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Strategic innovation through outsourcing – A theoretical review

Marfri-Jay Gambal^a, Aleksandre Asatiani^{b,*}, Julia Kotlarsky^c^a Operations and Information Management Department, Aston University, Aston Triangle, B4 7ET Birmingham, UK^b Department of Applied Information Technology, University of Gothenburg, Forskningsgången 6, 417 56 Gothenburg, Sweden^c Information Systems and Operations Management, The University of Auckland, 12 Grafton Road, Auckland 1010, New Zealand

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ABSTRACT

Competition in the Information Technology Outsourcing (ITO) and Business Process Outsourcing (BPO) industry is increasingly moving from being motivated by cost savings towards strategic benefits that service providers can offer to their clients. Innovation is one such benefit that is expected nowadays in outsourcing engagements. The rising importance of innovation has been noticed and acknowledged not only in the Information Systems (IS) literature, but also in other management streams such as innovation and strategy. However, to date, these individual strands of research remain largely isolated from each other. Our theoretical review addresses this gap by consolidating and analyzing research on strategic innovation in the ITO and BPO context. The article set includes 95 papers published between 1998 and 2020 in outlets from the IS and related management fields. We craft a four-phase framework that integrates prior insights about (1) the antecedents of the decision to pursue strategic innovation in outsourcing settings; (2) arrangement options that facilitate strategic innovation in outsourcing relationships; (3) the generation of strategic innovations; and (4) realized strategic innovation outcomes, as assessed in the literature. We find that the research landscape to date is skewed, with many studies focusing on the first two phases. The last two phases remain relatively uncharted. We also discuss how innovation-oriented outsourcing insights compare with established research on cost-oriented outsourcing engagements. Finally, we offer directions for future research.

Introduction

Over the last decade, competition in the Information Technology Outsourcing (ITO) and Business Process Outsourcing (BPO) sector has shifted from transactional engagements, towards trust-based partnerships (Susarla and Mukhopadhyay, 2019). In such partnerships, there is growing emphasis on *strategic innovation* (Weeks and Feeny, 2008). Strategic innovations substantially enhance the client's overall competitiveness (Lacity and Willcocks, 2013), contribute to its strategic objectives (Oshri et al., 2015; Su et al., 2016), and support its business-wide transformation programs (Dibbern and Hirschheim, 2020; Asatiani et al., 2019; Langer and Mani, 2018).

While there is ample evidence of clients expecting providers to deliver innovation (Oshri et al., 2018, 2015; Su et al., 2016; Susarla and Mukhopadhyay, 2019), recent studies also expose potential tensions, especially between cost-oriented and innovation-oriented engagements (Aubert et al., 2015; Kotlarsky et al., 2016). Cost-oriented engagements are predominantly anchored in a transactional mindset wherein clients and providers exchange a service for a fee (Aubert et al., 2015). They build on expectations and sanctions that are formally defined ex ante (Susarla and Mukhopadhyay, 2019). Providers offer specialized competences that allow

* Corresponding author.

E-mail addresses: gambalm@aston.ac.uk (M.-J. Gambal), aleksandre.asatiani@ait.gu.se (A. Asatiani), j.kotlarsky@auckland.ac.nz (J. Kotlarsky).<https://doi.org/10.1016/j.jsis.2022.101718>

clients to realize cost savings and improve their operational efficiency (Levina and Ross, 2003; Nevo and Kotlarsky, 2014).

Cost-oriented engagements however fail to accommodate core features associated with strategic innovation, which calls for a creative mindset (Gurteen, 1998) and requires slack resources with a risky return model (Garcia-Granero et al., 2015). The result is notable outsourcing management quandaries. One example is the highly detailed Service Level Agreements (SLAs), which while generally indispensable to ensuring service quality consistency in cost-oriented outsourcing contracts, discourage experimentation and risk-taking on the part of the provider (Aubert et al., 2015).

Driven by our interest in understanding how clients and providers can deal with these challenges, we turned to the wider management literature, identifying a range of studies outside mainstream IS journals that examine links between innovation and IS outsourcing. For example, in the innovation management literature, Roy and Sivakumar (2012) note that outsourcing engagements can yield radical innovations, while in the strategy literature, Chatterjee (2017) reveals how innovative provider solutions are tailored to meet the business objectives of individual clients.

While research on innovation and outsourcing is evidently flourishing, the landscape to date remains fragmented. This motivated us to engage with the wider body of business management literature to bring currently disconnected insights from related studies, spread across multiple management fields, into the IS outsourcing domain. We conducted a review that largely reflects the main principles of Paré et al.'s (2015) approach to theoretical review. The resulting article set comprised 95 studies published between 1998 and 2020 from multiple research streams, among which IS, innovation, and general management have the strongest presence. Our subsequent analysis followed Wolfswinkel et al.'s (2013) grounded theory techniques adapted for literature reviews.

This review offers three major contributions to the IS outsourcing literature. First, we consolidate a large body of knowledge into an integrative framework. Second, we advance discussion on how innovation-oriented outsourcing research insights compare with cost-oriented outsourcing. Our third contribution is five future research directions that build on our integrative framework.

Background

The scholarly perception of what is considered “innovation” in the outsourcing context has changed as the ITO and BPO industries have evolved and matured. Earlier studies on ITO from the early-to-mid 1990s view the mere decision by a firm to outsource some or all of its IT functions to an external provider as an innovation, (Grover et al., 1994; Gurbaxani, 1996; Loh and Venkatraman, 1992a, 1992b; Venkatraman et al., 1994). Papers by leading IS researchers, such as Loh and Venkatraman (1992a), Ang and Cummings (1997) and Hu et al. (1997), report on empirical studies that use theories of innovation adoption and diffusion to model the acceptance and spread of ITO itself.

In the late 1990s, the urgent need for companies to prepare their systems for the new millennium (the rollover from the year 1999 into 2000 – commonly referred to as the Year 2000 or Y2K problem) led to a significant expansion of the ITO industry, which has been growing ever since. Carmel and Agarwal (2002) capture the maturation of offshore ITO in moving away from a focus on cost savings towards a proactive strategic focus.

A decade later, as the boundaries between ITO and BPO were becoming increasingly blurred (Lacity et al., 2016), competitive momentum in the outsourcing industry started shifting towards a value proposition that includes innovative solutions with a business-wide impact on top of cost savings and freeing up resources for core activities. In this study, we focus on this strategic aspect of innovation, which has become one of the main trends in the outsourcing industry, attracting significant attention from IS scholars working on outsourcing-related topics.

What is strategic innovation through outsourcing?

Interest in understanding how innovation can be delivered in the outsourcing context is growing (Aubert et al., 2015; Oshri et al., 2018). Weeks and Feeny (2008) offer a refined categorization of innovation specifically emerging from the outsourcing context. It distinguishes between operational innovation, business process innovation, and strategic innovation. Strategic innovation, defined as ways to “significantly enhance the firm’s product or service offerings for existing target customers, or enable the firm to enter new markets” (Weeks and Feeny, 2008), tends to be challenging for firms to achieve (Oshri et al., 2015; Weeks and Feeny, 2008). Weeks and Feeny’s (2008) definition of strategic innovation reflects the radical/exploratory concept of innovation discussed in the innovation and strategy literature. Such innovations help firms offer new products and/or service lines (Droege et al., 2009), facilitate new market entries (Berry et al., 2006), or introduce new distribution channels (Jansen et al., 2006).

Strategic innovation in an outsourcing context tends to emerge in ongoing engagements; that is, after an outsourcing contract is awarded and a relationship between the client and supplier develops (Aubert et al., 2015; Oshri et al., 2018, 2015; Su et al., 2016; Weeks and Feeny, 2008). As illustrated in Weeks and Feeny’s (2008) study, clients tend to initially outsource for cost savings, then gradually shift their attention to quality, and then to innovation as the outsourcing relationships matures.

Method

Literature search and selection process

Our search started with scoping out the state of the research landscape in an unstructured fashion to gain initial understanding and identify seminal works. We noticed that most relevant works are published in outlets listed in four subject categories of the Chartered Association of Business Schools’ (CABS) *Academic Journal Guide*: information management, innovation, general management, and

Table 1
Inclusion and exclusion criteria.

| Criterion type | Description |
|----------------|---|
| Quality-based | Only include papers published in peer-reviewed journal from 3, 4, and 4*-rated journals listed in the CABS Academic Journal Guide 2018. <i>Excluded:</i> <i>Papers published in lower-rated or non-listed outlets, and any other type of publication, such as books, book reviews, conference papers, teaching cases or industry reports.</i> |
| Content-based | Only include papers that discuss innovation in the context of ITO and BPO engagements. <i>Excluded:</i> <i>Research that discusses innovation in other outsourcing contexts, such as contract manufacturing (e.g., Dabhilkar et al., 2009; Triguero and Córcoles, 2013), R&D outsourcing and crowdsourcing.</i> Only include papers that discuss innovations featuring at least one of two properties, while not contradicting the other: High degree of uncertainty associated with innovation outcomes (i.e., final product/service not known <i>a priori</i>). Final outputs materialize in the form of complex, IT-enabled products and services. Outcome is of strategic importance to the client (i.e., impacts important areas (if not the entire business) of the client and improves the firm's overall competitiveness). <i>Excluded:</i> <i>Journal articles that discuss other innovation concepts such as the outsourcing decision as an innovation (e.g., Hu et al., 1997; Loh and Venkatraman, 1992) and physical, non-IT product innovations (e.g., Marion and Friar, 2012; Mikkola, 2003; Park et al., 2018; Takeishi, 2002).</i> |
| Time-based | Search limited to articles published between 1998 and 2020. |

strategy. We then created a preliminary list of 3, 4 and 4*-rated journals (shown in Appendix I) from these four CABS subject categories to be used in the structured search subsequently conducted, which consisted of three steps.

Step 1: We turned to the publisher database of each journal, using the terms “innovation” AND “outsourcing” in title, abstract or keyword searches to locate relevant articles published between 1998 and 2020. If the search engine of a journal’s publisher database only featured limited search options, we additionally drew on EBSCO Business Source Premier, ProQuest, or JSTOR databases, depending on their embargo periods for the specific journal. We retrieved 133 papers (see database search results based on the preliminary list of journals in Appendix I).

Step 2: We applied quality-based, content-based, and time-based inclusion and exclusion criteria (see Table 1 and further details in Appendix II). Removing papers that did not meet our inclusion criteria reduced the sample to 39 papers.

Step 3: We ran three rounds of forward and backward citation searches, starting with the 39 selected papers, and continuing the process for articles added after each round. The sample thereby increased to 95 papers. Citation searches for papers added after the third round did not yield any new relevant papers. A summary of our final journal and article set is included in Appendix III.

Interestingly, of final article sample comprising 95 papers (see Appendix IV), only 40 are published in mainstream IS journals. We view this as a notable indicator of the need for the integrative perspective offered in this review.

Analyzing the final article sample

Our analysis was guided by Wolfswinkel et al.’s (2013) grounded theory techniques for thematic analysis based on an iterative process of ‘open coding’, ‘axial coding’, and ‘selective coding’. We organized our codes into first-order concepts, second-order themes, and aggregate dimensions, as suggested by Gioia et al. (2013). Our coding structure is presented in Appendix V. We started the process with open coding, which resulted in several first-order concepts. A list of these concepts with key references is included in Appendix VI. We then proceeded with axial coding to categorize first-order concepts into second-order themes representing distinct aspects of strategic innovation in the outsourcing context. Our second-order themes are briefly outlined in Appendix VII. Lastly, we performed selective coding, which resulted in four aggregate dimensions – Antecedents, Arrangements, Generation and Outcomes. In the next section we report our findings, discussing each dimension and its second-order themes in greater detail.

Theoretical review of strategic innovation through outsourcing

Strategic innovation through outsourcing: research landscape

We distinguish between the three scenarios discussed in the literature in relation to strategic innovation through outsourcing; we term them “pre-contract”, “during-contract” and “post-contract” to reflect the temporal dimensions of an outsourcing engagement.

The *pre-contract* scenario captures studies dealing with the complexities and contrarities of the decision to leverage outsourcing for strategic innovation. This decision can prove challenging for first-generation outsourcing clients in particular. The *during-contract* scenario captures relevant literature on existing outsourcing engagements. Here, the client is already contractually tied to one or several providers. This literature addresses emerging innovation opportunities, and associated challenges with pursuing such opportunities. In the *post-contract* scenario, scholarly evaluations of realizable strategic innovation-enabled business outcomes take center stage.

Additionally, four innovation-centric phases emerged from our analysis of the literature – *antecedents* of the strategic innovation decision, engagement *arrangements*, strategic innovation *generation*, and related *outcomes*. They broadly outline the process of

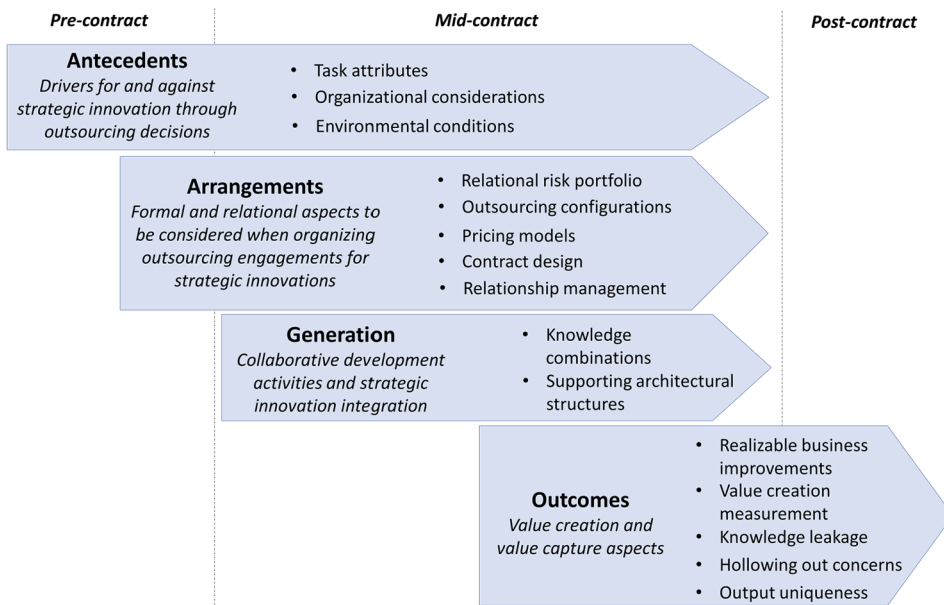


Fig. 1. Strategic innovation through outsourcing: Integrative framework.

| Antecedents <i>Drivers for and against the decision to pursue strategic innovation in outsourcing</i> | | |
|--|---|--|
| Main themes | Characteristics specific to outsourcing | Key theoretical perspectives |
| Task attributes | Exploratory tasks span across organizational boundaries | TCE, KBV |
| Organizational considerations | Access to specialized external IT resources (client view) / deep domain knowledge (provider view) | Relational view, resource theories, evolutionary perspectives, organizational design |
| Environmental conditions | IT-based services commoditization pressures providers to differentiate, e.g., by engaging in innovation efforts | Network perspectives (client), internationalization perspectives (provider) |

Fig. 2. Notable characteristics and theoretical perspectives in the “Antecedents” phase.

achieving strategic innovation, as suggested in the reviewed literature, and illustrated in our integrative framework (Fig. 1). To situate these phases in an outsourcing context, the three outsourcing scenarios (pre-contract, during-contract, and post-contract) have been woven into the framework. Each phase includes second-order themes, shown as bullet points in the framework.

In the framework, some innovation-centric phases are depicted stretching across multiple outsourcing scenarios to underscore that firms can be in different outsourcing engagement stages but face similar challenges when pursuing strategic innovation. For instance, concerning the arrangement theme, clients in a pre-contract scenario need to set up the outsourcing engagement from the ground up, choosing between one or multiple providers, pricing models, and contract completeness. Clients in a during-contract scenario, in contrast, may already have such structures in place, but need to modify them to facilitate the achievement of strategic innovations.

Next, we present our findings relating to each phase. For each theme, we first introduce an overview of commonly applied theoretical perspectives and subsequently link these to prior research insights.

Phase 1: Antecedents of the strategic innovation through outsourcing decision

The literature examines the various motivations driving the decision to pursue strategic innovation in outsourcing. We divided

these into three themes: task attributes, organizational considerations, and environmental conditions (see Fig. 2).

Task attributes

The literature generally draws on two reference theories to examine innovation task attributes and their compatibility with outsourcing: transaction cost economics (TCE) (Williamson, 1985, 1975) and the knowledge-based view (KBV) (Kogut and Zander, 1992).

A main premise of TCE asserts that transactions involving highly specific assets and high uncertainty incur lower transaction costs within the firm and should be internalized (Aubert et al., 2004; Walker and Weber, 1984). Prior research associates the strategic innovation task environment with high asset specificity and high uncertainty. High asset specificity stems from the need to build deep relationship-specific knowledge (Oshri et al., 2018; Weeks and Feeny, 2008) and high uncertainty from the difficulty of defining the exact nature of activities in advance because the final product is not known *a priori* (Miranda and Kavan, 2005; Oshri et al., 2015). Accordingly, some studies indicate that innovation can be better performed internally (Qu et al., 2010; Weigelt and Sarkar, 2012).

Applying the KBV lens has led to similar conclusions by building on the notion that firms function as social communities. According to this group of studies, the knowledge held by organizational members can be better combined to create innovations than in the market because communities feature a common language and organizing principles (Bunyaratavej et al., 2011; Takeishi, 2002; Verwaal, 2017). In this vein, Qu et al. (2010) and Zimmermann et al. (2018) respectively show that internal IT departments outperform outsourcing engagements in knowledge sharing and coordination and the extent of knowledge sharing is greater in captive sourcing arrangements than in external sourcing modes.

Overall, the rationale behind the decision to pursue strategic innovation in outsourcing engagements does not seem to originate from transaction cost and knowledge sharing efficiency considerations. Evidently, uncertain, difficult to codify, and complex tasks involving extensive relationship-specific knowledge can be carried out more optimally in vertically integrated models. However, prior research has uncovered encouraging drivers that move beyond a focus on task attributes.

Organizational considerations

We identified four prominent organizational-level drivers variously linked with four co-existing theoretical approaches that support the strategic innovation through outsourcing decision. They are: 1) access to specialized resources, from the resource-based view (RBV) (Barney, 1991) and core competency perspectives (Prahalad and Hamel, 1990); 2) compatible business strategies, based on organizational design perspectives; 3) evolving demands for more value, based on evolutionary perspectives; and 4) the outsourcing relationship as an enabler of competitive advantage, based on the relational view (Dyer and Singh, 1998).

Gaining access to specialized resource pools is a compelling driver for strategic innovation through outsourcing. For clients, outsourcing presents a practical alternative through substituting weak internal IT resources with those of a best-in-class provider (Shi, 2007). It is the potent combination of providers' advanced IT resources and the client's accumulated cross-industry domain knowledge that can lead to strategic innovations (Kedia and Lahiri, 2007). For providers, the domain-specific knowledge of clients is valuable (Arora et al., 2001). These intellectual resources are hard to learn, systematize or replicate for others, but are critical to creating superior value for clients and can be effectively cultivated by engaging in joint innovation initiatives (Chatterjee, 2017; Desyllas et al., 2018).

Prior research frequently extends resource-related arguments to organizational design perspectives focused on the interplay between resource stocks and business strategies (Mukherjee et al., 2013). Strategic innovation appears to only rarely be a standalone outsourcing project objective; it is more often tied to a client's business goals (Jensen, 2009), including technical leadership (Choudhury and Sabherwal, 2003; Gozman and Willcocks, 2019; Kern et al., 2002) and business transformation (Kedia and Lahiri, 2007; Linder, 2004; Mani et al., 2010). Conversely, providers are more inclined to engage in strategic innovation through outsourcing efforts when they follow a differentiation-based business strategy focused on novel resource combinations to deliver custom solutions that support the client's business objectives (Desyllas et al., 2018).

Evolutionary perspectives principally suggest that organizations eventually shift to innovation objectives after experiencing satisfactory results with operational services. A prominent conceptual learning curve framework by Rottman and Lacity's (2006) is applied by Weeks and Feeny (2008) to divide outsourcing relationships into four stages. After a client learns about the potential benefits of outsourcing (first stage), it gradually moves from cost (second stage) to quality (third stage) and then to innovation objectives (fourth stage).

Lastly, the relational view (Dyer and Singh, 1998) posits that business relationships yield competitive advantages for the involved parties (Miranda and Kavan, 2005) via relationship-specific assets, knowledge-sharing routines, and complementary resources. Relationship-specific assets take the form of synergistic knowledge bases cultivated by the parties for strategic innovations (Weeks and Feeny, 2008). Knowledge-sharing routines are then necessary to effectively leverage these knowledge bases (Dyer and Singh, 1998). These routines are a function of prior related knowledge, or absorptive capacity as described by Cohen and Levinthal (1990). Bilateral absorption effects have been noted, wherein the client absorbs its provider's technological knowledge, while the provider's capacity progressively expands with client-specific knowledge (Oshri et al., 2018; Weeks and Feeny, 2008). In practice, complementary resources may take the shape of jointly owned value-creation centers (Kotlarsky et al., 2016).

Environmental conditions

Some studies report notable industry-level drivers for the decision to pursue strategic innovations through outsourcing. For clients, the increasing shift of competition from between firms to between networks is a major factor. For providers, increasing commoditization of business services is eroding their competitiveness based on labor arbitrage alone.

Table 2
Overview of key findings related to the “Antecedents” phase.

| Main theme | Key findings |
|-------------------------------|--|
| Task attributes | Within-firm theoretical perspectives suggest that uncertain, difficult to codify and complex tasks that extensively involve client firm domain knowledge are better completed internally than via the market. Some conceptual and empirical studies support these suggestions. |
| Organizational considerations | Competitive considerations at an organizational level provide compelling arguments for the strategic innovation through outsourcing decision. They include the development of idiosyncratic, relationship-specific assets, access to specialized resource pools, and enabling business strategies. |
| Environmental conditions | Scholars increasingly highlight emerging forms of competitive value networks from a client firm perspective, and a maturing outsourcing industry from a service provider perspective. |



Fig. 3. Notable characteristics and theoretical perspectives in the “Arrangements” phase.

A value network perspective provides a theoretical basis for examining the advent of strategic innovation through outsourcing from the client perspective (Manning et al., 2018; Van de Ven, 2005). Building on the open innovation paradigm, it emphasizes the new business opportunities that become accessible through joining forces (Aubert et al., 2015). Studies applying this perspective argue the knowledge needed to develop strategic innovations is rarely contained within a single firm, rendering vertical integration unfeasible (Manning, 2013; Van de Ven, 2005). This indicates the shift in competition from between individual firms to between value networks (Van de Ven, 2005). Studies show clients across various industries integrating both established and disruptive providers as nodes in their value networks (Su et al., 2016; Su and Levina, 2011).

Studies have also analyzed the provider industry landscape, detecting cluster developments in popular outsourcing destinations, especially India (Lema et al., 2015; Manning, 2013; Massini and Miozzo, 2012). Such developments are due to the commoditization of knowledge work and growing demand for high-skilled, yet lower cost talent (Manning, 2013). Largely due to the explicit nature of technological knowledge (Chatterjee, 2017; Gopal and Gosain, 2010), this commoditization has increased competition among providers (Arora et al., 2001; Davenport, 2005; Manning et al., 2018). To stay strategically relevant, they are pressed to craft customized solutions that facilitate the core business activities of their clients (Arora et al., 2001). High demand for the limited supply of highly skilled labor increases wage pressures, in turn indicating that current competitive strategies relying solely on cost advantages may not be sustainable (Arora et al., 2001; Manning, 2013).

Antecedents phase: Conclusion

The decision to engage in strategic innovation through outsourcing appears to be driven by long-term business development, rather than short-term profitability motives. Examining the task environment in isolation of wider business imperatives suggests the coordination advantages of vertically integrated organizations work against engagement in innovation via outsourcing. However, scholars also recognize the intellectual resources for innovation are increasingly distributed outside the firm’s organizational boundaries. Outsourcing practices today offer the potential to pool forces and jointly generate strategic innovations that enable mutually beneficial business outcomes. Within the wider business environment, clients are increasingly competing based on their network. Clients may therefore see their providers as valuable network nodes, while providers need to differentiate themselves in a maturing outsourcing services industry. Table 2 provides a summary of these findings.

Phase 2: Arranging for strategic innovation in outsourcing

Outsourcing arrangements that allow for or facilitate strategic innovations have been widely researched, with studies conducted on relational risks, outsourcing configurations, pricing models, contract design, and relationship management (see Fig. 3).

Relational risk portfolio

Outsourcing engagements are known to involve a range of relational risks (Aron et al., 2005; Handley and Benton, 2009; Hoecht and Trott, 2006; Shi, 2007). When leveraged for innovation, these are greatly aggravated by the wider scope for opportunism (Aubert et al., 2015). Typically viewed through the lens of agency theory (Eisenhardt, 1989), such risks primarily stem from information asymmetry and goal incongruence (Langer and Mani, 2018; Roy and Sivakumar, 2012; Wiener et al., 2019). Two types of risks are distinguished herein, namely the adverse selection problem arising from hidden information *ex ante*, and the moral hazard problem arising from hidden action after the contract has been signed (Hart and Holmström, 1987). Other relational risks that recur in prior research are the hold-up problem and knowledge poaching.

Adverse selection problems denote situations wherein the principal (client) does not have complete information about relevant characteristics of the agent (provider) (Roiger, 2006). Consequently, the client is unable to recognize the ideal provider and may select a second-best provider who claims to be best-in-class. The difficulty of conceptualizing innovations in advance complicates realistic appraisals of provider capacity to meet innovation demands (Miozzo et al., 2016).

The moral hazard problem, also referred to as supplier shirking (Handley and Benton, 2009), involves deliberate underperformance by providers while claiming full payment. Drivers for not fulfilling agreed-on responsibilities include self-interest, combined with the imperfect ability of clients to fully observe provider efforts and detect shirking (Aron et al., 2005). In one of their observed cases, Choudhury and Sabherwal (2003) found evidence of a provider shirking testing responsibilities and relying on the client's exhaustive test plans instead.

A key concept in TCE, the hold-up problem (Klein et al., 1978) arises from hidden intentions (Roiger, 2006) in relationship-specific investments that have no value in alternative engagements. In the case of outsourcing, both the client and provider are vulnerable to hold-up. The client may be exposed to providers who intend to deliver only chunks of the developed innovation, or the entire innovation but on terms and at a price that reduce the client's benefits (Aubert et al., 2015). In contrast, the provider may be forced to engage in customizations at rock-bottom prices under threat of the client ending the relationship (Veltri et al., 2008). In both cases, these tangible threats can motivate either victimized party to stop cooperating, or even start retaliating (Frydinger et al., 2019).

Poaching refers to the provider reselling business-critical knowledge obtained through the relationship to the client firm's competitors (Aron et al., 2005; Clemons and Hitt, 2004; Handley and Benton, 2009). This risk is particularly salient in strategic innovation through outsourcing given the tendency of providers to re-customize solutions for other clients (Desyllas et al., 2018). As Hoecht and Trott (2006) describe, while closer access to client domain knowledge can lead to more useful innovations, the risk of sensitive information leaks increases – creating a challenging trade-off.

Outsourcing configurations

Scholars remain divided as to which outsourcing configuration is most conducive to strategic innovation. Several studies argue for slim supply bases, that is, selectively engaging with one or few providers (Bui et al., 2019; Lee et al., 2004; Su and Levina, 2011; Weeks and Feeny, 2008; Wiener and Saunders, 2014). Conversely, other studies report successful innovation outcomes with broad supply bases (Su et al., 2016). Supply base configuration decisions have notable implications for 1) access to a diversity of ideas, 2) evolution of dependency, and 3) coordination. Few advancements are noted in slim and broad supply base combinations.

Some research suggests that keeping multiple niche players on the radar may result in a continuous flow of diverse ideas for clients (Su et al., 2016), in turn increasing flexibility for accommodating changing requirements (Bui et al., 2019), and allowing the client to better probe the potential of new technologies (Su et al., 2016; Su and Levina, 2011). In contrast, engaging with only one or a few providers narrows the diversity of ideas (Su et al., 2016), but promotes the development of shared language, knowledge, and routines (Bui et al., 2019). These co-developed capabilities in turn facilitate the discovery of business-level innovations more closely suited to the distinctive characteristics of the client (Weeks and Feeny, 2008).

Dependencies develop over time and are a salient issue in slim supply base configurations. Lock-in problems can arise, especially in combination with long-term contracts (Kumar and Snavely, 2004; Su et al., 2016). In the tradition of TCE, switching costs are high when the task environment is characterized by high uncertainty (Cordella and Willcocks, 2012) and the development of highly specific resources that cannot be easily redeployed in different engagements (Lee and Kim, 2010). When it comes to strategic innovations, this can result in high opportunity costs when clients are locked into a limited set of expertise (Hoecht and Trott, 2006). On the flipside, low dependency may be a continuous reminder that the provider is replaceable (Su et al., 2016), leading to distrust and preempting collaborative problem-solving activities (Miranda and Kavan, 2005).

Broad supply bases require extensive coordination, which translates to high monitoring costs (Su et al., 2016). Moreover, the client may suffer from information losses during communication (Mani et al., 2010), while preventing its providers from having a clear view of all elements associated with the strategic innovation (Aubert et al., 2015). Lastly, multi-sourcing engagements are usually associated with increased competition within the provider portfolio (Bui et al., 2019; Oshri et al., 2019; Wiener and Saunders, 2014).

A promising area only touched on by prior research is configurations leveraging a combination of slim and broad supply bases for strategic innovation. Such combinations are achieved with provider ranking systems. Recent configuration concepts such as the long-tail strategy are based on this idea, wherein a small set of preferred strategic partners are contracted for maintaining platform services (slim supply base), while emerging technologies are leveraged with multiple niche providers on a one-off project basis (broad supply

base) (Su et al., 2016).

Pricing models

Prior studies have explored outsourcing engagements based on fixed price contracts (Bui et al., 2019; Mani and Barua, 2015; Miozzo and Grimshaw, 2005; Oshri et al., 2015). Flexible pricing models have also been studied, including time and materials contracts (Bui et al., 2019; Mani and Barua, 2015; Oshri et al., 2015), performance-based contracts (Sumo et al., 2016), and partnership contracts, which share features with joint venture structures (DiRomualdo and Gurbaxani, 1998; Holweg and Pil, 2012; Mani et al., 2010; Oshri et al., 2015).

Fixed price contracts predetermine prices for specified deliverables. Scholars often advise against their stand-alone use for innovation as they require detailed specification of requirements in advance (Bui et al., 2019) and entail high adaptation costs for unforeseeable challenges (Bui et al., 2019; Oshri et al., 2015). Imbalance is also a factor, with the provider bearing the risk of cost escalation, possibly motivating quality cutbacks (Bui et al., 2019).

There is consensus that successful strategic innovation outcomes necessitate flexible pricing models to accommodate the high uncertainty associated with related development tasks. Oshri et al. (2015) find that joint venture contracts, or a joint venture contract in combination with either a fixed price or time and materials contract, amplify the positive effect of relationship quality on the ability to achieve strategic innovation. The success of equity-based contracts in enabling the creation of shared interests and equal sharing of risk and profit is also supported by Holweg and Pil (2012), while Mani et al. (2010) and DiRomualdo and Gurbaxani (1998) emphasize the enhanced facilitation of knowledge transfer. However, equity-based contracts incur considerable set-up costs (Holweg and Pil, 2012).

Performance-based and outcome-based contracts show mixed results. Their potential utility is suggested by DiRomualdo and Gurbaxani (1998), who note “pricing provisions should tie vendor compensation to value received by the client” (p. 10). Sumo et al. (2016) examined two relationships governed by similarly designed performance-based contracts, finding the resulting levels of innovation varied greatly, depending on the client’s governance approach during contract execution. Altogether, findings grouped under the pricing model theme show certain contractual pricing models can stimulate strategic innovations. They do however require informal reinforcing conditions, such as high relationship quality (Kedia and Lahiri, 2007; Oshri et al., 2015) or autonomy during contract execution (Sumo et al., 2016).

Contract design

The question of whether more complete contracts are required for strategic innovations, where behaviors and outcomes are extensively formalized, or more incomplete contracts that allow the parties flexibility to deal with new contingencies as they arise (Argyres et al., 2007), has attracted considerable research attention. Prior research on contract completeness is heavily influenced by TCE (Argyres et al., 2007; Goo et al., 2009; Susarla et al., 2010) and control theory (Kirsch, 1997; Wiener et al., 2016).

TCE suggests that economic actors are limited by bounded rationality and can therefore not craft fully complete contracts (Argyres et al., 2007; Susarla et al., 2010). Unable to foresee all possible future contingencies, the actors need to incorporate complex safeguards to protect themselves from hold-up problems arising from contract incompleteness (Susalra et al., 2010). Under control theory, formal safeguards are broadly categorized as outcome controls, such as project milestones, and behavior controls, such as monitoring routines (Kirsch, 1997; Wiener et al., 2016).

Prior insights appear inconsistent regarding contract design. One side suggests that more complete contracts can facilitate innovation. Goo et al. (2009, 2008) show contractual clauses can include an explicit innovation plan specifying the innovation process. A client with knowledge of how innovations can fit with the rest of its organization may be able to formally define related measures (Aubert et al., 2015). Moreover, parties with relationship histories can learn how to specify contractual provisions more effectively over time, enabling them to add more detailed clauses to account for more contingencies (Argyres et al., 2007).

The other side suggests that more complete contracts hinder innovation. Bui et al. (2019) note detailed contracts are a key reason for the lack of strategic innovation. In a similar vein, Langer and Mani (2018) identify incompleteness as an essential feature of well-designed contracts in the case of complex initiatives like innovation involving aspects that are difficult to verify. More complete contracts limit provider flexibility and responsiveness in the face of task or technological changes (Aubert et al., 2015; Miranda and Kavan, 2005). This may even lead to a downward spiral where the provider’s inability to innovate drives the client to enforce penalties and monitor the contract more closely (Aubert et al., 2015). Overall, scholars in this camp argue that some best practice contracting principles from traditional outsourcing, like detailing tasks (Holweg and Pil, 2012), can be at odds with making successfully arrangements for strategic innovation (Aubert et al., 2015; Oshri et al., 2018).

Relationship management

Formal obligations to engage in strategic innovation do not guarantee cooperative behavior during the initiative (Lahiri and Kedia, 2009). The outsourcing relationship therefore needs to be managed to ensure the client and provider stay committed over the long term (Kedia and Lahiri, 2007). Prior research has applied relationship theories focused on cooperation, interactions, and social and economic exchanges to examine relevant aspects (Dibbern et al., 2004). Findings repeatedly align with Dyer and Singh’s (1998) emphasis on informal governance for value-creation initiatives. Informal mechanisms can involve clan control, which relies on an implicit system of shared values that promote desirable behavior, or self-control, which encourages self-monitoring (Kirsch, 1997; Wiener et al., 2016).

In the reviewed literature, it is widely understood that the outsourcing engagement must not be treated as an arm’s-length, tactical relationship (Barua and Mani, 2014; Lahiri and Kedia, 2009; Susarla and Mukhopadhyay, 2019), but rather as a partnership (Oshri

Table 3
Overview of key findings related to the “Arrangements” phase.

| Main theme | Key findings |
|----------------------------|--|
| Relational risk portfolio | Providers may hide information to win innovation through outsourcing contracts, resulting in adverse selection problems. After entering engagements, clients are exposed to providers who hide changes in their behavior. They may more specifically secretly shirk their innovation-related responsibilities. Both parties are further at risk of experiencing hold-ups and consequent retaliatory behavior. Providers may also share commercially sensitive domain knowledge of the client with their other customers. |
| Outsourcing configurations | Engaging with one or a few providers (slim supply bases) or multiple providers (broad supply bases) each comes with its own advantages and shortcomings, especially in terms of access to a diversity of innovative ideas, dependency on service provider(s) and coordination issues. Slim and broad supply bases can be combined using provider ranking systems. |
| Pricing models | Fixed price contracts are generally viewed as disadvantageous when pursuing strategic innovations in outsourcing engagements. Flexible pricing models are widely found to be the more favorable alternative. Equity-based contracts entail high set-up costs, but apparently deliver consistently good results. Performance-based contracts can similarly stimulate strategic innovations, but require reinforcing conditions. |
| Contract design | Research is inconsistent regarding contract completeness. In general, the topic is dominated by a dichotomous debate between more complete contracts that may facilitate strategic innovation efforts with targeted controls like joint innovation boards, and more incomplete contracts that provide greater autonomy and can propel creativity. |
| Relationship management | Scholars widely agree that outsourcing engagements should not be approached as transactional relationships, but rather as business partnerships when pursuing strategic innovations. Yet, in view of the inconsistencies pertaining to the degree of formalization, it remains unclear to what extent the partners should rely on informal governance. |

et al., 2015; Levina and Su, 2008; Weeks and Feeny, 2008). Certain characteristics are generally associated with partnerships, including shared interests (Bui et al., 2019; Frydliinger et al., 2019; Weeks and Feeny, 2008), high levels of trust (Kedia and Lahiri, 2007; Söderberg et al., 2013; Weeks and Feeny, 2008) and transparency through shared expectations (Henke and Zhang, 2010; Söderberg et al., 2013), irreversible investments in provider-specific technologies (Susarla and Mukhopadhyay, 2019), a strong identification with the project among participants (Söderberg et al., 2013), mid-level and corporate executive involvement (Handley and Benton, 2009; Miranda and Kavan, 2005; Weeks and Feeny, 2008), shared routines (Argyres et al., 2007), and enabling control styles that promote cooperation (Wiener et al., 2019, 2016).

Prior work commonly examines how these partnership elements and informal control mechanisms interact with configurational and contractual aspects when attempting to innovate in outsourcing. In accordance with Poppo and Zenger (2002), recent research demonstrates that relational norms can effectively complement contractual safeguards to motivate continuous cooperation and increase the likelihood of realizing innovation through outsourcing (Susarla and Mukhopadhyay, 2019). Weeks and Feeny (2008) find that in the most successful strategic innovation through outsourcing initiatives, the parties rely on a trust-but-verify approach, which builds on tightly maintained service levels.

In contrast, other studies propose that complex tasks like those associated with strategic innovation can be completed more successfully when relationship-building elements are clearly prioritized over contractual specifications (Langer and Mani, 2018). The latter should be relaxed, while autonomy, incentives, and trust should be strengthened (Bui et al., 2019; Vitasek and Manrodt, 2012). This in turn should encourage the provider to step outside of formal boundaries and explore promising ideas that have not been defined in advance (Aubert et al., 2015). The lack of contractual safeguards, however, implies that such approaches are highly prone to relational risks.

Arrangement phase: Conclusion

Findings included in the arrangement phase appear both diverse and inconsistent. We categorized prior insights into five themes: relational risk portfolios, outsourcing configurations, pricing models, contract design, and relationship management. The first theme, risk portfolios, illustrates common relational risks that are considerably amplified when leveraging outsourcing for strategic innovation. Configurations vary greatly in terms of supply base breadth. Slim and broad supply bases each come with their own set of advantages and disadvantages. The literature related to pricing models presents a slightly more consistent picture, with flexibly priced contracts seemingly superior to fixed-price contracts. Contract design has inspired a largely dichotomized debate between scholars arguing that more complete contracts can facilitate innovation, while others suggest that strategic innovation, which is difficult to specify (Oshri et al., 2015), requires loose contractual regimes. Lastly, while it is widely agreed that partnerships are vital for innovation through outsourcing, it remains unclear to what extent the parties should balance formal with relational mechanisms. Table 3 summarizes our findings.

Phase 3: Generating strategic innovations through outsourcing

The third phase of the integrative framework encompasses researched aspects relating to the joint generation of strategic innovations. Arguably, innovation depends increasingly on the ability to utilize new knowledge produced elsewhere and to combine this with already available knowledge (Hoecht and Trott, 2006). In an outsourcing context, the client usually possesses deep knowledge specific to its domain, while the provider possesses deep technological knowledge (Chatterjee, 2017; Oshri et al., 2018). These knowledge bases need to be synthesized for the generation of strategic innovations.

Our findings are categorized into two themes – knowledge combinations and architectural coordination (see Fig. 4). The former deals with knowledge flows within the project environment, while the latter comprises organizational and technological architectures

| Generation <i>Collaborative development activities and strategic innovation integration</i> | | |
|---|--|---|
| Main themes | Characteristics specific to outsourcing | Key theoretical perspectives |
| Knowledge combinations | Innovation-related knowledge exchanges span across organizational boundaries | RBV, KBV, learning, familiarity, boundary spanning, practice and cultural perspective |
| Supporting architectural structures | The client's IT function is the main subject of outsourcing decisions and is typically closely linked to many other business functions of the client | RBV, KBV, learning, boundary spanning |

Fig. 4. Notable characteristics and theoretical perspectives in the “Generation” phase.

that may facilitate these knowledge flows.

Knowledge combinations

Theoretical foundations of prior research relevant in the generation phase range from the RBV to the KBV, and related perspectives like absorptive capacity and learning, problem-solving (Nickerson and Zenger, 2004), cultural differences (Hofstede, 2003), familiarity (Herrera and Blanco, 2011), practice theory (Bourdieu and Wacquant, 1992), and boundary spanning (Carlile, 2002). Two project-related issues recur in the literature, namely the transfer of tacit domain knowledge and the role of acculturation.

A core issue related to the generation of strategic innovations through the combination of knowledge bases is the transfer of tacit domain knowledge (Chatterjee, 2017; Roy and Sivakumar, 2012; Weigelt and Sarkar, 2012). Consistent with the KBV, tacit knowledge requires context-specific understanding to make sense (Weigelt, 2009). The provider primarily absorbs client-specific domain knowledge through repeat interactions with the client (Oshri et al., 2018), particularly via learning by doing and trial and error (Chatterjee, 2017). Forging deep social ties (Miranda and Kavan, 2005) and developing a shared language (Barua and Mani, 2014) is vital, and accentuates the importance of arranging the engagement as a partnership.

Concerning acculturation, the research consistently notes that cultural distances need to be minimized to enable innovation in outsourcing (Chen and Lin, 2019; Lacity and Willcocks, 2013). Such findings align with KBV arguments when applied to inter-organizational networks, which emphasize the importance of building shared identities in a network (Dyer and Nobeoka, 2000). Cultural differences manifest in form of differing employee values and norms, attitudes towards technology, customers, interpersonal contact and interaction, and role perceptions (Kedia and Lahiri, 2007).

Supporting architectural structures

Outside of the project environment, we identified two areas in the broader organizational context that are closely connected to the generation of strategic innovations through outsourcing. First, focusing on the organizational architecture of the client, we present prior findings that suggest retaining an IT function. Second, research indicates that the client's technological architecture needs to incorporate common standards in order to seamlessly integrate jointly generated strategic innovations.

Whereas domain knowledge represents “know-why”, technological knowledge refers to the “know-how” necessary to customize vanilla solutions to meet the specific business objectives of the client (Chatterjee, 2017). There is broad agreement that the client must retain its internal IT function to absorb technological knowledge (Weigelt and Sarkar, 2012). Prior evidence shows that an internal IT function that is too underdeveloped can inhibit effective communication with the provider (Weeks and Feeny, 2008). Then again, a retained IT function that is too strong can be a source of conflict (Miozzo and Grimshaw, 2005), or lead to duplicated efforts (Weigelt, 2013).

To integrate strategic innovations successfully, the literature suggests that technological architectures need to be in place which feature common application and data standards (Su et al., 2016; Sumo et al., 2016). Scholars also find that successfully integrating new IT solutions does not guarantee their use (Chatterjee, 2017; Hong and Zhu, 2006; Weigelt, 2013, 2009). Bypassing the potentially slow internal development process may not only result in an innovation that is poorly aligned with the client's other business processes and operational capabilities (Hong and Zhu, 2006; Weigelt, 2013), but may also lead to a strong political bias, with the innovation being regarded as a “foreign” solution (Hong and Zhu, 2006; Weigelt, 2009).

Generation phase: Conclusion

This phase captures notable thematic patterns related to the joint generation of strategic innovations through outsourcing (see Table 4). Usually, generation efforts presuppose an in-depth familiarization between the client and provider. The provider's general IT products can thereby be infused with client-specific domain knowledge that enables high degrees of customization. Prior research also

Table 4
Overview of key findings related to the “Generation” phase.

| Main theme | Key findings |
|-------------------------------------|--|
| Knowledge combinations | Within the outsourcing project, the enablement of tacit domain knowledge flows is crucial to enable new knowledge combinations for customized innovations. Generation efforts may further be promoted by bilateral, rather than one-sided contributions, by the close involvement of the service provider from the early stages of high-level design up to the late stages of innovation integration, and by reduced cultural distances. |
| Supporting architectural structures | Supporting structures outside of a specific outsourcing project may catalyze the generation of strategic innovations. Research is largely in agreement that the client firm must possess deep technological knowledge to effectively collaborate with its service provider. Accordingly, the internal IT function needs to be retained or rebuilt. Furthermore, a compatible technological architecture with boundary conditions that are clearly visible to all parties involved has been suggested to be beneficial. |

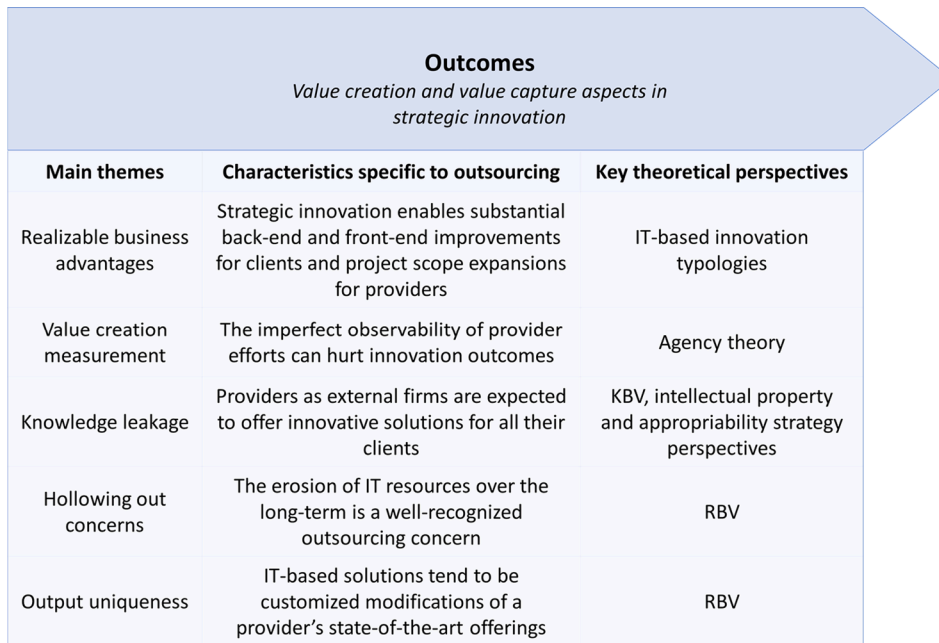


Fig. 5. Notable characteristics and theoretical perspectives in the “Outcomes” phase.

indicates that close collaboration for strategic innovation generation is vital from the early exploration stages onwards. Reducing cultural differences similarly facilitates innovation activities. Perhaps the most important insight in this phase, and one which rewrites the traditional rulebook for outsourcing, is the indispensability of retaining IT function at the client when pursuing strategic innovation.

Phase 4: Outcomes of strategic innovations through outsourcing

The fourth phase in the framework captures scholarly assessments of benefits and challenges derived from the implementation of strategic innovations. Prior insights are divided into five themes (see Fig. 5). The first theme introduces researched business benefits from the client and provider perspective. Central issues with measuring created benefits are discussed next, followed by appropriability mechanisms that may reduce replication risks from knowledge leakages, hollowing out concerns, and arguments about the uniqueness of strategic innovations.

Realizable business advantages

The literature shows that outsourcing can be successfully leveraged for a variety of custom solutions that have been linked to different innovation typologies, including by Weeks and Feeny (2008) and Swanson (1994). Such custom solutions may enable business advantages in the form of substantial back-end improvements, consequently improving the client’s operating efficiency, business process effectiveness, and strategic performance (Lacity and Willcocks, 2013). Clients may also realize business advantages in the form of extensive customer-facing enhancements that complement, adapt, or extend the usage of their offerings (Susarla and Mukhopadhyay, 2019).

There is a paucity of research assessing realizable business advantages from the provider perspective. Some studies nonetheless argue that introduced innovations act as a gateway for securing additional future business opportunities with the same, but more

satisfied client (Gopalakrishnan and Zhang, 2019; Henke and Zhang, 2010; Oshri et al., 2015). The client may be compelled to increase the scope of transferred value-creating activities in order to encourage the provider to deliver more innovations (Gopalakrishnan and Zhang, 2019). Strategic innovation may thus enable business advantages in the form of higher project revenues for the provider (Oshri et al., 2015), and possibilities for leveraging client-specific investments in follow-on innovation initiatives (Linder, 2004; Susarla et al., 2010).

Value creation measurements

Measuring the performance outcomes enabled by strategic innovations is challenging as they tend to manifest in multiple performance dimensions (Susarla et al., 2010). Oshri et al. (2018), for instance, measure innovation outcomes along the dimensions of innovation quality, innovation frequency, cost savings and service improvements. Some dimensions, however, are qualitative, which complicates the verifiability of certain aspects of performance (Langer and Mani, 2018; Susarla et al., 2010). The literature nevertheless largely agrees that tracking measurable outcomes is paramount (Linder et al., 2003). Clients that do not actively track measurable outcomes expose themselves to moral hazards, which may result in low-quality outputs and underwhelming business performance outcomes (Roy and Sivakumar, 2012; Shi, 2007).

Knowledge leakage risks

More knowledgeable providers can more effectively engage in innovation efforts on behalf of the client (Chatterjee, 2017; Oshri et al., 2018). However, in the tradition of the KBV, knowledge leakage risks increase as the client shares more valuable domain knowledge with the provider (Dyer and Nobeoka, 2000; Hoecht and Trott, 2006). Providers are expected to deliver custom solutions for all their customers, and therefore unlikely treat domain knowledge as exclusive to a specific client (Hoecht and Trott, 2006). Clients in contrast want to prevent the strategic innovation and associated commercially sensitive knowledge being sold on to their competitors (Miozzo et al., 2016). This mirrors the knowledge poaching risk (Aron et al., 2005; Handley and Benton, 2009).

The intellectual property (IP) management and appropriability strategy literature form the theoretical basis of most related research. Appropriability mechanisms are widely labelled as formal, including patents, copyrights, design rights or trademarks, and informal, including lead-time advantages, product complexity, complementary assets and secrecy (Desyllas et al., 2018; Miozzo et al., 2016). In an outsourcing context, Leiponen (2008) finds that providers focusing on customized solutions put little emphasis on formal IP rights. In fact, they are often willing to transfer these rights to the client. Desyllas et al. (2018) similarly find that providers competing on the basis of customized solutions are less disposed to rely on formal appropriability mechanisms than their cost-oriented rivals; their innovations are better protected with informal appropriability mechanisms. This is echoed in Miozzo et al.'s (2016) results, which show that modest levels of emphasis on formal appropriability mechanisms are best suited to preventing unintended knowledge leakages.

Hollowing out of client's internal IT resources concerns

Another potential negative outcome brought forward in prior research is the gradual hollowing out of corporations (Mukherjee et al., 2013; Weigelt, 2009). This is a well-documented issue in the IS sourcing literature and rooted in the principles of the RBV, which postulate that valuable resources are scarce, difficult to imitate and substitute, and evolve within the firm (Barney, 1991). When engaging in outsourcing, the client surrenders the development of its resources to the provider (Shi, 2007). Consequently, the client's internal resources depreciate over time, which compromises its ability to exploit future business opportunities (Miozzo and Grimshaw, 2005; Weigelt, 2009).

To what extent hollowing out concerns take effect in the strategic innovation through outsourcing context remains unclear. In essence, the consequences seem to be similar to traditional outsourcing outcomes. Overreliance discourages the client from developing its internal technological knowledge base (Lee and Kim, 2010; Manning et al., 2018). As the client gradually loses its ability to detect and exploit new IT-enabled opportunities, it becomes less innovative (Hoecht and Trott, 2006) and more dependent on the provider to show leadership in innovation (Lee and Kim, 2010).

Uniqueness of strategic innovations

Lastly, the uniqueness of the strategic innovations achieved through outsourcing has been called into question. Here again, central tenets of the RBV largely form the theoretical foundation. Some studies suggest that providers offer seemingly bespoke solutions, which, however, tend to be standardized based on industry best practices (Shi, 2007; Weigelt and Sarkar, 2012). Customized IT products may be targeted at a vertical segment or may cut across segments, but are rarely specific to individual clients (Arora et al., 2001).

These views contrast with studies that emphasize the uniqueness of localized innovations (Avgerou, 2008). Greater customization to idiosyncratic business needs provides the client with a highly firm-specific innovation (Kedia and Lahiri, 2007; Lema et al., 2015) that its rivals may find difficult to replicate (Qu et al., 2010). Such innovations based on unique knowledge combinations can lead to competitive advantages (Mani et al., 2010). While the provider may salvage its core, which tends to be a replicable service (Arora et al., 2001; Desyllas et al., 2018), the provider will find it difficult to redeploy the innovation with identical content to its other clients (Desyllas et al., 2018; Mani and Barua, 2015). Ultimately, the question of innovation uniqueness and enabled competitive advantages seems to boil down to the degree to which the strategic innovation is contextualized to the client.

Outcomes phase: Conclusion

This phase synthesizes scholarly assessments of outcomes associated with strategic innovation pursued in the context of

Table 5
Overview of key findings related to the “Outcomes” phase.

| Main theme | Key findings |
|--|---|
| Realizable business advantages | Custom IT products can enable improved back-end and front-end business operations for the client firm, and new business opportunities for the service provider when extending the relationship. |
| Measuring value creation | Multiple performance dimensions, some of a qualitative nature, complicate measurement of created business value for the client firm. |
| Knowledge leakage risks | Replication risks stemming from knowledge leakages can be effectively mitigated with informal appropriability mechanisms. |
| Hollowing out of client’s IT resources | The traditional outsourcing risk of atrophying internal knowledge remains active when client firms rely heavily on service providers for innovation. |
| Strategic innovation uniqueness | Strategic innovations only enable competitive advantages when they are sufficiently contextualized. |

Table 6
Juxtaposition of cost-oriented and innovation-oriented outsourcing engagements.

| | Theme | Cost-oriented outsourcing characteristics | Strategic innovation-oriented outsourcing characteristics |
|-------------|---|---|--|
| Antecedents | Theoretical underpinnings | Agency theory, RBV, TCE (Aubert et al., 2015, 2004; Dibbern et al., 2004) | Distributed innovation perspectives, knowledge management, organizational design (Aubert et al., 2015), relationship management (Chou et al., 2015) |
| | Task attributes | Simple, easy to measure and standardized (Aubert et al., 2004) | Highly uncertain (Aubert et al., 2015), unstructured (difficult to codify) and complex (Weigelt and Sarkar, 2012) |
| | Organizational considerations | Pursuit of cost savings is driven by the view of IT as a utility that can be outsourced (Lacity and Hirschheim, 1993) | Successful prior collaborations and specialized resources can promote IT-enabled business development (Desyllas et al., 2018; Weeks and Feeny, 2008) |
| | Environmental conditions | Bandwagon effects drive outsourcing decision (Lacity and Hirschheim, 1993; Loh and Venkatraman, 1992a) | Network-based competition (Van de Ven, 2005) and growing need for service differentiation (Arora et al., 2001) as drivers |
| Arrangement | Relational risk portfolio | Adverse selection, moral hazard, hold-up problem (Loh, 1994) | Same relational risks, but amplified, plus poaching (Aron et al., 2005; Handley and Benton, 2009) |
| | Outsourcing configurations | Single or multi-sourcing (Gallivan and Oh, 1999) | Single or multi-sourcing (Su and Levina, 2011; Weeks and Feeny, 2008) |
| | Pricing strategy | Typically fixed-price or time and materials contracts (Currie, 1996; Gopal et al., 2003) | Flexible pricing is essential (Bui et al., 2019; Oshri et al., 2015) |
| | Degree of formalization | Emphasis on tighter, complete contracts (Aubert et al., 2015; Currie, 1996) | Looser contracts or more innovation-oriented terms may facilitate joint innovation efforts (Aubert et al., 2015; Weeks and Feeny, 2008) |
| Generation | Relationship management | Arm’s-length/transactional relationship style (Lee et al., 2004) | Partnership relationship style (Oshri et al., 2015) |
| | Knowledge combination | Mainly technological resource exchanges limited to IT functions (Grover et al., 1994) | Intensive domain and technological knowledge exchanges (Chatterjee, 2017) |
| Outcome | Architectural coordination | Downsized or fully outsourced IT function (Dibbern et al., 2004) | Retained IT function (Weeks and Feeny, 2008) |
| | Realized business advantages | Immediate economic (Gallivan and Oh, 1999) and operational (Dibbern et al., 2004) efficiencies; created value is independent of business strategies (Venkatraman, 1997) | Substantially improved overall business performance (Oshri et al., 2015; Weeks and Feeny, 2008) |
| | Outcome measurement | Efficiency metrics, such as cost per millions of instructions per second (Venkatraman, 1997) | Variety of metrics needed to measure multi-dimensional outcomes (Linder et al., 2003; Susarla et al., 2010) |
| | Knowledge leakage risks | Security concerns mainly involve physical IT assets, software and data (Fink, 1994) | Commercially sensitive domain knowledge may be leaked (Hoecht and Trott, 2006) |
| | Hollowing out of client’s IT resources concerns | Ability of the client firm to compete with IT is adversely affected over time (Willcocks et al., 1995) | Yet unclear effects when the IT function is retained |
| | Output uniqueness | Provided services are generic, such as daily processing runs or back-up procedures (Grover et al., 1994) | Highly customized innovations may be unique (Lacity and Willcocks, 2013) and enable competitive advantages (Oshri et al., 2015) |

outsourcing. Five main themes were developed to compare and contrast prior findings. The first theme includes realizable business advantages from the client and provider perspective. In the second theme, value creation measurement issues are presented, largely stemming from non-contractible investment returns. The third theme introduces knowledge leakage risks that may be effectively mitigated with informal appropriability mechanisms. The fourth theme highlights that hollowing out concerns in relation to client IT resources are unclear when the client retains its IT function. The fifth theme shows diverging views on innovation uniqueness, which may be reconciled by recognizing the presence of different degrees of strategic innovation customization. Table 5 provides an overview of key findings.

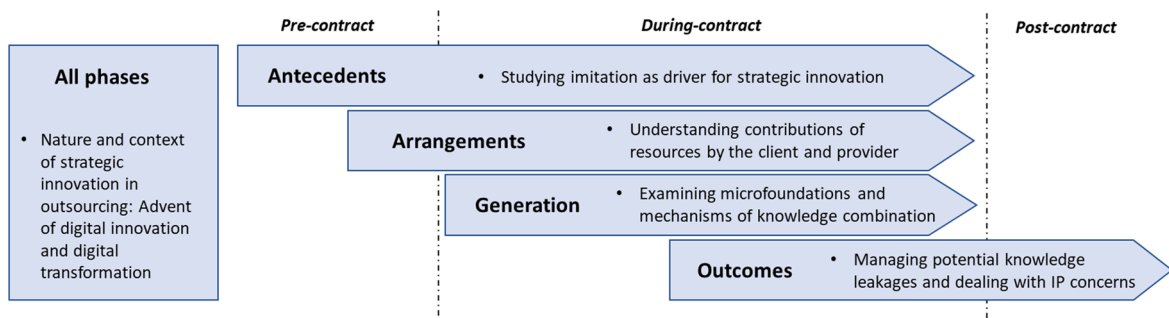


Fig. 6. Five recommended research directions.

Discussion

Our review maps out a strategic innovation through outsourcing research landscape that is becoming ever more complex. In parallel with this growing complexity however, we note uneven scholarly interest in specific phases of our framework. Most of the research to date appears to concentrate on the first two phases of our integrative framework, Antecedents and Arrangement, while the Generation and Outcomes phases only receive scant attention. Furthermore, the majority of reviewed literature focuses on a client perspective (58 papers), while the provider (20 papers), and bilateral perspectives (17 papers) are less represented.

Moreover, there is a notable lack of concepts incorporated from the innovation literature. This obscures challenges that may emerge specifically during the discovery, development, and integration of collaborative strategic innovation initiatives. More recent advancements in the digital innovation literature (Henfridsson et al., 2018; Nambisan et al., 2017; Yoo et al., 2012, 2010) introduce concepts that may better fit the contemporary zeitgeist in the outsourcing industry, such as digital technology editability (Yoo et al., 2010), non-linear digital innovation processes (Nambisan et al., 2017), and design and use recombination (Henfridsson et al., 2018). Nambisan et al. (2017) suggest that “the transition from innovation to digital innovation comes as a golden opportunity” (p. 224) that must be seized by IS scholars. We argue that this line of thought similarly applies to the strategic innovation in outsourcing context.

We also note inconsistencies in the way innovation is conceptualized in the outsourcing context. Appendix VI includes a column showing an overview of study-specific concepts, descriptions, definitions, or empirical examples that fit our conceptualization of strategic innovation. There seem to be differences on what qualifies as strategic innovation, depending on the adopted perspective. From the client perspective, strategic innovation accommodates radically new IT-based products and services that overturn established principles of operation. From the provider perspective, strategic innovation involves reconfiguring their “best practice” solutions by linking key components together in new ways that fit a client’s specific business context (Desyllas et al., 2018). In this regard, additional research that examines how strategic innovations differ from the client and provider perspectives may not only shed more light on the concept itself, but also bring clarity to the often encountered disagreement between practitioners from the client and provider side as to what constitutes a strategic innovation (Weeks and Feeny, 2008).

Finally, research that scrutinizes failed innovation initiatives remains largely absent from the body of knowledge. In a practitioner-informing discipline like IS sourcing (Lacity et al., 2009), we consider this a critical problem. Evidently, failed innovation initiatives are not uncommon in practice (Weeks and Feeny, 2008; Whitley and Willcocks, 2011). More research in this vein may, for instance, uncover different states of digital readiness (Gfrerer et al., 2021) for strategic innovation efforts, or different reasons for failure and subsequent conflicts, and effective conflict resolution strategies (Lacity and Willcocks, 2017).

How leveraging outsourcing for strategic innovations differs from cost savings objectives

There appear to be several ways in which the literature focusing on innovation in an outsourcing context differs from traditional research on outsourcing engagements, which is typically (but not exclusively) driven by cost savings motives. Building on Aubert et al. (2015), who distinguish between an innovation-oriented and contractual view of outsourcing, and Dibbern et al.’s (2004) review of IS outsourcing literature published between 1988 and 2000, we present notable differences and overlaps in each of our explored themes in Table 6.

Principally, we observe considerable differences in complexity, not just at the task level, but also in terms of engagement arrangements and organizational architecture adjustments. Nevertheless, there are certain areas, including the relational risk portfolio and outsourcing configurations, that do not appear to have changed drastically with a shift from cost savings to strategic innovation objectives. It must therefore be emphasized that strategic innovation through outsourcing does not constitute an entirely new phenomenon, but rather an evolution of traditional cost-oriented outsourcing practices that builds on a legacy of pioneering work in the IS sourcing literature.

Table 6 suggests a noticeable shift in theoretical foundations. This is visible in the diversity of theoretical foundations employed in innovation-oriented outsourcing research (see Appendix IV for details), and contrasts with the high concentration of TCE-based studies that form the core of cost-oriented outsourcing engagement research (Dibbern et al., 2004). Major differences can also be recognized in the *task attributes* and *organizational considerations* themes of the Antecedents phase. Regarding the former, the traditional task environment involves relatively simple and standardized generic business services that are amenable to outsourcing, while innovation-related tasks are of an explorative nature and complex (Aubert et al., 2015). Concerning the latter, the cost savings rationale is often based on early views of IT as a utility (Lacity and Hirschheim, 1993), whereas IT is associated with vast strategic business outcome

potential in innovation-oriented outsourcing (Weeks and Feeny, 2008). An implicit consequence of these differences is a stronger link between outsourcing and the client's overall business strategy.

Notable differences are further evident in themes associated with the Arrangement phase. In *pricing strategies*, the traditional IS sourcing body of research commonly examines engagements governed by fixed price or time and materials contracts (Dibbern et al., 2004), which clearly remain widespread in practice (Oshri et al., 2015). Based on the reviewed literature however, their adequacy for strategic innovation objectives appears questionable (Bui et al., 2019; Oshri et al., 2015).

Evolving relationship styles also warrant more attention. Cost-oriented engagements are typically governed by arm's-length relationships (Miranda and Kavan, 2005), characterized by a short-term focus and low commitment (Barua and Mani, 2014). In contrast, partnership-styled relationships are usually regarded as indispensable for innovation-oriented engagements (Oshri et al., 2015). Key assumptions of common theoretical perspectives need to be adapted accordingly. Following Wiener et al. (2019), agency theory for instance may be well attuned to studying transactional IS projects because it assumes a short-term orientation. However, the theory is a poor fit for partnership-based relationships. Instead stewardship theory (Donaldson and Davis, 1991), which assumes a long-term orientation, may be a more suitable alternative to study such relationships.

Lastly, we want to point out two other notable changes, one in the *architectural coordination* theme and the other in the *knowledge leakage risks* theme. In the former theme, traditional outsourcing guidelines based on core competency perspectives propose that the IT function needs to be outsourced so the client can focus on its core business (Grover et al., 1996). These guidelines have been gradually superseded by the view of the IT function as a core part of the client that facilitates its competitive activities (Baldwin et al., 2001; Peppard, 2018). To effectively communicate with the provider when developing strategic innovations, research suggests that the IT function needs to be retained by the client (Weeks and Feeny, 2008). However, it remains unclear what a communication-encouraging social context looks like. In the latter theme, unintentional knowledge leakages are portrayed as a much greater concern in innovation-oriented engagements than in their cost-oriented counterparts due to extensive transfer of domain knowledge.

Recommended research directions

In this section, we introduce five research directions (see Fig. 6). The first direction reflects the changing nature of innovation in an outsourcing context with respect to the increasing prevalence of digital innovation and digital transformation. These developments are expected to have considerable implications for all phases in our framework. We also identify an underexplored area in each of the four phases that may particularly benefit from research efforts based on a closer orchestration of recent advances in the digital innovation and strategic innovation through outsourcing literatures.

Specifically, we recommend: (i) studying imitation as a driver of strategic innovation; (ii) understanding equal and unequal contributions of resources by the client and provider; (iii) examining microfoundations and mechanisms of knowledge combination; and (iv) considering how to manage potential knowledge leakages while dealing with IP concerns.

Nature and context of strategic innovation in outsourcing: Advent of digital innovation and digital transformation

Current digitalization trends, such as wearables, cloud computing, internet-of-things, mobile, social media and data analytics (Lokuge et al., 2019), facilitate (re)combinations of existing products and services to generate new forms of digital offerings. Related research in an outsourcing context, however, is still at a nascent stage (Dibbern and Hirschheim, 2020). At the same time, the outsourcing industry is increasingly focused on offerings based on cutting-edge technology, such as cloud-based services, data analytics and robotic process automation. We see a clear convergence of digital innovation and outsourcing practice. We therefore suggest that future research on strategic innovation through outsourcing considers relevant insights from the growing body of IS literature on digital innovation. Digitalization is leading to re-examination of innovation management theories, by questioning fundamental assumptions regarding the boundaries of innovation (Nambisan et al., 2017). Digital innovation is more dynamic, compared to innovation in the realm of physical products and services. As a result, digital innovation defies the traditional boundaries of the innovation process and the organization, making the process more open to external parties. Properties of digital artifacts (Kallinikos et al., 2013) enable open-ended value creation through the recombination of digital components (Henfridsson et al., 2018). This in turn, makes the external environment of an organization an important source of innovation (Kohli and Melville, 2017) rather than an area of hostile competition.

We believe there is a great opportunity for sourcing scholars to bring a new perspective to digital innovation discourse, and vice versa. There is potential in exploring new innovation management practices of client and provider firms that are encouraging a change in attitude towards both digital innovation processes and outsourcing engagements. One could explore whether shifting from managing outsourcing through contracts to some form of provider orchestration akin to innovation ecosystems might increase the innovative potential of outsourcing engagements. The motivations of client and provider firms to engage in digital innovation projects is another aspect warranting further research.

Furthermore, closely related is the growing trend towards digital transformation (Vial, 2019; Wessel et al., 2020). More and more firms are contracting providers to help them on their digital transformation journey. Such journeys typically involve attempts to significantly re-design and digitize business processes, or establish new digital revenue. They may thus comprise waves of digital innovations that involve service providers and result in broader processes of transformative change (Holmström, 2018; Vial, 2019). How such a comprehensive change, which fundamentally alters the fabric of the client firm (Vial, 2019), can be achieved remains underexplored in IS sourcing research. We therefore see significant potential for outsourcing scholars to carry out in-depth studies of various aspects of strategic innovation in an outsourcing context, by focusing on digital transformation projects that involve clients and providers.

Antecedent phase: Studying imitation as a driver for strategic innovation

This research direction builds on the finding that outsourcing relationships are increasingly leveraged for innovations that support a firm's overall business strategy. Yet, there appears to be little research that examines this outsourcing–business strategy link in more depth. First advances have been made by [Ruckman et al. \(2015\)](#) from a provider perspective. They show that imitation is a useful business strategy to quickly expand and consolidate service lines in response to client demands, and to develop follow-on innovations rather than “knock-offs” in order to create more diverse offerings. This points to imitation as an understudied but potentially highly influential driver for the strategic innovation through outsourcing decision from a client perspective.

In the innovation literature, imitation usually refers to a business strategy that involves copying the innovator or stronger competitors to achieve business growth and increase profits ([Levitt, 1966](#)). Coupled with our more general recommendation to study strategic innovation through outsourcing in light of emerging digital technologies, we suggest that more research on imitation-based digital business strategies ([Bharadwaj et al., 2013](#)) may offer valuable insights for contemporary outsourcing literature.

Arrangement phase: Understanding contributions of resources by the client and provider

Our review also reveals that equity-based arrangements are especially conducive to innovation. Such arrangements, however, continue to remain poorly understood compared to fixed-price or time and materials contracts ([Currie, 1996](#); [Gopal et al., 2003](#)). We propose examining how client and provider resource contributions in equity-based arrangements influence joint strategic innovation initiatives.

[Oshri et al. \(2015\)](#) for example, report that joint venture contracts in particular improve relationship quality and thereby deflate the risk of opportunism. Building on these insights, future research could not only examine how equity-based arrangements affect the many elements of partnerships, such as trust and shared interests, but also explore under which circumstances clients and providers will be more or less encouraged to develop and maintain equally contributed, relationship-specific resources.

Furthermore, connected to the advent of digital technologies, it may be worthwhile studying the role of relationship-specific digital resources ([Henfridsson et al., 2018](#)), both of a technological nature and intellectual nature. Attitudes towards the contribution of such resources may change over time. It could therefore be useful to examine (digital) resource contributions in equity-based arrangements with a dynamic perspective. Different stages of innovation development, such ideation or prototyping ([Kotlarsky et al. 2016](#)), may serve as reference points for studying mid-initiative resource contribution decisions from the client and provider perspective.

Generation phase: Examining microfoundations and mechanisms of knowledge combination

With this recommended research direction, we seek to respond to the paucity of in-depth research on knowledge combination facilitation mechanisms. The reviewed literature clearly demonstrates that bilateral knowledge flows are critical for the generation of strategic innovations ([Chatterjee, 2017](#); [Oshri et al., 2018](#)), making this a worthwhile area to investigate.

Traditional outsourcing literature provides some insights that can be built on. [Quinn and Hilmer \(1994\)](#) for instance suggest that close personal relationships between operating-level personnel can be promoted when provider specialists physically relocate to the client's premises for development projects. More recently, [Oshri et al. \(2018\)](#) studied the role of advisors, finding that their contribution to innovation is conditional on an already established shared understanding between the client and provider, as well as on the provider's knowledge of the client.

We present these insights in particular because they imply the importance of examining attitudes and behaviors of organizational members. This promises a deeper understanding of the mechanisms that promote the transfer of domain/technological knowledge and facilitate new knowledge combination activities. Insights from the recent IS literature on digital innovation (e.g., [Svahn and Mathiassen, 2017](#)) could provide further theoretical and practical insights on the generation of digital innovation through outsourcing.

Outcome phase: Managing potential knowledge leakages and dealing with IP concerns

This recommended direction calls for research to address the challenge of managing knowledge leakages and dealing with IP concerns, when innovations are concerned with digital products and services. Knowledge leakages appear to be less of an issue when limited domain knowledge is required to deliver generic business services, which explains why they have been of little relevance in studies examining traditional outsourcing engagements ([Dibbern et al., 2004](#)). They are however a major risk when the client shares commercially sensitive information with its provider ([Hoecht and Trott, 2006](#)). While there is growing evidence that informal appropriability mechanisms and trust can counteract unintentional knowledge leakages, there is still much to explore.

Strategic management research on supply relationships shows that clients like Toyota can afford knowledge leakages in their supplier networks, as long as they move faster than their rivals in deriving learning advantages from suppliers ([Dyer and Nobeoka, 2000](#)). Future research could examine under which circumstances clients can afford knowledge leakages when collaborating with providers on strategic innovation in an IS outsourcing context, as well as how to protect IP associated with strategic innovations developed jointly by clients and providers.

Contributions and limitations

This review offers three major contributions. The first contribution is the consolidation of a large body of knowledge into an integrative framework. The framework organizes insights from 95 reviewed papers along four higher-order phases that emerged from our analysis of the literature, starting with the decision to leverage outsourcing strategic innovations, followed by outsourcing arrangements, the generation of strategic innovations, and finally their outcomes. Our findings show that prior research has utilized various theoretical lenses to study a range of aspects related to the strategic innovation through outsourcing phenomenon. Knowledge

management and relationship management theories are especially common, while there is a surprising lack of innovation theories. This helps explain why research to date largely focuses on optimal arrangement configurations, but neglects issues associated with collaborative generation efforts.

Our second contribution aligns with our aim to discuss how innovation-oriented outsourcing compares with cost-oriented engagements. We draw on early IS sourcing works and related reviews for this juxtaposition. We find that strategic innovation in outsourcing presents an evolution rather than a revolution of outsourcing practices and that prior findings are consciously built on and extended. Our third contribution is the presentation of five recommended research directions. They should help scholars locate areas that are worthwhile for closer examination and produce findings of high theoretical and practical relevance, especially in view of emerging digital technologies.

This review is subject to some limitations. First, our formal quality appraisals limit the article sample to a high-quality, albeit limited set of papers. Here, we acknowledge the abundance of relevant studies in excluded outlets. Many papers presented in conference proceedings also feature insights that may be of great value to the research stream. Second, our review scope isolates the paper sample to our conceptualization of strategic innovation through IS outsourcing. As discussed, innovation in an outsourcing context may evoke broader associations, such as innovation in a contract manufacturing context (Cabigiosu et al., 2013; Preeker and De Giovanni, 2018).

Declaration of Competing Interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

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Appendix A. Database search results based on the preliminary list of journals

See Table A.1.

Table A.1

Literature search step 1 summary – preliminary list of journals.

| Subject | Journal | Publisher | Searched through database | Hits |
|------------------------|---|--|--|------|
| Information Management | Information Systems Research*** | INFORMS | PubsOnLine*; JSTOR** | 0 |
| | MIS Quarterly*** | University of Minnesota (AIS affiliated) | AIS eLibrary | 4 |
| | Journal of MIS*** | Taylor & Francis | Taylor & Francis Online*; JSTOR** | 1 |
| | Journal of AIS*** | AIS | AIS eLibrary | 1 |
| | European Journal of Information Systems*** | Taylor & Francis | Taylor & Francis Online*; ProQuest** | 0 |
| | Information Systems Journal*** | Wiley | Wiley Online Library*; Business Source Complete** | 3 |
| | Journal of Information Technology*** | SAGE Publishing | SAGE Publications | 7 |
| | Journal of Strategic Information Systems*** | Elsevier | ScienceDirect | 8 |
| | Computers in Human Behavior | Elsevier | ScienceDirect | 0 |
| | Decision Support Systems | Elsevier | ScienceDirect | 0 |
| | Expert Systems with Applications | Elsevier | ScienceDirect | 0 |
| | Government Information Quarterly | Elsevier | ScienceDirect | 0 |
| | Information and Management | Elsevier | ScienceDirect | 2 |
| | Information and Organization | Elsevier | ScienceDirect | 0 |
| | The Information Society | Taylor & Francis | Taylor & Francis Online*; Business Source Complete** | 0 |
| | Information Systems Frontiers | Springer Nature | SpringerLink*; ProQuest** | 0 |
| | Information Technology and People | Emerald Group Publishing | EmeraldInsight*; ProQuest** | 0 |
| | International Journal of Electronic Commerce | Taylor & Francis | Taylor & Francis Online*; Business Source Complete** | 0 |
| | International Journal of Human-Computer Studies | Elsevier | ScienceDirect | 0 |
| | Journal of Computer Mediated Communication | Intl. Communication Association | | 0 |

(continued on next page)

Table A.1 (continued)

| Subject | Journal | Publisher | Searched through database | Hits |
|--|---|---|--|------------|
| Innovation | Journal of the ASIST | Wiley | Intl. Communication Association database Wiley Online Library*; Business Source Complete** | 0 |
| | Journal of Product Innovation Management | Wiley | Wiley Online Library*; Business Source Complete** | 12 |
| | Research Policy | Elsevier | ScienceDirect | 16 |
| | R&D Management | Wiley | Wiley Online Library*; Business Source Complete** | 18 |
| GME&RS | Technovation | Elsevier | ScienceDirect | 13 |
| | Academy of Management Journal | Academy of Management | Academy of Management | 0 |
| | Academy of Management Review | Academy of Management | Academy of Management | 0 |
| | Administrative Science Quarterly | SAGE Publishing | SAGE Publications | 0 |
| | Journal of Management | SAGE Publishing | SAGE Publications | 0 |
| | Academy of Management Annals | Academy of Management | Academy of Management | 0 |
| | British Journal of Management | Wiley | Wiley Online Library* Business Source Complete** | 2 |
| | Business Ethics Quarterly | Cambridge University Press | Cambridge Core* Business Source Complete** | 0 |
| | Journal of Management Studies | Wiley | Wiley Online Library* Business Source Complete** | 3 |
| | Academy of Management Perspectives | Academy of Management | Academy of Management | 2 |
| | Business and Society | SAGE Publishing | SAGE Publications | 0 |
| | California Management Review | SAGE Publishing | SAGE Publications | 4 |
| | European Management Review | Wiley | Wiley Online Library* Business Source Complete** | 0 |
| | Gender and Society | SAGE Publishing | SAGE Publications | 0 |
| | Gender, Work and Organization | Wiley | Wiley Online Library* Business Source Complete** | 0 |
| | Harvard Business Review | Harvard Business Publishing | HBR online database* EBSCO Business Source** | 10 |
| | International Journal of Management Reviews | Wiley | Wiley Online Library* Business Source Complete** | 0 |
| Journal of Business Ethics | Springer Nature | SpringerLink* Business Source Complete** | 0 | |
| Journal of Business Research | Elsevier | ScienceDirect | 4 | |
| Journal of Management Inquiry | SAGE Publishing | SAGE Publications | 0 | |
| MIT Sloan Management Review | MIT Sloan School of Management | MIT review online database* ProQuest** | 10 | |
| Strategy | Strategic Management Journal | Wiley | Wiley Online Library* Business Source Complete** | 11 |
| | Global Strategy Journal | Wiley | Wiley Online Library* Business Source Complete** | 1 |
| | Long Range Planning | Elsevier | ScienceDirect | 1 |
| | Strategic Organization | SAGE Publishing | SAGE Publications | 0 |
| Sum of articles retrieved through database searches based on our preliminary list of journals | | | | 133 |

*limited search functions; ** publisher-independent database; *** Senior IS Scholar Basket of Eight outlet

Appendix B. Inclusion and exclusion criteria

Our decisions to include papers were determined by quality-based, content-based, and time-based criteria (as summarized in Table 1 in the manuscript). Concerning quality-based criteria, to ensure the quality of selected articles, we decided to only include peer-reviewed articles from 3, 4, and 4*-rated journals, as listed in the CABS Academic Journal Guide. This selection includes FT50 and Senior IS Scholars' Basket of Eight journals, and provides the opportunity to include papers from disciplines other than IS, as long as they are published in equally rated journals.

Regarding content-based criteria, we defined two boundary conditions by drawing on Weeks and Feeny's (2008) taxonomy. The first boundary condition relates to our focus on strategic innovation in the context of ITO and BPO. ITO refers to selectively turning over some or all internal IT activities to an external service provider (Miozzo and Grimshaw, 2005), while BPO refers to the transfer of IT-enabled business functions to an external service provider (Mani et al., 2010; Wüllenweber et al., 2008). We excluded papers that are concerned with inherently different contexts such as contract manufacturing, research and development (R&D) outsourcing, or crowdsourcing.

For the second boundary condition, we aimed to achieve a more accurate evaluation of a paper's relevance by extracting widely agreed on commonalities of the strategic innovation concept. Firstly, innovation by its very nature is widely understood to be highly uncertain and how it will materialize is not known a priori (Miranda and Kavan, 2005). Secondly, final outputs may take various forms, ranging from new digital platforms to custom enterprise systems or new social media channels. They nonetheless have in common that

they involve a combination of custom IT products and services. Thirdly, the developments need to enable business outcomes for the client that are of strategic relevance, (i.e., it permeates multiple business areas, provides access to new markets, extends current offerings). They frequently act as critical input to other areas of the client's business, require firm-wide integration, and directly impact the client's competitiveness through the creation of enterprise-level competencies (Mani et al., 2010).

Lastly, concerning time-based criteria, this review includes papers published between 1998 and 2020. While earlier studies entertain the notion of obtaining strategic value through ITO, the concept of achieving innovations that drive the client's overall business performance only gained traction in the IS sourcing community around the time of our specified starting year. Our article sample therefore features works by early thinkers in the field who initiated discussions about the phenomenon from a strategic angle (Currie and Willcocks, 1998; DiRomualdo and Gurbaxani, 1998), with a capability perspective (Feeny and Willcocks, 1998), or a partnership focus (Willcocks and Kern, 1998).

Appendix C. Journal and article set summary

See Table A.2.

Table A.2
Journal and article set summary.

| Journals categorized by CABS Academic Journal Guide 2018 subject categories | CABS rank | # of articles collected |
|---|-----------|-------------------------|
| <i>Subject category: General Management, Ethics and Social Responsibility</i> | | |
| British Journal of Management | 4 | 1 |
| Academy of Management Perspectives | 3 | 1 |
| California Management Review | 3 | 6 |
| Harvard Business Review | 3 | 3 |
| Journal of Business Research | 3 | 3 |
| MIT Sloan Management Review | 3 | 9 |
| <i>Subject category: Information Management</i> | | |
| Information Systems Research (AIS Basket of Eight) | 4* | 5 |
| MIS Quarterly (AIS Basket of Eight) | 4* | 7 |
| Journal of Management Information Systems (AIS Basket of Eight) | 4 | 4 |
| Journal of the Association of Information Systems (AIS Basket of Eight) | 4 | 1 |
| Decision Support Systems | 3 | 1 |
| European Journal of Information Systems (AIS Basket of Eight) | 3 | 1 |
| Information and Management | 3 | 3 |
| Information Systems Frontiers | 3 | 2 |
| Information Systems Journal (AIS Basket of Eight) | 3 | 1 |
| Journal of Information Technology (AIS Basket of Eight) | 3 | 6 |
| Journal of Strategic Information Systems (AIS Basket of Eight) | 3 | 9 |
| <i>Subject category: Innovation</i> | | |
| Journal of Product Innovation Management | 4 | 3 |
| Research Policy | 4 | 5 |
| Technovation | 3 | 2 |
| <i>Subject category: International Business and Area Studies</i> | | |
| Journal of International Management | 3 | 4 |
| <i>Subject category: Marketing</i> | | |
| Industrial Marketing Management | 3 | 2 |
| <i>Subject category: Operations and Technology Management</i> | | |
| Journal of Operations Management | 4* | 1 |
| IEEE Transactions on Engineering Management | 3 | 2 |
| International Journal of Production Research | 3 | 1 |
| <i>Subject category: Operations Research and Management Science</i> | | |
| Decision Sciences | 3 | 2 |
| <i>Subject category: Organization Studies</i> | | |
| Organization Science | 4* | 1 |
| <i>Subject category: Regional Studies, Planning and Environment</i> | | |
| Regional Studies | 3 | 1 |
| <i>Subject category: Strategy</i> | | |
| Strategic Management Journal | 4* | 7 |
| Global Strategy Journal | 3 | 1 |
| Total number of included articles | | 95 |

Appendix D. Final sample of articles included in this review

The entries have been sorted by year of publication, from newest to oldest. Some studies feature data samples where ITO and BPO data are mixed with other outsourcing contexts, such as contract manufacturing. This has been noted in the appropriate outsourcing context cells.

See Table A.3.

Table A.3
Article sample list.

| # | Year | Author(s) | Title | Journal | Focal firm | Outsourcing context | Methods | Main theoretical perspectives | Sample size | Innovation conceptualizations |
|---|------|---|---|--|------------------|--------------------------|-------------------------|--|--|---|
| 1 | 2020 | Sen, Kotlarsky & Budhwar | Extending organizational boundaries through outsourcing: toward a dynamic risk-management capability framework | Academy of Management Perspectives | Client firm | ITO and BPO | Empirical mixed methods | Dynamic capabilities perspective | 113 retained cross-industry survey responses & 23 interviews | Independent innovations are new, and create a new market and revenue streams |
| 2 | 2019 | Bui, Leo & Adedokun | Exploring complexity and contradiction in information technology outsourcing: a set-theoretical approach | Journal of Strategic Information Systems | Client firm | ITO | Empirical quantitative | Governance and capability perspectives | 27 retained survey responses | Strategic innovation |
| 3 | 2019 | Chen & Lin | The effect of inter- and intra-organizational distances on success of offshored outsourced innovation: a configurational approach | Journal of Business Research | Service provider | ITO and BPO (and others) | Empirical quantitative | Transaction cost economics & resource-based view | Survey data on offerings from 80 service providers | Innovation through service activities including software development |
| 4 | 2019 | Frydliker, Hart & Vitasek | A new approach to contracts: how to build better long-term strategic partnerships | Harvard Business Review | Client firm | ITO and BPO (and others) | Not specified | Contract theory | Not specified | Jointly developed IT-based hospital billing program |
| 5 | 2019 | Gozman & Willcocks | The emerging cloud dilemma: balancing innovation with cross-border privacy and outsourcing regulations | Journal of Business Research | Both | ITO | Empirical qualitative | Not specified | 42 interviews with a variety of stakeholders | Cloud-based alternatives to support business critical applications |
| 6 | 2019 | Susarla & Mukhopadhyay | Can outsourcing of information technology foster innovations in client organizations? An empirical analysis | MIS Quarterly | Client firm | ITO | Empirical quantitative | Control theory | Data extracted from multiple databases on 553 contracts | Improvements to the client's operating efficiency, business-process effectiveness and performance |
| 7 | 2019 | Wiener, Mähring, Remus, Saunders & Cram | Moving IS project control research into the digital era: the "why" of control and the concept of control purpose | Information Systems Research | Client firm | ITO | Literature review | Stewardship theory | Case studies reviewed from 21 papers | IS projects are central to the pursuit of digital innovation and transformation |
| 8 | 2018 | Choi, Ju, Kotabe, Trigeorgis & Zhang | Flexibility as firm value driver: evidence from offshore outsourcing | Global Strategy Journal | Client firm | ITO and BPO (and others) | Empirical quantitative | Real options theory | 273 Wall Street Journal announcements | Innovation-type activities are key to developing future product generations |
| 9 | 2018 | Desyllas, Miozzo, Lee & Miles | Capturing value from innovation in knowledge-intensive business service firms: the role of competitive strategy | British Journal of Management | Service provider | ITO and BPO (and others) | Empirical quantitative | Problem-solving perspective | 223 retained survey responses | New or improved service products open new markets |

(continued on next page)

Table A.3 (continued)

| # | Year | Author(s) | Title | Journal | Focal firm | Outsourcing context | Methods | Main theoretical perspectives | Sample size | Innovation conceptualizations |
|----|------|--------------------------------------|--|--|------------------|---------------------|------------------------|---|--|---|
| 10 | 2018 | Langer & Mani | Impact of formal controls on client satisfaction and profitability in strategic outsourcing contracts | Journal of Management Information Systems | Service provider | ITO | Empirical quantitative | Control theory | Quantitative data on 390 outsourcing contracts | Vendor-initiated innovations should contribute to business outcomes |
| 11 | 2018 | Manning, Massini, Peeters & Lewin | The changing rationale for governance choices: early vs late adopters of global services sourcing | Strategic Management Journal | Client firm | ITO and BPO | Empirical quantitative | Dynamic capabilities perspective & resource-based view | Quantitative data on 904 sourcing projects | Satisfy new and established clients with new innovative solutions |
| 12 | 2018 | Oshri, Arkhipova & Vaia | Exploring the effect of familiarity and advisory services on innovation outcomes in outsourcing settings | Journal of Information Technology | Both | ITO and BPO | Empirical quantitative | Familiarity perspective | 147 retained survey responses | Strategic innovation |
| 13 | 2018 | Zimmermann, Oshri, Lioliou & Gerbasi | Sourcing in or out: implications for social capital and knowledge sharing | Journal of Strategic Information Systems | Client firm | ITO and BPO | Empirical quantitative | Knowledge-based view & social capital perspective | 150 retained survey responses | Seeking new sources of innovation may increase knowledge sharing |
| 14 | 2017 | Chatterjee | Strategy, human capital investments, business-domain capabilities, and performance: a study in the global software services industry | Strategic Management Journal | Service provider | ITO | Empirical quantitative | Knowledge-based view | Quantitative data on 347 projects | High value-added solutions like online customer-information tracking systems |
| 15 | 2017 | Gopalakrishnan & Zhang | Client dependence: a boon or bane for vendor innovation? A competitive mediation framework in IT outsourcing | Journal of Business Research | Service provider | ITO | Empirical quantitative | Resource dependence theory & relationship marketing perspective | 120 retained survey responses | An innovative solution to a client's business problem may include a product associated with a service |
| 16 | 2017 | Lacity & Willcocks | Conflict resolution in business services outsourcing relationships | Journal of Strategic Information Systems | Both | ITO and BPO | Empirical qualitative | Conflict perspective | 27 interviews | Business innovation through outsourcing was rare until recently |
| 17 | 2016 | Cram, Brohman & Gallupe | Information systems control: a review and framework for emerging information systems processes | Journal of the Association for Information Systems | Both | ITO | Literature review | Control theory | 65 papers | Controls may influence radical innovation |
| 18 | 2016 | Lacity, Khan & Yan | Review of the empirical business services sourcing literature: an update and future directions | Journal of Information Technology | Both | ITO and BPO | Literature review | Not specified | 174 papers | Understanding strategic innovations |
| 19 | 2016 | Miozzo, Desyllas, Lee & Miles | Innovation collaboration and appropriability by knowledge-intensive business services firms | Research Policy | Service provider | ITO and BPO | Empirical quantitative | Appropriability literature | 223 retained survey responses | Complex solutions that meet the needs of large clients |

(continued on next page)

Table A.3 (continued)

| # | Year | Author(s) | Title | Journal | Focal firm | Outsourcing context | Methods | Main theoretical perspectives | Sample size | Innovation conceptualizations |
|----|------|--|--|---|------------------|--------------------------|------------------------|--|---|---|
| 20 | 2016 | Su, Levina & Ross | The long-tail strategy for IT outsourcing | MIT Sloan Management Review | Client firm | ITO | Not specified | Not specified | Not specified | ITO is transformed into a driver of innovation |
| 21 | 2016 | Sumo, van der Valk, Duysters & van Weele | Using performance-based contracts to foster innovation in outsourced service delivery | Industrial Marketing Management | Service provider | ITO | Empirical qualitative | Transaction cost economics & agency theory | 9 interviews | Supplier-led solutions support client innovation strategies |
| 22 | 2016 | Wiener, Mähring, Remus & Saunders | Control configuration and control enactment in information systems projects: review and expanded theoretical framework | MIS Quarterly | Client firm | ITO | Literature review | Control theory | 57 papers | Indirectly refers to innovation in form of ambidexterity and adaptiveness |
| 23 | 2015 | Aubert, Kishore & Iriyama | Exploring and managing the “innovation through outsourcing” paradox | Journal of Strategic Information Systems | Both | ITO | Conceptual | Paradox perspective | Anecdotal evidence | Service providers as sources of systemic innovation |
| 24 | 2015 | Chou, Techatassanasoontorn & Huang | Understanding commitment in business process outsourcing relationships | Information and Management | Client firm | BPO | Empirical quantitative | Relational view | 167 retained survey responses | Outsourcing increasingly emphasizes innovation |
| 25 | 2015 | Kotlarsky, Oshri, Lee & Jarvenpaa | Editorial: understanding strategic innovation in IT and business process outsourcing | Journal of Strategic Information Systems | Client firm | ITO and BPO | Editorial | Strategic innovation | Anecdotal evidence | Understanding strategic innovations |
| 26 | 2015 | Lema, Quadros & Schmitz | Reorganising global value chains and building innovation capabilities in Brazil and India | Research Policy | Client firm | ITO and BPO (and others) | Empirical qualitative | Organizational decomposition of innovation processes framework | Multiple case study of auto and software clusters in Brazil and India | Service providers increasingly engaged in high-level development activities |
| 27 | 2015 | Mani & Barua | The impact of firm learning on value creation in strategic outsourcing relationships | Journal of Management Information Systems | Client firm | ITO and BPO | Empirical quantitative | Learning perspective | Quantitative data on 100 US outsourcing contracts | Innovation is one of many strategic objectives that guide outsourcing |
| 28 | 2015 | Oshri, Kotlarsky & Gerbasi | Strategic innovation through outsourcing: the role of relational and contractual governance | Journal of Strategic Information Systems | Client firm | ITO and BPO | Empirical quantitative | Contract theory | 248 retained cross-industry survey responses of European client firms | Strategic innovation |
| 29 | 2014 | Barua & Mani | Augmenting conflict resolution with informational response: a holistic view of governance choice in business process outsourcing | Journal of Management Information Systems | Both | BPO | Empirical quantitative | Information-processing view & neoinstitutional economics | 130 retained survey responses | Outsourcing involves objectives like innovation and business transformation |
| 30 | 2014 | Wiener & Saunders | Forced cooption in IT multi-sourcing | Journal of Strategic | Client firm | ITO | Empirical qualitative | Coopetition perspective | | |

(continued on next page)

Table A.3 (continued)

| # | Year | Author(s) | Title | Journal | Focal firm | Outsourcing context | Methods | Main theoretical perspectives | Sample size | Innovation conceptualizations |
|----|------|------------------------------------|---|--|------------------|--------------------------|-------------------------|---|--|---|
| | | | | Information Systems | | | | | 20 interviews with employees from one client and its providers | Growing need for more flexible and innovative IT solutions |
| 31 | 2013 | Kibbeling, van der Bij & van Weele | Market orientation and innovativeness in supply chains: supplier's impact on customer satisfaction | Journal of Product Innovation Management | Both | ITO and BPO (and others) | Empirical quantitative | Resource dependence theory | Cross-industry survey data on 88 complete supply chains | Supplier innovativeness is a driver of client firm innovativeness |
| 32 | 2013 | Lacity & Willcocks | Outsourcing business processes for innovation | MIT Sloan Management Review | Client firm | BPO | Empirical mixed methods | Not specified | 202 retained survey responses and 38 interviews | Improvements to the client's operating efficiency, business-process effectiveness and performance |
| 33 | 2013 | Manning | New Silicon Valleys or a new species? Commoditization of knowledge work and the rise of knowledge services clusters | Research Policy | Service provider | ITO and BPO | Empirical quantitative | International-ization theory | Data selectively extracted from surveys by the ORN | Specialized, customized knowledge services |
| 34 | 2013 | Mukherjee, Gaur & Datta | Creating value through offshore outsourcing: an integrative framework | Journal of International Management | Client firm | ITO and BPO | Conceptual | Organizational design & resource orchestration perspectives | Anecdotal evidence | Service providers can produce integrated, innovative solutions |
| 35 | 2013 | Søderberg, Krishna & Bjørn | Global software development: commitment, trust and cultural sensitivity in strategic partnerships | Journal of International Management | Service provider | ITO | Empirical qualitative | Boundary spanner perspective | 17 interviews with employees from an Indian IT service provider | Clients are seeking innovative software products and business solutions |
| 36 | 2013 | Weigelt | Leveraging supplier capabilities: the role of locus of capability deployment | Strategic Management Journal | Client firm | ITO | Empirical quantitative | Resource-based view | Quantitative data on sourcing relationships of 964 US credit unions | Customizable supplier technology solutions |
| 37 | 2012 | Cordella & Willcocks | Government policy, public value and IT outsourcing: the strategic case of ASPIRE | Journal of Strategic Information Systems | Client firm | ITO | Empirical qualitative | Public value paradigm | 84 interviews with UK government officials | Exemplified by e-government and NHS initiatives |
| 38 | 2012 | Holweg & Pil | Outsourcing complex business processes: lessons from an enterprise partnership | California Management Review | Both | BPO | Empirical qualitative | Not specified | Not specified | Innovation exemplified by a new HR platform |
| 39 | 2012 | Massini & Miozzo | Outsourcing and offshoring of business services: challenges to theory, management and geography of innovation | Regional Studies | Client firm | ITO and BPO | Empirical quantitative | Chandlerian theories of the firm | Quantitative data on 1271 projects by 299 US firms and 1258 projects by 334 EU firms | Innovation requires recombining knowledge and reverse knowledge transfers |
| 40 | 2012 | Roy & Sivakumar | Global outsourcing relationships and innovation: a conceptual | Journal of Product Innovation Management | Client firm | ITO and BPO | Conceptual | Knowledge-based view & agency theory | Anecdotal evidence | Jumping from one S-curve to another curve is considered radical innovation |

(continued on next page)

Table A.3 (continued)

| # | Year | Author(s) | Title | Journal | Focal firm | Outsourcing context | Methods | Main theoretical perspectives | Sample size | Innovation conceptualizations |
|----|------|---------------------------------------|--|---|-------------|--------------------------|-------------------------|--|--|--|
| 41 | 2012 | Weigelt & Sarkar | framework and research propositions Performance implications of outsourcing for technological innovations: managing the efficiency and adaptability trade-off | Strategic Management Journal | Client firm | ITO and BPO | Empirical quantitative | Transaction cost economics, capabilities-based view & knowledge-based view | 132 retained responses from US banks | Customizable supplier technology solutions |
| 42 | 2011 | Lacity, Solomon, Yan & Willcocks | Business process outsourcing studies: a critical review and research directions | Journal of Information Technology | Both | BPO | Literature review | Not specified | 87 papers published between 1996 and 2011 | Clients are increasingly expecting innovation |
| 43 | 2011 | Roy & Sivakumar | Managing intellectual property in global outsourcing for innovation generation | Journal of Product Innovation Management | Client firm | ITO and BPO | Conceptual | Transaction cost economics, agency theory, dynamic capabilities & knowledge-based view | Anecdotal evidence | Jumping from one S-curve to another curve is considered radical innovation |
| 44 | 2011 | Su & Levina | Global multisourcing strategy: integrating learning from manufacturing into IT service outsourcing | IEEE Transactions on Engineering Management | Client firm | ITO | Empirical qualitative | Transaction cost economics | 74 interviews with employees from two banks | Innovation takes many forms and encompasses both new product development and business process improvements |
| 45 | 2011 | Willcocks, Oshri, Kotlarsky & Rottman | Outsourcing and offshoring engineering projects: understanding the value, sourcing models, and coordination practices | IEEE Transactions on Engineering Management | Client firm | ITO and BPO | Empirical mixed methods | Not specified | 263 retained survey responses & unspecified number of interviews | Collaborative innovation is required for back-office and business innovations |
| 46 | 2010 | Goo | Structure of service level agreements (SLA) in IT outsourcing: the construct and its measurement | Information Systems Frontiers | Client firm | ITO | Empirical quantitative | Transaction cost economics, control theory, relational exchange theory | 92 retained cross-industry survey responses | Innovation plan identifies the structure and processes for introducing new innovations |
| 47 | 2010 | Gopal & Gosain | The role of organizational controls and boundary spanning in software development outsourcing: implications for project performance | Information Systems Research | Client firm | ITO | Empirical quantitative | Agency theory | Quantitative data on 96 projects from 10 Indian software firms | Clients and vendors interact in different ways to produce and deliver required services |
| 48 | 2010 | Henke & Zhang | Increasing supplier-driven innovation | MIT Sloan Management Review | Both | ITO and BPO (and others) | Not specified | Not specified | Not specified | Suppliers are recognized as having large innovation potential |
| 49 | 2010 | Lacity, Khan, Yan & Willcocks | A review of the IT outsourcing empirical literature and future research directions | Journal of Information Technology | Both | ITO | Literature review | Not specified | 164 papers published between 1992 and 2010 | Client's need to use outsourcing as an engine for innovation |

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Table A.3 (continued)

| # | Year | Author(s) | Title | Journal | Focal firm | Outsourcing context | Methods | Main theoretical perspectives | Sample size | Innovation conceptualizations |
|----|------|---------------------------------|---|--|------------------|---------------------|-------------------------|--|---|---|
| 50 | 2010 | Lee and Kim | Implications of service processes outsourcing on firm value | Industrial Marketing Management | Client firm | ITO and BPO | Empirical qualitative | Dynamic perspective, agency theory, institutional theory | 138 outsourcing announcements published between 1995 and 2005 | Innovation requires long-term commitment of IT resources, coordination, and alignment with other business activities |
| 51 | 2010 | Mani, Barua & Whinston | An empirical analysis of the impact of information capabilities design on business process outsourcing performance | MIS Quarterly | Client firm | ITO | Empirical quantitative | Information processing view | 127 retained survey responses | Transformational BPO can enhance competitiveness. It may deliver business level outcomes such as increased revenue and innovation |
| 52 | 2010 | Qu, Oh & Pinsonneault | The strategic value of IT insourcing: an IT-enabled business process perspective | Journal of Strategic Information Systems | Client firm | ITO | Empirical quantitative | Knowledge-based view | InformationWeek reports data from 1997 to 2000 on 169 client firms | Type III innovations are more strategic and constitute the core of the business |
| 53 | 2010 | Susarla, Subramanyam & Karhade | Contractual provisions to mitigate holdup: evidence from information technology outsourcing | Information Systems Research | Both | ITO | Empirical quantitative | Control theory | Data extracted from multiple databases on 553 contracts | ITO may involve business transformations with strategic goals |
| 54 | 2010 | Tiwana | Systems development ambidexterity: explaining the complementary and substitutive roles of formal and informal controls | Journal of Management Information Systems | Service provider | ITO | Empirical quantitative | Control theory | Field study data on 120 IT outsourcing projects | Custom software application to solve an idiosyncratic client business problem |
| 55 | 2010 | Weerakkody & Irani | A value and risk analysis of offshore outsourcing business models: an exploratory study | International Journal of Production Research | Client firm | ITO and BPO | Empirical qualitative | Value in business markets perspective | 19 interviews with software providers | To gain competitive advantage vendors need to increase the value of their service offerings |
| 56 | 2009 | Goo, Kishore, Rao & Nam | The role of service level agreements in relational management of information technology outsourcing: an empirical study | MIS Quarterly | Client firm | ITO | Empirical quantitative | Transaction cost economics, control theory, relational exchange theory | 92 retained cross-industry survey responses | Innovation plan identifies the structure and processes for introducing new innovations |
| 57 | 2009 | Handley & Benton | Unlocking the business outsourcing process model | Journal of Operations Management | Client firm | BPO (and others) | Empirical quantitative | Resource-based view, transaction cost economics | 198 retained cross-industry survey responses | Satisfaction with service provider innovation |
| 58 | 2009 | Krishnamurthy, Jegen & Brownell | Strategic out-tasking: creating “win-win” outsourcing partnerships | Information and Management | Both | ITO and BPO | Conceptual | Simon’s stage model of decision making | Anecdotal and experiential evidence | Providers need to introduce new technology and business solutions proactively |
| 59 | 2009 | Lahiri & Kedia | The effects of internal resources and partnership quality on firm performance: an | Journal of International Management | Service provider | BPO | Empirical mixed methods | Resource-based view & social exchange theory | 211 retained survey responses from Indian service providers and 46 interviews | Providers may utilize accumulated knowledge to create new and superior services |

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Table A.3 (continued)

| # | Year | Author(s) | Title | Journal | Focal firm | Outsourcing context | Methods | Main theoretical perspectives | Sample size | Innovation conceptualizations |
|----|------|----------------------------|--|-----------------------------------|------------------|---------------------|-------------------------|--|---|---|
| 60 | 2009 | Weigelt | examination of Indian BPO providers The impact of outsourcing new technologies on integrative capabilities and performance | Strategic Management Journal | Client firm | ITO and BPO | Empirical quantitative | Resource-based view & knowledge-based view | 132 retained responses from US banks | Customizable supplier technology solutions |
| 61 | 2008 | Avgerou | Information systems in developing countries: a critical research review | Journal of Information Technology | Service provider | ITO | Literature review | Social theory | Not specified | IS innovations involve new IT system deployment and organizational change |
| 62 | 2008 | Goo & Huang | Facilitating relational governance through service level agreements in IT outsourcing: an application of the commitment-trust theory | Decision Support Systems | Client firm | ITO | Empirical quantitative | Commitment-trust theory | 92 retained cross-industry survey responses | Innovation plan identifies the structure and processes for introducing new innovations |
| 63 | 2008 | Goo, Huang & Hart | A path to successful IT outsourcing: interaction between service-level agreements and commitment | Decision Sciences | Client firm | ITO | Empirical quantitative | Relational exchange theory | 92 retained cross-industry survey responses | Innovation plan identifies the structure and processes for introducing new innovations |
| 64 | 2008 | Leiponen | Control of intellectual assets in client relationships: implications for innovation | Strategic Management Journal | Service provider | ITO and BPO | Empirical quantitative | Property rights theory | 145 retained survey responses from Finnish service providers | Innovations are typically firm-level phenomena and include significant service improvements and new service introductions |
| 65 | 2008 | Levina & Su | Global multisourcing strategy: the emergence of a supplier portfolio in services offshoring | Decision Sciences | Client firm | ITO and BPO | Empirical qualitative | Supply chain management perspectives | 74 interviews with employees from two banks | Firms increasingly outsource to create innovative IT applications and transform broken business processes |
| 66 | 2008 | Levina & Vaast | Innovating or doing as told? Status differences and overlapping boundaries in offshore collaboration | MIS Quarterly | Client firm | ITO | Empirical qualitative | Practice theory | 69 interviews with employees from one bank | Innovation is constantly looked for by client firms |
| 67 | 2008 | Safizadeh, Field & Ritzman | Sourcing practices and boundaries of the firm in the financial services industry | Strategic Management Journal | Client firm | ITO and BPO | Empirical quantitative | Transaction cost economics, resource-based view & knowledge-based view | 108 retained survey responses from professionals in the financial services industry | Customized solutions offer a way to target a market that craves options beyond the available standard services |
| 68 | 2008 | Straub, Weill & Schwaig | Strategic dependence on the IT resource and | Information Systems Frontiers | Client firm | ITO | Empirical mixed methods | Resource dependence theory & core competencies | Interviews and survey data on 54 business | Sustaining an IT-enabled competitive advantage |

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Table A.3 (continued)

| # | Year | Author(s) | Title | Journal | Focal firm | Outsourcing context | Methods | Main theoretical perspectives | Sample size | Innovation conceptualizations |
|----|------|----------------------------|--|-------------------------------------|------------------|---------------------|------------------------|---|--|--|
| 69 | 2008 | Veltri, Saunders & Kavan | outsourcing: a test of the strategic control model Information systems back-sourcing: correcting problems and responding to opportunities | California Management Review | Client firm | ITO and BPO | Empirical qualitative | Core competencies | units in 27 multinationals Unspecified number of interviews | requires continuous innovation Outsourcing impeded innovation and left the client with stagnated technology and backlogged IS projects. Strategic innovation |
| 70 | 2008 | Weeks & Feeny | Outsourcing: from cost management to innovation and business value | California Management Review | Client firm | ITO | Empirical qualitative | Learning curve | More than 70 interviews with client and provider representatives | |
| 71 | 2007 | Argyres, Bercovitz & Mayer | Complementarity and evolution of contractual provisions: an empirical study of IT services contracts | Organization Science | Service provider | ITO | Empirical quantitative | Transaction cost economics & contract theory | Data on 405 contracts from one IT service provider | Projects that required more innovation involved greater technical difficulty and complexity |
| 72 | 2007 | Kedia & Lahiri | International outsourcing of services: a partnership model | Journal of International Management | Client firm | ITO and BPO | Conceptual | Resource-based view, transaction cost economics & resource dependence theory | Anecdotal evidence | Providers help build a new IT platform, redesign all processes, and administer programs, acting as a virtual subsidiary |
| 73 | 2007 | Shi | Today's solution and tomorrow's problem: the business process outsourcing risk management puzzle | California Management Review | Client firm | BPO | Conceptual | Technology design, market failure, resource dependence theory, dynamic capabilities, & complementarities in organizational design | Anecdotal evidence | Providers may offer best-in-class, and yet vanilla solutions |
| 74 | 2007 | Tadelis | The innovative organization: creating value through outsourcing | California Management Review | Client firm | ITO | Conceptual | Core competencies, Transaction cost economics | Anecdotal evidence | The JP Morgan Chase-IBM deal was celebrated as a ground-breaking partnership that would increase innovation |
| 75 | 2006 | Hoecht & Trott | Innovation risks of strategic outsourcing | Technovation | Client firm | ITO and BPO | Conceptual | Trust, collaboration and network perspective | Anecdotal evidence | Innovation depends increasingly on the ability to utilize new knowledge produced elsewhere and to combine this with internal knowledge |
| 76 | 2006 | Hong & Zhu | Migrating to internet-based e-commerce: factors affecting e-commerce adoption and migration at the firm level | Information and Management | Client firm | ITO (and others) | Empirical quantitative | Technology diffusion theory | 1,036 cross-industry survey responses | E-commerce is a Type III innovation, because it is often embedded in the firm's core business processes |
| 77 | 2006 | Rottman & Lacity | Proven practices for effectively offshoring IT work | MIT Sloan Management Review | Client firm | ITO | Empirical qualitative | Learning curve | 159 interviews with professionals, mostly | Outsourcing is used to enable corporate |

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Table A.3 (continued)

| # | Year | Author(s) | Title | Journal | Focal firm | Outsourcing context | Methods | Main theoretical perspectives | Sample size | Innovation conceptualizations |
|----|------|-------------------------------|---|-----------------------------------|------------------|--------------------------|------------------------|--|---|---|
| 78 | 2005 | Davenport | The coming commoditization of processes | Harvard Business Review | Client firm | BPO | Conceptual | Not specified | from Fortune 500 companies Anecdotal evidence | strategies and create new business Providers will have to find new sources of differentiation, by delivering innovative IT-enabled initiatives |
| 79 | 2005 | Miozzo & Grimshaw | Modularity and innovation in knowledge-intensive business services: IT outsourcing in Germany and the UK | Research Policy | Both | ITO | Empirical qualitative | Organizational design strategy | 32 interviews with senior managers from the client and provider | Exemplified by new personal digital assistants, new airplane seat selection system, new inventory management system |
| 80 | 2005 | Miranda & Kavan | Moments of governance in IS outsourcing: conceptualizing effects of contracts on value capture and creation | Journal of Information Technology | Client firm | ITO | Conceptual | Social capital perspective | Anecdotal evidence | Value creation through innovation in outsourcing |
| 81 | 2005 | Van de Ven | Running in packs to develop knowledge-intensive technologies | MIS Quarterly | Service provider | ITO and BPO | Conceptual | Transaction cost economics & knowledge-based view | Anecdotal evidence | Knowledge-intensive innovations have weak appropriability regimes |
| 82 | 2004 | Kumar & Snively | Outsourcing and strategic alliances for product development: a case of Banta Digital Group | Technovation | Client firm | ITO | Empirical qualitative | Not specified | Not specified | To expand its digital offerings, the client outsourced the development of new digital technologies |
| 83 | 2004 | Lee, Miranda & Kim | IT outsourcing strategies: universalistic, contingency, and configurational explanations of success | Information Systems Research | Client firm | ITO | Empirical quantitative | Residual rights theory | 311 retained survey responses from senior executives | Providers may develop innovative IT solutions tailored to their client firms |
| 84 | 2004 | Linder | Transformational outsourcing | MIT Sloan Management Review | Client firm | ITO and BPO | Empirical qualitative | Not specified | More than 200 interviews | Clients want to shift spending effort on tactical activities to programs that contribute to strategy |
| 85 | 2003 | Choudhury & Sabherwal | Portfolios of control in outsourced software development projects | Information Systems Research | Client firm | ITO | Empirical qualitative | Agency theory | 25 interviews conducted for 5 cases | Exemplified by the development of a complex IS system, and significant enhancements to a customer service system |
| 86 | 2003 | Levina & Ross | From the vendor's perspective: exploring the value proposition in information technology outsourcing | MIS Quarterly | Service provider | ITO | Empirical qualitative | Complementarity in organizational design & core competencies | 28 interviews with client and provider employees | Client may improve its responsiveness to opportunities created by new technologies |
| 87 | 2003 | Linder, Jarvenpaa & Davenport | Toward an innovation sourcing strategy | | Client firm | ITO and BPO (and others) | Empirical qualitative | Not specified | Unspecified number of interviews | |

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Table A.3 (continued)

| # | Year | Author(s) | Title | Journal | Focal firm | Outsourcing context | Methods | Main theoretical perspectives | Sample size | Innovation conceptualizations |
|----|------|--|--|---|------------------|--------------------------|-------------------------|--|--|--|
| 88 | 2002 | Chesbrough & Teece | Organizing for innovation: when is virtual virtuous? | MIT Sloan Management Review | Client firm | ITO and BPO (and others) | Conceptual | Open innovation | Anecdotal evidence | Innovation is defined as implementing new ideas that create value Innovations can support business strategies |
| 89 | 2002 | Kern, Willcocks & van Heck | The winner's curse in IT outsourcing: strategies for avoiding relational trauma | Harvard Business Review | Service provider | ITO | Empirical qualitative | Auction theory | Case research database of 85 outsourcing deals | Suppliers are chosen for proactive innovation in technological applications |
| 90 | 2001 | Arora, Arunachalam, Asundi & Fernandes | The Indian software services industry | California Management Review | Service provider | ITO | Empirical mixed methods | Not specified | 65 retained survey responses and 75 interviews with senior managers and software professionals | Customized software development involves close interaction between the development team and the end-user |
| 91 | 1999 | Quinn | Strategic outsourcing: leveraging knowledge capabilities | Research Policy | Service provider | ITO | Empirical mixed methods | Not specified | 65 retained survey responses and 75 interviews with senior managers and software professionals | Outsourcing may be leveraged for strategic benefits like innovation |
| 92 | 1998 | Currie & Willcocks | Analysing four types of IT sourcing decisions in the context of scale, client/supplier interdependency and risk mitigation | MIT Sloan Management Review | Client firm | ITO and BPO | Conceptual | Core competencies | Anecdotal evidence | Outsourcing can be leveraged for business impact |
| 93 | 1998 | DiRomualdo and Gurbaxani | Strategic intent for IT outsourcing | Information Systems Journal | Client firm | ITO | Empirical qualitative | Core competencies | Unspecified number of interviews with executives from 20 firms | Exemplified by new IT-enabled business processes like digital settlement systems and data center modernizations |
| 94 | 1998 | Feeny & Willcocks | Core IS capabilities for exploiting information technology | MIT Sloan Management Review | Client firm | ITO | Empirical qualitative | Resource-based view & transaction cost economics | Unspecified number of interviews with executives from 50 firms | Outsourcing can be leveraged for business impact |
| 95 | 1998 | Willcocks & Kern | IT outsourcing as strategic partnering: the case of the UK Inland Revenue | MIT Sloan Management Review | Client firm | ITO | Empirical qualitative | Core competencies | Unspecified number of interviews | Suppliers may create win-win situations in which the supplier increases its revenues by providing services that increase business benefits |
| | | | | European Journal of Information Systems | Client firm | ITO | Empirical qualitative | Inter-organizational relationship theory | Multiple interviews with 8 participants | Exemplified by the development of several major new systems using new technologies |

Appendix E. Coding scheme

See [Table A.4](#).

Table A.4

Data structure.

| 1st order concepts | 2nd order themes | Aggregate dimensions |
|--|-------------------------------|----------------------|
| Degree of standardization of development activities | Task attributes | Antecedents |
| Innovation criticality | | |
| Innovation customization | | |
| Innovation dependency | | |
| Innovation novelty | | |
| Innovation perishability | | |
| Innovation predictability | | |
| Innovation task controllability | | |
| Innovation task embeddedness | | |
| Innovation task knowledge intensity | | |
| Innovation task separability | | |
| Innovation task standardization | | |
| Innovation task variability | | |
| Need identification | | |
| Problem structure | | |
| Business orientation client firm | Organizational considerations | |
| Business orientation service provider | | |
| Client firm competitive capabilities | | |
| Client firm domain knowledge absorptive capacity | | |
| Client firm financial resources | | |
| Client firm IT capabilities | | |
| Client firm IT absorptive capacity | | |
| Client firm organizational size | | |
| Client firm organizational structure | | |
| Organizational familiarity | | |
| Outsourcing intent involvement | | |
| Outsourcing intent harmony | | |
| Outsourcing intent multiplicity | | |
| Provider competitive capabilities | | |
| Provider domain knowledge absorptive capacity | | |
| Provider IT capabilities | | |
| Provider IT absorptive capacity | | |
| Provider organizational size | | |
| Proximity to the core | | |
| Willingness to innovate | | |
| Business services industry commodification | Environmental conditions | |
| Business services industry customization trend | | |
| Business services industry consolidation | | |
| Business services industry growth | | |
| Business services industry R&D intensity | | |
| Client firm marketplace turbulence | | |
| Client firm marketplace predictability | | |
| Client firm rival competitiveness | | |
| Client firm rival innovation networks | | |
| Industry attractiveness for IT specialists | | |
| IT turbulence | | |
| Client firm concern about capability exploitation | Relational risk portfolio | Arrangements |
| Client firm concern about escalating costs | | |
| Knowledge protection concerns | | |
| Provider concerns about escalating costs | | |
| Provider concerns about reduced revenue | | |
| Provider concerns about sunk costs due to IT development specificity | | |
| Provider reputation | | |
| Client firm priority rank | Outsourcing configurations | |
| Dynamic adaptation to business requirements turbulence | | |
| Innovation development coordination | | |
| Knowledge concentration | | |
| Mid-initiative partner switching | | |
| Operational dependency | | |
| Provider ranking systems | | |
| Supply base breadth | | |
| Supply base configuration concepts | Pricing models | |

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Table A.4 (continued)

| 1st order concepts | 2nd order themes | Aggregate dimensions |
|---|--------------------------------|----------------------|
| Contract duration | | |
| Contract penalties | | |
| Contract pricing type | | |
| Extent of risk willing to take | | |
| Financial incentive clauses | | |
| Compensation deadline | Contract design | |
| Contingency planning clauses | | |
| Contractual governance completeness | | |
| Contractual innovation plan | | |
| Degree of formalization of development activities | | |
| Extendibility clauses | | |
| Flexibility required for development | | |
| Instructive process elements | | |
| Monitoring intensity | | |
| Outcome control mechanisms | | |
| Adjustment of clause flexibility | Relationship management | |
| Autonomy required for development | | |
| Client firm management support | | |
| Client firm strategic planning openness | | |
| Commitment | | |
| Common understanding | | |
| Cooperation required for development | | |
| Corporate transparency | | |
| Dedicated iterative collaboration support | | |
| Evolved backing for initiatives | | |
| Governance complementarity | | |
| Perceived role of the contract | | |
| Relationship style | | |
| Trust behavior-related | | |
| Trust competency-related | | |
| Capability complementarity | Knowledge combinations | Generation |
| Change support | | |
| Client firm innovation absorptive capacity | | |
| Client firm innovation capability | | |
| Composed team diversity | | |
| Consultancy involvement | | |
| Development process phases | | |
| Exploration and experimentation activities | | |
| Failure tolerance | | |
| Formal employee training | | |
| Geographical distance | | |
| Interpersonal interaction opportunities | | |
| Organizational culture | | |
| Organizational similarity | | |
| Project leadership competencies | | |
| Project management capabilities | | |
| Provider client firm-specific knowledge development | | |
| Provider domain knowledge development | | |
| Provider innovation capability | | |
| Provider innovation absorptive capacity | | |
| Provider structured project procedures | | |
| Regional norms | | |
| Relationship-specific capabilities | | |
| Solution-search strategy | | |
| Temporal logic of development | | |
| Business architecture standardization and modularity | Architectural coordination | |
| Client firm IT capability development | | |
| Deployment speed | | |
| Innovation coordination mechanisms | | |
| Innovation integrability | | |
| Provider client firm-specific architectural awareness | | |
| Provider IT capability development | | |
| Retained function | | |
| Temporal logic of deployment | | |
| User adoption behavior | | |
| Affected business areas | Realizable business advantages | Outcomes |
| Business continuity reassurance | | |
| Contract renewal | | |
| Expectation fulfilment | | |

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Table A.4 (continued)

| 1st order concepts | 2nd order themes | Aggregate dimensions |
|--|--|--------------------------|
| Materialized innovation outputs | | |
| Provider scope extension opportunities | | |
| Range of realized functional benefits | | |
| Reach of innovation impact | | |
| Requirement-deployment lag | | |
| Tier ranking changes | | |
| Usability | | |
| Outcome measurement | Measuring value creation | |
| Relationship quality | Appropriable value | |
| Relationship satisfaction | Formal appropriability mechanisms | |
| | Informal appropriability mechanisms | |
| | Regulatory and legal systems | |
| | Replicability of development activities | |
| | Knowledge leakage risks | |
| | Backsourcing | |
| | Client firm innovation capability lasting implications | |
| | Client firm IT capability lasting implications | |
| | Vertical integration as alternative to outsourcing | |
| | Hollowing out of client's IT resources concerns | |
| | Strategic innovation uniqueness | |
| Innovation observability | | Innovation replicability |
| Innovation usage extendibility | | |
| Quality of the innovation | | |

Appendix F. Key references to 1st order concepts

See Table A.5.

Table A.5

1st order concepts, listed alphabetically, with key references.

| 1st order concept | Key references |
|--|--|
| Adjustment of clauses flexibility | (Choudhury and Sabherwal, 2003; DiRomualdo and Gurbaxani, 1998; Kumar and Snaveley, 2004; Oshri et al., 2015; Susarla et al., 2010; Susarla and Mukhopadhyay, 2019) |
| Affected business areas | (Aubert et al., 2015; Lacity et al., 2011; Susarla and Mukhopadhyay, 2019; Weeks and Feeny, 2008) |
| Appropriable value | (Hoecht and Trott, 2006; Lacity and Willcocks, 2013; Leiponen, 2008; Miozzo et al., 2016; Susarla and Mukhopadhyay, 2019) |
| Autonomy required for development | (Aubert et al., 2015; Bui et al., 2019; Quinn, 1999; Sumo et al., 2016) |
| Backsourcing | (Gopalakrishnan and Zhang, 2019; Tadelis, 2007; Veltri et al., 2008) |
| Business architecture standardization and modularity | (Aubert et al., 2015; Krishnamurthy et al., 2009; Miozzo and Grimshaw, 2005; Qu et al., 2010; Roy and Sivakumar, 2011; Shi, 2007; Su et al., 2016) |
| Business continuity reassurance | (Gopalakrishnan and Zhang, 2019; Henke and Zhang, 2010; Mani et al., 2010; Susarla and Mukhopadhyay, 2019) |
| Business orientation client firm | (Hoecht and Trott, 2006; Kibbeling et al., 2013; Sumo et al., 2016; Weeks and Feeny, 2008) |
| Business orientation service provider | (Arora et al., 2001; Desyllas et al., 2018; Kibbeling et al., 2013; Kotlarsky et al., 2015; Lee et al., 2004; Manning, 2013; Manning et al., 2018; Massini and Miozzo, 2012) |
| Business services industry commodification | (Davenport, 2005; Gozman and Willcocks, 2019; Manning, 2013; Manning et al., 2018; Miozzo and Grimshaw, 2005) |
| Business services industry consolidation | (Shi, 2007) |
| Business services industry customization trend | (Desyllas et al., 2018; Manning, 2013; Su et al., 2016) |
| Business services industry growth | (Gozman and Willcocks, 2019; Manning, 2013; Massini and Miozzo, 2012; Miozzo and Grimshaw, 2005) |
| Business services industry R&D intensity | (Arora et al., 2001; Leiponen, 2008; Miozzo et al., 2016) |
| Capability complementarity | (Chou et al., 2015; Miozzo and Grimshaw, 2005; Shi, 2007; Susarla and Mukhopadhyay, 2019; Weeks and Feeny, 2008; Weigelt, 2013) |
| Change support | (Chou et al., 2015) |
| Client firm concern about capability exploitation | (Choudhury and Sabherwal, 2003) |
| Client firm concern about escalating costs | (Lacity and Willcocks, 2013) |
| Client firm competitive capabilities | (Hoecht and Trott, 2006; Qu et al., 2010) |
| Client firm domain knowledge absorptive capacity | (Chou et al., 2015; Weigelt and Sarkar, 2012) |
| Client firm financial resources | (DiRomualdo and Gurbaxani, 1998) |
| Client firm innovation absorptive capacity | (Hoecht and Trott, 2006; Weigelt and Sarkar, 2012) |
| Client firm innovation capability | (Kibbeling et al., 2013; Oshri et al., 2018; Quinn, 1999; Shi, 2007; Weigelt and Sarkar, 2012) |
| Client firm innovation capability lasting implications | (Choi et al., 2018; Hoecht and Trott, 2006; Lee and Kim, 2010; Miozzo and Grimshaw, 2005; Roy and Sivakumar, 2012; Shi, 2007) |

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Table A.5 (continued)

| 1st order concept | Key references |
|--|---|
| Client firm IT absorptive capacity | (Weigelt, 2009; Weigelt and Sarkar, 2012) |
| Client firm IT capabilities | (Currie and Willcocks, 1998; DiRomualdo and Gurbaxani, 1998; Miozzo and Grimshaw, 2005; Oshri et al., 2018; Qu et al., 2010; Weeks and Feeny, 2008) |
| Client firm IT capability development | (Argyres et al., 2007; Mani and Barua, 2015; Oshri et al., 2018; Qu et al., 2010; Su et al., 2016; Weeks and Feeny, 2008; Weigelt, 2009) |
| Client firm IT capability lasting implications | (Gopalakrishnan and Zhang, 2019; Hoecht and Trott, 2006; Manning et al., 2018; Miozzo and Grimshaw, 2005; Oshri et al., 2018; Shi, 2007; Weeks and Feeny, 2008; Weigelt and Sarkar, 2012) |
| Client firm management support | (Aubert et al., 2015; Handley and Benton, 2009; Levina and Su, 2008; Levina and Vaast, 2008; Mani et al., 2010; Miranda and Kavan, 2005; Quinn, 1999; Weeks and Feeny, 2008; Willcocks et al., 2011) |
| Client firm marketplace predictability | (Hoecht and Trott, 2006; Weigelt and Sarkar, 2012) |
| Client firm marketplace turbulence | (Hoecht and Trott, 2006; Su et al., 2016; Van de Ven, 2005; Veltri et al., 2008; Weigelt and Sarkar, 2012) |
| Client firm organizational size | (Chesbrough and Teece, 2002; Desyllas et al., 2018; Hoecht and Trott, 2006; Manning et al., 2018; Qu et al., 2010) |
| Client firm organizational structure | (Aubert et al., 2015; Chesbrough and Teece, 2002; Miozzo and Grimshaw, 2005; Shi, 2007; Weigelt and Sarkar, 2012) |
| Client firm priority rank | (Choudhury and Sabherwal, 2003; Desyllas et al., 2018; Henke and Zhang, 2010; Su et al., 2016; Willcocks et al., 2011) |
| Client firm rival competitiveness | (Hoecht and Trott, 2006; Kibbeling et al., 2013; Tiwana, 2010) |
| Client firm rival innovation networks | (Aubert et al., 2015; Chesbrough and Teece, 2002; Hoecht and Trott, 2006; Wiener et al., 2019) |
| Client firm strategic planning openness | (Handley and Benton, 2009; Henke and Zhang, 2010; Shi, 2007; Søderberg et al., 2013) |
| Commitment | (Barua and Mani, 2014; Chou et al., 2015; Goo et al., 2008; Handley and Benton, 2009; Henke and Zhang, 2010; Kumar and Snaveley, 2004; Levina and Su, 2008; Miranda and Kavan, 2005; Søderberg et al., 2013; Susarla and Mukhopadhyay, 2019) |
| Common understanding | (Gopalakrishnan and Zhang, 2019; Massini and Miozzo, 2012; Miranda and Kavan, 2005; Van de Ven, 2005; Weigelt and Sarkar, 2012; Zimmermann et al., 2018) |
| Compensation deadline | (Miranda and Kavan, 2005) |
| Composed team diversity | (Barua and Mani, 2014; Lacity and Willcocks, 2013; Linder et al., 2003; Mani et al., 2010; Miranda and Kavan, 2005; Su et al., 2016; Willcocks et al., 2011) |
| Consultancy involvement | (Miozzo and Grimshaw, 2005; Oshri et al., 2018) |
| Contingency planning clauses | (Argyres et al., 2007; Goo, 2010; Goo et al., 2009, 2008; Goo and Huang, 2008; Susarla et al., 2010) |
| Contract duration | (Chou et al., 2015; Hoecht and Trott, 2006; Kumar and Snaveley, 2004; Lee and Kim, 2010; Miozzo and Grimshaw, 2005; Susarla et al., 2010) |
| Contract penalties | (Aubert et al., 2015; Goo et al., 2009; Krishnamurthy et al., 2009; Sumo et al., 2016; Susarla et al., 2010) |
| Contract renewal | (Hoecht and Trott, 2006; Holweg and Pil, 2012; Manning et al., 2018) |
| Contract pricing type | (Barua and Mani, 2014; Bui et al., 2019; Choudhury and Sabherwal, 2003; Holweg and Pil, 2012; Kumar and Snaveley, 2004; Lacity and Willcocks, 2013; Mani et al., 2010; Mani and Barua, 2015; Miozzo and Grimshaw, 2005; Oshri et al., 2015; Sumo et al., 2016) |
| Contractual governance completeness | (Argyres et al., 2007; Aubert et al., 2015; Bui et al., 2019; Choudhury and Sabherwal, 2003; Frydinger et al., 2019; Handley and Benton, 2009; Hoecht and Trott, 2006; Langer and Mani, 2018; Mani et al., 2010; Miranda and Kavan, 2005; Roy and Sivakumar, 2012; Shi, 2007; Sumo et al., 2016; Susarla et al., 2010; Weeks and Feeny, 2008) |
| Contractual innovation plan | (Goo, 2010; Goo et al., 2009, 2008; Goo and Huang, 2008; Oshri et al., 2015; Krishnamurthy et al., 2009; Lacity and Willcocks, 2013) |
| Cooperation required for development | (Gopalakrishnan and Zhang, 2019; Handley and Benton, 2009; Miozzo and Grimshaw, 2005; Oshri et al., 2015) |
| Corporate transparency | (Hoecht and Trott, 2006; Miozzo and Grimshaw, 2005; Søderberg et al., 2013) |
| Dedicated iterative collaboration support | (Aubert et al., 2015; Frydinger et al., 2019; Gopalakrishnan and Zhang, 2019; Lacity and Willcocks, 2013; Mani et al., 2010; Miranda and Kavan, 2005; Safizadeh et al., 2008; Susarla et al., 2010; Susarla and Mukhopadhyay, 2019) |
| Degree of formalization of development activities | (Goo, 2010; Goo et al., 2009, 2008; Goo and Huang, 2008; Mani et al., 2010; Mani and Barua, 2015) |
| Degree of standardization of development activities | (Choudhury and Sabherwal, 2003; Gopal and Gosain, 2010; Mani et al., 2010; Roy and Sivakumar, 2011; Weigelt and Sarkar, 2012) |
| Deployment speed | (Gozman and Willcocks, 2019; Hong and Zhu, 2006) |
| Development process phases | (Aubert et al., 2015; Miozzo and Grimshaw, 2005; Roy and Sivakumar, 2012) |
| Dynamic adaptation to business requirements turbulence | (Chou et al., 2015; Henke and Zhang, 2010; Hoecht and Trott, 2006; Miozzo and Grimshaw, 2005; Oshri et al., 2018; Su et al., 2016; Weigelt and Sarkar, 2012) |
| Evolved backing for initiatives | (Qu et al., 2010; Søderberg et al., 2013; Weeks and Feeny, 2008) |
| Expectation fulfilment | (Hoecht and Trott, 2006; Hong and Zhu, 2006; Roy and Sivakumar, 2012; Su et al., 2016) |
| Exploration and experimentation activities | (Hoecht and Trott, 2006; Linder, 2004; Miranda and Kavan, 2005; Weigelt and Sarkar, 2012; Wiener et al., 2019) |
| Extendibility clauses | (Susarla et al., 2010) |
| Extent of risk willing to take | (Aubert et al., 2015; Hoecht and Trott, 2006; Manning et al., 2018; Roy and Sivakumar, 2012; Sumo et al., 2016) |
| Failure tolerance | (Gopalakrishnan and Zhang, 2019; Henke and Zhang, 2010; Roy and Sivakumar, 2012) |
| Financial incentive clauses | (Goo et al., 2009; Hoecht and Trott, 2006; Kern et al., 2002; Krishnamurthy et al., 2009; Lacity and Willcocks, 2013; Sumo et al., 2016; Weeks and Feeny, 2008) |
| Flexibility required for development | (Argyres et al., 2007; Aubert et al., 2015; Bui et al., 2019; Oshri et al., 2018; Su et al., 2016; Tiwana, 2010) |
| Formal appropriability mechanisms | (Desyllas et al., 2018; Hoecht and Trott, 2006; Leiponen, 2008; Miozzo et al., 2016; Roy and Sivakumar, 2012; Susarla et al., 2010; Susarla and Mukhopadhyay, 2019) |

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Table A.5 (continued)

| 1st order concept | Key references |
|--|---|
| Formal employee training | (Chatterjee, 2017; Henke and Zhang, 2010; Su et al., 2016) |
| Geographical distance | (Chen and Lin, 2019; Choi et al., 2018; Langer and Mani, 2018; Manning, 2013; Massini and Miozzo, 2012; Roy and Sivakumar, 2012) |
| Governance complementarity | (Bui et al., 2019; Mani et al., 2010; Oshri et al., 2015; Susarla and Mukhopadhyay, 2019; Tiwana, 2010) |
| Industry attractiveness for IT specialists | (Kedia and Lahiri, 2007; Lacity and Willcocks, 2013; Miozzo et al., 2016; Mukherjee et al., 2013; Quinn, 1999) |
| Informal appropriability mechanisms | (Desyllas et al., 2018; Miozzo et al., 2016) |
| Innovation coordination mechanisms | (Argyres et al., 2007; Gopalakrishnan and Zhang, 2019; Massini and Miozzo, 2012; Qu et al., 2010; Safizadeh et al., 2008; Weigelt and Sarkar, 2012) |
| Innovation criticality | (Choudhury and Sabherwal, 2003; Currie and Willcocks, 1998; Krishnamurthy et al., 2009; Qu et al., 2010) |
| Innovation customization | (Arora et al., 2001; Chatterjee, 2017; Chou et al., 2015; Desyllas et al., 2018; Kedia and Lahiri, 2007; Lema et al., 2015; Shi, 2007; Su and Levina, 2011; Weigelt, 2009) |
| Innovation dependency | (Gopalakrishnan and Zhang, 2019; Lee and Kim, 2010; Miozzo and Grimshaw, 2005) |
| Innovation development coordination | (Barua and Mani, 2014; Chen and Lin, 2019; Kumar and Snaveley, 2004; Manning, 2013; Miranda and Kavan, 2005; Soderberg et al., 2013; Sumo et al., 2016; Susarla and Mukhopadhyay, 2019; Weigelt and Sarkar, 2012) |
| Innovation integrability | (Aubert et al., 2015; Chatterjee, 2017; Cordella and Willcocks, 2012; Hong and Zhu, 2006; Shi, 2007; Weigelt, 2009; Willcocks et al., 2011) |
| Innovation novelty | (Chesbrough and Teece, 2002; Desyllas et al., 2018; Roy and Sivakumar, 2011; Shi, 2007; Weigelt and Sarkar, 2012) |
| Innovation observability | (Desyllas et al., 2018; Mani and Barua, 2015; Miozzo and Grimshaw, 2005; Miranda and Kavan, 2005; Qu et al., 2010) |
| Innovation perishability | (Gopalakrishnan and Zhang, 2019) |
| Innovation predictability | (Aubert et al., 2015; Barua and Mani, 2014; Hoecht and Trott, 2006; Oshri et al., 2015; Miranda and Kavan, 2005; Susarla and Mukhopadhyay, 2019) |
| Innovation replicability | (Desyllas et al., 2018) |
| Innovation tangibility | (Gopalakrishnan and Zhang, 2019; Massini and Miozzo, 2012; Miozzo and Grimshaw, 2005) |
| Innovation task controllability | (Aubert et al., 2015) |
| Innovation task embeddedness | (Manning, 2013; Roy and Sivakumar, 2012) |
| Innovation task knowledge intensity | (Chou et al., 2015) |
| Innovation task separability | (Mani et al., 2010; Safizadeh et al., 2008; Weigelt and Sarkar, 2012) |
| Innovation task standardization | (Desyllas et al., 2018; Susarla et al., 2010; Weigelt and Sarkar, 2012) |
| Innovation task variability | (Barua and Mani, 2014; Desyllas et al., 2018; Mani and Barua, 2015; Miozzo et al., 2016; Susarla et al., 2010; Willcocks et al., 2011) |
| Innovation usage extendibility | (Leiponen, 2008; Susarla and Mukhopadhyay, 2019) |
| Instructive process elements | (Argyres et al., 2007; Aubert et al., 2015; Chou et al., 2015; Choudhury and Sabherwal, 2003; Cram et al., 2016; Susarla and Mukhopadhyay, 2019; Tiwana, 2010; Wiener et al., 2016) |
| Interpersonal interaction opportunities | (Aubert et al., 2015; Choudhury and Sabherwal, 2003; Gopal and Gosain, 2010; Gopalakrishnan and Zhang, 2019; Krishnamurthy et al., 2009; Kumar and Snaveley, 2004; Lacity and Willcocks, 2013; Linder et al., 2003; Massini and Miozzo, 2012; Oshri et al., 2018; Soderberg et al., 2013) |
| IT turbulence | (Argyres et al., 2007; Kibbeling et al., 2013; Lee and Kim, 2010; Miozzo and Grimshaw, 2005; Su et al., 2016; Susarla and Mukhopadhyay, 2019; Weigelt, 2013, 2009; Weigelt and Sarkar, 2012; Wiener et al., 2019) |
| Knowledge concentration | (Gopal and Gosain, 2010; Henke and Zhang, 2010; Hoecht and Trott, 2006; Weigelt, 2009; Weigelt and Sarkar, 2012) |
| Knowledge protection concerns | (Handley and Benton, 2009; Hoecht and Trott, 2006; Miozzo et al., 2016; Miozzo and Grimshaw, 2005; Roy and Sivakumar, 2012) |
| Materialized innovation outputs | (Choudhury and Sabherwal, 2003; Gozman and Willcocks, 2019; Hong and Zhu, 2006; Lacity and Willcocks, 2013; Oshri et al., 2018, 2015; Qu et al., 2010; Susarla and Mukhopadhyay, 2019; Weeks and Feeny, 2008; Wiener et al., 2019) |
| Mid-initiative partner switching | (Chou et al., 2015; Gopalakrishnan and Zhang, 2019; Lee and Kim, 2010; Manning et al., 2018; Miranda and Kavan, 2005; Susarla and Mukhopadhyay, 2019; Veltri et al., 2008) |
| Monitoring intensity | (Aubert et al., 2015; Kumar and Snaveley, 2004; Lacity and Willcocks, 2013; Lahiri and Kedia, 2009; Langer and Mani, 2018; Lee and Kim, 2010; Miozzo and Grimshaw, 2005; Roy and Sivakumar, 2012; Shi, 2007; Sumo et al., 2016; Weeks and Feeny, 2008; Wiener et al., 2019) |
| Need identification | (Choudhury and Sabherwal, 2003; Gopal and Gosain, 2010; Susarla and Mukhopadhyay, 2019; Weeks and Feeny, 2008; Weigelt and Sarkar, 2012) |
| Operational dependency | (Bui et al., 2019; Cordella and Willcocks, 2012; Gozman and Willcocks, 2019; Henke and Zhang, 2010; Shi, 2007) |
| Organizational culture | (Aubert et al., 2015; Hong and Zhu, 2006) |
| Organizational familiarity | (Argyres et al., 2007; Choudhury and Sabherwal, 2003; Mani and Barua, 2015; Oshri et al., 2018; Sumo et al., 2016; Susarla and Mukhopadhyay, 2019; Weeks and Feeny, 2008) |
| Organizational similarity | (Gopal and Gosain, 2010; Kedia and Lahiri, 2007; Lacity and Willcocks, 2013; Lee and Kim, 2010; Linder et al., 2003; Oshri et al., 2018) |
| Outcome control mechanisms | (Aubert et al., 2015; Choudhury and Sabherwal, 2003; Gopal and Gosain, 2010; Langer and Mani, 2018; Roy and Sivakumar, 2011; Tiwana, 2010; Wiener et al., 2016) |
| Outcome measurement | (Goo, 2010; Goo et al., 2009; Goo and Huang, 2008; Langer and Mani, 2018; Linder et al., 2003; Miozzo et al., 2016; Quinn, 1999) |
| Outsourcing intent involvement | (Aubert et al., 2015; DiRomualdo and Gurbaxani, 1998; Kotlarsky et al., 2015; Lacity and Willcocks, 2017, 2013; Langer and Mani, 2018; Levina and Su, 2008; Oshri et al., 2018, 2015; Soderberg et al., 2013; Susarla and Mukhopadhyay, 2019; Weeks and Feeny, 2008) |

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Table A.5 (continued)

| <i>1st order concept</i> | <i>Key references</i> |
|--|--|
| Outsourcing intent harmony | (Aubert et al., 2015; Kotlarsky et al., 2015; Miozzo and Grimshaw, 2005; Su et al., 2016) |
| Outsourcing intent multiplicity | (Aubert et al., 2015; DiRomualdo and Gurbaxani, 1998; Henke and Zhang, 2010; Langer and Mani, 2018; Mani et al., 2010; Mani and Barua, 2015; Sumo et al., 2016; Susarla et al., 2010) |
| Perceived role of the contract | (Argyres et al., 2007; Feeny and Willcocks, 1998; Hoecht and Trott, 2006; Susarla and Mukhopadhyay, 2019) |
| Problem structure | (Barua and Mani, 2014; Weigelt and Sarkar, 2012) |
| Project leadership competencies | (Aubert et al., 2015; Choudhury and Sabherwal, 2003; Kumar and Snaveley, 2004; Lacity and Willcocks, 2013; Oshri et al., 2018) |
| Project management capabilities | (Chou et al., 2015; DiRomualdo and Gurbaxani, 1998; Hoecht and Trott, 2006; Kibbeling et al., 2013; Mani and Barua, 2015; Miozzo and Grimshaw, 2005; Quinn, 1999; Susarla and Mukhopadhyay, 2019; Weigelt and Sarkar, 2012) |
| Provider client firm-specific architectural awareness | (Aubert et al., 2015; Chou et al., 2015; DiRomualdo and Gurbaxani, 1998; Oshri et al., 2018; Su et al., 2016) |
| Provider client firm-specific knowledge development | (Argyres et al., 2007; Chatterjee, 2017; Desyllas et al., 2018; DiRomualdo and Gurbaxani, 1998; Linder et al., 2003; Oshri et al., 2018; Roy and Sivakumar, 2012; Shi, 2007; Søderberg et al., 2013; Weeks and Feeny, 2008; Weigelt, 2013) |
| Provider competitive capabilities | (Chatterjee, 2017; Desyllas et al., 2018; Kedia and Lahiri, 2007; Levina and Ross, 2003; Mukherjee et al., 2013) |
| Provider concerns about escalating costs | (Oshri et al., 2015; Wiener et al., 2019) |
| Provider concerns about reduced revenue | (Henke and Zhang, 2010; Lacity and Willcocks, 2013) |
| Provider concerns about sunk costs due to IT development specificity | (Cordella and Willcocks, 2012) |
| Provider domain knowledge absorptive capacity | (Arora et al., 2001; Chatterjee, 2017; Chou et al., 2015; Gopal and Gosain, 2010; Kedia and Lahiri, 2007; Mukherjee et al., 2013; Oshri et al., 2018; Søderberg et al., 2013) |
| Provider domain knowledge development | (Argyres et al., 2007; Chatterjee, 2017; Desyllas et al., 2018; Lema et al., 2015; Oshri et al., 2018) |
| Provider innovation absorptive capacity | (Henke and Zhang, 2010; Miozzo et al., 2016; Weeks and Feeny, 2008) |
| Provider innovation capability | (Desyllas et al., 2018; Gopalakrishnan and Zhang, 2019; Leiponen, 2008; Lema et al., 2015; Mani et al., 2010; Shi, 2007; Veltri et al., 2008) |
| Provider IT absorptive capacity | (Levina and Vaast, 2008; Weigelt and Sarkar, 2012) |
| Provider IT capabilities | (Chatterjee, 2017; Choudhury and Sabherwal, 2003; Davenport, 2005; Lema et al., 2015; Levina and Ross, 2003; Shi, 2007; Su et al., 2016) |
| Provider IT capability development | (Arora et al., 2001; Chatterjee, 2017; Levina and Ross, 2003; Shi, 2007) |
| Provider organizational size | (Arora et al., 2001; Gopalakrishnan and Zhang, 2019; Su et al., 2016; Sumo et al., 2016) |
| Provider reputation | (Choudhury and Sabherwal, 2003; Hoecht and Trott, 2006; Safizadeh et al., 2008; Søderberg et al., 2013; Sumo et al., 2016) |
| Provider scope extension opportunities | (Gopalakrishnan and Zhang, 2019; Manning et al., 2018; Oshri et al., 2015; Susarla et al., 2010; Willcocks et al., 2011) |
| Provider strategic loyalty | (Aubert et al., 2015; Chou et al., 2015; Gopalakrishnan and Zhang, 2019; Hoecht and Trott, 2006; Lacity and Willcocks, 2013; Su et al., 2016; Susarla and Mukhopadhyay, 2019) |
| Provider structured project procedures | (Gopalakrishnan and Zhang, 2019; Mani et al., 2010) |
| Provider ranking projects | (Quinn, 1999; Su et al., 2016; Wiener and Saunders, 2014) |
| Proximity to the core | (Aubert et al., 2015; Hoecht and Trott, 2006; Roy and Sivakumar, 2012; Shi, 2007; Straub et al., 2008; Weeks and Feeny, 2008) |
| Quality of the innovation | (Gopal and Gosain, 2010; Henke and Zhang, 2010) |
| Range of realized functional benefits | (DiRomualdo and Gurbaxani, 1998; Lacity and Willcocks, 2013; Miozzo et al., 2016; Su et al., 2016; Susarla and Mukhopadhyay, 2019; Weeks and Feeny, 2008; Weigelt, 2009) |
| Reach of innovation impact | (Oshri et al., 2015; Mani et al., 2010; Miozzo and Grimshaw, 2005; Oshri et al., 2018; Qu et al., 2010; Søderberg et al., 2013; Susarla and Mukhopadhyay, 2019) |
| Regional norms | (Kedia and Lahiri, 2007; Lee et al., 2004; Lee and Kim, 2010; Levina and Vaast, 2008; Søderberg et al., 2013; Tadelis, 2007) |
| Regulatory and legal systems | (Arora et al., 2001; Avgerou, 2008; Choi et al., 2018; Gozman and Willcocks, 2019; Manning, 2013; Massini and Miozzo, 2012; Tadelis, 2007) |
| Relationship quality | (Chou et al., 2015; Kedia and Lahiri, 2007; Lahiri and Kedia, 2009; Oshri et al., 2015) |
| Relationship satisfaction | (Chou et al., 2015; Gopalakrishnan and Zhang, 2019; Langer and Mani, 2018; Mani et al., 2010) |
| Relationship style | (Bui et al., 2019; Chesbrough and Teece, 2002; Frydinger et al., 2019; Handley and Benton, 2009; Kedia and Lahiri, 2007; Kumar and Snaveley, 2004; Mani et al., 2010; Miranda and Kavan, 2005; Søderberg et al., 2013; Su et al., 2016; Su and Levina, 2011; Susarla et al., 2010; Susarla and Mukhopadhyay, 2019; Tadelis, 2007; Wiener et al., 2019, 2016) |
| Relationship-specific capabilities | (Chatterjee, 2017; Gopalakrishnan and Zhang, 2019; Lee and Kim, 2010; Miozzo and Grimshaw, 2005; Safizadeh et al., 2008; Shi, 2007; Susarla et al., 2010; Susarla and Mukhopadhyay, 2019) |
| Replicability of development activities | (Barua and Mani, 2014; Desyllas et al., 2018; Mani and Barua, 2015; Miranda and Kavan, 2005; Weigelt and Sarkar, 2012) |
| Requirement-deployment lag | (Cordella and Willcocks, 2012; Gopal and Gosain, 2010) |
| Retained function | (Currie and Willcocks, 1998; DiRomualdo and Gurbaxani, 1998; Feeny and Willcocks, 1998; Hoecht and Trott, 2006; Miozzo and Grimshaw, 2005; Quinn, 1999; Shi, 2007; Weeks and Feeny, 2008) |
| Solution-search strategy | (Barua and Mani, 2014; Desyllas et al., 2018; Miranda and Kavan, 2005; Weigelt and Sarkar, 2012) |
| Supply base breadth | (Bui et al., 2019; Currie and Willcocks, 1998; Levina and Su, 2008; Levina and Vaast, 2008; Miozzo and Grimshaw, 2005; Miranda and Kavan, 2005; Shi, 2007; Su et al., 2016; Su and Levina, 2011; Weeks and Feeny, 2008) |
| Supply base configuration concepts | (Bui et al., 2019; Holweg and Pil, 2012; Krishnamurthy et al., 2009; Su et al., 2016; Su and Levina, 2011) |

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Table A.5 (continued)

| 1st order concept | Key references |
|--|---|
| Temporal logic of deployment | (Choudhury and Sabherwal, 2003) |
| Temporal logic of development | (Choudhury and Sabherwal, 2003; Hong and Zhu, 2006; Miozzo and Grimshaw, 2005) |
| Tier ranking changes | (Su et al., 2016) |
| Trust behavior-related | (Bui et al., 2019; Chou et al., 2015; Goo et al., 2009; Goo and Huang, 2008; Henke and Zhang, 2010; Hoecht and Trott, 2006; Roy and Sivakumar, 2011; Weeks and Feeny, 2008; Wiener et al., 2019; Zimmermann et al., 2018) |
| Trust competency-related | (Chou et al., 2015; Hoecht and Trott, 2006; Roy and Sivakumar, 2011; Weeks and Feeny, 2008; Wiener et al., 2019) |
| Usability | (Chatterjee, 2017; Hoecht and Trott, 2006; Roy and Sivakumar, 2012) |
| User adoption behavior | (Hong and Zhu, 2006) |
| Willingness to innovate | (Kibbeling et al., 2013; Kumar and Snaveley, 2004; Lacity and Willcocks, 2013; Lahiri and Kedia, 2009; Safizadeh et al., 2008; Wiener and Saunders, 2014) |
| Vertical integration as alternative to outsourcing | (Miozzo and Grimshaw, 2005; Safizadeh et al., 2008; Straub et al., 2008; Van de Ven, 2005; Weigelt, 2009) |

Appendix G. Second-order theme descriptions

In the Table below AD stands for Aggregate Dimension.
See Table A.6.

Table A.6

Second-order theme descriptions.

| AD | 2nd order themes | Description | References (examples) |
|-------------------|---|---|---|
| Antecedents | Task attributes | This theme includes considerations regarding the innovation-related task environment and its amenability to outsourcing. | (Aubert et al., 2015; Chou et al., 2015; DiRomualdo and Gurbaxani, 1998; Mani et al., 2010; Su et al., 2016; Sumo et al., 2016) |
| | Organizational considerations | The internal organizational context in which each party is operating. It mainly includes drivers stemming from organizational resource and strategic orientation considerations. | (Desyllas et al., 2018; Holweg and Pil, 2012; Lee et al., 2004; Miranda and Kavan, 2005; Van de Ven, 2005; Weeks and Feeny, 2008) |
| | Environmental conditions | Environmental antecedents reside beyond organizational and outsourcing relationship boundaries and include industry-based drivers that provoke the need for strategic innovations. | (Lema et al., 2015; Manning, 2013; Manning et al., 2018; Shi, 2007; Van de Ven, 2005) |
| Arrangement | Relational risk portfolio | Prominent strategic risks that may emerge with the decision to leverage outsourcing for strategic innovations. | (Aubert et al., 2015; Handley and Benton, 2009; Hoecht and Trott, 2006; Shi, 2007) |
| | Outsourcing configurations | Relying on slim supply bases involving one or a few service providers, or broad supply bases involving multiple service providers is a major consideration in the arrangement phase. | (Bui et al., 2019; Hoecht and Trott, 2006; Levina and Su, 2008; Su et al., 2016) |
| | Pricing models | From fixed price contracts to increasingly emerging equity-based contracts, this theme includes research on pricing strategies and their potential influences on innovation. | (Bui et al., 2019; Holweg and Pil, 2012; Oshri et al., 2015; Sumo et al., 2016) |
| | Contract design | More complete contracts include greater innovation-related term specificity, whereas the opposite is the case in more incomplete contractual regimes. | (Aubert et al., 2015; Goo et al., 2009; Weeks and Feeny, 2008; Wiener et al., 2016) |
| Generation | Relationship management | Relationship styles and practices that regulate aspects of outsourcing relationships not covered by formal arrangements. | (Kedia and Lahiri, 2007; Lahiri and Kedia, 2009; Miranda and Kavan, 2005; Søderberg et al., 2013; Wiener et al., 2016) |
| | Knowledge combinations | Domain knowledge, mostly located at the client firm, and technological knowledge, largely held by the service provider, need to be combined to generate sufficiently customized IT-enabled solutions. | (Chatterjee, 2017; Chou et al., 2015; Oshri et al., 2018; Roy and Sivakumar, 2012; Søderberg et al., 2013; Su et al., 2016; Weigelt and Sarkar, 2012) |
| Outcomes | Supportive organizational structures | The role of the client's internal IT function in absorbing technological knowledge and its technological architecture in integrating the collaboratively generated outputs. | (Hong and Zhu, 2006; Oshri et al., 2018; Su et al., 2016; Weeks and Feeny, 2008) |
| | Realizable business advantages | Realized innovation outputs and associated benefits for the client and service provider. | (Lacity and Willcocks, 2013; Susarla and Mukhopadhyay, 2019; Weeks and Feeny, 2008) |
| | Value creation measurement | Approaches to measuring value created from innovation and the danger of moral hazard when not effectively doing so. | (Choudhury and Sabherwal, 2003; Linder et al., 2003; Oshri et al., 2018; Shi, 2007) |
| | Knowledge leakage risks | Unintentional leaks of commercially sensitive domain knowledge from the client perspective and response strategies. | (Desyllas et al., 2018; Hoecht and Trott, 2006; Leiponen, 2008; Miozzo et al., 2016) |
| Output uniqueness | Hollowing out of client's IT resources concerns | Potentially atrophying internal technological knowledge from the client firm perspective. | (Hoecht and Trott, 2006; Lee and Kim, 2010; Weigelt, 2009) |
| | Output uniqueness | The extent to which the innovation output is genuinely unique or a replica of the provider's state-of-the-art, but vanilla solutions. | (Arora et al., 2001; Desyllas et al., 2018; Shi, 2007) |

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