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When are contracts and trust necessary for innovation in buyer-supplier relationships? A Necessary Condition Analysis

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ABSTRACT

Main stream research predominantly views contracts as being *sufficient* for (i.e., driving) performance. In contrast, necessity-thinking implies that contracts *allow* performance to exist: if the necessary condition is not in place (at the right level), the desired performance will not occur, irrespective of other drivers of performance. Statements implying necessity are common in supply management research; yet, to date, an appropriate tool for testing such statements has been lacking. This article makes the case for the newly developed Necessary Condition Analysis (NCA) method, and applies it to data on forty-eight buyer-supplier service outsourcing relationships to explore the necessity of contracts for a specific relationship outcome, i.e., supplier-led innovation. Also, the necessity of trust is explored, as contracts are implemented within a broader context that involves social characteristics of relationships. The results show that successful relationships, i.e., relationships that have high levels of innovation (as observed in the top ten percent of the relationships studied) must necessarily have contracts with at least medium levels of contractual detail, as well as the highest levels of trust. In relationships with low levels of innovation (i.e., innovation levels that can be achieved by about half of the relationships), neither of the conditions (i.e., contracts and trust) is necessary. As such, applying NCA results in a fundamentally different understanding of the relationship between innovation, and contracts and trust. The results indicate that managers should first ensure the right levels of these necessary conditions, before giving attention to other factors that (on average) produce innovation.

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1. Introduction

Research focusing on the performance effects of contractual governance (e.g., Anderson and Dekker, 2005; Schepker et al., 2014) has in common that contracts are predominantly viewed as *causing* or *driving* performance: increasing the level of contractual governance is *sufficient* to obtain a certain increase in performance (X produces Y). Sufficient conditions can be considered one distinct logical part of the notion of causality (Dul, 2016b).

The other distinct logical part concerns *necessary* conditions: performance will not be attained when contractual governance is absent (no Y without X). Thus, while a sufficient cause produces the outcome, a necessary cause allows the outcome to exist. Conversely, without the necessary cause, the outcome will not exist despite other factors being present. In the extant literature, necessary conditions are often implicit and more commonly referred to using alternative formulations, such as X being critical or a pre-condition for Y. In the governance literature For example, Lazzarini et al. (2004) point out that contracts are "crucial" for cooperation (under low probability of continued exchange). Such a claim can reasonably be interpreted as a necessary condition statement: a contract must be present to have cooperation; without a contract, there will be no cooperation.

Such examples of necessary condition statements are common in the organizational sciences in general (Dul, 2016b; Dul et al., 2010). To date however, necessary condition hypotheses could not appropriately be tested because traditional data analysis approaches (e.g., correlation or regression analysis) are based on the presumption that condition X is *sufficient* to increase outcome Y, but not necessary because Y can also be increased by other conditions. Recently however, an appropriate technique for analyzing necessary condition hypotheses has become available in the form of Necessary Condition Analysis (NCA) (Dul, 2016b). This article

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explores the applicability and usefulness of applying NCA to an existing dataset of service outsourcing relationships.

In terms of content, this article explores the necessity of contracts for supplied-led innovation in service outsourcing relationships. Our main substantive research question is: are contracts necessary for supplier-led innovation to occur in service outsourcing relationships? The focus is on supplier-led innovation, as suppliers have become a critical source of innovative solutions, ideas, and technologies (Roy et al., 2004; Van Echtelt et al., 2008), not only to enhance the buyer's value proposition, but also for the improvement and optimization of the internal processes or daily operations that buyers increasingly outsource to suppliers. Innovation thus refers to the supplier-initiated changes and improvements to contracted (outsourced) service activities, or to activities involved in achieving a certain contracted service performance that may or may not accompany daily service delivery. This as opposed to innovation contracts (Beneito, 2006; Gilson et al., 2009), where innovation is the sole performance outcome contracted. Contracts are operationalized in terms of the level of contractual detail, i.e., the extent to which obligations and behaviors (i.e., term specificity) and unanticipated contingencies, including relevant guidelines for handling these contingencies (i.e., contingency adaptability), are delineated in the contract (Luo, 2002). Besides the necessity of contracts, the necessity of trust is also investigated, as contracts are agreed and implemented within a broader context, which involves social characteristics of the relationship such as trust. Trust has been suggested (but not properly confirmed) to be *necessary* for performance outcomes such as inter-firm collaboration and value creation (Lumineau and Malhotra, 2011), but is trust also necessary for innovation? A distinction is made between goodwill trust, which is trust that a supplier *intends* to fulfill its role in the collaboration, and competence trust, which is trust in the supplier's *ability* to fulfill an agreed-upon obligation (Das and Teng, 2001; Malhotra and Lumineau, 2011; Sako, 1992).

Foremost, this article makes a methodological contribution by introducing NCA as an additional logic and data analysis tool for a more fine-grained understanding of purchasing and supply management phenomena. This more fine-grained understanding stems from the fact that in the presence of unfulfilled necessary conditions, increasing the values of sufficient conditions identified using for example multiple regression will *not* increase the level of the outcome, as this outcome cannot exist without fulfilling *all* necessary conditions. In other words: necessary conditions have strong managerial implications: managers will not attain the desired level of the outcome unless they put in place all single conditions (at the right level) that are necessary for the desired level of the outcome to occur. As the study of necessity relationships is not widespread in purchasing and supply research nor in business research in general, this article suggests to use NCA and explains how a Necessary Condition Analysis is done.

The remainder of this article is organized as follows. First, in Section 2 ("Theoretical background") a brief review of extant (regression-based sufficiency thinking) literature on contracts and trust in relation to performance in general and innovation in particular is presented. Next, in Section 3 ("The logic of necessary conditions") necessity logic and how it compares to traditional sufficiency logic is extensively discussed. Then in Section 4 ("Research methods") the research design and data collection approach are presented, followed by an explanation on how NCA is applied to the dataset. Finally, the results are shown and discussed in Section 5 ("Results") and Section 6 ("Discussion and conclusion").

2. Theoretical background

Inter-firm governance is critical for the stability of buyer–supplier relationships (Benton and Maloni, 2005; Carr and Pearson, 1999) and concerns the formal and informal rules of exchange, actions and mechanisms governing the behavior of parties in an inter-organizational collaboration (Vandaele et al., 2007), such as a buyer-supplier relationship. In general, two governance strategies have been studied: formal or contractual governance, and relational governance (Cao and Lumineau, 2015; Griffith and Myers, 2005).

Contractual governance refers to a buyer-supplier relationship being managed by means of a formal and written contract which explicitly stipulates the responsibilities and obligations of each party (Cao and Lumineau, 2015; Ryall and Sampson, 2009). Most commonly viewed from a Transaction Cost Theory perspective, contracts act as safeguards against ex-post performance problems, and reduce the risks that might result from opportunism on the part of either or both parties (Luo, 2002). Contracts act as safeguards by prescribing each partner's appropriate behavior in addition to its role and obligations, and by providing guidance on the allocation of outcomes, on how to act in the event of future contingencies, and on penalties for violating the contractual agreement (Poppo and Zenger, 2002; Wang et al., 2011).

At the same time, contracts by themselves may be inadequate to prevent opportunism and promote cooperation. Consequently, other mechanisms, such as relational governance, have been used to complement contracts (Macaulay, 1963). The sociological interpretation of relational governance, as advanced by Social Exchange Theory (SET), is that trust is essential for the stability of social relationships (Cao and Lumineau, 2015) in which buyer-supplier exchanges are usually embedded (Granovetter, 1985), as trust derived from and the social interactions taking place within such relationships are effective instruments for managing these relationships. Existing literature identifies two types of trust: goodwill trust and competence trust (Das and Teng, 1998; Malhotra and Lumineau, 2011; Sako, 1992). Goodwill trust is the trustor's confidence that the trustee *intends* to fulfill their role in the collaboration, particularly trust that both parties will act fairly when the possibility for opportunistic behavior is present (Das and Teng, 2001; Lui and Ngo, 2004; Nooteboom, 1996). Competence trust refers to the confidence of the trustor in the trustee's *ability* to fulfill an agreed-upon obligation (Das and Teng, 2001; Lui and Ngo, 2004; Nooteboom, 1996). Ability here concerns the trustee's technical, cognitive, organizational, and communicative competences (Klein-Woolthuis et al., 2005).

Extant research on contracts and trust in relation to performance has been mostly regression-based, i.e., identifying sufficient causes of performance rather than necessary causes. The number of studies suggesting necessity of contracts for certain outcomes are limited. For example, although they do not focus on necessary conditions, Lazzarini et al. (2004) suggest that contracts are necessary for cooperation, while Lumineau and Malhotra (2011) focus on value creation as a relevant performance outcome. Focusing more specifically on innovation, the extant (regression-based) literature provides some evidence for contracts as a *producer* of innovation. Contracts may facilitate the acquisition of both the explicit and tacit knowledge that is usually involved in innovation (Li et al., 2010). Detailed contracts can curb opportunistic behavior in buyer-supplier relationships (Luo, 2002), and therefore facilitate knowledge transfer and improve innovation performance. Furthermore, the costs and risks associated with knowledge transfer and innovation are reduced when a detailed contract underlies the buyer-supplier relationship (Wang et al., 2011).

Although trust has been suggested to be *necessary* for performance outcomes such as inter-firm collaboration and value

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