2/df = 1.967$ , CFI = 0.953, TLI = 0.937, RMSEA = 0.066, and SRMR = 0.050. Further, we included several control variables in the model: size of the network, regional coverage, focal firm size, duration of cooperation. None of the control variables were significant in the structural model.

*H2-H5* examine the influence of the three governance mechanisms on the innovativeness of the cooperation, presuming positive relationships. The model results

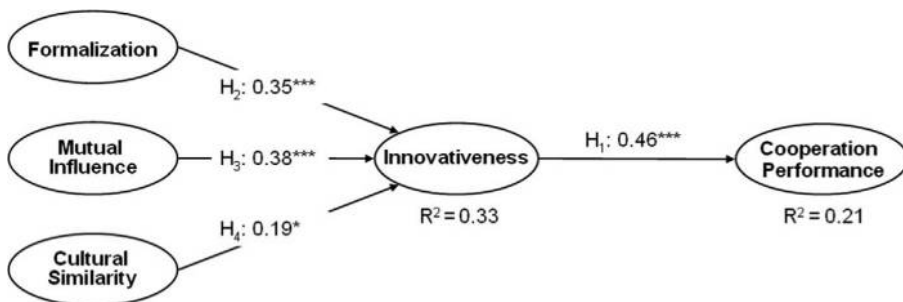
indicate significant positive effects for all three paths as shown in Figure 2. The standardized path coefficients are 0.353 ( $p < 0.001$ ) for formalization, 0.376 ( $p < 0.001$ ) for mutual influence, and 0.193 ( $p < 0.05$ ) for cultural similarity. This supports the *H2-H4*. Further, the combined effect size of relational governance ( $0.376 + 0.193 = 0.569$ ) is substantially stronger than the effect of formal governance (0.353), which supports *H5*. The relationship between innovation and performance was likewise found to be significantly positive (0.463;  $p < 0.001$ ), which provides support for *H1*.

Moreover, the model reveals high explanatory power. The variance explained ( $R^2$ ) for innovativeness is 32.8 percent and for cooperation performance 21.4 percent. When considering that governance is only one of many aspects within a cooperation that influences innovativeness (others being, for example, knowledge, absorptive capacity, and cooperation strategy), these results signify that a substantial part of cooperation outcome relates to governance and specifically to the usage of formal and relational governance mechanisms.

3.4 Hypotheses test results – moderation

As mentioned above, we also analyzed the moderating effect that resides in equity-based cooperation set-ups. For this purpose, we conducted multi-group analysis and  $\chi^2$ -difference tests. The overall model fit improved when separating the sample along the dimensions non-equity versus equity-based cooperations yielding the standardized path coefficients presented in Table III.

The analysis shows that the effect of formalization on innovativeness of a cooperation is substantially smaller for cooperations based on equity arrangements (0.110 instead of 0.397). The difference is significant and consistent with *H6a*. For the two dimensions of relational governance, the results are somewhat different. The effect of mutual influence on innovativeness actually increases significantly for settings with equity involvement. This is contrary to our initial assumptions and, thus, *H6b* has to be rejected. For the second measure of relational governance, cultural similarity, our analysis shows a significant effect on innovativeness only in non-equity-based settings and a non-significant effect for equity-based cooperations. The corresponding decrease of the path coefficient from 0.225 to 0.077 is consistent with our hypothesis. However, the  $\chi^2$ -difference test indicates that this substantial difference is not significant. We therefore only conclude weak support for *H6c*.



Note: Significant at: \* $p$ -value  $< 0.1$ , \*\* $p$ -value  $< 0.01$  and \*\*\* $p$ -value  $< 0.001$

Figure 2. Empirical results for the structural base model

**Table III.**  
Results of moderation  
analysis

	Non-equity- based cooperations ( <i>n</i> = 139)	Equity based cooperations ( <i>n</i> = 86)	<i>p</i> -level of significance in $\chi^2$ - differences of path coefficients	Hypothesis regarding moderation
Formalization → innovativeness ( <i>H6a</i> )	0.397 ***	0.110 (ns)	0.006	Support
Mutual influence → innovativeness ( <i>H6b</i> )	0.280 *	0.602 ***	0.025	No support
Cultural similarity → innovativeness ( <i>H6c</i> )	0.225 *	0.077 (ns)	0.395	Weak support
<b>Notes:</b> Significant at: * <i>p</i> < 0.05, ** <i>p</i> < 0.01, *** <i>p</i> < 0.001; ns – not significant				

Revisiting *H5*, the moderation model highlights that relational governance is of higher relevance – due to its stronger combined path coefficients both for equity-based and for non-equity-based cooperations – than formal governance independent of the structural governance set-up.

#### 4. Discussion

##### 4.1 Results interpretation

First, our research demonstrates that the positive relationship between innovativeness and overall performance that so far has just been shown at the level of an individual firm (Calantone *et al.*, 2002; Grawe *et al.*, 2009; Hult *et al.*, 2004) also applies to the multi-company setting of horizontal service cooperations as a cooperation’s overall performance is substantially driven by its innovativeness. While many researchers have studied cooperations focused on innovation (Hoang and Rothaermel, 2005; Oxley and Sampson, 2004), where this relationship is almost self-evident, our research was focused on cooperations that are not specifically directed towards innovation, but focus on other areas such as joint service provision, joint marketing and sales, and joint purchasing. Nevertheless, the long-term market success of these service cooperations is highly dependent on the ability of cooperation partners to foster the innovativeness of their partnership in terms of improving operations, or developing new products or services (Ritala *et al.*, 2009).

While innovativeness is indispensable, service companies are still faced with the challenge to simultaneously share information, which provides the fundamental basis for innovativeness, and protect strategic knowledge. The difficulty to engage in such knowledge exchange in settings where the cooperating parties are (potential) competitors has been discussed in the literature before (Kale *et al.*, 2000; Ritala *et al.*, 2009; Teng and Das, 2008).

In this context, our research shows that different forms of governance play a key role in fostering innovativeness as the operational governance mechanisms explain almost 1/3 of the differences in innovativeness ( $R^2 = 32.8$  percent). Both formal and relational governance help to promote coordination and mitigate opportunism among cooperation partners to create the setting necessary for innovation. While the findings are consistent with the exploratory case study analysis of Ritala *et al.* (2009), we provide

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insights on the different roles of formal and relational governance mechanisms and we introduced the interdependence of operational and structural governance to the discussion of horizontal service cooperation. Although both types of operational governance – formal and relational governance – do influence cooperation innovativeness, we were able to confirm the proposed predominant role of relational governance in service cooperations. This is a differentiating aspect between the service and manufacturing sectors, in the sense that formal governance is assumed to be of higher importance in cooperations of product companies.

Further, our results provide empirical evidence that the contractual setup serves as a structural governance framework in which the operational governance mechanisms are effective. While at a much more general level, prior research had indicated that the effect of operational governance mechanisms depends on the structural setting (Murray and Kotabe, 2005), we were able to show the actual interrelationship in service cooperations and with respect to innovation in such cooperations.

In non-equity-based cooperations, where the coordination needs and the risks resulting from potential opportunism are much larger, operational formalization plays an important role for innovativeness. In contrast, operational formalization is not effective in equity-based cooperations. Here the formalization at the structural governance level is sufficient to reduce coordination needs and risks of opportunism. In that way, it already provides a sound basis for innovativeness. Consequently, additional formalization on the operational day-to-day level has only a very limited (non-significant) effect for innovativeness.

The effects for cultural similarity as a relational governance mechanism are quite similar to operational formalization. While the effect sizes are a little smaller (between 1/2 and 3/4 of the effects of formalization) the general pattern is the same. Cultural similarity has a significant positive influence on innovativeness in non-equity cooperations, whereas its effect weakens and becomes non-significant for equity-based cooperations. In the standard setting without equity involvement (62 percent of the analyzed cooperations rely on oral agreements or written contracts without equity involvement), cultural similarity between the parties is important. A common understanding of management styles, norms, and cultures lays the foundation for mutual trust and enables a “common language” in the cooperation. The fact that the influence decreases for equity-based cooperations is in line with the findings for formal governance. When either a new legal entity is founded (joint venture) or very close ties are formed through joint equity shares, cultural similarity only has a very marginal effect on innovativeness as the risks of opportunism are already reduced via structural governance.

While formal governance and cultural similarity could not add significant value to the cooperation innovativeness for equity-based cooperations, mutual influence does. In fact, in equity-based cooperations, mutual influence becomes the dominant factor determining innovativeness of the cooperation. Contrary to our initial hypotheses, the effect of mutual influence, a relational governance mechanism, is not decreasing when the cooperation is based on equity. Apparently, companies that invest in cooperation may be cautious to avoid knowledge spillover to their partner(s), at least to the degree that this spillover is smaller than the profit they realize from the cooperation themselves. As indicated by Steensma and Lyles (2000), the success of equity cooperations (in their case, joint ventures) depends on balanced management control;

otherwise the smaller, less powerful firms will use all means to protect themselves (Linnarsson and Werr, 2004; Pisano, 1989; Scherling and Wang, 1997), which will hamper innovation.

#### *4.2 Managerial implications*

The findings of this research are relevant for managers in service industries dealing with horizontal cooperations. As many cooperations do not originate from an innovative idea, but rather aim to reduce costs, gain efficiency, or serve a greater customer base (Ozman, 2009), the relevance of innovation might not be at the top of the managers' minds. The strong impact of cooperation innovativeness on cooperation performance, however, reveals that managers should pay attention to the aspect of innovation from the beginning of the cooperation. When initiating a new horizontal cooperation, managers should no longer focus on how to protect their knowledge and their customers from their competitor(s) by impeding information flows. By reflecting on and using appropriate governance mechanisms, service companies can improve coordination and reduce risks of opportunism. Such an approach supports the innovativeness of the cooperation and allows the partners to reap the full benefit of cooperation.

Although the implementation of formalized processes in practice seems counterintuitive to the creativity needed to foster innovativeness (Ojasalo, 2008), our research reveals that without the positive effects of formalization (improved coordination and reduced risks of opportunism), innovation within a cooperation is harder to achieve. In this respect, the level of operational formalization appears to be lower in non-equity than in equity-based cooperations, although its effect is much stronger in non-equity-based cooperations. Consequently, managers of non-equity-based cooperations may want to reconsider formalization as a means to enhance the value of the cooperation through innovation.

Managers dealing with equity-based cooperations should put a stronger emphasis on establishing a set-up of balanced mutual influence to benefit most from the cooperation. This means, especially for more powerful partners, that they have to reduce their influence to a balanced level in the cooperation. Otherwise they hinder information flows from less influential companies, which might fear opportunistic behavior by the larger partner, and leave innovation potential unused.

### **5. Limitations and further research**

Certain limitations of the study should be kept in mind when interpreting the results and initiating future research. Our empirical research is static in the sense that we do not focus on cooperation development over time. As past research indicates that cooperation performance and choice of cooperation partners is dependent on prior cooperation experience and history of the individual companies (Gulati, 1998), future research may want to take cooperation history into account when studying the effects of governance mechanisms.

Further, this research supports the fact that the exchange of knowledge among firms is crucial for innovativeness. We therefore encourage future research on the role of specific types and sources of knowledge for innovation. This includes viewing how companies absorb the relevant knowledge (here absorptive capacity will be of vital importance) and how they transfer it to the relevant people within the company and the cooperation.



This empirical research utilized data from the logistics service industry collected in one country. A cross-industry comparison in the service sector in a specific industry where:

- there exists less knowledge about managing horizontal collaborative relationships; or
- such relationships are explicitly formed to improve innovation would provide valuable knowledge.

Replicating this study in other countries or regions would further help to improve the generalizability of these findings.

We limited this research to selected governance mechanisms – formalization, mutual influence, and cultural similarity – that together explain a great part of innovativeness in cooperations. However, other mechanisms like explicit management tools (Hoetker and Mellewigt, 2009), personal ties (Kale *et al.*, 2000), solidarity (Gundlach *et al.*, 1995), or the form of information exchange (Jap and Ganesan, 2000) are likewise important. Thus, we recommend that scholars conduct holistic research that integrates, analyzes and prioritizes the variety of governance modes that are discussed in the literature in terms of their ability to foster both innovativeness and performance of a cooperation.

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(The Appendix follows overleaf.)

Measurement scales		Mean	SD
<i>Formalization (Murray and Kotabe, 2005), Cronbach's <math>\alpha = 0.73</math>, AVE = 0.58</i>			
Form 1	In our cooperation we have written documents (e.g. handbooks) that spell out tasks, activities and procedures for the cooperation with a high level of detail	4.71	1.981
Form 2	In our cooperation we use very detailed standard operating procedures (e.g. rules, policies, forms) for the processes of the cooperation	5.17	1.730
<i>Mutual influence (Muthusamy and White, 2006), Cronbach's <math>\alpha = 0.73</math>, AVE = 0.59</i>			
Mut 1	Each cooperation partner has an equal say in all cooperation transactions	4.61	2.115
Mut 2	Each cooperation partner can influence the other in making decisions related to the cooperation	5.17	1.748
<i>Cultural similarity (Kale et al., 2000), Cronbach's <math>\alpha = 0.85</math>, AVE = 0.75</i>			
Cult 1	In comparison to our cooperation partner, we have an identical operational management style	3.39	1.663
Cult 2	In comparison to our cooperation partner, we have identical organizational cultures	3.56	1.771
<i>Cooperation innovativeness (Calantone, 2002), Cronbach's <math>\alpha = 0.85</math>, AVE = 0.59</i>			
Inno 1	Together with our cooperation partner(s), we frequently try out new ideas	4.08	1.519
Inno 2	Together with our cooperation partner(s), we seek out new ways of doing things	4.24	1.644
Inno 3	Together with our cooperation partner(s), we are creative in our methods of operation	4.90	1.477
Inno 4	Together with our cooperation partner(s), we bring more innovative services to the market as our competitors	4.65	1.545
Inno 5	Together with our cooperation partner(s), we are often the first to market with new services (eliminated in scale refinement process)	n.a.	n.a.
<i>Cooperation performance (Saxton, 1997), Cronbach's <math>\alpha = 0.84</math>, AVE = 0.64</i>			
Perf 1	Overall, we are very satisfied with the performance of this cooperation	5.44	1.190
Perf 2	The alliance has contributed to our core competencies and competitive advantage	5.64	1.206
Perf 3	The cooperation has realized the goals we set out to achieve	5.27	1.330
<b>Note:</b> All items are measured on a seven-point Likert-scale where 1 = strongly disagree and 7 = strongly agree			

Table AI.

Cooperation contract	<i>n</i> = 225
Which type of cooperation contract do you have?	
Non-equity-based (oral contract, written contract without equity involvement)	139
Equity-based (equity-based contract, joint venture contract)	86

Table AII.

	Form 1	Form 2	Mut 1	Mut 2	Cult 1	Cult 2	Inno 1	Inno 2	Inno 3	Inno 4	Perf 1	Perf 2	Perf 3
Form 1	1												
Form 2	0.576	1											
Mut 1	-0.060	-0.040	1										
Mut 2	-0.096	-0.072	0.591	1									
Cult 1	-0.023	-0.006	0.283	0.274	1								
Cult 2	-0.012	-0.034	0.294	0.203	0.746	1							
Inno 1	0.211	0.246	0.194	0.220	0.238	0.253	1						
Inno 2	0.110	0.193	0.236	0.217	0.191	0.257	0.717	1					
Inno 3	0.227	0.158	0.279	0.316	0.223	0.229	0.558	0.649	1				
Inno 4	0.099	0.128	0.323	0.256	0.207	0.208	0.497	0.548	0.595	1			
Perf 1	0.204	0.149	0.057	0.146	0.077	0.107	0.281	0.256	0.353	0.240	1		
Perf 2	0.243	0.246	0.177	0.160	0.037	0.107	0.284	0.292	0.353	0.317	0.658	1	
Perf 3	0.114	0.188	0.169	0.200	0.044	0.093	0.284	0.239	0.405	0.302	0.692	0.557	1

**Table AIII.**  
Correlation matrix for  
measurement indicators

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