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Bilateral, Collective, or Both? Formal Governance and Performance in Multisourcing

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Abstract

While multisourcing offers benefits such as access to best-of-breed resources and enhanced competition, it also presents clients with a new governance challenge, namely the need to ensure that vendors not only deliver their individual contributions but also collaborate to produce a coherent joint outcome. Clients may address this challenge by combining bilateral governance focused on each vendor's individual performance with collective governance aimed at the vendors' joint performance. However, it is unclear how the simultaneous application of bilateral and collective governance affects multisourcing performance. Indeed, the literature falls short in systematically differentiating these governance mechanisms and empirically examining their interplay. Drawing on existing work on multisourcing and on the outsourcing governance literature, we argue that bilateral and collective governance direct efforts towards different performance dimensions (individual vs. joint), invoke different metaphors (market vs. team), and promote conflicting norms (competitive vs. cooperative), which can result in trade-offs when bilateral and collective governance mechanisms are combined. Results from a survey of 189 multisourcing arrangements support our expectation that bilateral and collective governance promote different performance dimensions. Notably, one collective governance mechanism, conflict management procedures, contributes to both individual and joint performance. We find substitutional effects between bilateral and collective governance in relation to joint performance but not individual performance, indicating that the benefits of collective governance for joint performance are more easily compromised than the benefits of bilateral governance for individual performance. We also observe complementary effects within collective governance mechanisms. Our key contribution lies in theorizing and empirically examining the effects and interplay of bilateral and collective governance in multisourcing.

Keywords: Multisourcing, formal governance, bilateral governance, collective governance, outcome control, conflict management procedure, cooperation, competition, joint performance.

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1 Introduction

Multisourcing – the practice of contracting interdependent information technology (IT) and IT-enabled services from two or more vendors (Bapna et

al., 2010; Wiener & Saunders, 2014) – has become an increasingly popular sourcing model. Although multisourcing offers several potential benefits such as access to best-of-breed resources and delivery of greater value through enhanced competition between vendors (Aubert et al., 2003; Barboza et al., 2011;

Gallivan & Oh, 1999), it also presents clients with a new challenge, namely the need to combine the management of individual vendors with the management of vendors as a group. Indeed, unlike traditional single-sourcing arrangements, multisourcing arrangements require vendors to interact with each other due to interdependencies between the services they deliver as part of a larger integrated service to a client (Bapna et al., 2010; Gallivan & Oh, 1999). Therefore, clients embarking on a multisourcing journey need to ensure not only that each vendor, individually, delivers its respective service to the client's satisfaction (*individual performance*) but also that the overall service meets expectations (*joint performance*), which requires interdependencies and conflicts between vendors to be effectively addressed (Bapna et al., 2010).

The existing information systems (IS) multisourcing literature hints at two formal governance mechanisms relevant for achieving individual and joint performance: bilateral and collective governance. *Bilateral governance* addresses the relationship between the client and one vendor at a time, thus emphasizing the individual performance dimension (Aubert et al., 2003; Lioliou et al., 2019; Poston et al., 2009). Clients exercise bilateral governance, for instance, when they specify and monitor detailed service level agreements (SLAs) for individual vendors, which creates transparency about the vendors' individual performance and thus deters them from shirking on their primary tasks (Aubert et al., 2003; Bapna et al., 2010; Lioliou et al., 2019; Poston et al., 2009). At the same time, bilateral governance may provide little direction and incentives for vendors in the multisourcing arrangement to cooperate with each other and resolve interdependencies between tasks, a key feature of a multisourcing setting (Bapna et al., 2010). Conversely, *collective governance* addresses the relationship between vendors, thus focusing on the vendors' joint performance (Cullen et al., 2005; Naicker & Mafaiti, 2019; Oshri et al., 2019). Clients exercise collective governance, for instance, when they define and monitor procedures for interaction between the vendors or joint outcomes that vendors are expected to produce collectively. Thus, collective governance draws attention to the processes and outcomes of the vendors' collaboration, helping to address interdependencies, resolve conflicts, and thereby achieve high joint performance (Cross, 1995; Cullen et al., 2005; Naicker & Mafaiti, 2019; Oshri et al., 2019). Although collective governance may be less useful for resolving performance issues with individual vendors, it is an important governance mechanism to enhance multisourcing performance, in particular with a view to joint performance (Naicker & Mafaiti, 2019; Oshri et al., 2019).

While several studies acknowledge the importance of either bilateral or collective governance, the existing literature falls short of systematically differentiating the two and of examining how they come together to affect individual and joint performance. Understanding this interplay is critical given that clients may be tempted to choose a hybrid governance model that relies on bilateral governance to address individual performance and collective governance to address joint performance. Yet, as research on hybrid governance modes in a variety of contexts has highlighted (Borys & Jemison, 1989; Ramesh et al., 2012; Tiwana, 2010), hybrid arrangements may encounter challenges arising from tensions between its constituting elements (i.e., bilateral and collective governance in the context of multisourcing). Indeed, Bapna et al. (2010), who are among the few to discuss both bilateral and collective governance (or individual and integrated SLAs, in their terms), argue for a trade-off between these two governance mechanisms. They link this trade-off to the economics literature on teams and the distinction made between relative and joint performance evaluation, which are seen as alternative, rather than complementary, governance mechanisms (Che & Yoo, 2001; Itoh, 1991). Wiener and Saunders (2014, p. 217) point to the potential tension in this trade-off in their case study of a global sports company's multisourcing arrangement. They describe how bilateral client-vendor interaction increased rivalry between vendors, which was in tension with the need for vendors to cooperate when working on interdependent tasks. Existing research such as Wiener and Saunders (2014) provides important foundations for understanding the sources of tension in the management of multisourcing arrangements. However, there is still little empirical examination of how performance is affected when conflicting forces operate, such as when clients combine bilateral and collective governance. In light of this gap, this paper addresses the following research question:

RQ: How do bilateral and collective governance come together to affect individual and joint performance in multisourcing?

To address this question, we will examine bilateral outcome control as one bilateral governance mechanism and collective outcome control and conflict management procedures as representing collective governance mechanisms. We argue that bilateral governance (i.e., bilateral outcome control) and collective governance (i.e., collective outcome control, conflict management procedures) give rise to different norms (competitive vs. cooperative) and invoke different metaphors (market of vendors vs. team of vendors), which result in tensions when bilateral and collective governance are combined. Based on these ideas, we formulate hypotheses about how the three governance mechanisms and their

interaction affect individual and joint performance. These hypotheses are then tested on survey data from 189 multisourcing arrangements. The results support our expectation that bilateral and collective governance promote different performance dimensions. Importantly, however, we find that one collective governance mechanism, conflict management procedures, contributes to both individual and joint performance. Moreover, we find complementary effects within collective governance and substitutional effects between bilateral and collective governance in relation to joint but not individual performance. We conclude by discussing the implications of these findings for the literatures on multisourcing and outsourcing governance.

2 Theoretical Background

2.1 Multisourcing

Multisourcing has become a common sourcing model in which multiple vendors are involved in the delivery of interdependent services. It requires a greater degree of coordination between vendors as they need to jointly work towards a common objective. Although

multisourcing arrangements can involve dyadic client-vendor contracts containing SLAs for individual vendors (Aubert et al., 2003; Cross, 1995; Wiener & Saunders, 2014), this governance approach from single-sourcing may be insufficient for addressing the need for coordination between vendors. Therefore, clients may complement governance at the dyadic client-vendor level with governance that involves the collective of vendors, such as by specifying joint outcomes (Bapna et al., 2010; Winkler, 2016) and procedures for collaboration (Barboza et al., 2011).

Figure 1 illustrates a multisourcing arrangement involving two vendors. The arrangement encompasses two dyadic relationships, C-VA (i.e., Client-Vendor A) and C-VB, each of which may be accompanied by SLAs for the individual vendors (see the dashed lines in Figure 1). However, interdependencies between the services provided by vendor A and vendor B create a triad involving the client, vendor A, and vendor B (see the continuous lines in Figure 1). When clients specify joint outcomes or procedures for collaboration between the vendors, they are exercising governance at the collective level of the C-VA-VB triad.

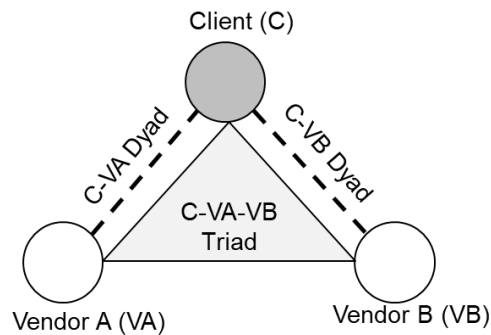


Figure 1. Multisourcing Arrangement: Dyadic and Triadic Relationships

An example of one such multisourcing setting is a large European logistics service provider that delegated the development of a software system for mobile devices to six vendors (Hurni et al., 2015, 2020). In this example, the client selected six vendors through a tendering process, signed bilateral contracts with the individual vendors, and assigned different software modules to each. However, because of interdependencies between the outsourced modules, it was critical that the vendors worked together as a team to produce an integrated, coherent software application. In practice, the vendors frequently exchanged information, helped each other in the development of the respective modules they had been assigned, identified components to be reused by other vendors, made suggestions for the overall software architecture, set up infrastructure for the benefit of all vendors, and accommodated unforeseen changes, such

as when the client re-assigned modules to other vendors to balance the workload. To promote such cooperative behaviors, the client prescribed procedures for interaction among the vendors and directed their attention to their jointly produced outcomes, such as the capability of software modules developed by different vendors to support one end-to-end business process (Hurni et al., 2015, 2020).

This example portrays multisourcing as a hybrid arrangement that comprises both bilateral and collective elements. On the one hand, the client signed bilateral contracts with each vendor and expected each vendor to deliver specific software modules. In this regard, a multisourcing arrangement resembles a set of single-sourcing relationships where the client manages each vendor through bilateral governance efforts. On the other hand, the client exercised governance efforts

that addressed the interdependencies between vendors working towards a joint outcome. This aspect of multisourcing points to the need to promote cooperation between vendors (e.g., helping each other, setting up common infrastructure) to achieve a common goal.

The hybrid nature of multisourcing arrangements, comprising both bilateral and collective aspects in the relationships between the parties, raises the challenge of how to combine governance at the bilateral and collective level. Clients may be tempted to choose a hybrid governance model that relies on strong bilateral governance to manage individual performance and strong collective governance to manage joint performance. Yet, as with hybrid governance forms in other contexts (Borys & Jemison, 1989; Ramesh et al., 2012; Tiwana, 2010), such an approach is not without tensions. Specifically, as Wiener and Saunders (2014)

observe, bilateral client-vendor interaction can enhance rivalry between vendors, which may work against the need for vendor cooperation when working on interdependent tasks.

Drawing on Wiener and Saunders (2014) and on the idea that formal governance affects norms in inter-firm relationships (Goo et al., 2009; Huber et al., 2014; Macneil, 1980), we argue that bilateral and collective formal governance direct efforts towards different performance dimensions (individual vs. joint), thereby invoking different metaphors (market of vendors vs. team of vendors) and promoting different norms (competitive vs. cooperative). Consequently, although clients may combine bilateral and collective governance to manage different performance dimensions, tensions are likely to arise. Table 1 summarizes these ideas, which are next developed in more detail.

Table 1. Bilateral vs. Collective Governance

	Bilateral governance	Collective governance
Focal relationship	Client-vendor dyad	Multisourcing arrangement
Key formal governance mechanisms	Bilateral outcome control	Collective outcome control, conflict management procedures
Focal outcome	Individual performance	Joint performance
Metaphor	Market of vendors	Team of vendors
Salient norms	Competitive norms	Cooperative norms

2.2 Bilateral Governance in Multisourcing

Bilateral governance refers to formal governance that is exercised in the dyadic relationship between a client and a vendor, thus involving one vendor at a time. Although clients may use a variety of mechanisms to govern bilateral exchanges, research on single-sourcing has persistently argued that specifying and monitoring expected outcomes is critical for ensuring that vendors deliver services of the expected quality (Dibbern et al., 2004; Lacity et al., 2010). Empirical examinations of this assertion have focused on the construct *outcome control*, defined as the extent to which a client specifies and monitors the outcomes delivered by the vendor (Choudhury & Sabherwal, 2003; Gopal & Gosain, 2010; Rustagi et al., 2008). Similarly, in multisourcing arrangements, client firms specify and monitor the outcomes to be delivered by each vendor (Aubert et al., 2003; Lioliou et al., 2019). We call this formal governance mechanism *bilateral outcome control*, as it emphasizes the dyadic formal governance in multisourcing. For example, in the case of the logistics service provider mentioned earlier in this paper, the client could specify and monitor outcomes related to a module developed by a vendor, such as its output data or its development time. Given this focus on the deliveries of each vendor, clients

exercising bilateral governance treat a multisourcing arrangement as a collection of dyadic relationships (Aubert et al., 2016, pp. 179–181), assuming that each vendor’s activities are separable from other vendors’ activities and highlighting *individual performance* as the focal outcome.

While bilateral governance in multisourcing emphasizes aspects central to the governance of single-sourcing relationships, the presence of multiple vendors bound by similar bilateral governance brings to the fore the possibility of competition between them. Competition is the rivalry that arises between sellers when buyers can choose between similar services produced by different sellers (Bengtsson & Kock, 2000; Osarenkhoe, 2010). Economic theory suggests that multisourcing can help maintain competition because it requires multiple vendors to make similar client-specific investments, making it easier for the client to switch from one vendor to another (Aubert et al., 2003; Gallivan & Oh, 1999; Williamson, 1985). For instance, all vendors in the illustrative case mentioned earlier in this paper needed to learn about the client’s business processes and about the architecture of the software (i.e., investments in client-specific knowledge). This gave them the ability to compete for additional services against other vendors in the multisourcing arrangement and enabled the client to consider either switching vendors or

contracting work to another vendor (Hurni et al., 2020). Indeed, the literature mentions the ability to maintain competition after contract settlement as a key benefit of multisourcing (Aubert et al., 2003; Bapna et al., 2010; Gallivan & Oh, 1999; Krancher & Stürmer, 2018). In line with this argument, case studies have reported high levels of competition in multisourcing arrangements (Cross, 1995; Cullen et al., 2005; Poston et al., 2009; Wiener & Saunders, 2014).

While the presence of multiple vendors potentially breeds competition, we argue that bilateral governance reinforces the competitive rivalry between vendors. Bilateral governance creates transparency with regard to each vendor's individual performance levels, making thus the vendors' performance comparable¹. The economics literature has clearly established that focusing actors on their relative performance entails "extreme competition" (Che & Yoo, 2001, p. 529). In line with this, Wiener and Saunders (2014) found that bilateral client-vendor interaction and monitoring individual performance led each vendor to attempt "to 'outshine' its competitors" (p. 217). Metaphorically, a multisourcing arrangement characterized by strong bilateral governance thus invokes the idea of a *market of vendors*, where a buyer (a client) aims to gather ideally complete information about the competing sellers' (the vendors') abilities to deliver a service and where sellers make efforts to convey favorable information about their abilities (Podolny, 1993)².

The market character emphasized by strong bilateral governance will affect how vendors interact in such multisourcing arrangements. Indeed, prior research has shown that formal governance shapes norms in inter-organizational exchange relationships (Goo et al., 2009; Huber et al., 2014; Macneil, 1980). Norms are patterns of accepted and expected behavior shared by a group (Goo et al., 2009; Heide & John, 1992). We argue that bilateral governance, with its emphasis on transparency of individual performance and the constant threat of substitution in a market-like setting, creates *competitive norms*, i.e., patterns of accepted and expected rival behaviors. These behaviors include vendors highlighting their individual achievements (Wiener & Saunders, 2014, p. 217), vendors blaming other vendors for delivery problems (Currie, 1998, p. 179; Wiener & Saunders, 2014, p. 212), and vendors prioritizing work on their own deliveries over helping other vendors. In line with prior

work on norms in inter-organizational relationships (Goo et al., 2009; Macneil, 1980), we argue that these norms arise from the vendors' expectations of continuity in their relationships with the client. If a client sets up formal governance to accentuate the competitive, market-like facet of multisourcing, vendors will infer that maximizing their individual performance and downplaying or even sabotaging other vendors' contributions is the most effective strategy for earning the client's future business.

2.3 Collective Governance in Multisourcing

While bilateral governance directs the vendors towards achieving individual objectives, multisourcing requires vendors "not only to put best effort in their primary tasks but also to cooperate with and help other vendors perform their tasks" (Bapna et al., 2010, p. 786). A key strategy for encouraging cooperation between vendors is *collective governance*, defined as formal governance that involves all vendors at the same time. In contrast to bilateral governance, which perceives multisourcing arrangements as a set of dyadic client-vendor relationships (Aubert et al., 2016, pp. 179–181), collective governance addresses the multisourcing arrangement as encompassing numerous relationships and interdependencies (e.g., the client-vendor-vendor triad in multisourcing arrangements involving two vendors).

Collective governance mechanisms focus on aspects relating to vendor collaboration. In this regard, *collective outcome control* refers to the specification and monitoring of the outcomes to be *jointly* achieved by the group of vendors. In our illustrative case, the client defined the end-to-end business process to be supported by a set of modules and consequently tested whether the software applications delivered collectively by different vendors would enable this business process (Hurni et al., 2020). To meet this joint outcome, it is not sufficient for the vendors to just deliver their respective modules. Indeed, they also need to support each other and adjust their individual deliveries to ensure the integrated software does enable the end-to-end business process. *Conflict management procedures*, defined as formal guidelines that specify how disagreements between vendors are to be resolved, are another aspect of multisourcing that affects joint performance. In the outsourcing context,

vendors whose work has interfaces with the software component will likely become aware of this failure and may contrast that failure with their own successes in their communication with the client.

² This use of the term market differs from its use in the theory-of-the-firm literature, where it denotes transactional (as opposed to relational) contracting (Williamson, 1985).

¹ Although bilateral governance is exercised within a client-vendor dyad, the interdependent, collaborative nature of multisourcing makes it likely that the information that bilateral governance produces about each vendor's successes and failures is known not only to the vendor exhibiting the performance but also to the other vendors. For instance, if a vendor fails to deliver a software component as per the expectations formalized through bilateral contracts, other

such procedures are usually understood as operational-level agreements (OLAs) (Bapna et al., 2010; Barboza et al., 2011; Oshri et al., 2015).

With their emphasis on the processes and outcomes of the vendors' collaboration, these two collective governance mechanisms direct attention to the vendors' joint performance as the focal outcome. Metaphorically, this emphasis on the interaction between vendors and joint outcomes raises the notion of a *team of vendors*. Teams have been defined as collectives of actors who interact dynamically, interdependently, and adaptively towards a joint goal (Salas et al., 1992, p. 4). Multisourcing arrangements differ from work teams in the sense that the parties involved in multisourcing are organizations, which assumes greater focus on their organizational interests (Bapna et al., 2010). However, the application of collective governance encourages the development of a team of vendors because it promotes cooperative norms among vendors, i.e., patterns of accepted and expected cooperative behaviors, including helping, information exchange, and flexible adjustment (Goo et al., 2009; Heide & John, 1992; Macneil, 1980; Poppo & Zenger, 2002) – all behaviors that reflect the essential characteristics of teams (i.e., dynamic, interdependent, and adaptive interaction towards a shared goal). Collective governance can promote such cooperative norms in two ways. First, collective outcome control can be linked to monetary rewards to organizational entities for delivering collective outcomes, thus providing an economic incentive for cooperation (Che & Yoo, 2001; Winkler, 2016). Second, collective governance provides a platform for interaction between vendors, where procedures and joint outcomes convey an expectation to vendors that cooperative behavior is valued and may be rewarded by securing the client's future business (Barboza et al., 2011; Goo et al., 2009; Hurni et al., 2020; Naicker & Mafaiti, 2019). For instance, in our illustrative case, the client emphasized procedures for constructive interaction among vendors and awarded future business to those vendors who demonstrated cooperative behaviors during these interactions (e.g., by helping other vendors) (Hurni et al., 2020).

The preceding discussion suggests that clients face a dilemma when considering the application of formal governance mechanisms to improve multisourcing performance. Indeed, clients may be tempted to deploy both bilateral and collective governance mechanisms to enhance both individual and joint performance without full appreciation of the interplay between them. We argue that applying both bilateral and collective governance mechanisms is likely to create conditions for conflicting competitive and cooperative norms within the multisourcing arrangement, which may have a negative effect on multisourcing performance. It is within these conflicting requirements that we seek to develop a conceptual theorization for such tensions to shed light on the conditions that support both individual and joint performance in multisourcing.

2.4 Development of Hypotheses

Our research model, depicted in Figure 2, presents hypotheses for how bilateral governance (bilateral outcome control), collective governance mechanisms (collective outcome control and conflict management procedures), and their interaction affect two key success variables: individual performance and joint performance. Individual performance, defined as the degree to which the services rendered by individual vendors satisfy the client's expectations, represents success at the dyadic client-vendor level. This is in line with the way success is conceptualized and measured in most existing IS outsourcing studies (Gopal & Gosain, 2010; Grover et al., 1996; Lee & Kim, 1999; Tiwana & Keil, 2009). Joint performance, defined as the extent to which the combined performance of vendors working on interdependent tasks meets the client's expectations (Oshri et al., 2019), focuses on the overall multisourcing arrangement. We next theorize the effects of bilateral and collective governance mechanisms on these two success variables, and the tensions and synergies that arise when these governance mechanisms are combined.

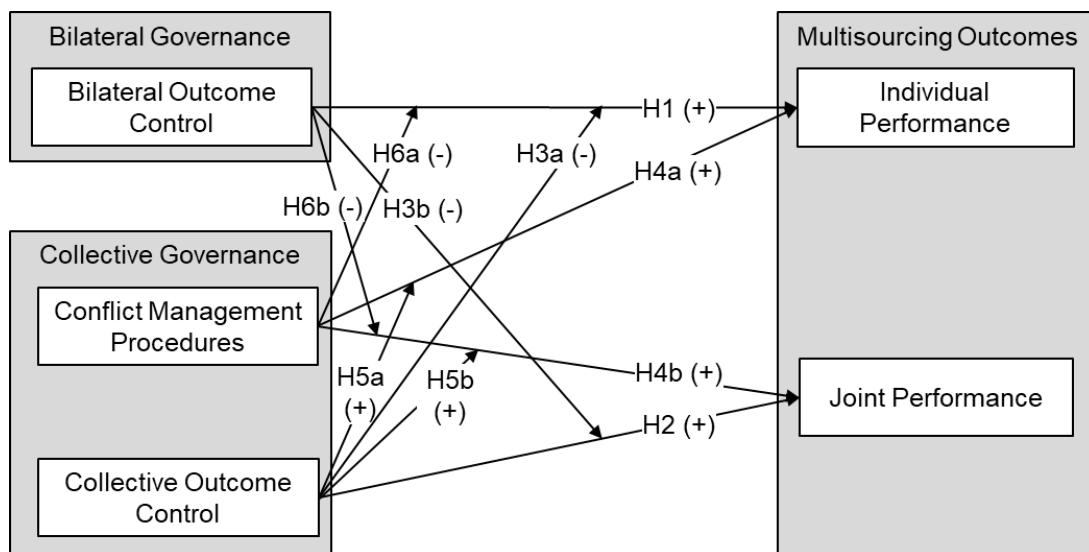


Figure 2. Research Model

Bilateral outcome control: Bilateral outcome control details the expected outcomes from each individual vendor in line with prespecified performance benchmarks (Tiwana & Keil, 2009). Thus, it establishes accountability for and transparency regarding the extent to which each vendor meets its expected outcomes (Bapna et al., 2010). Individual accountability and performance transparency will not only discourage vendors from shirking on their primary task (Aubert et al., 2003; Lioliou et al., 2019), it will also lead vendors to perceive the multisourcing arrangement as a market setting, where vendors need to maximize their individual performance relative to the other vendors' performance. Doing so will secure their returns by meeting their individual contractual requirements as well as motivate the client to seek future business with the vendor in the competitive multisourcing environment (Podolny, 1993; Wiener & Saunders, 2014). We therefore hypothesize:

H1: Higher levels of bilateral outcome control are associated with greater individual performance.

Collective outcome control: While bilateral outcome control focuses on the outcomes delivered by individual vendors, the achievement of individual outcomes is unlikely to be sufficient for the overall success of the multisourcing arrangement (Aubert et al., 2016; Bapna et al., 2010). Given the interdependencies in multisourcing, vendors also need to collaborate with each other to ensure their individual contributions integrate into a coherent, jointly created outcome. Collective outcome control focuses on these joint outcomes. Specifying and monitoring

requirements from the collective of vendors is likely to promote cooperative behavior (Bapna et al., 2010; Che & Yoo, 2001). Indeed, by drawing attention to collective goals as opposed to individual contributions, clients highlight their expectation that vendors work together as a team towards a joint outcome (Hurni et al., 2020; Kaufman & Englander, 2005), thereby promoting cooperative norms such as helping, engaging in information exchange, and accepting the need for flexible adjustment (Goo et al., 2009; Heide & John, 1992; Macneil, 1980; Poppo & Zenger, 2002). Such cooperative norms are likely to be reinforced in the presence of formal incentives associated with collective outcome control (Che & Yoo, 2001), such as agreements that specify bonuses for achieving collective outcomes (Winkler, 2016). Cooperative norms enhance joint performance because they lead vendors to help each other, address interdependencies, and flexibly adjust their coordination approach in response to the learning that occurs over the course of the collaboration (Aubert et al., 2016; Hurni et al., 2020; Naicker & Mafaiti, 2019). We therefore posit:

H2: Higher levels of collective outcome control are associated with greater joint performance.

Interaction between bilateral and collective outcome control: A key tenet of the outsourcing governance literature is that governance mechanisms generally do not act in isolation, but rather complement or substitute³ each other (Huber et al., 2014; Poppo & Zenger, 2002). We therefore argue that bilateral and collective outcome control can substitute each other in terms of their effects on individual and joint

³ As Tiwana (2010) puts it: "Two things are complements if more of one increases the benefits of using the other. They

are substitutes if more of one diminishes the benefits of using the other" (p. 88)

performance. Bilateral outcome control promotes competitive norms while collective outcome control promotes cooperative norms. Competitive norms lead vendors to maximize their individual performance relative to the other vendors' performance, which makes cooperative behaviors such as helping other vendors counterproductive from a vendor's perspective. In contrast, cooperative norms encourage vendors to help other vendors, even at the expense of lower individual performance (Aubert et al., 2016; Bapna et al., 2010). Hence, emphasizing both bilateral and collective outcome control demands two conflicting behaviors of vendors, which is likely to diminish strong patterns in both competitive and cooperative behaviors.

Consequently, while bilateral outcome control is associated with high individual performance, this effect will be weakened in the presence of high amounts of collective outcome control. Similarly, while collective outcome control motivates cooperative, team-like behaviors (e.g., helping each other, flexibly adjusting individual contributions), thus leading to high joint performance, these effects will diminish in the presence of high amounts of bilateral control. Indeed, Naicker and Mafaiti (2019, p. 232) found that fierce competition between vendors in a multisourcing arrangement prevented knowledge sharing between vendors (i.e., a cooperative behavior). We therefore hypothesize:

H3a: The positive association between bilateral outcome control and individual performance is weaker when collective outcome control is stronger.

H3b: The positive association between collective outcome control and joint performance is weaker when bilateral outcome control is stronger.

Conflict management procedures: A unique challenge in multisourcing is the potential for conflict between vendors, either due to opportunistic behavior or because of unresolved interdependencies (Bapna et al., 2010; Conner & Prahalad, 1996; Lindberg et al., 2016). Research on conflict management suggests that formal systems are key for conflict resolution because they promote interaction between the parties during the engagement (Dant & Schul, 1992; Goo et al., 2009; Kale et al., 2000). In the context of multisourcing such formal systems can be implemented through conflict management procedures that specify how conflicts between vendors are to be resolved, for example, by defining OLAs (Bapna et al., 2010; Barboza et al., 2011). An intriguing quality of conflict management procedures is that they rely on a cooperative, team-based approach (by promoting constructive interactions between vendors), but at the same time allow a focus on vendors' individual performance (by

enabling vendors to enforce individual contributions from each other).

There are two key aspects at play in the effect of conflict management procedures on joint performance. First, as vendors engage in greater two-way communication and observe the willingness of other vendors to engage in conflict resolution, these experiences strengthen cooperative norms (Macneil, 1980; Naicker & Mafaiti, 2019). This will be reflected in enhanced cooperative behaviors and, hence, higher joint performance. Second, as communication between vendors is enhanced by formal conflict resolution procedures, and as this communication promotes awareness about each vendor's tasks and mutual learning, vendors become more effective at addressing the unresolved interdependencies that often arise when different firms collaborate on interdependent tasks (Conner & Prahalad, 1996; Lindberg et al., 2016). For instance, the client in our illustrative case specified that all six vendors needed to participate in bi-weekly meetings, which served as a platform for discussing issues related to dependencies between vendors, such as problems in one module on which another module was relying (Hurni et al., 2020). This led to one vendor taking the initiative to help another vendor on a particular module (Hurni et al., 2020).

Although conflict management procedures have been theorized as part of the effect of collective governance mechanisms on joint performance, these procedures may also have relevance in the context of individual performance. Conflict management procedures enable vendors to enforce particular behaviors or outcomes from other vendors (Barboza et al., 2011), thus affecting their individual performance. In this regard, if a client has not set up conflict management procedures and then one vendor shirks, the other vendors will lack a space for communicating with and resolving issues about deliveries from this vendor. Conversely, if conflict management procedures are in place, they will specify forums (e.g., regular joint meetings with or without the client) where the vendors can articulate expectations and raise emerging and potential issues related to outcomes delivered by other vendors (Barboza et al., 2011; Naicker & Mafaiti, 2019). Furthermore, if one vendor is underperforming, in turn affecting the services provided by other vendors, having conflict management procedures in place will expose the shirking vendor. Anticipating this threat, vendors may refrain from shirking and direct their effort towards meeting their individual objectives. Conflict management procedures thus present a team-based governance mechanism for resolving emerging issues and discouraging shirking, in turn leading to higher individual performance. We therefore anticipate:

H4a/b: Higher levels of conflict management procedures are associated with (a) greater

individual performance and (b) greater joint performance.

Collective outcome control and conflict management procedures: We expect that collective outcome control and conflict management procedures complement each other in enhancing joint performance because both promote cooperative norms while focusing on different aspects of cooperation. While collective outcome control promotes cooperative norms by emphasizing joint outcomes, conflict management procedures promote cooperative norms by emphasizing processes that contribute to cooperative behaviors towards joint outcomes. This simultaneous emphasis on different facets of cooperative behaviors provides a strong foundation for cooperative norms to emerge, thus enhancing joint performance.

At the same time, we also expect that collective outcome control enhances the positive effect of conflict management procedures on *individual performance*. While conflict management procedures stimulate communication between vendors, this communication may lack direction if the vendors disagree on the overall goal they should be working towards. Conversely, a governance portfolio that combines conflict management procedures with collective outcome control authoritatively communicates the overall goal of the multisourcing engagement (via collective outcome control) and promotes communication between vendors (via conflict management procedures). Vendors can therefore observe and enforce the contributions each vendor needs to make towards the overall goal. In a similar vein, the economics literature has argued that shirking in teams can be curbed if evaluation focuses on joint performance *and* agents are able to observe each other's individual actions and output (Che & Yoo, 2001; Marx & Squintani, 2009). By promoting interaction between vendors, conflict management procedures create conditions that make it easier for vendors to observe each other's actions and output (Bapna et al., 2010, p. 792). Thus, the combination of collective outcome control and conflict management procedures presents an effective team-based way of establishing mutual accountability among vendors, thereby helping to enhance individual performance. We therefore posit:

H5a/b: The positive association between conflict management procedures and individual performance (H5a)/joint performance (H5b) is stronger when collective outcome control is stronger.

Bilateral outcome control and conflict management procedures: We propose a substitutional relationship between bilateral outcome control and conflict management procedures. Whereas bilateral outcome

control emphasizes individual accountability towards the client, bilateral information flow between client and vendor, and competitive norms, conflict management procedures emphasize accountability between vendors, two-way communication between vendors, and cooperative norms. Indeed, either of these two governance mechanisms can be effective on their own; however, the combined use of bilateral outcome control and conflict management procedures may blur accountability and communication structures, thus obstructing the emergence of both competitive or cooperative norms. Hence, conflict management procedures will weaken the positive effect of bilateral outcome control on individual performance, just as bilateral outcome control will weaken the positive effect of conflict management procedures on individual performance.

For similar reasons, bilateral outcome control and conflict management procedures will also substitute each other in their effect on *joint performance*. While conflict management procedures enhance joint performance by stimulating communication and cooperative norms between vendors, bilateral outcome control interferes with these effects by emphasizing bilateral client-vendor communication and competitive norms (Wiener & Saunders, 2014). We therefore expect:

H6a: The positive association between bilateral outcome control and individual performance is weaker when conflict management procedures are stronger.

H6b: The positive association between conflict management procedures and joint performance is weaker when bilateral outcome control is stronger.

3 Methods

3.1 Sample and Procedure

In line with past IS outsourcing studies (e.g., Goo et al., 2009), we empirically tested our research model using a key informant survey (Pinsonneault & Kraemer, 1993). The questionnaire was administered to organizations spanning a variety of industries in the UK, Germany, France, Italy, Spain, and the US. In countries where English is not the first language, the original English version of the questionnaire was translated and checked by native speakers familiar with outsourcing. Responses were collected through telephone interviews and an online survey.

The questionnaire was distributed among middle- and top-level managers to gather informants who were familiar with multisourcing arrangements in their firms. To ensure the targeted individuals were familiar with multisourcing arrangements (thus qualifying them as 'key informants'), they were required to

answer a set of screening questions and meet all three of the following criteria: (1) Working for an organization with an outsourcing arrangement(s) in place, where a task or project has been consciously divided up and outsourced to different vendors; (2) Working for an organization with at least 250 employees; and (3) Familiar with the management of such a multisourcing arrangement(s) in their company⁴. The respondents then had to select one particular multisourcing arrangement currently in place in their organization. Within this multisourcing arrangement, respondents were asked to select the two vendors contributing the most to the multisourcing arrangement (in terms of amount of work). The questions used to test our model pertained only to this particular multisourcing arrangement for the two chosen vendors, designated as vendor A and vendor B. Focusing on the two most important vendors rather than all vendors allowed us to keep the survey to a manageable size and ensure it was identical for all arrangements. We worded the survey questions to make it clear to respondents whether questions referred to the triad (client, vendor A, vendor B) or to the dyad (client and either vendor A or vendor B). Questions at the dyad level were asked twice, once with regard to vendor A and once with regard to vendor B.

Before sending out the final questionnaire, the questionnaire items were pilot-tested with 15 international organizations to ensure all items were understandable and could be answered by the intended

group of respondents. Each block of questions was followed by an open field for comments, where respondents pre-testing the survey were asked to note down any thoughts they had on the questions asked in the preceding section. These comments were considered during the process of refining the questionnaire. In addition, we tested our model on the pilot data to assess the validity of the constructs. Items that loaded very low were removed from the questionnaire.

The finalized questionnaire was sent out to 2,000 individuals from 2,000 organizations. Overall, 200 usable questionnaires were returned. Of these 200 cases, 10 were excluded after we reviewed the descriptions of the outsourced tasks collected as a mandatory free-text response field through the questionnaire. We excluded cases where the sub-tasks assigned to different vendors were not interdependent (e.g., outsourcing IT procurement to vendor A and sales advice to vendor B) or where the outsourced tasks did not match our target services, namely IT services and IT-supported business processes. We also excluded one outlier reporting a joint performance four standard deviations below the sample mean but above-average individual performance, suggesting an erroneous measurement. Our final sample included 189 multisourcing arrangements and thus 378 client-vendor dyads. Table 2 shows the sample characteristics.

Table 2. Sample Characteristics

Characteristics of the Sample		[Min; Max]	Mean (Std. Dev.)
Respondent working experience	Number of years working in organization	[.5; 35]	8.6 (6.5)
Age of multisourcing arrangement	Years that have passed since the start of the multisourcing arrangement	[1; 9]	3.7 (2.4)
		Number	Percentage
Client size	250 to 1,000 employees	70	37%
	1,001 to 5,000 employees	61	32%
	5,001 to 50,000 employees	46	24%
	More than 50,000 employees	12	6%
Industry sector	Financial services	34	18%
	Manufacturing	39	21%
	Retail, distribution and transport	25	13%
	Public sector	35	19%
Country	Other	56	30%
	France	31	16%
	Germany	33	18%
	Italy	32	17%
	Spain	30	16%
	UK	33	18%

⁴ Our sampling frame also included multisourcing arrangements based on the so-called guardian model, i.e., arrangements where one vendor helps the client manage the other vendors (Bapna et al., 2010). In multisourcing arrangements based on the guardian model, the client

maintains contractual relationships with each vendor and needs to safeguard against opportunistic behaviour by the guardian and the other vendors; hence, the client is ultimately responsible for governing all parties (Oshri et al., 2019).

	US	30	16%
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3.2 Measures

Each construct was measured based on multiple items. Where possible, we used existing measures, which we adapted to the study context. All items were measured on a five-point Likert scale, ranging from “strongly disagree” (=1) to “strongly agree” (=5), with “neither agree nor disagree” (=3) as the mid-point. The items relating to our focal constructs are shown in the Appendix. The items relating to *collective outcome*

control were formulated so that they gathered efforts toward specifying and monitoring outcomes that involved *both vendors at the same time*. Conversely, the items relating to *bilateral outcome control* focused on efforts involving *single vendors*. To enable differential interpretation, we used highly similar items for both constructs. Table 3 shows the operationalization of the control variables. As indicated in the table, we transformed some of the variables to reduce skewness.

Table 3. Control Variables

Country	Single-item question on the client’s country (United Kingdom, France, Germany, Italy, Spain, USA); incorporated through five dichotomous dummy variables
Sector	Single-item question on the client’s sector (financial services, manufacturing, retail, public sector, other); incorporated through four dichotomous dummy variables
Client size	The client’s number of employees, as measured through a single-item question (transformation: natural logarithm)
Concentration one vendor	The fraction of the overall budget for the multisourcing arrangement that is allotted to this particular vendor, as measured through a single-item question (transformation: square root)
Concentration two vendors	The fraction of the overall budget for the multisourcing arrangement that is assigned to vendor A or B (transformation: square root)
Relationship age	Square root of the number of years since the start of the multisourcing arrangement, as measured through a single-item question
Guardian vendor	Where one of the vendors is responsible for managing all other vendors in the multisourcing arrangement, as measured through a single-item question (Bapna et al., 2010)
Architectural knowledge	Measured with three items (CR = .81) focusing on the client’s knowledge of how the services provided by the vendors are related to each other (based on Henderson & Clark, 1990; Takeishi, 2002)
Task interdependence	Measured with four items (CR = .77) focusing on the extent to which the tasks of vendor A and B are integrated, tightly coupled, and dependent on each other (based on Tiwana, 2008)

3.3 Instrument Validation

We validated our instrument through exploratory factor analysis in SPSS and through confirmatory factor analysis in AMOS. The exploratory factor analysis identified items with low loadings on their focal construct or high cross-loadings. As a result, we eliminated one item from bilateral outcome control and one item from conflict management procedures (see Appendix). Moreover, to enable differential analysis of bilateral and collective outcome control, we eliminated the collective outcome control construct item analogous to the item eliminated from the bilateral outcome control construct.

We then conducted confirmatory factor analysis in AMOS to ascertain the validity of the resulting model. Table 4 shows the results for convergent and discriminant validity. The indicators for convergent validity are factor loadings, composite reliability, average variance extracted (AVE), and model fit (Straub et al., 2004). All factor loadings were above .6, with their average exceeding .7 for all constructs.

Composite reliability was above the threshold of .7 for all constructs. AVE was above .5 for all constructs. Model fit indices were within recommended thresholds (MacKenzie et al., 2011), with an RMSEA of .06 (recommended threshold: .06), RMR of .03 (recommended threshold: .08), and CFI of .95 (recommended threshold: .95). Discriminant validity is indicated by model fit (Straub, Boudreau, & Gefen, 2004) and by comparing the square root of the AVE to the inter-construct correlations (Fornell & Larcker, 1981). The construct correlations were below the AVE square roots for all construct pairs, although the construct correlation between bilateral and collective outcome control (.729) was only marginally below the AVE values (.734 for collective outcome control and .736 for bilateral outcome control). Overall, the evidence supports convergent and discriminant validity. We also examined the threat of common-method bias by adding a latent method factor to our AMOS model (Podsakoff et al., 2003). The coefficient of the latent method factor was .00, indicating common-method bias is unlikely to be a concern in our data.

Table 4. Composite Reliability, AVE, and Correlations of Latent Variables in AMOS

	Composite Reliability	Average Variance Extracted	BOC	COC	CMP	IP	JP
Bilateral outcome control (BOC)	.84	.54	<i>.74</i>				
Collective outcome control (COC)	.84	.54	<i>.73</i>	<i>.73</i>			
Conflict management procedures (CMP)	.85	.74	<i>.49</i>	<i>.52</i>	<i>.86</i>		
Individual performance (IP)	.87	.68	<i>.66</i>	<i>.50</i>	<i>.46</i>	<i>.83</i>	
Joint performance (JP)	.87	.53	<i>.53</i>	<i>.67</i>	<i>.52</i>	<i>.70</i>	<i>.73</i>

Figures in the fourth column to the right show construct correlations, with the exception of the diagonal (see figures in italics), which shows square roots of AVE. Level of analysis: client vendor-dyad (level 1).

3.4 Estimation Approach

Our regression approach reflects the multi-level nature of our research model, where the client vendor-dyad sits at level 1 (L1) and the triadic multisourcing arrangement at level 2 (L2). Bilateral outcome control and individual performance are properties of the client vendor-dyad (L1), while collective outcome control, conflict management procedures, and joint performance are properties of the triadic multisourcing arrangement (L2).

Models predicting individual performance present a so-called *macro-micro multi-level situation* (Croon & van Veldhoven, 2007) because they include independent variables at L2 (“macro”, e.g., conflict management procedures) that predict a dependent variable at L1 (“micro”, individual performance) (Croon & van Veldhoven, 2007). In line with established practice in multi-level research, we relied on mixed models with random intercepts to estimate the macro-micro models (i.e., the models predicting individual performance) (Klein & Kozlowski, 2000; West et al., 2007). These models account for the fact that the observations for L2 variables (e.g., collective outcome control) are not independent because they are identical within the same multisourcing arrangement.

Conversely, the models predicting joint performance present a *micro-macro multi-level situation* because they include independent variables at L1 (“micro”, e.g., bilateral outcome control) that predict a dependent variable at L2 (“macro”, joint performance) (Croon & van Veldhoven, 2007). Our estimation approach for these models was based on formative aggregation (Lüdtke et al., 2008). In formative aggregation, entities within the same L2 group can have different true scores for L1 variables and are not interchangeable (Lüdtke et al., 2008). In our setting, two client-vendor dyads within the same triadic multisourcing arrangement (i.e., same L2 group) can have different scores for bilateral outcome control and for individual performance, such as when a client exercises tight bilateral outcome control with vendor A but not with

vendor B, and when individual performance is higher for vendor A than for vendor B. In this case, differences in the scores for vendor A and vendor B reflect true differences rather than a lack of reliability (Bliese, 2000; Lüdtke et al., 2008). The scores for the L1 variables are not interchangeable because it mattered for the analysis whether the dyad with higher bilateral outcome control yielded higher individual performance. Although multi-level studies often involve analysis of the homogeneity of L1 data, such an analysis is not appropriate in formative aggregation settings given that differences in L1 scores within the same L2 group can reflect true differences rather than lack of reliability (Lüdtke et al., 2008, p. 205).

In estimating the micro-macro models, we aggregated data from L1 to L2 using a multi-level manifest covariate (MMC) approach (Lüdtke et al., 2008). This approach involves aggregating L1 predictors (e.g., bilateral outcome control) to L2 by taking the average of all L1 observations (in our case, of both dyads) and then using ordinary least squares (OLS) regression. The MMC approach is more efficient than alternative approaches and is unbiased for formative aggregation when data are available on all L1 entities (i.e., on all dyads within the focal multisourcing arrangement) (Lüdtke et al., 2008). This condition was met in our analysis because we had data on all dyads that were part of the triadic multisourcing arrangements. We preferred OLS regression to PLS or AMOS in these models because OLS regression is more similar to mixed models than either PLS or AMOS, and also has greater power in the analysis of interaction effects (Goodhue et al., 2007). We verified that the residuals followed a normal distribution and the variance inflation factors were below 10, indicating no issues with multicollinearity.

4 Results

Table 5 shows the descriptive statistics, and Table 6 the bivariate correlations. Table 7 shows the regression results. Models 1a and 1b include controls only, where

Model 1a predicts individual performance and Model 1b joint performance. Models 2a and 2b include controls and main effects. We used these models to test our main effect hypotheses: H1, H2, and H4. Models 3a and 3b include controls, main effects, and interaction effects and thus allowed testing of the interaction hypotheses: H3, H5, and H6. Table 8 summarizes the results of the hypothesis testing.

H1 predicted a positive relationship between bilateral outcome control and individual performance. As the results of Model 2a show, the relationship was strong, positive, and significant ($\beta=.40$, $p < .001$). H1 is thus

supported. In contrast to its strong positive relationship with *individual* performance, the relationship between bilateral outcome control and *joint* performance was not significant ($\beta=.12$, $p > .1$, Model 2b, no relationship hypothesized).

H2 predicted a positive relationship between collective outcome control and joint performance. The relationship was positive and significant ($\beta=.26$, $p < .01$, Model 2b), supporting H2. Conversely, the relationship between collective outcome control and *individual* performance was insignificant ($\beta=.03$, $p > .1$, Model 2a, no relationship hypothesized).

Table 5. Descriptive Statistics

	n	Minimum	Maximum	Mean	Standard Deviation
(1) Client size	189	250	3,000,000	27,494.00	218,903.84
(2) Concentration one vendor	378	1	90	26.61	18.67
(3) Concentration two vendors	189	3	100	53.21	30.81
(4) Guardian vendor	189	0	1	.30	.46
(5) Relationship age	189	1	9	3.66	2.39
(6) Architectural knowledge	189	1	5	4.08	.73
(7) Task interdependence	189	1	5	3.47	.94
(8) Bilateral outcome control	378	1	5	4.02	.78
(9) Collective outcome control	189	1	5	4.02	.75
(10) Conflict management procedures	189	1	5	3.67	1.06
(11) Individual performance	378	1	5	4.15	.77
(12) Joint performance	189	1.83	5	4.05	.68
Descriptive statistics show values before transformation (e.g., before standardizing or before drawing square roots)					

Table 6. Bi-variate Correlations

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
(1)	1											
(2)	0.08	1										
(3)	0.10	0.86	1									
(4)	0.17	-0.07	-0.07	1								
(5)	0.02	0.07	0.08	-0.05	1							
(6)	0.07	-0.06	-0.07	0.05	0.10	1						
(7)	0.03	0.08	0.08	0.09	0.22	0.22	1					
(8)	0.07	0.07	0.04	0.1	0.05	0.48	0.23	1				
(9)	-0.04	0.02	0.03	0.02	0.12	0.57	0.30	0.63	1			
(10)	0.08	0.07	0.05	0.11	0.07	0.41	0.13	0.40	0.42	1		
(11)	0.08	0.02	0.01	0.17	-0.01	0.44	0.11	0.57	0.44	0.42	1	
(12)	-0.05	0.04	0.04	0.07	-0.02	0.53	0.14	0.45	0.55	0.45	0.63	1
See Table 5 for variable numbers; level of analysis: client-vendor dyad (L1)												

Table 7. Regression Results

Predictor / dependent var.	Models 1a/b: Controls only		Models 2a/b: Controls and main effects		Models 3a/b: Controls, main and interaction effects	
	a: Ind. Per.	b: Jnt. Per.	a: Ind. Per.	b: Jnt. Per.	a: Ind. Per.	b: Jnt. Per.
Intercept	.39 (.22)	.23 (.17)	.40 (.19)	.19 (.16)	.32 (.19)	.16 (.23)

Client size	.03 (.06)	-.08 (.07)	.01 (.05)	-.07 (.06)	.03 (.05)	-.07 (.06)
Concentration one vendor	.04 (.07)	-.11 (.16)	-.02 (.07)	-.11 (.15)	-.03 (.07)	-.15 (.15)
Concentration two vendors	.01 (.08)	.20 (.16)	.02 (.07)	.16 (.15)	.03 (.07)	.21 (.15)
Relationship age	.14* (.06)	.03 (.07)	.11* (.05)	.02 (.06)	.10[†] (.05)	.03 (.06)
Guardian	-.13 (.13)	-.21 (.14)	-.09 (.11)	-.21 (.13)	-.06 (.11)	-.18 (.13)
Client's architectural knowledge	.42*** (.06)	.52*** (.06)	.15* (.06)	.28*** (.07)	.13* (.06)	.25*** (.08)
Task interdependence	.01 (.06)	.02 (.07)	-.05 (.05)	-.05 (.06)	-.05 (.05)	-.04 (.06)
Bilateral outcome control	-	-	.40*** (.06)	.12 (.08)	.40*** (.06)	.13 (.08)
Collective outcome control	-	-	.03 (.07)	.26** (.08)	.08 (.07)	.29*** (.08)
Conflict management procedures	-	-	.19** (.06)	.16* (.07)	.18** (.06)	.13[†] (.07)
Bilateral outcome control × collective outcome control	-	-	-	-	.02 (.05)	-.15* (.07)
Bilateral outcome control × conflict management procedures	-	-	-	-	-.02 (.06)	-.08 (.08)
Collective outcome control × conflict management procedures	-	-	-	-	.12[†] (.07)	.26** (.08)
Random intercept variance	.32	-	.19	-	.21	-
Sample size	n ₁ = 378, n ₂ = 189	n = 189	n ₁ = 378, n ₂ = 189	n = 189	n ₁ = 378, n ₂ = 189	n = 189
AIC	973.7	-	901.1	-	907.7	-
ΔF	-	6.20***	-	11.72***	-	3.97**
Adjusted R ²	-	.31	-	.42	-	.45

([†] p < .1, * p < .05, ** p < .01, *** p < .001, standard errors in parentheses, significant numbers in bold, dummy control variables for country and sector not shown, all variables standardized except for dichotomous variables)

H3a/b predicted negative interaction effects between bilateral and collective outcome control on individual performance (H3a) and joint performance (H3b). As Model 3a shows, the interaction effect was not significant for individual performance ($\beta=.02$, $p>.1$), providing no support for H3a, while the interaction was significant for *joint* performance ($\beta=-.15$, $p<.05$), thus supporting H3b.

H4a/b predicted positive associations for conflict management procedures with individual performance (H4a) and joint performance (H4b). The results of Models 2a and 2b support both hypotheses. Conflict management procedures showed positive and significant relationships with individual performance ($\beta=.19$, $p <.01$, Model 2a) and joint performance ($\beta=.16$, $p<.05$, Model 2b).

H5a/b predicted positive interaction effects between collective outcome control and conflict management procedures on individual performance (H5a) and joint performance (H5b). Model 3a showed a marginally significant positive interaction effect on individual performance ($\beta=.12$, $p<.1$), and a significant positive interaction effect on joint performance ($\beta=.26$, $p<.01$). H5a and H5b are thus supported, although the support for H5a is only marginal.

H6a/b predicted a negative interaction effect between bilateral outcome control and conflict management procedures on individual performance (H6a) and joint performance (H6b). Although we found negative interaction effects, these were not significant ($\beta=-.02$, $p >.1$ for individual performance, $\beta=-.08$, $p >.1$ for joint performance). Hence, H6a and H6b are not supported.

Table 8. Summary of Hypotheses Testing Results

Hypothesis / Dependent Variable	Individual Performance	Joint Performance
H1: Positive effect of bilateral outcome control	√	
H2: Positive effect of collective outcome control		√
H3: Negative interaction effect of bilateral and collective outcome control	-	√
H4: Positive effect of conflict management procedures	√	√
H5: Positive interaction effect of collective outcome control and conflict management procedures	(√)	√

H6: Negative interaction effect of bilateral outcome control and conflict management procedures	-	-
√: Support, (√): Marginal support, -: Not supported		

5 Discussion

This study was motivated by our interest in understanding how clients can apply bilateral and collective governance to manage vendors' performance in multisourcing arrangements. We argued that clients may be tempted to combine bilateral and collective governance to ensure both individual and joint performance, but tensions will arise from such a hybrid governance model. Specifically, while bilateral governance promotes market-like competitive norms and thus behaviors such as vendors maximizing their own performance and blaming other vendors for low joint performance, collective governance promotes team-like cooperative norms and thus behaviors such as mutual adjustment and helping. As a result, we believe tensions arise from these conflicting norms, diminishing the benefits of both bilateral or collective governance if the two are combined. Although the extant literature hints at these tensions (Bapna et al., 2010; Naicker & Mafaiti, 2019; Wiener & Saunders, 2014), it falls short in providing insight into the effect of each set of governance mechanisms and how bilateral and collective governance can come together to improve multisourcing performance.

In line with our distinction between bilateral and collective governance mechanisms, which evokes the metaphorical notion of treating vendors as market versus team players, our results show that bilateral and collective outcome control have differential effects on individual versus joint performance. Specifically, while bilateral outcome control is associated with individual performance, collective outcome control correlates with joint performance. These findings are consistent with our upfront theorization that bilateral and collective governance mechanisms direct attention to different focal outcomes. Specifically, bilateral outcome control is likely to steer vendors to concentrate on prespecified performance benchmarks, pursue competitive norms, and thus maximize their individual performance. In contrast, collective outcome control encourages the adoption of cooperative norms that lead individual vendors to help each other and thus enhance joint performance.

Our results also reveal that conflict management procedures are positively associated with both individual and joint performance. In addition to promoting cooperative norms among vendors that lead to high joint performance, conflict management procedures provide opportunities for vendors to mitigate against shirking behaviors by individual

vendors and a 'blame game' attitude, leading to high individual performance. By specifying procedures for how vendors should interact with each other when resolving conflict, vendors are encouraged to enforce each other's individual contributions, thus making shirking of their individual and cooperative responsibilities unlikely. In addition, vendors become more aware of other vendors' commitments, thus improving their ability to work collaboratively among themselves (Bapna et al., 2010; Che & Yoo, 2001; Naicker & Mafaiti, 2019). In this regard, conflict management procedures present a governance mechanism that not only promotes cooperation among vendors (as reflected in joint performance) but also helps enforce individual contributions (as reflected in individual performance).

The results on interaction effects between formal governance mechanisms shed light on how these governance mechanisms come together to affect multisourcing performance. We argued for substitutional effects between bilateral and collective governance mechanisms and complementary effects within collective governance mechanisms. Our results on *joint performance* are largely in line with these expectations. We found support for a substitutional effect between bilateral and collective outcome control and for a complementary effect between collective outcome control and conflict management procedures. Figure 3a illustrates the negative interaction between bilateral and collective outcome control, showing a steeper line for low compared to high bilateral outcome control. This indicates that the benefits of collective outcome control for joint performance diminish when collective outcome control is combined with high levels of bilateral control. These findings are in line with our expectation that bilateral outcome control undermines the potential benefits of collective outcome control by obstructing the development of cooperative norms and behaviors such as helping and mutual adjustment.

Our analysis also provided support for a complementary effect between the two collective governance mechanisms – conflict management procedures and collective outcome control – on joint performance. The relationship is visualized in Figure 3b. The figure shows that conflict management procedures strongly contribute to joint performance when collective outcome control is high (see the steep solid line). Conversely, conflict management procedures do not contribute to joint performance when collective outcome control is lacking (see the relatively flat dashed line with a slightly negative

slope). These findings are consistent with the idea that a combination of collective governance mechanisms focusing on both the outcomes and procedural facets

of cooperative behaviors will be most effective for creating cooperative norms among vendors.

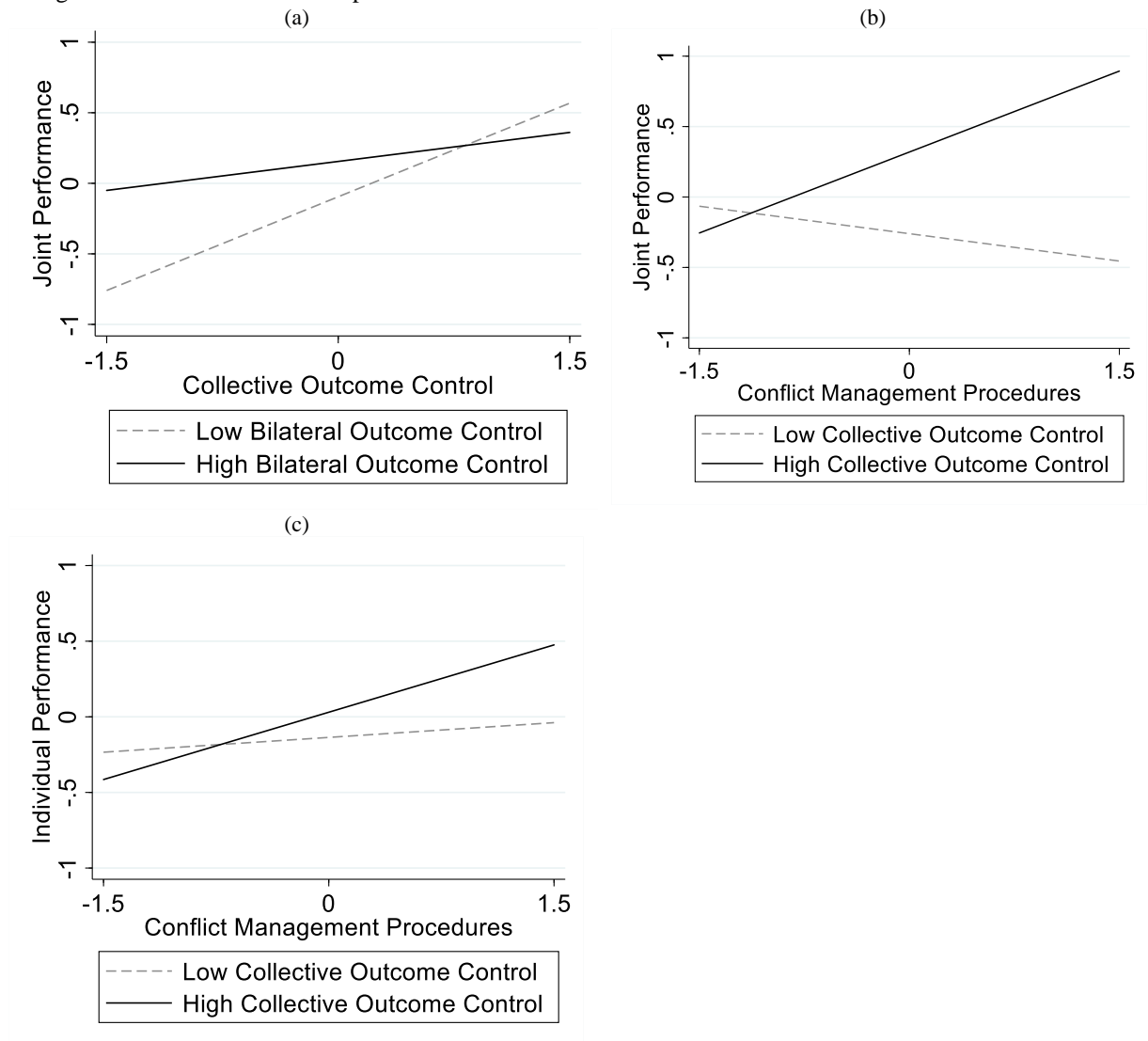


Figure 3a – c. Interaction Plots
 (standardized variables, high (low) values are one standard deviation above (below) the mean)

While our expectations for substitutional and complementary relationships were largely supported for joint performance, support was weaker in relation to *individual performance*. We found a marginally significant complementary effect between collective outcome control and conflict management procedures but no support for substitutional effects. The interaction plot shown in Figure 3c illustrates this interaction between conflict management procedures and collective outcome control. Under low collective outcome control, conflict management procedures contributed very little to individual performance (see the relatively flat dashed line). Conversely, under high

collective outcome control, conflict management procedures contributed to higher individual performance (see the steep solid line), supporting a complementary effect. This finding aligns well with our argument that collective outcome control helps to authoritatively communicate overall goals, while strong conflict management procedures are essential for breaking down these objectives at the individual level, enabling enforcement of each vendor’s contributions. It is also consistent with the idea from the economics literature that the combination of joint performance evaluation and mutual observability

discourages shirking (Bapna et al., 2010; Che & Yoo, 2001; Marx & Squintani, 2009).

Conversely, we did not find substitutional effects between bilateral and collective governance in relation to individual performance. Hence, although *bilateral* governance seems to diminish the benefits of *collective* governance (the promotion of cooperative norms and behaviors as reflected in high joint performance), *collective* governance does not appear to diminish the benefits of *bilateral* governance, namely the promotion of competitive norms and behaviors as reflected in high individual performance. A potential explanation is that cooperative norms are more difficult to build and easier to lose than competitive norms, given that it is more natural for vendors to see themselves as competitors than as team players. Indeed, case studies suggest that vendors often consider each other competitors at the outset of multisourcing arrangements and that significant efforts are required to form a team of cooperating vendors (Cross, 1995; Hurni et al., 2020; Naicker & Mafaiti, 2019). This greater fragility of cooperative norms may explain why competitive norms dominate if clients combine strong bilateral with strong collective governance. As a result, the benefits of collective governance (enhanced joint performance) are compromised while those of bilateral governance (enhanced individual performance) are not.

6 Implications

Our research offers two important theoretical implications. Firstly, we contribute to the IS outsourcing literature by theorizing the tensions between formal governance mechanisms and clarifying the role these governance mechanisms play in improving multisourcing performance, differentiating between individual versus joint vendor performance. So far, the extant literature has shed little light on the mechanisms that are part of the governance of multisourcing and how these governance mechanisms interact to create better performance (Bapna et al., 2010; Barboza et al., 2011; Wiener & Saunders, 2014). In developing our contributions, we adopted the view that multisourcing is a hybrid model that combines bilateral and collective governance mechanisms and hence, cooperative and competitive norms. We also argued that tensions between cooperative and competitive norms are likely to challenge performance when these governance mechanisms are applied together.

Indeed, the results support our upfront theorization that bilateral governance, which invokes the idea of a market of vendors and encourages competition between vendors, contributes to individual performance, while collective governance, which invokes the idea of a team of vendors and supports cooperative norms, is associated with joint

performance. Notably, while conceptualized as a collective governance mechanism, conflict management procedures contribute to both individual and joint performance. By promoting constructive interaction between vendors, conflict management procedures encourage cooperative behaviors and allow unresolved interdependencies to be addressed, leading to higher joint performance. At the same time, conflict management procedures provide a platform for interaction between vendors, where individual contributions are made visible and can be enforced from each other, which discourages shirking and thus improves individual performance (Bapna et al., 2010). Our results also show that strong bilateral outcome control diminishes the benefits of collective outcome control for joint performance while strong collective outcome control does not diminish the benefits of bilateral outcome control for individual performance. This could imply that competitive norms trump cooperative norms if attempts to promote both these conflicting norms are made. On the other hand, when applied side by side with collective outcome control, strong conflict management procedures improve both individual and joint performance.

Taken together, these findings show that multisourcing governance is far from simply an extension of single-sourcing governance. Bilateral outcome control, as a key governance mechanism in single-sourcing arrangements (Choudhury & Sabherwal, 2003; Gopal & Gosain, 2010; Rustagi et al., 2008), helps clients to achieve high individual performance from vendors in a multisourcing setting. Indeed, some studies suggest that bilateral outcome control in the form of detailed individual SLAs can help prevent vendors from shirking on their primary tasks (Aubert et al., 2003; Lioliou et al., 2019; Poston et al., 2009). In this regard, our results extend these observations by showing that bilateral outcome control falls short in terms of supporting high joint performance. Instead, collective governance mechanisms (especially the combination of collective outcome control and conflict management procedures) are critical for clients to achieve high joint performance, while, if used in combination, they also help enhance individual performance.

Secondly, the outsourcing literature has traditionally examined substitutional and complementary effects between informal and formal governance structures (Goo et al., 2009; Huber et al., 2014; Lioliou et al., 2014; Poppo & Zenger, 2002). Our study contributes to this line of research, highlighting substitutional and complementary effects *within* formal governance mechanisms by invoking the rarely considered distinction between bilateral and collective governance mechanisms. Indeed, understanding these substitutional and complementary effects is imperative as managers navigate the tension between ensuring that vendors meet their individual contractual

requirements while also stimulating cooperative norms to support collaborative engagement among the vendors. As bilateral and collective governance mechanisms are applied in parallel, it is critical to understand their effect on multisourcing performance as forces that incentivize vendors to adopt two opposing norms. In the case of joint performance, we observed a substitutional effect between bilateral outcome control (a market-oriented governance mechanism) and collective outcome control (a team-oriented governance mechanism) in which the benefits of collective outcome control diminished in the presence of strong bilateral outcome control. We also observed complementary effects between collective governance mechanisms (i.e., conflict management procedures and collective outcome control) for both joint and individual performance.

Overall, these results suggest that the distinction between collective governance mechanisms, which promote cooperative norms, and bilateral governance mechanisms, which promote competitive norms, is useful for explaining complementary and substitutional relationships between formal governance mechanisms in settings beyond the dyadic structure that is typically assumed in single-sourcing research. As such, an important contribution of our paper is to link the discourse on formal governance in multisourcing (Bapna et al., 2010; Lioliou et al., 2014; Oshri et al., 2019) to the discourse on competition and cooperation (Barboza et al., 2011; Cross, 1995; Wiener & Saunders, 2014). Although prior work has pointed to tensions between competition and cooperation (Cross, 1995), and to strategies for managing the balance between the two (Wiener & Saunders, 2014), our study offers a theoretical bridge linking the choice of bilateral and/or collective governance, competition and cooperation norms, and performance. In this regard, an important insight is that while clients may find strategies to balance competition and cooperation (e.g., promising future business, promoting vendor learning) (Wiener & Saunders, 2014, p. 220), our findings highlight the risks of aiming for both competition and cooperation. Specifically, our results show that the simultaneous use of formal governance mechanisms aimed at competition and cooperation can lead to tensions that in particular sacrifice the benefits of governance mechanisms aimed at promoting cooperation. Although our study focuses on multisourcing, the idea that bilateral and collective governance operate in tension between competition and cooperation could also be explored in other settings that involve the governance of multiple actors, such as software platform ecosystems (Hurni et al., 2021; Tiwana et al., 2010).

Our study also has important implications for practice. While sourcing managers recognize the need to achieve both individual and joint performance, in

reality the deployment of bilateral and collective governance mechanisms is complex. Clearly, deploying both bilateral and collective outcome control will not amplify both individual and joint performance. At the same time, our study shows that managers face trade-offs when considering the desired outcome (i.e., individual or joint or both) and the governance mechanisms to be deployed in order to achieve a specific outcome. For example, a manager in a multisourcing arrangement with few dependencies between vendors may prioritize individual performance, and hence strong use of bilateral outcome control through detailed SLAs specifying performance requirements for individual vendors. In other multisourcing arrangements, high task interdependence may make collaboration between vendors critical for the client to derive benefits from the arrangement. In such arrangements, managers should prioritize joint performance, which is best achieved by combining collective outcome control (e.g., strong efforts to specify and measure jointly created results) and conflict management procedures while being cautious not to focus vendors on the achievement of their individual SLAs. While this presents a trade-off, interestingly, deploying conflict management procedures is a possible path to amplifying both individual and joint performance. As such, clients should emphasize OLAs or other formal approaches to constructive conflict resolution irrespective of the outcome they prioritize (individual or joint performance). In sum, multisourcing managers need to consider the tensions between the norms their vendors operate within and consequently define the trade-off to be pursued, recognizing the challenges in achieving both individual and joint performance.

6.1 Limitations and Future Research

There are several limitations to this study that may encourage future research. First, while our study pioneers the empirical examination of bilateral outcome control and collective outcome control in relation to individual and joint performance, our variables for measuring these constructs showed relatively high correlations. Although the criteria for establishing discriminant validity were met and variance inflation factors did not indicate issues of multicollinearity, future research could further develop measures of these constructs, building on the foundations laid in our study and/or complementing survey items with objective data. Second, although we have unpacked the effects of different formal governance mechanisms on multisourcing performance, our focus did not include contingency factors that moderate these effects. For instance, it would be worth exploring how formal governance mechanisms interact with other factors that have been found to enhance competition or cooperation in multisourcing (Wiener & Saunders, 2014). Third,

while we have argued that formal governance affects performance by promoting or weakening cooperative and competitive norms, our data do not allow us to empirically disentangle these effects. Future research could measure these and other potential mediators to ascertain and extend the arguments made in this paper. Fourth, we focused on two vendors per multisourcing arrangement. While this helped make the data points comparable and data collection viable, future research could look more comprehensively at all actors involved in multisourcing arrangements. Fifth, while we have focused on conflict management procedures, there may be a variety of ways in which conflict is managed in multisourcing relationships. Future

research could draw on the existing work on conflict management (Lacity & Willcocks, 2017) to develop a richer perspective on conflict management in multisourcing. Sixth, our paper relies on survey data collected from a single source, which presents the potential threat of common-method bias. However, our latent factor test did not ascribe any variance to a common factor. Moreover, interaction effects, which play a key role in our paper, are unlikely to be artifacts of common-method bias (Siemsen et al., 2010). Seventh, our use of cross-sectional data and OLS regression sets some limits on the confidence with which causal effects can be inferred from our analysis.

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Appendix: Survey Instrument

Bilateral Outcome Control (based on Kirsch, Sambamurthy, Ko, & Purvis, 2002)

To ensure that the vendor meets our expected service-level targets/quality we ... (separate columns to be answered for vendor A and vendor B)

BOC1: ... evaluate the extent to which services were delivered as defined in the contract regardless of how this goal was accomplished.

BOC2: ... test intermediary and/or final outcomes/deliverables against criteria defined in the contract, regardless of how these outcomes were achieved.

BOC3: ... have several sources of objective data we can rely on.*

BOC4: ... have defined quantifiable measures in place.

BOC5: ... have defined accurate and reliable measures.

Collective Outcome Control (based on Kirsch et al., 2002)

To ensure that it is not the individual performance of vendor A and B, but rather their combined performance (i.e., solutions by vendor A and B in combination as part of the multisourcing arrangement) that meets our objectives, we ...

COC1: ... evaluate the extent to which combined services are delivered as defined in the contract regardless of how this goal is accomplished.

COC2: ... test intermediary and/or final joint outcomes/deliverables against criteria defined in the contract, regardless of how this goal is achieved.

COC3: ... have several sources of objective data we can rely on.*

COC4: ... have defined quantifiable measures depicting the extent to which combined objectives are achieved.

COC5: ... have defined accurate and reliable measures that indicate the extent to which the delivered services jointly meet our objectives.

Conflict Management Procedures (based on Kale et al., 2000)

When it comes to disagreement between vendors A and B ...

CMP1: ... we have procedures in place for how to resolve them.

CMP2: ... we have process descriptions to determine how the parties should resolve the conflict.

CMP3: ... there are operational level agreements between the vendors that determine how to resolve the conflict, without our involvement.*

Architectural Knowledge (base on Henderson & Clark, 1990; Takeishi, 2002)

We have knowledge about ...

AK1: ... the design of the overall products and services architecture to which vendors A and B contribute.

AK2: ... how to structurally coordinate the products and services delivered by vendors A and B with all other related products and services of our organisation.

AK3: ... the ways in which the products and services delivered by vendors A and B are integrated and linked together into a coherent whole.

Task Interdependence (based on Tiwana, 2008)

Regarding the two tasks/projects outsourced to vendor A and B,...

TI1: ...they are integrated.

TI2: ... they are tightly coupled with each other.

TI3: ... they are dependent on each other.

TI4: ... changes in the one affect the operability with the other.

Individual Performance (based on Grover, Cheon, & Teng, 1996)

How would you characterize your satisfaction with the performance of each vendor so far? (separate columns to be answered for vendor A and vendor B)

INDPERF1: ...the products/services delivered by the vendor meet our expectations.

INDPERF2: ...we have met our goals with the vendor.

INDPERF3: ...overall, we are satisfied with our relationship with the vendor.

Joint Performance (based on Grover et al., 1996; Lee & Kim, 1999; Tiwana, 2008)

With regard to the combined performance of vendor A and vendor B as part of the multisourcing arrangement so far ...

JNTPERF1: ... the products/services delivered meet our expectations.

JNTPERF2: ... we have met our goals.

JNTPERF3: ... we have completed key milestones in accordance with our objectives.

JNTPERF4: ... we have achieved our desired cost savings.

JNTPERF5: ... we are satisfied with our overall benefits from outsourcing.

JNTPERF6: ... we have so far met project/service requirements.

(*Items with asterisk were removed during analysis)

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