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Tensions in Global IT Multisourcing Arrangements: Examining the Barriers to Attaining Common Value Creation

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ABSTRACT

Previous contributions on IT multisourcing were mainly focused on strategy and governance. The way in which actors exchange value as well as information and knowledge has been ignored. Given this void, this paper adopts the ecosystem metaphor and concepts from business model thinking to study common value creation and capturing. An exploratory, case-study is used to study a global IT multisourcing arrangement. The results indicate four barriers in ecosystems that may hinder value creation: managed interdependencies, resource integration, ecosystem boundary spanners, and formal inter-organizational contractual agreements. We contribute to IS literature by exploring, beyond the strategic decision to collaborate, the complexity and mutual dependencies of competing and collaborating actors within a global IT multisourcing context.

Introduction

IT outsourcing arrangements have evolved from dyadic client–vendor relationship toward an environment that includes multiple vendors (Bapna, Barua, Mani, & Mehra, 2010; Palvia, King, Xia, & Palvia, 2010; Sia, Koh, & Tan, 2008). The shift from single sourcing toward multisourcing arrangements provides firms with benefits, like quality improvements, by being able to select the best vendors, having access to external capabilities and skills and mitigating the risks of vendor lock in (Cohen & Young, 2006; Gonzalez, Gasco, & Llopis, 2010; Hawk et al., 2012). Literature shows that firms that engage in global collaborative networks significantly invest in time, commitment and trust-building to create and capture common value (Romero & Molina, 2011), by interacting with multiple sourcing participants (Ceccagnoli, Forman, Huang, & Wu, 2012). As such, common value creation is driven by interfirm relationships, with actors committing themselves through interdependencies (Adner & Kapoor, 2010).

Research indicates there are a number of issues that may restrict value creation in a global context, which include the well-researched cultural differences, (Hofstede, Hofstede, & Minkov, 2010) the unwillingness among actors to share their skills, technology and risks on a global level (Romero & Molina, 2011), difficulties in applying control and coordination mechanisms (Rao, Earls, & Sanchez, 2007) and the inability of actors to establish a network of complementors (Morgan, Feller, & Finnegan, 2013). As a result, actors may create barriers rather than share information and knowledge in a bid to capture common value (Kotlarsky, Oshri, & Willcocks, 2007).

Bapna et al. (2010) has called for more research into the outcomes of IT multisourcing, arguing that "multisourcing is emerging as an important inter-organizational, collaborative form of value creation", and that "little is known about the underlying theory and management principles that can make or break these arrangements" (p. 794). The review of outsourcing literature conducted by Lacity, Khan and Yan (2016) supports that position, based on the argument that "some of the most

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interesting work in IT outsourcing considered how organizations matched multiple factors in configurations that maximized their chances of success" (p. 22). Existing studies have so far not considered *how* actors exchange information and knowledge in a global context and, as such, how they contribute to value creation based on shared activities. Consequently, when individual actors are unable or unwilling to exchange information and knowledge, it may create barriers that affect common value. We argue that a holistic approach is required to frame and analyze the relationships within a global IT multisourcing arrangement as a whole. The aim of our research is to show how firms create common value and exchange information and knowledge within the context of global IT multisourcing, based on the following research questions:

- *How do actors operating in a global IT multisourcing arrangement share information, knowledge and value to create and capture common value?*
- *What are the barriers that may hinder common value creation?*

To address these questions, we use two concepts to examine the creation and capture of common value. First, we use the metaphor of ecosystem, which has been developed and used in management literature to look at interdependencies between firms, and address themes like specialization, coevolution and value creation (Kapoor & Lee, 2013; Moore, 1996). Using the concept of ecosystems allowed us to determine whether actors contribute to the creation of common value or, by contrast, act as barriers in this process. Second, actors that do exchange information and knowledge in an ecosystem are influenced by the level of openness, clear entry and exit rules and governance structures within that ecosystem (De Reuver & Bouwman, 2012). The concepts listed above are related to organizational elements as discussed in business model (BM) literature, which focuses on networked enterprises or ecosystems. BM thinking is not only used to implement business strategies, but, above all, to make the underlying business logic explicit and create and capture both individual and common value. As such, BM concepts help us explain common value creation within the context of a global IT multisourcing environment, and identify issues that may act as potential barriers in the processes involved.

Literature background

IT multisourcing

In the 2010s, scholars and practitioners alike defined IT multisourcing as the use of two or more external vendors as part of an outsourcing arrangement (Su & Levina, 2011), building on Wiener and Saunders (2014), who define IT multisourcing as "the situation where a client firm delegates IT projects and services to multiple external vendors who must, at least partly, work cooperatively to achieve the client's business objectives" (p. 211). Information Systems (IS) research shows that firms should govern an IT multisourcing arrangement beyond the traditional contractual agreements, and build trust relationships between individual vendors and the client to support the exchange of information (Rai, Keil, Hornyak, & Wüllenweber, 2012).

Importantly, to build trust, clients and vendors have to work together intensively to exchange information. However, literature shows that collaboration within a multisourcing context is often problematic, because it is difficult to establish and monitor control and coordination mechanisms (Rao et al., 2007), including and specifically in international settings. Wiener and Saunders (2014) argue that, in a competing IT multisourcing arrangement, collaboration between actors is essential to aligning their interests, avoiding tensions and creating common value. A recent study by Huber, Kude and Dibbern (2017) showed that a lack of collaboration prevents actors from creating value together due to a lack of governance cost. The authors argue that this issue is addressed more successfully if the IT multisourcing environment is conceptualized as an ecosystem (Moore, 1993,

1996) where actors exchange information and knowledge to create and capture value together (Bowman & Ambrosini, 2000).

Value creation and capturing

Value creation and capturing is often conceptualized starting from the resource-based view (Barney, 1986; Wernerfelt, 1984). In general, it is assumed that value is created by the organization and its members, as a result of which the focus is on a product or service that is distinctive in the eyes of the customer. Grönroos and Voima (2013) argue that "all actors, customers, and firms alike co-create value" (p. 135). In their view, this makes value creation an all-encompassing process, without any distinctions between the roles and actions involved in that process. The lack of information exchange within the value creation process may cause problems as customer demand is neglected (Kauffman, Li, & van Heck, 2010), which in turn makes the production and delivery of products and services less flexible. Adner and Kapoor (2012) extend this by arguing that "challenges in any location within the ecosystem will constrain the focal firm's ability to create value" (p. 310) and subsequently, have an impact on the extent to which value is captured.

As such, common value is related to capturing value for the actors working together in an ecosystem. The condition is that not only is value captured for the individual actors involved, but that their joint activities result in financial (or other intangible) benefits as well. On the other hand, value capturing is dependent on the hierarchy between economic actors (Bowman & Ambrosini, 2000, p. 1). Although, according to Bowman and Ambrosini (2000), this hierarchy is implicitly related to competition, in modern, networked economies, competitors also work together. In a networked environment, resources no longer have to be under the control of one firm, but they are shared between the various network partners, often across national borders. Therefore, we see value networks or ecosystems as a core element in creating value, and argue that value needs to be created for the individual actors and for the network in which they work together.

Ecosystems

In an ecosystem, a set of interdependent firms compete and cooperate in a dynamic structure that evolves and develops over time (Iansiti & Levien, 2004; Moore, 1996). Iansiti and Levien (2004) extend the concepts of Moore by describing ecosystem roles and their relationship to the collective properties of the ecosystem. The roles are defined as keystone, dominator and niche player. The purpose of the keystone player is to create a balance in the ecosystem and ensure that partners receive their fair share of created value. By contrast, dominators control the ecosystem as a whole and focus on capturing the main part of the common value for themselves, while niche players develop specialized capabilities that differentiate them from other parties in the ecosystem.

Research (Iansiti & Levien, 2004; Moore, 1996) shows that the balance in an ecosystem is affected by the role and position of all the actors. More specifically, task interdependence between actors may suffer from an asymmetric exchange of information and knowledge, which may have a negative effect on value creation. In the long run, this may lead to the destruction of the ecosystem. A strategy to overcome interdependence-related issues is for actors to align their common interests regularly, as well as their day-to-day operations. All individual actors in the ecosystem have to pay attention to the BM for an ecosystem to survive. BM thinking with a focus on ecosystems addresses the creation and capturing of value through a detailed analysis of the value being exchanged between the actors in the ecosystem.

BMs and interorganizational arrangements

BM approaches to information technology and digital transformation focus on how competing and complementary organizations work together to create and capture value (El Sawy & Pereira, 2013).

Value creation relates to BM research as organizations have to integrate their competencies. Romero and Molina (2011) found that a lack of willingness to share skills, knowledge and technologies in ecosystems, for instance in global IT multisourcing arrangements, has a negative impact on the integration of competences. This may lead to severe interorganizational issues, such as under performance of services, absence of entry and exit rules and a lack of governance agreements (De Reuver & Bouwman, 2012).

In this paper, we specifically start from a practical BM framework, i.e. the VIP framework proposed by Solaimani, Itälä and Bouwman (2015), to study ecosystems on an operational level, looking at how the actors in an ecosystem create and capture value, and at how information and knowledge flow to assess the ecosystem's sustainability. The aim of the VIP framework is (1) to present a comprehensive account of underlying interorganizational interactions and (2) enable a systematic analysis of these interactions by explicitly addressing multiple levels of analysis. The 'V' stands for tangible as well as intangible value creation and exchange between stakeholders. The 'I' stands for the creation and sharing of information between stakeholders, which includes the generation of and access to unprocessed data, information transfer and joint knowledge production. The 'P' focuses on the primary business processes of the first-tier actors, i.e. the actors without whom the focal firm's BM would not be sustainable. The horizontal line of the VIP framework addresses four core components of the ecosystem: (1) the business network, i.e. stakeholders and their relationships, (2) stakeholder resources and capabilities available to the focal firm, (3) multiple types of interactions designed to cocreate and share values, information and business processes and (4) interdependencies between the actors collaborating in the ecosystem. The arrowed axes in Figure 1 indicate the vertical and horizontal influences among components at the different levels of analysis. The sustainability of the ecosystem depends on the orchestrated positive outcomes for all the actors involved, at all levels and involving all components.

As such, a detailed VIP analysis provides insight into the ecosystem's sustainability. Based on the literature background, various content-related ecosystem topics are discussed, five of which are considered relevant to this study, because they affect the extent to which firms are able to create common value significantly: contracts, service portfolio, value, information and knowledge, and behavior.

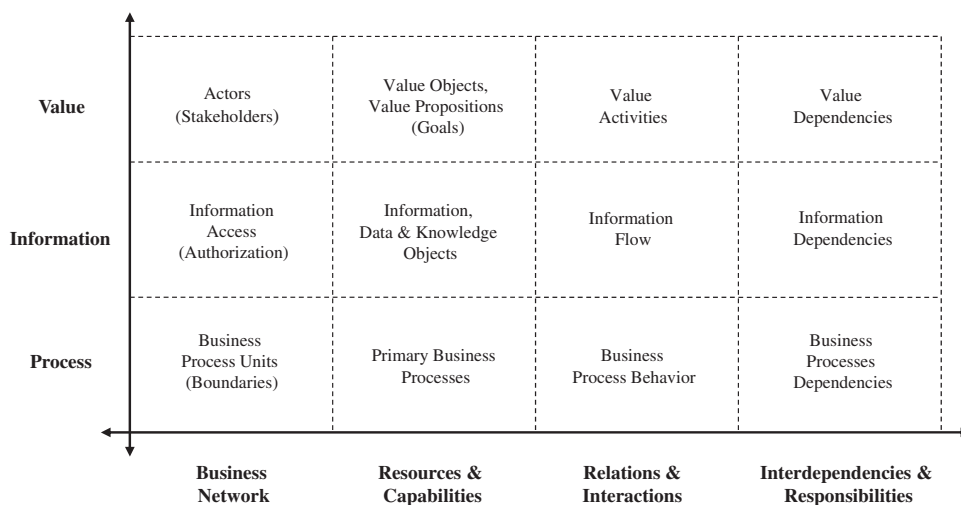|	Business Network	Resources & Capabilities	Relations & Interactions	Interdependencies & Responsibilities
Value	Actors (Stakeholders)	Value Objects, Value Propositions (Goals)	Value Activities	Value Dependencies
Information	Information Access (Authorization)	Information, Data & Knowledge Objects	Information Flow	Information Dependencies
Process	Business Process Units (Boundaries)	Primary Business Processes	Business Process Behavior	Business Processes Dependencies

Figure 1. VIP framework (adapted from Solaimani et al., 2015).

Research approach

Because of the complex nature of the multi-faced domain of global IT multisourcing relationships, we decided to adopt an exploratory, case study-based approach, based on the assumption that this would give us a deeper understanding of the subject under examination (Yin, 2009). Case study research is a common method in the field of IS (Orlikowski & Iacono, 2001) and useful when it comes to answering 'how' and 'why' questions (Benbasat, Goldstein, & Mead, 1987). On the other hand, it does not allow for statistical generalizations because the number of entities described in case studies is too small. However, for our purposes, analytical generalization is more important than statistical generalization (Yin, 2009). Our approach allowed us to focus on contracts, relationships, information, knowledge and operational processes. To select the right case study, we used two main criteria. First, we drew a distinction with regard to the range within which vendors provide IT services (e.g. IT infrastructure, applications, end user computing). The range of a vendor's service portfolio affects the extent to which information, knowledge and value have to be exchanged. Second, we realized that the role of each vendor in an IT multisourcing arrangement may vary. Some vendors are only responsible for the delivery of their own services, while others act as integrators for the IT services being delivered by other vendors. Selecting a global IT multisourcing case in the retail industry, which is characterized by a high level of dynamism, and which includes different types of vendors and services (see Appendix A), meant that the two criteria outlined above were met. The core company in the case study is a subsidiary of a global retail company operating in Europe, Asia and the USA. The case study as such is limited to its activities in Europe.

Data collection and analysis

We applied a two-phased approach in which we collected primary and secondary data based on a case study protocol. We began by collecting formal data related to the IT multisourcing arrangement, which helped us understand the core of the ecosystem and content-related aspects. The data we collected came from two sources: (1) archival data and (2) direct observations. The documentation we examined included the contracts of three vendors, corresponding schedules (e.g. services, projects, disengagement, governance, finance and insurance, compliance, superseded agreements, facilities) and detailed exhibits, such as implementation plans and client satisfaction reports. We also looked at client presentations describing multisourcing goals and ambitions, and the strategic direction. In all, we reviewed 148 documents, which included written documents (Word: 981 pages in all) and 21 overviews in Excel (e.g. application and infrastructures' volumes and pricing). Direct observations were recorded (in the form of field notes) during informal meetings, which provided relevant background information on how the client and vendors dealt with the exchange of information and knowledge. In the second phase, we conducted a number of formal (face-to-face) and informal (telephone) interviews. The interviews were semi-structured (see Appendix B) and based on a protocol that included open questions and that was designed to contribute to the consistency and reliability of the results (Denzin, 1978). In all, 19 in-depth interviews were conducted with various vendor staff members, including IT executives, transition managers, service delivery managers and experts in various positions in the firm, to gain insight into the day-to-day operations within the ecosystem. All the interviewees were selected based on their involvement in establishing the ecosystem. Two researchers, including the lead author of this paper, conducted the interviews, in English and in Dutch. Because the interviews were confidential, we anonymized the names of the focal firm and its vendors, as shown in Table 1 and names of the interviewees, as listed in Appendix C. The interviews lasted between 60 and 90 min. They were all recorded and subsequently transcribed, after which the transcripts were sent to the participants for confirmation. To ensure a reliable data analysis, we built a research database.

We analyzed the data in a number of systematic steps, to make sure the process was replicable. First, we studied context-related information from a broader organizational ecosystem perspective,

Table 1. Case study characteristics.

Party	Focus	Geographical position	Type of services	Start of the contract	Length of the contract	Generation	Number of FTE transferred
Focal firm		Europe	Complete IT function is outsourced			Second generation	800
Vendor 1	Focus on infrastructure	Top 3 Global vendor	IT infrastructure, service desk, workplace automation	2009	7 years	Extended contract period (first time)	350
Vendor 2	Service integrator (old world)	Top 3 European vendor	Application development, application maintenance	2010	5 years	Extended contract period (first time)	450
Vendor 3	Service integrator (new world)	Top 5 Global vendor	Application development, application maintenance	2008	5 years	First contract	NA

as well as from a technical perspective. The aim is to create a basic understanding of how the IT multisourcing ecosystem as a whole functions. We used that understanding to make a basic drawing of the ecosystem. Second, we conducted a thorough analysis of the interview transcripts and archival data, verifying the data if needed via follow-up telephone calls and e-mails.

We consulted multiple sources, and aimed for confirmation via data triangulation. By triangulating the interview transcripts with supplementary key documents (e.g. contracts, corresponding schedules, field notes) describing the global IT multisourcing approach, we were able to triangulate sources (Denzin, 2009; Patton, 2002). This allowed us to validate the steps included in the research process and improve the internal validity of the case study. All interview data were subjected to cross-examination by both researchers and any errors were corrected, resulting an additional triangulation of the available data.

We used techniques such as coding and clustering (Yin, 2009) and followed Miles and Huberman (1994) advice to divide the coding among two researchers, who each coded the interview notes (Miles & Huberman, 1994, p. 64). Next, we discussed the findings and clarified any disagreements. Based on the analysis, we were able to draw conclusions on how actors exchange information and knowledge, and how they create and capture value within the IT multisourcing ecosystem.

Findings

As mentioned earlier, we examined contracts, service portfolio, value, information and knowledge, and behavior within the context of our framework (Figure 1), which allowed us to answer our first research question *How do actors operating in a global IT multisourcing arrangement share information, knowledge and value to create and capture common value?*.

Contractual relations

Any contractual information used within the ecosystem is related primarily to the 'V' in the VIP framework, with the creation and exchange of value between the stakeholders having been described in a formalized and codified manner. Our case study shows the contractual relations between the focal firm, which dominates the dyadic relationships, and its vendors. After reviewing the governance schedules and exhibits, we found that the contracts comprise high-level information with regard to a coherent interorganizational structure, strategy and plan. The same applies to the position of the various actors and their mutual relationships. Although we discovered that the focal firm designed entry and exit rules on how to deal with new vendors, for example technology partners like Microsoft and Oracle, we were unable to find any detailed information regarding the design and implementation of ecosystem entry and exit rules, either by the focal firm or by the vendors. This led to fierce discussions involving the service provisioning between the focal firm and

its vendors over time, and the argument that the absence of clear entry and exit rules prevents actors from creating value.

> We have to become much more mature to be flexible and shift partners regularly in our arrangement. This means that we have to work on the details like specs. This allows us to collaborate better and prevent technical discussions between all parties. (Source: Client CIO)

We found no evidence that formal contracts include collaborative agreements and plans between ecosystem partners, even though operational services have to be delivered by vendors collaborating in this instance, and competing in other domains. Based on the interviews, our analysis shows that, although all vendors set up operational level agreements (OLAs) to improve the service performance, those agreements are informal in nature, and were included in the contracts.

> Based on an informal agreement with the other vendors, we started to collaborate on an operational level. For instance, we shared technical application maintenance information with Vendor 1 to deploy and tune our application with their IT infrastructure. Importantly, both Vendor 1 and we experienced the value of collaboration as the service performance increased significantly and less incidents occur. (Source: Vendor 3 Contract and delivery lead)

Figure 2 illustrates the contractual relationships within the ecosystem. The straight lines (A) represent the formal dyadic contracts between the client (focal firm) and its vendors, while the dotted lines (B) indicate the informal operational agreements between the vendors.

Service portfolio streams

The service portfolio, as applied within the ecosystem, is also related to the 'V' in the VIP framework. The interviews show that the focal firm deliberately developed a service portfolio blueprint and plan and allocated the various IT services to the three vendors. The service portfolio plan and the division of services is supported by formal agreements (i.e. contract, service schedule and exhibits) and by informal agreements (i.e. OLAs). However, we found that, on a more operational level, the way the service portfolio is governed across the ecosystem is ambiguous. We noticed that, on a detailed level, the service boundaries of the vendors were overlapping. For example, the captive center of Vendor 2 in India wanted to discuss an impact analysis of future IT application functionality with Vendor 1 in
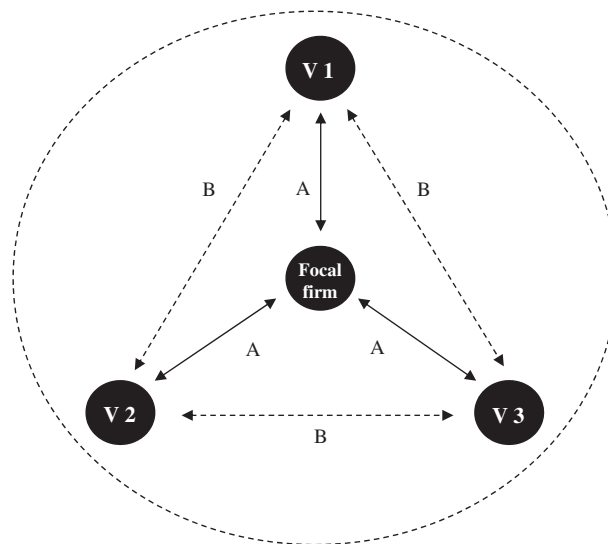
Figure 2. Contractual streams.

Germany. However, governance agreements state that no direct relationships between vendors are allowed at strategic and tactical level. Consequently, the captive team of Vendor 2 in India had to coordinate application functionality via the focal firm in the Netherlands, which subsequently contacted the coordination team of Vendor 1 in the Netherlands. In turn, they contacted their delivery team in Germany to analyze the impact on their IT infrastructure. This process resulted in various operational disputes with regard to the specification of functional requirements as the number of handovers between vendors increased. Consequently, the focal firm experienced an extension of project lead times, in providing application functionality outcomes, which had an impact on value creation.

> The client has set up a service portfolio plan that describes the boundaries of each IT domain, but this plan is not sufficient. In fact, the existing plan can be seen as high level with limited details, actually it's a workflow diagram that lacks concrete tasks, resulting in service overlaps. (Source: Vendor 2 Contract manager)

Our interviews showed that service boundary overlap between different vendors made the exchange of information and knowledge more complicated, which in turn made it more difficult to create value. We found evidence that the vendors involved shared information mutually, with numerous ad hoc meetings taking place to discuss and solve operational performance issues. This form of collaboration is more dependent on informal operational agreements and trust, which is typical for the 'network arrangements' within an ecosystem.

> On an operational level, we work closely together with Vendor 1 to prevent service issues (e.g. incidents, problems, ticket resolution), which is appreciated by the client who experiences that we take them seriously. This approach fits with our strategy to achieve a long-term relationship with the client. (Source: Vendor 2 Account executive)

Figure 3 depicts the formal and agreed service portfolio relationships within the ecosystem. The straight lines represent the formal service agreements between the focal firm and its vendors, while the dotted lines indicate the informal service agreements between Vendor 1 on the one hand, and Vendors 2 and 3 on the other hand.
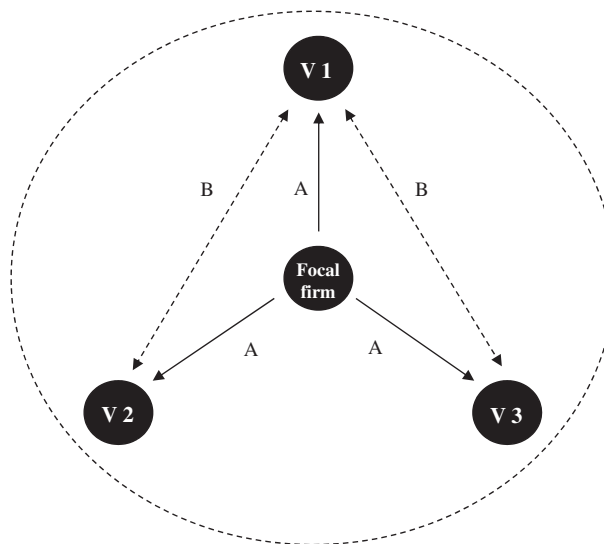

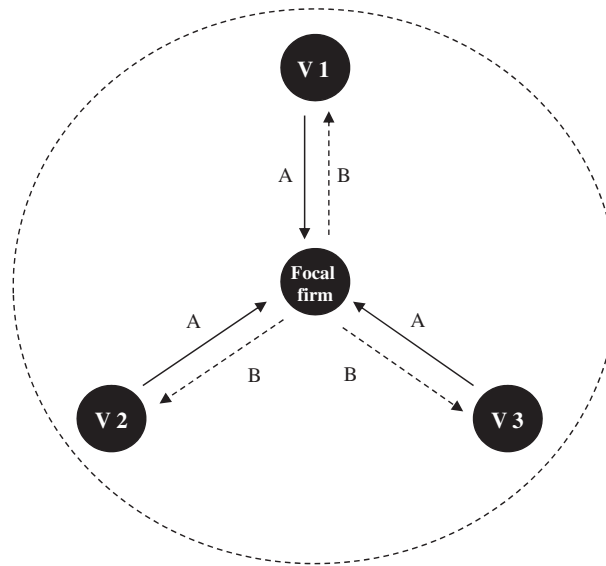
Figure 3. Service portfolio streams.

Figure 4. Tangible value streams.

Tangible value streams

Like contracts and the service portfolio, the exchange of financial information in the ecosystem is related to the 'V' in the VIP framework. The exchange of value, as contractually described in the financial schedules with the vendors, becomes more explicit when money flows are considered (see Figure 4). After studying the financial schedules and analyzing the interview transcripts, we found that financial information is only exchanged between the focal firm and the vendors, and not among the vendors. Our findings show that, as Vendors 2 and 3 depend on Vendor 1 to provide them with integrated IT services, Vendor 1 was unwilling to share financial information with Vendor 2 or 3 directly, hiding their internal cost level from their competitors. In turn, financial information relating to the services of Vendor 3 is sent only to the focal firm, which then uses the information to challenge Vendors 2 and 3 to reduce their cost level. In doing so, Vendor 1's behavior was based on self-interest, trying to 'game' the perception of the client at the cost of its competitors. As such, the dual position of being collaborators as well as competitors prevents the development of the ecosystem into a more sustainable value creating system.

> Vendors have difficulties with mutual collaboration. For example, last year, Vendor 3 acted as a service integrator for a large software change program. However, Vendor 1 was not willing to report the financial information related to their services to Vendor 3, as they are also competitors in the market. For this reason, Vendor 1 was only willing to send their commercial information to us directly. (Source: Client Sourcing director)

Due to the environmental uncertainty, vendors were reluctant to allocate resources to staff future projects in advance, because the internal costs were significant. Reviewing the client's contractual project schedules and exhibits, no specific agreements were made when projects were initiated. We found that vendors experienced severe staffing problems because the necessary resources were not available, which caused delays and had a negative impact on service delivery and sustainable value creation.

> The contracts are fiercely negotiated, meaning that we got the best price. However, the vendors established their 'B teams' as these resources are cheaper. Too much focus on getting the lowest price resulted in strict rules from the vendors. For example, each change is discussed from a financial perspective (in or out-of-scope of the contract). (Source: Client Sourcing manager 1)

Moreover, there were intense financial disputes between the focal firm and the vendors with regard to the scope and content of the contracts. Specifically, both the Dutch and the US headquarters of the focal firm were involved in managing legal contract issues. Moreover, the focal firm's shared service center (SSC) in Poland was involved in handling financial issues (e.g. purchase orders, vendor rate card checks and payment schemes). This resulted in multiple handovers between the parties involved. For example, the vendor interviewees indicated that tensions between the vendors arose, specifically with Vendor 1 being unwilling to provide operational support, due to a lack of financial compensation. In addition to the tangible value streams, there was no additional intangible value being exchanged. The vendors do not depend on each other when it comes to building a brand image or reputation. In Figure 4, the straight lines (A) represent the individual invoices (service fees) from the vendors to the focal firm, while the dotted lines (B) indicate the payments from the focal firm to the individual vendors.

Information and knowledge streams

The generation and exchange of information and knowledge between partners in the ecosystem is related to the 'I' in the VIP framework. Our findings indicate that, because IT services are based in part on the willingness among actors to exchange information and knowledge, informal arrangements are becoming more apparent. Since applications and IT infrastructure are loosely coupled, vendor employees have to exchange information within the ecosystem to ensure the availability and performance of IT services.

Looking at the service schedules, we found there were indistinct service descriptions, caused by overlapping service boundaries and competition between vendors. As a consequence, vendors are unwilling to share technical information about applications and infrastructure. One example involves the captive center of Vendor 3 in Portugal, which is responsible for the alignment of application maintenance tasks with IT infrastructure releases in the data center of Vendor 1 in Germany. The interviews indicated that both vendors focus on safeguarding their intellectual properties (IP) to retain their competitive advantage, which is related specifically to information dependencies of the 'I' in the VIP framework.

> There are IP issues among vendors, even for simple things like sharing information on Unit Testing and end-to-end testing. Because of their competition, vendors do not want to share technical information. Moreover, the vendors that act as Service Integrators provide similar type of services in the same market and both operate as strong competitors. (Source: Client Sourcing manager 2)

At an operational level, information was exchanged informally within the ecosystem. We found that the employees of Vendors 2 and 3 are willing to share information informally to prevent their IT services from underperforming. Because Vendors 2 and 3 were held responsible by the focal firm for service integration tasks, their employees in the delivery centers in India and Portugal shared technical information, including service delivery schedules, application work-a-rounds, reporting information and IT tooling. With regard to information flows (see the VIP framework), a governance documentation analysis showed that there were no formal processes in place. Instead, employees divided the work into smaller packages, which is known in literature as an approach to designing IS outsourcing work (Oshri, Henfridsson, & Kotlarsky, 2018). Next, they distributed corresponding information to the ecosystem actors when it seemed relevant. This approach helped build trust between autonomous ecosystem actors and reduced the level of operational risk.

> As vendors, we know how important it is that we dispose of essential information to provide our services. Despite the fact that there are no formal agreements between vendors regarding information sharing, we do share info. Next time, we will be the lucky ones being saved. (Source: Vendor 2 Manager service integration)

Figure 5 shows that all the actors in the ecosystem exchange information and knowledge, with the lines indicating that each actor is involved in sending and receiving information and knowledge to support the delivery of IT services.
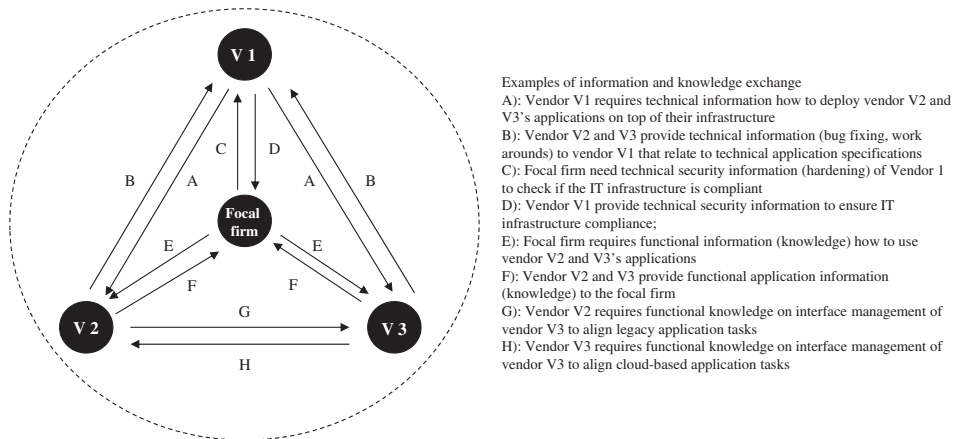
Examples of information and knowledge exchange
A): Vendor V1 requires technical information how to deploy vendor V2 and V3's applications on top of their infrastructure
B): Vendor V2 and V3 provide technical information (bug fixing, work arounds) to vendor V1 that relate to technical application specifications
C): Focal firm need technical security information (hardening) of Vendor 1 to check if the IT infrastructure is compliant
D): Vendor V1 provide technical security information to ensure IT infrastructure compliance;
E): Focal firm requires functional information (knowledge) how to use vendor V2 and V3's applications
F): Vendor V2 and V3 provide functional application information (knowledge) to the focal firm
G): Vendor V2 requires functional knowledge on interface management of vendor V3 to align legacy application tasks
H): Vendor V3 requires functional knowledge on interface management of vendor V3 to align cloud-based application tasks

Figure 5. Information and knowledge streams.

Behavior streams

The way ecosystem actors behave is related to the 'P' in the VIP framework. In fact, behavioral aspects indicate how the focal firm and its vendors deal with the process element of performance, including issues like sequencing, iterations, entry and exit criteria. Because of internal discussions with business departments, the focal firm's IT organization failed to provide the vendors with timely information about to application requirements. This is related to primary business processes, as addressed in the VIP framework, and which affected the scheduled deadlines with the vendors. The interviews indicated that former employees of the focal firm, who are now working at Vendor 2 in the Netherlands, are still located on the focal firm's headquarters in the Netherlands. Interestingly, they display compensation behavior by discussing service requirements with the focal firm's business departments directly. Although it is not their primary responsibility, Vendor 2 representatives repaired the lack of information by proactively sharing content-related insights (see Figure 6). As a result, Vendor 2 was able to meet the service requirements as planned.
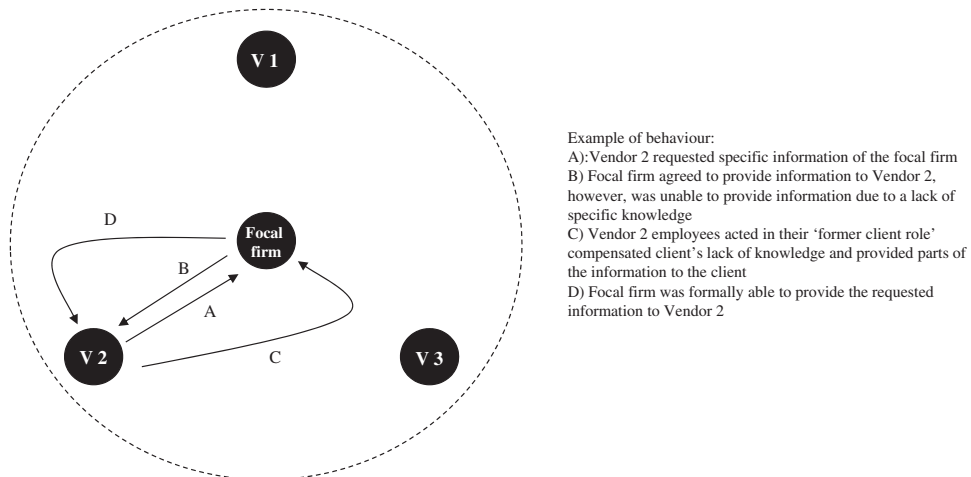

Example of behaviour:
A):Vendor 2 requested specific information of the focal firm
B) Focal firm agreed to provide information to Vendor 2, however, was unable to provide information due to a lack of specific knowledge
C) Vendor 2 employees acted in their 'former client role' compensated client's lack of knowledge and provided parts of the information to the client
D) Focal firm was formally able to provide the requested information to Vendor 2

Figure 6. Behavior streams.

> As a number of our co-workers are former client employees, they are able to sustain their original relationship with former colleagues. When the client lacks specific information, we just provide that information, since we know where to find it. This helps the client, and it also has a positive effect on their perception of our partnership. (Source: Vendor 2 Delivery manager)

On a project basis, some software technology vendors (e.g. Microsoft, Oracle) were contracted temporarily. However, we found no detailed information in the governance documentation regarding the set-up and implementation of ecosystem entry and exit rules, despite the existence of a high-level blueprint. Over time, this caused serious discussions between the focal firm and its vendors about service provisioning. For example, when initiating new IT projects, the focal firm decided to select technology partners in the USA directly without involving the three key vendors. The vendors, however, and their delivery centers in Germany, Malaysia, India and Portugal, are responsible for the deployment of software and infrastructure and the relationship with technology partners. This case of ad hoc decision-making resulted in multiple misunderstandings and debates between ecosystem actors about technical issues. In addition, it affected the power balance within the ecosystem, as new potential competitors were introduced. To reduce its cost level, the focal firm used the fact that other new actors in the ecosystem were competitors and were expected to collaborate as well.

> While we are responsible for the overall implementation of a new software package, our competitor (technology partner) is responsible for parts of the solution (testing). These interweaving activities result in technical and financial disputes due to mutual competition that resulted in another conflict. (Source: Vendor 3 Service delivery manager)

Discussion

We discuss our findings on the basis of the four core components of ecosystems (business network, resources and capabilities, relations and interactions, and interdependencies and responsibilities), to answer our second research question: *What are the barriers that may hinder common value creation?*

Business network

The documentation we studied shows that the basic conditions for an ecosystem, including the openness of the system and entry and exit rules, are available, which is consistent with literature (De Reuver & Bouwman, 2012). From an ecosystem perspective, we identified two dominators, the focal firm and Vendor 1, with the focal firm using the fact that the other actors are also competitors, and Vendor 1 trying to control the vendor landscape. Vendors 2 and 3 are less powerful, although, both being IT service integrators, they show a willingness to work together. We argue that the presence of two dominators creates an imbalance in the ecosystem and generates mistrust among the various parties involved. This is consistent with ecosystem and network issues being addressed in literature (Iansiti & Levien, 2004; Moore, 1996), which indicates that an imbalance will have a negative impact on the sustainability of the ecosystem. More specifically, the absence of managed interdependencies forms a barrier that prevents value creation between actors, which in turn affects the ecosystem's robustness. Literature shows that this is considered to be a critical success factor for any ecosystem (Bouwman, Haaker, & De Vos, 2008; Iansiti & Levien, 2004).

To overcome challenges to the ecosystems robustness, we suggest the focal firm creates a coherent interorganizational structure to address the type of service provided by the relationship with and the governance of each party. As such, the ecosystem as a whole becomes better able to deal with external disturbances and invasions (e.g. new parties). We expand on the analysis of governance forms in literature involving dyadic outsourcing relationships (Kim, Lee, Koo, & Nam, 2013; Lacity et al., 2016). Our findings contribute to the research by Wiener and Saunders (2014), which identified critical enablers to manage the delicate balance between vendor competition and cooperation (i.e. number and size of vendors, onboarding vendors, growth in vendor business volumes,

opportunities for vendor learning). By creating a balanced ecosystem, all actors involved (e.g. keystone player, dominator, niche player) are able to create and capture business value for the ecosystem as a whole.

Resources and capabilities

According to Vargo and Akaka (2012), resources are essential components of value creation. We found that, in the ecosystem we examined, the integration of the resources involved (information, knowledge, assets, etc.) was complicated by the fact that the various actors in the ecosystem operate from geographically dispersed locations. After coding our data and analyzing the relationships between the codes, we found that the ecosystem under study is based on contracting similar, rather than complementary types of resources. As such, the ecosystem lacks a focus on resource complementarity, an issue discussed previously by Wieland, Polese, Vargo and Lusch (2012). Consequently, because coordination and delivery locations are divided among Europe and Asia-Pacific, the lack of existing business processes and the presence of IP issues increase multisourcing complexity. Moreover, the data analysis shows that the various parties are unable to integrate their resources, resulting in service underperformance and, we would argue, preventing the ecosystem-wide value creation. This is consistent with the findings by Casado-Lumbreras, Colomo-Palacios, Ogwueleka and Misra (2014), who argue that disparities in the team members' strategies, along with coordination and control issues, make the system more inefficient. We suggest that establishing relationships with actors with dissimilar resources may provide a broader set of resources from which the focal firm may benefit. Our insights operationalize the views of Vargo and Akaka (2012) on service ecosystems, as they "consider economic and social actors as resource integrators and active participants of value creation" (p. 208). The decision to include dissimilar resources in an ecosystem may increase collaboration and contribute to shared value creation, a view that is supported by Vitasek and Manrodt (2012). The authors argue that successful relationships are based on a high degree of collaboration and a focus on a "what's in it for all of us, jointly" mindset (i.e. vested outsourcing). Coordination mechanisms designed to support collaboration through the exchange of information between actors can be seen as a prerequisite for governing the ecosystem effectively.

Relations and interactions

The limited interaction at an organizational level between the focal firm and its vendors caused problems in the exchange of information. Interestingly, the employees of Vendor 2 compensated for the lack of information caused by the focal firm. In fact, we found that the employees of Vendor 2, formerly employees of the focal firm, were located on the focal firm's premises permanently, and took on a bridging role (boundary spanner) toward the focal firm. Our analysis indicates that existing social ties and face-to-face discussions supported individual value creation by the employees of Vendor 2. The employees helped develop trust with the ecosystem, while solving any communication issues that existed at a global level (Sarker, Ahuja, Sarker, & Kirkeby, 2011). However, their behavior was an exception, and the lack of boundary spanners within an ecosystem creates a barrier to the exchange of information and knowledge and, as such, to the creation of common value. Literature indicates that knowledge transfer is an important aspect of exchanging information between geographically dispersed teams (Jin, Kotlarsky, & Oshri, 2014; Madsen, Bødker, & Tøth, 2015). We would argue that boundary spanners should be an essential part of knowledge transfer within an ecosystem and, as such, they can help improve communication and trust. This approach helps make the ecosystem more homogeneous (Wareham, Fox, & Cano Giner, 2014), and, more importantly, the employees of the focal firm and of the vendors should frequently switch places to build up relationships, including vendor–vendor relationships. This approach adds to existing literature focusing on knowledge transfer between focal firm and vendors specifically (Kotlarsky et al., 2007; Madsen et al., 2015).

Interdependencies and responsibilities

With regard to the coordination and delivery locations of the focal firm and its vendors, the ecosystem has multiple interdependencies that need to be governed. Because they are geographically dispersed and there are no formal operational responsibilities, the various actors in the ecosystem are neither encouraged nor forced to work together. This relates to the issue of achieving common goals in collaborative global networks through excelling individual capabilities of actors (Camarinha-Matos & Afsarmanesh, 2006). Consequently, service levels drop and costs increase, which is a common phenomenon in IT outsourcing arrangements (Bahli & Rivard, 2013). Also, the fact that there are no formal contractual agreements, between the focal firm and the vendors, or among the vendors, poses a serious barrier to managing the interdependencies effectively. We would suggest extending contractual agreements and including formal agreements between vendors, to establish clear responsibilities and use information agreements to solve interdependence issues. Literature (Carter, 2010) shows that a coherent approach is needed to manage IT services in a global context and to provide value that meets client expectations. As such, our findings extend Carter's global IT service value creation framework, by adding inter-organizational contractual agreements, which may support the three key network activities: functional support, integration and IT services. Moreover, the level of collaboration between vendors will be formally facilitated with regard to the exchange of information and knowledge. Research revealed that top management support, in this case of the focal firm and its vendors, has a positive effect on the knowledge exchange process, and helps create business value (Mousavizadeh, Ryan, Harden, & Windsor, 2015).

To summarize, our analysis revealed four barriers, related to the absence of managed interdependencies, resource integration, information exchange and formal interorganizational contractual agreements, that make the creation of common value more difficult. We listed the barriers and the strategies designed to overcome them in Table 2. Issues related to differences in national culture between the organizations involved were not mentioned explicitly, since our focus was on professional collaboration and the organizations involved had a mix of national and international employees.

Conclusion, limitations and future research

The aim of our research has been to focus on how actors operating in a global IT multisourcing arrangement share information, knowledge and value to create and capture common value, and what are the barriers that may hinder common value creation? In doing so, we responded to the call by Bapna et al. (2010) and Lacity et al. (2016) for more research into IT multisourcing outcomes. We used the concepts of ecosystems and BM thinking to study the creation and capturing of common value and to identify potential ecosystem barriers. We identified four barriers that weaken the sustainability and robustness of IT multisourcing arrangements.

Our study contributes to IS literature in a number of ways. First, by using the VIP approach, the multilayered nature of IT multisourcing outcomes was made more explicit. An ecosystem based on a

Table 2. Barriers and strategies to overcome them.

Barrier	Strategy to overcome barriers
Managed interdependencies issue	Create a coherent interorganizational structure that addresses the type of service, relationship and governance of each party
Resource integration issue	Establishing relationships with actors that have dissimilar resources may result in a broader set of resources from which the focal firm may benefit
Information exchange issue	Boundary spanners should form an essential part of knowledge transfer within an ecosystem
Interorganizational contractual agreements issue	Contractual agreements should be extended and also include formal agreements between vendors

focal firm contracting vendors predominantly from a financial perspective, and with a strong focus on competition, in the long run is not sustainable. As a result, the transaction cost involved in sharing information and knowledge between actors will increase. Our findings fit in with the dominant paradigm in IS literature, which focuses on a dyadic type of relationships and ignores the complexity and mutual dependencies within an IT multisourcing context with simultaneously competing and collaborating actors. Second, using an ecosystem approach, our research shows that the integration of resources within the ecosystem is made more difficult due to the geographically dispersal of the actors involved. Our insights operationalize the view by Vargo and Akaka (2012) on service ecosystems addressing economic and social actors as resource integrators of value creation. Notably, cooperation between individuals may overcome competition-related barriers between ecosystem actors in their aim to achieve common value.

Finally, our findings have direct managerial implications for any clients and vendors in global IT multisourcing arrangements. We suggest that, to overcome challenges to the robustness of an ecosystem, clients create a coherent interorganizational structure. Based on that structure, clients can attract dissimilar vendors and gain to various types of external resources, which in turn will improve the value, information exchange and shared knowledge. Next, by introducing mutual contractual outcome controls, the focal firm as well as the vendors can focus on monitoring and evaluating service performance metrics between all parties, allowing them to strengthen ties, adapt to changes and mitigate operational risk together.

While our study provides important implications for clients and vendors involved in a global IT multisourcing arrangement, there are also some limitations. Because our research is based on a single, European, case involving a number of global players, the generalizability of the results is limited, in part due to differences in the cultural and institutional economic settings. Second, we only studied the core of the IT multisourcing arrangement. As indicated in Appendix A, there are about 60 subcontractors involved. While including those contractors would certainly have enriched our findings, it would also have made our research exponentially more complicated. It would have required another research approach, for instance a large-scale qualitative and quantitative network analysis. The case study approach identifies multiple avenues that require further research. We recommend more detailed research with regard to the interdependencies of formal and informal information and knowledge flows vis-à-vis business processes as their outcome may differ. Second, we suggest examining the behavior and sustainability of value creation and capturing by individual actors. Moreover, it would be valuable to study the interaction with value creation and capturing of a global IT multisourcing arrangement as a whole. Finally, we would recommend combining multiple case studies to validate and statistically generalize our findings.

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References

Adner, R., & Kapoor, R. (2010). Value creation in innovation multisourcing: How the structure of technological interdependence affects firm performance in new technology generations. *Strategic Management Journal*, 31, 306–333. doi:10.1002/smj.821

Adner, R., & Kapoor, R. (2012). What firms make vs. what they know: How firms' production and knowledge boundaries affect competitive advantage in the face of technological change. *Organization Science*, 23(5), 1227–1248. doi:10.1287/orsc.1110.0686

Bahli, B., & Rivard, S. (2013). Cost escalation in information technology outsourcing: A moderated mediation study. *Decision Support Systems*, 56, 37–47. doi:10.1016/j.dss.2013.04.007

Bapna, R., Barua, A., Mani, D., & Mehra, A. (2010). Cooperation, coordination, and governance in multisourcing: An Agenda for analytical and empirical research. *Information Systems Research*, 21(4), 785–795. doi:10.1287/isre.1100.0328

Barney, J. (1986). Organizational culture: Can it be a source of sustained competitive advantage? *Academy of Management Review*, 11(3), 656–665. doi:10.5465/amr.1986.4306261

Benbasat, I., Goldstein, D., & Mead, M. (1987). The case research strategy in studies of information systems. *MIS Quarterly*, 11(3), 368–387. doi:10.2307/248684

Bouwman, W. A. G. A., Haaker, T., & De Vos, H. (2008). Mobile service innovation and business models. Berlin Heidelberg: Springer-Verlag, Germany.

Bowman, C., & Ambrosini, V. (2000). Value creation versus value capture: Towards a coherent definition of value in strategy. *British Journal of Management*, 11, 1–15. doi:10.1111/bjom.2000.11.issue-1

Camarinha-Matos, L., & Afsarmanesh, H. (2006). In International Federation for Information Processing (IFIP), Volume 207, Knowledge Enterprise: Intelligent strategies. In K. Wang, G. Kovacs, M. Wozny, & M. Fang (Eds.), Product design, manufacturing, and management (pp. 26–40). Boston: Springer, United States of America.

Carter, P. A. (2010). IT service value creation in a global environment. *Journal of Global Information Technology Management*, 13(4), 4–27. doi:10.1080/1097198X.2010.10856524

Casado-Lumbreras, C., Colomo-Palacios, R., Ogwueleka, F. N., & Misra, S. (2014). Software development outsourcing: Challenges and opportunities in Nigeria. *Journal of Global Information Technology Management*, 17(4), 267–282. doi:10.1080/1097198X.2014.978626

Ceccagnoli, M., Forman, C., Huang, P., & Wu, D. J. (2012). Co-creation of value in a platform eco-system: The case of enterprise software. *MIS Quarterly*, 6(1), 263–290.

Cohen, L., & Young, A. (2006). Multisourcing: Moving beyond outsourcing to achieve growth and agility. Boston: Harvard Business School Press, United States of America.

De Reuver, M., & Bouwman, W. A. G. A. (2012). Governing mobile service innovation in converging value networks. *Journal of Business Research*, 65(3), 347–354. doi:10.1016/j.jbusres.2011.04.016

Denzin, N. K. (1978). *The research act: A theoretical introduction to sociological methods*. New York, NY: McGraw-Hill.

Denzin, N. K. (2009). Triangulation 2.0. *Journal of Mixed Methods Research*, 6(2), 80–88. doi:10.1177/1558689812437186

El Sawy, O. A., & Pereira, F. (2013). Business modelling in the dynamic digital space: An eco-system approach (pp. 565 Q10 2013). Springer Science & Business Media, Germany.

Gonzalez, R., Gasco, J., & Llopis, J. (2010). Information systems offshore outsourcing: An exploratory study of motivations and risks in large spanish firm. *Information Systems Management*, 27(4), 340–355. doi:10.1080/10580530903455205

Grönroos, C., & Voima, P. (2013). Critical service logic: Making sense of value creation and co-creation. *Journal of the Academy of Marketing Science*, 41(2), 133–150. doi:10.1007/s11747-012-0308-3

Hawk, S., Kaiser, K. M., Goles, T., Bullen, C. V., Simon, J. C., Beath, C. M., ... Frampton, K. (2012). The information technology workforce: A comparison of critical skills of clients and service providers. *Information Systems Management*, 29(1), 2–12. doi:10.1080/10580530.2012.634292

Hofstede, G., Hofstede, G. J., & Minkov, M. (2010). Cultures and organizations (3rd ed.). London: McGraw-Hill, United Kingdom.

Huber, T. L., Kude, T., & Dibbern, J. (2017). Governance practices in platform ecosystems: Navigating tensions between cocreated value and governance costs. *Information Systems Research*, 28(3), 563–584. doi:10.1287/isre.2017.0701

Iansiti, M., & Levien, R. (2004). *The keystone advantage: What the new dynamics of business eco-systems mean for strategy, innovation, and sustainability* (pp. 2004). Boston, MA: Harvard Business School Press.

Jin, X., Kotlarsky, J., & Oshri, I. (2014). Towards understanding knowledge integration in multi-sourcing engagements. In R. Hirschheim, A. Heinzl, & J. Dibbern (Eds.), Information systems outsourcing: Towards Sustainable Business Value, 273–287. Springer Berlin Heidelberg, Berlin, Heidelberg.

Kapoor, R., & Lee, J. M. (2013). Coordinating and competing in eco-systems: How organizational forms shape new technology investments. *Strategic Management Journal*, 34(3), 274–296. doi:10.1002/smj.2013.34.issue-3

Kauffman, R. J., Li, T., & van Heck, E. (2010). Business network-based value creation in electronic commerce. *International Journal of Electronic Commerce*, 15(1), 113–144. doi:10.2753/JEC1086-4415150105

Kim, Y. J., Lee, J. M., Koo, C., & Nam, K. (2013). The role of governance effectiveness in explaining IT outsourcing performance. *International Journal of Information Management*, *33*, 850–860. doi:10.1016/j.ijinfomgt.2013.07.003

Kotlarsky, J., Oshri, I., & Willcocks, L. P. (2007). Social ties in globally distributed software teams: Beyond face-to-face meetings. *Journal of Global Information Technology Management*, *10*(4), 7–34. doi:10.1080/1097198X.2007.10856453

Lacity, M. C., Khan, S. A., & Yan, A. (2016). Review of the empirical business services sourcing literature: An update and future directions. *Journal of Information Technology*, *31*(3), 269–328.

Madsen, S., Bødker, K., & Tøth, T. (2015). Knowledge transfer planning and execution in offshore outsourcing: An applied approach. *Information Systems Frontier*, *17*, 67–77. doi:10.1007/s10796-014-9516-3

Miles, M., & Huberman, A. (1994). Qualitative data analysis. California: Sage, United States of America.

Moore, J. F. (1993). Predators and prey: A new ecology of competition. Harvard Business Review, United States of America

Moore, J. F. (1996). The death of competition: Leadership and strategy in the age of business eco-systems. Harper Business, United States of America.

Morgan, L., Feller, J., & Finnegan, P. (2013). Exploring value networks: Theorising the creation and capture of value with open source software. *European Journal of Information Systems*, *22*(5), 569–588. doi:10.1057/ejis.2012.44

Mousavizadeh, M., Ryan, S., Harden, G., & Windsor, J. (2015). Knowledge management and the creation of business value. *Journal of Computer Information Systems*, *55*(4), 35–45. doi:10.1080/08874417.2015.11645785

Orlikowski, W. J., & Iacono, C. S. (2001). Research commentary: Desperately seeking the "IT" in IT research: A call to theorizing the IT artifact. *Information Systems Research*, *12*(2), 121–134. doi:10.1287/isre.12.2.121.9700

Oshri, I., Henfridsson, O., & Kotlarsky, J. (2018). Re-representation as work design in outsourcing: A semiotic view. *MIS Quarterly*, *42*(1), 1–23. doi:10.25300/MISQ

Palvia, P. C., King, R. C., Xia, W., & Palvia, S. C. J. (2010). Capability, quality, and performance of offshore IS vendors: A theoretical framework and empirical investigation. *Decision Science*, *41*(2), 231–270. doi:10.1111/j.1540-5915.2010.00268.x

Patton, M. Q. (2002). Qualitative research and evaluation methods (3rd ed.). Sage Publications, Thousand Oaks, London, United Kingdom.

Rai, A., Keil, M., Hornyak, R., & Wüllenweber, K. (2012). Hybrid relational-contractual governance for business process outsourcing. *Journal of Management Information Systems*, *29*(2), 213–256. doi:10.2753/MIS0742-1222290208

Rao, M. T., Earls, T. W., & Sanchez, G. (2007). International collaboration in transorganizational systems development: The challenges of global insourcing. *Journal of Global Information Technology Management*, *10*(3), 52–69. doi:10.1080/1097198X.2007.10856449

Romero, D., & Molina, A. (2011). Collaborative networked organisations and customer communities: Value co-creation and co-innovation in the networking era. *Production Planning and Control*, *22*(4), 447–472. doi:10.1080/09537287.2010.536619

Sarker, S., Ahuja, M., Sarker, S., & Kirkeby, S. (2011). The role of communication and trust in global virtual teams: A social network perspective. *Journal of Management Information Systems*, *28*(1), 273–310. doi:10.2753/MIS0742-1222280109

Sia, S., Koh, C., & Tan, C. (2008). Strategic maneuvers for outsourcing flexibility: An empirical assessment. *Decision Science*, *39*(3), 407–443. doi:10.1111/j.1540-5915.2008.00198.x

Solaimani, S., Itälä, T., & Bouwman, W. A. G. A. (2015). Networked enterprise business model alignment: A case study on smart living. *Information Systems Frontiers*, *17*(4), 871–887. doi:10.1007/s10796-013-9474-1

Su, N., & Levina, N. (2011). Global multisourcing strategy: Integrating learning from manufacturing into IT service outsourcing. *IEEE Transactions on Engineering Management*, *58*(4), 717–729. doi:10.1109/TEM.2010.2090733

Vargo, S. L., & Akaka, M. A. (2012). Value co-creation and service systems (re)formation: A service eco-systems view. *Informs*, *4*(3), 207–217.

Vitasek, K., & Manrodt, K. (2012). Vested outsourcing: A flexible framework for collaborative outsourcing. *Strategic Outsourcing: An International Journal*, *5*(1), 4–14. doi:10.1108/17538291211221924

Wareham, J., Fox, P. B., & Cano Giner, J. L. (2014). Technology ecosystem governance. *Organization Science*, *25*(4), 1195–1215. doi:10.1287/orsc.2014.0895

Wernerfelt, B. (1984). A resource-based view of the firm. *Strategic Management Journal*, *5*, 171–180. doi:10.1002/(ISSN)1097-0266

Wieland, H., Polese, F., Vargo, S. L., & Lusch, R. F. (2012). Toward a service (eco)systems perspective on value creation. *International Journal of Service Science, Management, Engineering, and Technology*, *3*(3), 12–25. doi:10.4018/IJSSMET

Wiener, M., & Saunders, C. (2014). Force coopetition in IT multisourcing. *Journal of Strategic Information Systems*, *23*, 210–225. doi:10.1016/j.jsis.2014.08.001

Yin, R. K. (2009). Case study research: Design and methods. London: Sage Publications, London, United Kingdom.

Appendix A: Case study description

The case study is positioned in the retail market and concerns a global client acting in the USA and Europe. However, this case study focuses specifically on selling products on the European market. Importantly, the client's business processes to a large extent depending on IT to fulfill its customers' needs in time, e.g. ordering systems, logistic function, replenishment and payments. Today, the client is expanding its retail portfolio as online business is growing, while new store formats are developed to extend the product range. To maintain its competitive market position, the client had to reduce IT-related costs. Currently, the client is going through a business application transformation, which involves transitioning from various legacy applications toward a new application landscape that was developed to support new business strategies (e.g. online shopping). The empirical setting for the case study focuses on the outsourcing relationships between the client and three key IT vendors.

As illustrated in Figure A1, the client's legal and architecture arrangements with regard to vendor contracts are managed together by the USA and Dutch teams. The rationale behind this agreement is that Vendor 1 provides IT services in both the USA and the Netherlands. The client's finance and accounting services are handled by the SSC in Poland. Vendor 1 is responsible for the IT infrastructure services, in which the operational data centers to support the client are located in Germany. The client's mainframe systems are monitored by a virtual control center located in Kuala Lumpur, Malaysia, with operational management provided by local, on-site vendor personnel in Germany. Vendor 2 has a strong footprint in Europe and acts as a service integrator, providing services related to various legacy applications. The vendor's on-site team is located on the client's premises (various locations), while their coordination team is located in the Netherlands (including service and contract management, architecture, financial management). The delivery team is located in Mumbai, India to support application maintenance, technical application management and technical architecture. Vendor 3 also acts as service integrator, in this case with regard to cloud services enabling applications that support the new business strategy. Vendor 3 has an on-site team located at the client's headquarters in the Netherlands, to coordinate service delivery. To support its application services, Vendor 3 has established two application domain centers (development and maintenance) in Bangalore (India) and Maina (Portugal). In addition, the client has extended the multisourcing arrangement by contracting 60 smaller IT vendors, all acting as subcontractors (S) providing services to the three key vendors.
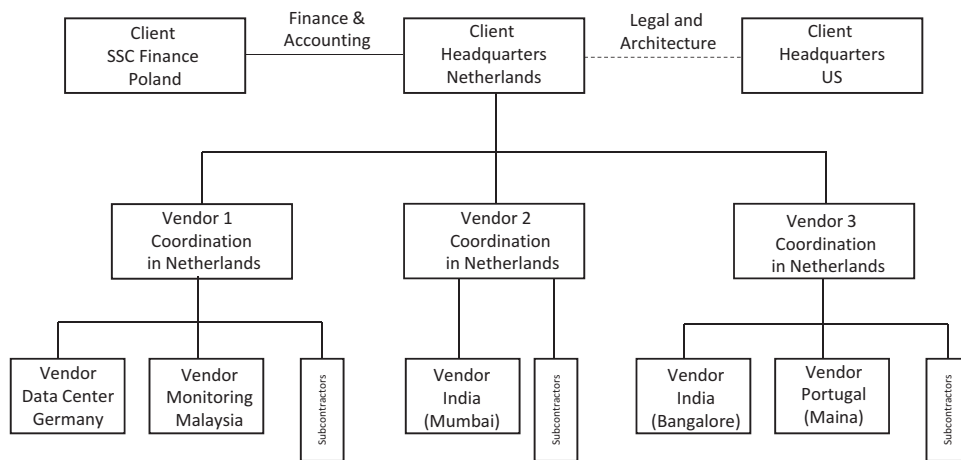

Figure A1. Multisourcing arrangement under study.

Appendix B: Interview questions

Category: Organization

Nr Question
1 What is the rationale for <client> to choose the current multivendor model?
2 How is the multivendor environment governed (example: integral by one party, fragmented)?
3 How does organizational structure support the governance of the multivendor environment?
4 What are the consequences of the current model related to IT processes and roles between all parties?
5 Which key organizational challenges can be identified when applying a multivendor environment?

Category: Coordination and collaboration

Nr Question
1 Who is end to end responsible for the coordination of the multivendor environment?
2 What coordination principles are used by <client and vendor> to govern the multivendor environment?
3 What type of coordination requirements is imposed by <client> to manage the vendors effectively?
4 To what degree does coordination affects the performance of provided end-to-end IT services toward <client>?
5 How does <client and vendor> stimulate collaboration between the parties involved?
6 What is level of commitment of the parties involved to mutual collaboration when exchanging knowledge and information?

Category: Contracts

Nr Question
1 What form(s) of contractual framework is used by <client and vendor> to govern the multivendor environment?
2 What are the common performance KPIs to govern the multivendor environment?
3 What type of incentives is used to stimulate the collaboration between parties?
4 How is end-to-end delivery of IT services, which may include multiple vendors, ensured on a contractual level?
5 How is interdependency between multiple vendors arranged on contractual level?
6 What is the degree of contractual flexibility to accommodate key developments (for example: exit of one vendor or onboarding of new vendor) in multivendor environment?

Category: Relationships

Nr Question
1 What approach is applied by <client and vendor> to manage stakeholders within the multivendor environment?
2 To what degree does the multivendor model affects the presence or absence of trust?
3 How does the multivendor model influence the relationships (e.g. strategic, tactical, operational) between parties?
4 How does <client and vendor> coop with conflict resolution within the multivendor environment? What methods and/or strategies are used to solve conflict resolution?
5 What mechanisms are used to exchange information and knowledge between parties in jointly creating value?
6 How does <client and vendor> deal with cultures, shared values, understanding and fairness of all parties?

Category: Open-ended questions

Nr Question
1 What key governance determinants does <client and vendor> recognize to manage the multivendor environment?
2 What type of areas or mechanisms can be addressed to improve the governance of the multivendor arrangement?
3 What areas can be identified to improve governance within the multivendor arrangement?

Appendix C: Interview scheme

Firm	Job description	Interview duration
Focal firm	CIO	1 h
Focal firm	Sourcing director	1 h
Focal firm	Sourcing manager 1	2 h
Focal firm	Sourcing manager 2	2 h
Focal firm	Program manager large IT projects	1 h
Focal firm	IT manager (domain infrastructure, applications)	1 h
Focal firm	Service manager	1 h
Vendor 1	Account executive	1 h
Vendor 1	Account manager	1 h
Vendor 1	Delivery manager	1 h
Vendor 2	Account executive	1 h
Vendor 2	Contract manager	1 h
Vendor 2	Manager service integration	1 h
Vendor 2	Delivery manager	1 h
Vendor 3	Relationship manager	1 h
Vendor 3	Contract and delivery lead	1 h
Vendor 3	Delivery program manager	1 h
Vendor 3	Head of Oracle retail competency services	1 h
Vendor 3	Service delivery manager	1 h