



Strategic Alliance Outcomes: Consolidation and New Directions

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Strategic Alliance Outcomes: Consolidation and New Directions

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Strategic Alliance Outcomes: Consolidation and New Directions

The pursuit of outcomes is the *raison d'être* for strategic alliances, yet the literature on outcomes is rather fragmented. Moreover, conceptual and empirical confusion exists between strategic alliance outcomes and how well the alliance is working. Important behavioral terms, such as conflict and tension, are also used without conceptual clarity. We tackle these issues by consolidating the spectrum of strategic alliance outcomes and explaining how outcomes are often intertwined. We also distill the literature regarding how well the alliance is working into three ‘functioning indicators’ and highlight their conceptual distinctiveness vis-à-vis outcomes. We disentangle definitions and implications of three important behavioral issues in alliances—tradeoffs, frictions, and tensions—and discuss how they are rooted in partner interdependence. Lastly, we offer an ‘outcome-centric’ perspective on strategic alliances, which shifts the emphasis from outcomes as end results to the pursuit of outcomes as explanatory starting points. This perspective offers new opportunities to theorize about the functioning of strategic alliances, behavioral manifestations of partner interdependence, and the pursuit of multiple outcomes in strategic alliances.

Strategic Alliance Outcomes: Consolidation and New Directions

Strategic alliances are among the most extensively studied forms of interorganizational relationships. Firms establish strategic alliances and navigate associated interorganizational complexities in order to pursue a variety of outcomes, such as new products (Wu, 2012), competitive advantage (Jap & Anderson, 2003), and financial performance (Holloway & Parmigiani, 2016). For instance, the Pfizer-BioNTech alliance resulted in the development and commercialization of a new vaccine for COVID-19, distribution of almost three billion units, and \$36 billion in sales in 2021 (Kollewe, 2021). Such outcomes were achieved despite functioning challenges which, according to senior management, caused the first major production run to end in “...absolute and utter failure” (Rowland, 2021). The motivation for this paper is fragmentation, confusion, and messiness in the literature about strategic alliance outcomes (henceforth SAOs). Prior literature reviews on strategic alliances (see Appendix A) provide valuable insights regarding several aspects of alliances, ranging from governance design (Albers, Wohlgezogen, & Zajac, 2016) to alliance capabilities (Wang & Rajagopalan, 2015); however unaddressed issues concerning SAOs continue to impede theory development and conceptual clarity.

First, most research examines single outcomes (e.g., new product development) in isolation, resulting in a fragmented literature that has yet to coalesce around a unifying framework. In practice, many strategic alliances accomplish multiple outcomes (Ariño, 2003; Gulati, 1998) and outcomes are inherently intertwined (Frankort, 2016; Holloway & Parmigiani, 2016). Focusing on a single outcome in isolation risks missing the interrelated nature of outcomes, whereby the pursuit of one outcome requires certain resources and activities which might undermine a different outcome (Frankort, 2016; Kavusan, Noorderhaven, Duysters, 2016). A systematic review offering a unifying framework can begin to address this fragmentation problem and highlight novel research opportunities.

Second, conceptual and empirical confusion exists between the outcomes of strategic alliances and constructs which reflect how well the alliance is working. Despite calls for caution (Ariño, 2003; Grant & Baden-Fuller, 2004; Reuer & Zollo, 2005), indicators of how the alliance is functioning (e.g., managerial satisfaction and partner commitment) are often used as proxies for positive and detrimental outcomes; and outcomes and functioning indicators can also be blended within the same construct (e.g., Becerra, Lunnan, & Huemer, 2008; Parkhe, 1993a). Because positive outcomes can be achieved in spite of detrimental functioning and vice versa, such confusion inhibits construct clarity and may result in partial or “misleading” claims about actual outcomes (Ariño, 2003: 69). For example, alliance managers might rate their satisfaction with the alliance as low, but the alliance might subsequently overperform on outcomes such as innovation or financial performance. Thus, a need exists to conceptually distinguish these concepts, illustrate how they relate to each other, and consider when they may not be correlated.

Third, while much of the literature points out behavioral issues such as conflict (Oliveira & Lumineau, 2019) and tension (Das & Teng, 2000a) in discussing alliance outcomes and how well the alliance is working, the literature is messy both conceptually and empirically. Behavioral factors are used to explain detrimental outcomes (Kumar, 2011), to illustrate challenges in alliance functioning (Bruyaka, Philippe, & Castañer, 2018), and to otherwise highlight downsides of strategic alliances (Oliveira & Lumineau, 2019). However, these important behavioral terms, such as conflict, friction, and tension, are used without conceptual clarity. The delineation key behavioral issues which underpin strategic alliance relationships, and shape the pursuit and realization of outcomes, would improve conceptual clarity, enable deeper theorizing, and open new research opportunities.

We address the fragmentation problem by laying out a spectrum of outcomes consisting of four outcome types—knowledge, innovation, competitive positioning, and financial. We evaluate aspects that have been widely studied, draw attention to important but underexplored

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areas, and explain how pursuing one SAO often has consequences for other SAOs. We tackle confusion by distilling the various aspects of functioning into a few overarching themes and isolating three oft-used indicators of functioning: commitment, satisfaction, and stability. We also elaborate on the conceptual distinctiveness of functioning and lay out preliminary ideas about when functioning may not correlate with outcomes. Lastly, we add clarity regarding behavioral issues by unpacking three different behavioral issues rooted in partner interdependence—tradeoffs, frictions, and tensions. These ‘behavioral manifestations of interdependence’ become evident through the flows of knowledge, resources, and tasks between partners. We draw on this analysis to lay out how the behavioral manifestations can inhibit or facilitate strategic alliance functioning and outcomes.

Responding to calls for a deeper understanding of strategic alliance outcomes (e.g., Oliveira & Lumineau, 2019; Parmigiani & Rivera-Santos, 2011; Salvato, Reuer, & Battigalli, 2017) also led us to a fresh perspective on strategic alliance outcomes. Because almost all research has looked at outcomes as end results, or dependent variables, we know little about the pursuit of outcomes as predictors which influence other aspects of alliances. We expand on this insight in the future research agenda and explain how such a shift from outcomes as end results to the pursuit of outcomes as explanatory starting points can unlock new research opportunities. For instance, since the pursuit of different outcomes makes salient different aspects of partner interdependence, we suggest that the extent of tradeoffs, frictions, and tensions in alliances often depend on the outcomes pursued. We discuss how this ‘outcome-centric’ perspective can help to address well known and overdue areas of inquiry regarding strategic alliance functioning, the behavioral manifestations of interdependence, and the pursuit of multiple outcomes.

Our review offers three contributions to the strategic alliance literature. First, by highlighting the distinctiveness and unique theoretical value of SAOs, functioning, and the behavioral

manifestations, we aim to alleviate some of the confusion and messiness, provide a consolidated view on strategic alliances outcomes, and offer clarity regarding related concepts. Second, by making the behavioral manifestations of interdependence one of the centerpieces of our theorizing, we disentangle and delineate key behavioral issues and challenge the widely negative view that surrounds them (e.g., Bruyaka et al., 2018; Ghosh & Klueter, In-Press; Schilke & Lumineau, 2018). Third, we offer an outcome-centric perspective which brings outcomes to the foreground of the conversation and offers a new angle for examining key issues, such as the pursuit of multiple outcomes in strategic alliances.

REVIEW METHOD

Systematic Search

Strategic alliances refer to “...voluntary arrangements between firms involving exchange, sharing or codevelopment of products, technologies, or services” (Gulati, 1998: 293). Since the literature on strategic alliances is extensive, it was necessary to make choices regarding the scope of search to make this review tractable. We focused on a set of twelve top management journals: *Academy of Management Annals*, *Academy of Management Journal*, *Academy of Management Review*, *Administrative Science Quarterly*, *Journal of International Business Studies*, *Journal of Management*, *Journal of Management Studies*, *Management Science*, *Organization Science*, *Organization Studies*, *Research Policy*, and *Strategic Management Journal*. This allowed us to concentrate on a manageable number of high-quality articles and allowed comparison of findings across outlets (for similar approaches, see Lumineau & Oliveira, 2018 and Shepherd & Suddaby, 2017).

We included articles that examined outcomes of joint ventures and strategic alliances, whether vertical or horizontal, regardless of the number of partners (i.e., dyadic as well as multiparty). Strategic alliances are fundamentally different from arms-length exchanges where one side receives cash alone (e.g., Connelly, Crook, Combs, Ketchen, & Aguinis, 2018; Gulati, 1998), so such exchanges were not part of our review (including purely procurement and outsourcing

arrangements, venture capital ties, and investment bank syndicates). Articles about alliance networks, portfolios of alliances, patent pools, or relationships with an interfirm ecosystem, were also not part of our review. We included articles examining both domestic and international alliances, however, we excluded the subset of literature focusing on outcomes arising from international-specific issues; for example, decisions about foreign entry modes (Yiu & Makino, 2002) and cultural differences (Pothukuchi, Damanpour, Choi, Chen, & Park, 2002). (For dedicated reviews of the international joint venture literature, see Ren, Gray, & Kim, 2009 and Nippa & Reuer, 2019).

Figure 1 details our approach to identifying relevant literature. We searched titles, abstracts, and keywords for terms most commonly used to describe strategic alliances: “alliance*” “joint venture*”, “interorg*,” “inter-org*,” “interfirm,” and “inter-firm”, yielding 1,667 results. Alliances are sometimes called cooperative arrangements (Hoffman, Lavie, Reuer, & Shipilov, 2018), collaborations (Madhok & Tallman, 1998; Majchrzak, Jarvenpaa, & Bagherzadeh, 2015), and partnerships (Steensma & Corley, 2000), so we also search for “cooperat*”, “collaborat*”, and “partner*” (1,911 additional results).

We read and screened the search results to identify the articles which met at least one of our criteria: (a) conceptualization and/or empirical focus on one or more strategic alliance outcomes; or (b) theoretical explanations and/or empirical analysis of factors shown to affect outcomes. Many articles were screened out because they focused on phenomena outside the scope of our review (2,359 articles) or focused on alliances but did not meet either criterion (339 articles). Once all non-relevant articles were screened out, 232 articles remained. For completeness, we also searched journal websites to identify relevant ‘In-Press’ and recently accepted articles. This added one article, resulting in a final sample of 233 articles.

Insert Figure 1 about here

Coding and Analysis

Our analysis aimed to address the fragmentation, confusion, and messiness problems, in order to unlock important future topics in strategic alliance research. We took a similar tact to Castañer & Oliveira (2020), in that we adapted an approach used for qualitative data analysis that afforded rigor and reliability in summarizing prior research (Gioia, Corley, & Hamilton, 2013). Multiple authors read each article as part of an interactive and iterative approach with three discernable steps, leading to the data structure shown in Appendix B.

The first step entailed an inductive approach to coding the relevant concepts (e.g., outcomes described in alliances) and text (e.g., theoretical arguments about outcomes) from the articles, staying close to the exact words and terminologies used by the authors (Gioia et al., 2013). The second step incorporated the voices of our author team (first individually, then collectively through rounds of discussion) as “knowledgeable agents” (Gioia et al., 2013: 20) who progressively developed a preliminary categorization of the raw data in terms of first-order themes and then second-order concepts. For instance, “market positioning” and “inter-partner acquisitions” are first-order themes that we grouped under the second-order concept “competitive positioning.” We revisited the data and engaged in rounds of discussion to develop a consensual interpretation, which we refined through multiple iterations. The final step consisted of consolidating the second-order concepts into aggregate dimensions.

Figure 2 lays out the three building blocks of the review emerging from the coding and analysis. The building blocks are explored separately across the following three sections. Our framework consolidates the spectrum of strategic alliance outcomes, distinguishes strategic alliance functioning, and illuminates three behavioral manifestations of interdependence. The behavioral manifestations emerged as we observed that many of the behavioral issues impacting outcomes were attributable to partners’ dependence on each other for knowledge, resources, and contributions to joint tasks. Although we discuss linkages and connections among different aspects of the framework, developing causal arguments is beyond the scope of our review.

Insert Figure 2 about here

STRATEGIC ALLIANCE OUTCOMES

Strategic alliance outcomes (SAOs) refer to substantive results from strategic alliances. SAOs can occur at either the firm-level or alliance-level. Firm-level outcomes refer to substantive results occurring to an individual firm; whereas alliance-level outcomes refer to substantive results that occur for the collective. For example, a jointly developed new pharmaceutical drug (Hoang & Rothaermel, 2005) is an alliance-level innovation outcome, whereas a firm’s abnormal stock market return (Yang, Zheng, & Zaheer, 2015) is a firm-level financial outcome. In Table 1, we layout firm and alliance-level SAOs. We have synthesized and grouped these outcomes into a spectrum of four SAOs types: knowledge, innovation, competitive positioning, and financial.

Insert Table 1 about here

Knowledge Outcomes

Knowledge outcomes refer to the creation, acquisition, or application of knowledge, with or from partners (Grant & Baden-Fuller, 2004; Inkpen & Tsang, 2007). We identified thirty-seven articles that examined a range of knowledge outcomes (Table 1), reinforcing prior claims that knowledge is an important motive for strategic alliances (Grant & Baden-Fuller, 2004: 63). Of the articles examining knowledge outcomes, twenty-seven focused on firm-level knowledge outcomes (e.g., knowledge creation by a partner; Jiang & Li, 2009) and ten focused on alliance-level knowledge outcomes (e.g., interfirm knowledge transfer; Faems, Janssens, & van Looy, 2007).

Knowledge outcomes can occur within a short time horizon (e.g., formal knowledge acquisition; Janowicz-Panjaitan & Noorderhaven, 2008), but most knowledge outcomes studied concerned a longer time horizon (e.g., acquisition of relational knowledge; Mesquita, Anand,

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3 & Brush, 2008; Muthuswamy & White, 2005). Because acquired knowledge must be integrated
4 with a firm's wider activity (e.g., Howard, Steensma, Lyles, & Dhanaraj, 2016), this can add to
5 the time lag before knowledge outcomes are fully observable. Scholars have noted that "the
6 evaluation of the success of an alliance should take these time horizons into consideration..."
7 and that the time horizon studied influences the extent and nature of knowledge outcomes
8 reported (Schildt, Keil, & Maula, 2012: 1169-1170). Equally, however, one must not overstate
9 the importance of time—for example, by assuming that time represents experience, or that
10 experience can be equated to knowledge accumulation (Lavie, 2021).

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12 The empirical study of knowledge outcomes has often relied on patent-based measures¹. Thirty-
13 two percent of articles on knowledge outcomes used patent counts and patent citation measures,
14 capturing aspects such as knowledge acquisition (Subramaniam, Bo, & Kah-Hin, 2018) and
15 speed of knowledge application (Oxley & Wada, 2009). On one hand, patents offer a degree of
16 objectivity (Griliches, 1990) and the availability of citation data can provide an indicator of
17 knowledge importance or quality (Mowery, Oxley, & Silverman, 1996; Rosenkopf & Almeida,
18 2003). On the other hand, patenting decisions are specific to inventors, firms, sectors, and time
19 periods (Lerner and Seru, 2017)—often in complex ways which are difficult to correct using
20 statistical means. Firms with occasion to patent might not make an application (Jiang & Li,
21 2009), patents can overvalue exploitable (i.e., patentable) knowledge at the expense of new-to-
22 the-world knowledge, and specialist inventions resulting in patents may not be representative
23 of a wider body of knowledge residing in a firm. Because "...cited patents can be much further
24 afield from the citing patent than was the case in the past" (Kuhn et al., 2020: 111), and since
25 firms may underdisclose or overdisclose the extent of relatedness to prior work (e.g., Lampe,
26 2012), scholars have also raised concerns about the validity of patent citations for measuring
27 knowledge quality or importance. It may be necessary to rethink how patents are used to assess

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¹ Some scholars have made patent datasets publicly available, such as the DISCERN dataset by Arora, Belenzon, & Sheer (2021) or the Patent Citation Similarity dataset by Kuhn, Younge, & Marco (2020).

knowledge outcomes, perhaps turning to machine learning (e.g., Nanda, Younge, & Fleming, 2015; Younge & Kuhn, 2016) to instead identify text-based measures of particular knowledge characteristics (Kuhn et al., 2020).

Sustained study of knowledge outcomes has led to a rich literature; however, research has paid less attention to how individuals in alliances learn. Since “...learning takes place in the minds of individuals...” (Lavie, 2021: 269), it is critical to understand how individuals (who could be biased and cognitively constrained) learn and acquire knowledge in alliances. Gatekeepers are often perceived as managing knowledge outflows, yet how gatekeepers evaluate, prioritize, and learn from knowledge inflows remains poorly specified.

Innovation Outcomes

Innovative outcomes refer to new products, processes, and services. Distinguishing between knowledge outcomes and innovation outcomes is not straightforward. Our definition is in line with the conceptual boundary drawn by Ahuja and colleagues between ‘innovative efforts’ and ‘innovative outputs’ (2008: 4). Innovative efforts refer to innovation inputs (such as knowledge) which can be converted into innovation outputs—or innovation outcomes in our terminology. Innovation outcomes, such as innovation performance (Hohberger, Kruger, & Almeida, 2020; Nielsen & Nielsen, 2009) and product innovations (Becker & Dietz, 2004; Wu, 2012), are examined in thirty-seven sampled articles (Table 1). The study of innovation outcomes at the firm-level (33 articles, 89.2%) has mostly concentrated on overall innovation performance (Chung & Kim, 2003; Runge, Schwens, & Schulz, 2022) and product innovation and development (Fang, 2011; Wu, 2012). Innovation outcomes have also been studied at the alliance-level, albeit less frequently (4 articles, 10.8%); for example, joint completion of a new drug (Hoang & Rothaermel, 2005).

Various innovation outcomes occur (and are measured) over different time horizons; for example, new product development (one-year lag; Frankort, 2016) and firm innovation performance (four-year window; Sampson, 2005: 2007). The timing of innovation outcomes is

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3 mostly long-term, perhaps due to the complexities of combining multiple innovation inputs
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5 (e.g., knowledge acquired from many partners). While many studies examine innovation
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7 outcomes empirically over a period of five years plus (Hoang & Rothaermel, 2005), we also
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9 found studies using shorter time windows, arguing that a shorter window offers a more
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11 conservative test with fewer confounding influences (Chung & Kim, 2003).
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14 The empirical study of innovation outcomes is dominated by patent-based approaches (35.1%
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16 of articles studying innovation SAOs). This highlights how a consistent empirical distinction
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18 between knowledge and innovation is also lacking, reflecting a wider threat to cumulatively
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20 building insights and developing generative knowledge². Patent-based measures of innovation
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22 SAOs include the number of new patents achieved (Chung & Kim, 2003; Hagedoorn &
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24 Schakenraad, 1994; Schilling, 2015), as well as patent citations and citation-weighted patent
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26 counts (Runge, Schwens & Schulz, 2022; Sampson, 2005, 2007). In many cases, patents may
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28 be a more appropriate reflection of innovation efforts, or innovation inputs (e.g., knowledge),
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30 rather than innovation outcomes, since a patent granted reflects a recognized invention yet not
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32 all inventions lead to new products, services, or processes.
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37 Overall, innovation outcomes have been examined in a limited number of empirical settings,
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39 perhaps partly due to the focus on patent data. Such outcomes have mostly been studied in high
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41 tech empirical contexts, such as ICT (Keil, Maula, Schildt, & Zahra, 2008; Oxley & Wada,
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43 2009) and pharmaceuticals (Banerjee & Siebert, 2017; Hoang & Rothaermel, 2005). There is
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45 scope to further examine how alliances generate innovation outcomes across a wider spectrum
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47 of settings (e.g., agriculture, construction, transportation), and whether such outcomes may vary
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49 compared to commonly-studied industries.
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53 **Competitive Positioning Outcomes**

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59 ² In the case of articles where the conceptual distinction between knowledge and innovation was unclear, we
60 followed the authors' own labelling.

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Competitive positioning SAOs refer to changes to firms’ competitive stance in a market or industry. Such outcomes are examined in ten papers in our sample. Competitive positioning outcomes studied include market success and market exposure (Lavie, Lechner, & Singh, 2007) and aggressiveness of a firm’s competition against its partner (Cui, Yang, & Vertinsky, 2018). Out of ten articles, we found only one instance of competitive positioning outcomes reported at the wider alliance-level, which involved changes in the relative competitive positions of the partners over time (Dussauge, Garrette, & Mitchell, 2004).

Competitive positioning SAOs often seem to benefit and build from other SAOs; such as the acquisition of knowledge about a partner. For instance, Vanhaverbeke and colleagues (2002) highlighted that reduced information asymmetry and mutual learning between alliance partners increase the probability that one will eventually acquire the other. This phenomenon has also been the focus of several other studies (Hagedoorn & Sadowski, 1999; Yang, Lin, & Peng, 2011), underscoring that certain SAOs might not occur until after the alliance’s operational lifespan has concluded.

Empirical studies of competitive positioning outcomes have drawn on archival news and industry databases (in 60.0% of articles reporting competitive positioning outcomes) (e.g., Cui et al., 2018) and questionnaires (in 30.0% of articles) (e.g., Amaldoss & Staelin, 2010). The emphasis on R&D alliances for studying competitive positioning outcomes is somewhat surprising from a conceptual viewpoint, but may be motivated by data accessibility in sectors with high R&D intensity (e.g., semiconductors and biopharmaceuticals). Such an emphasis on R&D alliances contrasts with a comparative lack of attention to manufacturing or marketing alliances, which could be closer to the locus of competition where competitive positioning outcomes are more salient. Competitive positioning outcomes might also be observable in less fashionable industries (e.g., those with low differentiation or declining sales). Although such settings have received less attention, they may offer opportunities to tease out more nuanced

aspects of competitive positioning (for example, speed, visibility, and competitive acumen) affected by alliances.

Overall, the relative paucity of reported competitive positioning outcomes may result from a lack of adequate measures rather than a lack of interest. Several studies interested in the competitive positioning consequences of alliances have focused on a financial outcome (e.g., abnormal stock market returns, Oxley, Sampson, & Silverman, 2009; or partner revenue and sales, Gnyawali & Park, 2011), perhaps because financial measures are more readily accessible. In these studies, competitive positioning is developed as a mechanism which contributes to financial outcomes, rather than as a standalone outcome.

Financial Outcomes

Financial outcomes, referring to economic results from strategic alliances, were examined in 68 articles. Fifty-four articles (79.4%) have studied firm financial outcomes including stock market performance (Das, Sen, & Sengupta, 1998; Gulati, Lavie, & Singh, 2009; Reuer & Koza, 2000) and accounting performance (Ang, 2008; Goerzen, 2007; Kalaignanam, Shankar, & Varadarajan, 2007). Alliance-level financial outcomes (14 articles) have received a high proportion of conceptual study (e.g., relational rents; Dyer & Singh, 1998; Dyer, Singh, & Hesterly, 2018) relative to empirical study. Unless the alliance operates as a joint venture with its own set of accounting results, it can be difficult to find direct evidence of alliance-level financial outcomes. Empirical study of alliance-level outcomes can be particularly insightful because it can unravel the extent of alignment between firm-level outcomes and alliance-level outcomes. For instance, in the construction industry, Holloway and Parmigiani (2016) suggested that depth of cooperation improved the project's chances of submitting the winning bid, but hurt the prime contractor's profitability.

From a temporal perspective, financial outcomes are commonly seen as the 'ultimate' or 'end' outcomes but this need not necessarily be the case. Financial outcomes can be the first outcome to manifest from an alliance (e.g., stock market reactions at alliance announcement; Gulati et

al., 2009) or the last (e.g., firm payoffs from an alliance; Arend & Seale, 2005; Kumar, 2005). Thus, researchers may further unpack interesting narratives regarding the temporal sequencing of financial SAOs.

Empirical studies of financial outcomes have focused on archival financial databases (in 55.9% of articles reporting financial outcomes). Though the wide accessibility of these data sources makes them popular, they raise validity concerns. Stock market returns reflect investors’ predictions about future events, while firm-wide accounting metrics from commonly-used large datasets suffer from limitations associated with disentangling alliance-related contributions from non-alliance related contributions. Recently, it is welcome to see scholars reaching beyond traditional contexts to find novel financial measures offering potential to disentangle effects at different levels and mitigate certain validity concerns—for example, auction prices of foal sharing contracts (Fudge Kamal, Honoré, & Nistor, 2021).

Across all four SAOs—knowledge, innovation, financial, and competitive positioning—we found a small number explicitly detrimental outcomes reported. For example, Park, Park, and Ramanujam (2018) examined the incomplete and incorrect learning from failure in a shared task, and Diestre (2018) examined drug safety crises suffered by R&D partners. We are unsure whether the paucity of attention to explicitly detrimental outcomes reflects the practical reality of alliances. In regard to knowledge outcomes, the learning race literature suggests that ‘knowledge winners’ would be accompanied by a ‘knowledge losers’ (Hamel, 1991; Khanna, Gulati, & Nohria, 1998; Khanna, 1998), and acquiring certain knowledge might require unlearning other knowledge (e.g., Inkpen & Tsang, 2007). The risk of knowledge leakage is regularly noted as a motivator for the protection of knowledge (Kale, Singh, & Perlmutter, 2000; Nielsen & Nielsen, 2009; Simonin, 2004), but, in comparison to the volume of literature on knowledge acquisition, we found very few articles that explicitly studied knowledge leakage or knowledge loss outcomes (c.f., Hamel, 1991; Oxley & Wada, 2009). A major challenge when

studying detrimental outcomes in alliances concerns reverse causality (e.g., Ahuja, Lampert, & Tandon, 2008). Firms with limited internal efficacy in regard to achieving outcomes may gravitate to alliances as a possible solution, raising the possibility that an alliance might be a response to (rather than an antecedent of) detrimental outcomes. Forward-looking empirical measures of outcomes (e.g., abnormal stock market returns at alliance formation³) are susceptible to the usual human biases (e.g., optimism bias, bounded rationality), which may also overestimate positive outcomes and underestimate detrimental outcomes.

In summary, we have offered a consolidated spectrum of four distinctive types of SAOs: knowledge, innovation, competitive positioning, and financial. Our consolidation highlights commonly studied SAOs and important areas that have received limited attention. In particular, interrelationships among different SAOs appears to be an area of practical significance that has been largely absent in the scholarly literature.

The Intertwining of Strategic Alliance Outcomes

Many, if not most, strategic alliances pursue multiple SAOs. For example, T-Mobile's recent partnership with Nokia helped T-Mobile to acquire 5G knowledge and capabilities (Harris, 2018) which, in turn, helped to conclude T-Mobile's drawn-out acquisition of Sprint (Reuter, 2018). The alliance between T-Mobile and Nokia may also contribute to Nokia losing a key partnership with Verizon (a major competitor of both T-Mobile and Sprint) who reportedly plan to "completely rip out and replace all of Nokia's equipment and services" (Kapko, 2020). Similarly, Sony and Samsung's LCD-TV joint venture resulted in technological standard-setting, market share gains, and knowledge acquisition for both firms. Because Samsung also outlearned Sony, the joint venture also caused Samsung to dramatically improve its relative competitive position across major TV markets (Gnyawali & Park, 2011). These examples underscore two important facets of SAOs: (1) alliances often involve multiple outcomes and

³ Articles in our sample reported positive abnormal returns in the range of 0.44% (Reuer & Koza, 2000), 0.84% (Kale, Dyer & Singh, 2002), 1.03% (Arslan, 2018), and 1.64% (Oxley et al., 2009).

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(2) such outcomes are frequently intertwined. The intertwining of SAOs means that the pursuit of a particular SAO requires actions and resources which may be compatible or conflicting with actions and resources required for pursuing other SAOs.

A large majority of academic articles study one SAO only and evaluate particular decisions, actions and other factors based on consequences for that single SAO. For example, Gulati, Lavie and Singh (2009) found that prior experience working with a partner is associated with positive abnormal stock market returns, whereas Hoang and Rothaermel (2005) found that prior experience has a negative effect on joint R&D project performance. Such findings may not be contradictory and, instead, may reflect how actions (such as cooperating repeatedly with a partner) can benefit one SAO while undermining another SAO. Although literature which has focused on a single outcome has contributed tremendously to our understanding of SAOs, such focus has also led to fragmentation. Studying one SAO in isolation makes it difficult to capture the intertwining of SAOs whereby positive outcomes in one domain may mean detrimental outcomes in another.

The intertwining of SAO generally goes unacknowledged in the literature, albeit with some exceptions (e.g., Castañer, Mulotte, Garrette, & Dussauge, 2014; Frankort, 2016; Kavusan et al., 2016; Holloway & Parmigiani, 2016; Lavie et al., 2007). For instance, in the aircraft industry, Castañer and colleagues (2014) found that aircraft developed through horizontal alliances exhibited greater sales but required longer time-to-market. Lavie and colleagues (2007) established that extent of involvement in a multiparty alliance enhanced partners' reputation and market success but reduced productivity. In addition, scholars have also highlighted possible incompatibilities between knowledge outcomes and innovation outcomes, and suggested that these can be somewhat mitigated by partners' technological overlap (Frankort, 2016; Kavusan et al., 2016) and market distinctiveness (Frankort, 2016). To draw attention to this important area, we provide preliminary thoughts about when and how various

SAOs are intertwined, organizing our discussion around how certain SAOs can be positively and negatively intertwined with others, as well as the temporal intertwining of SAOs.

SAOs can be positively or negatively intertwined when one positive SAO is compatible or conflicting with another SAO. An SAO might involve developing the same resources and knowledge, undertaking complementary actions, or executing tasks that lay groundwork for another SAO. For instance, knowledge outcomes may help the subsequent achievement of innovation outcomes (Nielsen & Nielsen, 2009; Oxley & Wada, 2009) because innovation outcomes require access to knowledge from a variety of diverse sources (Cohen & Levinthal, 1990; Nielsen & Nielsen, 2009). In contrast, the pursuit of one SAO might also divert required knowledge and distract attention from other SAOs (Kavusan et al., 2016). For instance, competitive aggressiveness (Cui et al., 2018), or investments in competition (Amaldoss & Staelin, 2010), may foster a rivalrous dynamic between partners, inhibiting SAOs such as joint knowledge creation or knowledge sharing.

Compatibility or conflict among SAOs also differs depending on the degree of alignment between individual partner outcomes. On one hand, partners' efforts to commercialize the same jointly developed technology can be mutually helpful because it raises the technology's status and legitimacy (Gnyawali & Park, 2011), and illuminates pitfalls and mistakes to be avoided. On the other hand, where multiple partners are pursuing knowledge acquisition from each other in a win-lose learning race situation (Khanna et al., 1998), partners' pursuit of the same outcome is likely to inhibit each other.

Moreover, SAOs can differ in the degree of compatibility across time because the pursuit of a specific outcome sets an alliance on a path that helps or inhibits the accomplishment of subsequent outcomes. An outcome achieved early in the alliance's life might lead to additional resource investments, more resource sharing between partners, more ambitious goals, or improvements in how tasks are organized. For instance, positive stock market reactions to

alliance formation (Kumar, 2010: 2011; Yang, Zheng, & Zhao, 2014) might affirm managers' confidence in the alliance and lead them to dedicate more resources for pursuing subsequent knowledge and innovation SAOs. However, accomplishing an early SAO could also lead to partners retracting or protecting resources, revising downwards their alliance goals, or making ill-judged task-related decisions. For example, if one partner acquires valuable knowledge not intended for sharing, this may cause another partner to become cautious and protective with their resources, thereby inhibiting further knowledge transfer and other joint outcomes.

STRATEGIC ALLIANCE FUNCTIONING

Our analysis of SAOs also identified considerable confusion in the literature regarding constructs that were commonly presented as SAOs while actually capturing alliance functioning (i.e., how well the alliance is working). Examples of such constructs included resource commitments to the common pool (Agarwal, Croson, & Mahoney, 2010), managers' perceptions about alliance success (Becerra et al., 2008), and alliance stability (Park & Ungson, 1997). Concerns about confusion between functioning and SAOs have been raised in prior studies (Ariño, 2003; Grant & Baden-Fuller, 2004; Reuer & Zollo, 2005), but the confusion has persisted in the literature we reviewed. Indicators of functioning represent possible precursors to SAOs (e.g., Ariño, 2003; Lokshin, Hagedoorn, & Letterie, 2011), and can be correlated with SAOs (Geringer & Herbert, 1991; Kale et al., 2002), yet we know little about the extent to which, and under what conditions, functioning and SAOs might be aligned.

Our review led us to distill relevant literature into three overarching 'functioning indicators': *commitment*, *satisfaction*, and *stability*. These indicators are representative of the aspects of functioning which have been presented as SAOs or used as proxies for SAOs. Table 2 lays out the specific aspects of functioning that have been studied, demonstrating that functioning indicators are a stable feature of the strategic alliance literature over time. We now discuss each of the indicators individually, followed by an elaboration of their conceptual distinctiveness versus SAOs and a discussion of when functioning indicators may not be correlated with SAOs.

Insert Table 2 about here

Commitment

Commitment refers to the extent of joint actions, investments, and efforts toward cooperation by partners (e.g., Agarwal et al., 2010; Amaldoss & Staelin, 2010; Fonti, Maoret, & Whitbred, 2017). It implies a long-term orientation toward the alliance, including a willingness to make short-term sacrifices to realize long-term benefits (Zeng & Chen, 2003). Commitment can provide an indication of how well an alliance is working based on tangible and intangible elements. Tangible elements of commitment involve the investment and configuration of relation-specific, non-recoverable resources (Agarwal et al., 2010; Amaldoss & Staelin, 2010). Intangible elements of commitment involve partners' attitudes and efforts (Zeng & Chen, 2003). High intangible commitment might, in turn, means that partners identify psychologically with the objectives of the alliance and demonstrate willingness to nurture the relationship (e.g., Mohr & Spekman, 1994). Intangible commitments can go beyond the contractual obligations or agreed investment of resources, and can also incorporate a cognitive component (e.g., Cullen, Johnson, & Sakano, 2000). Empirical data sources used to gauge different aspects of commitment have included questionnaires (four articles, 57.1%) (Amaldoss & Staelin, 2010) and interviews (one article, 14.3%) (Ariño & de la Torre, 1998).

Satisfaction

Satisfaction refers to contentment with alliance processes, fulfillment of goals, and perceived gains by partners (Ariño, 2003; Geringer & Herbert, 1991). Empirical study of satisfaction relies almost exclusively on questionnaires (40 articles, 88.9%), mostly gathering data from one partner only (e.g., Jap & Anderson, 2007; Krishnan, Martin, & Noorderhaven, 2006). There appear to be three common areas of emphasis based on our review of how satisfaction has been assessed in the literature. The first area of emphasis is contentment with alliance processes; for example, alliance efficiency and effectiveness (Carson, Madhok, Varman, & John, 2003; Hoegl

& Wagner, 2005; Im & Rai, 2008; Sobrero & Roberts, 2001), time and effort spent in a worthwhile way (Robson, Katsikeas, & Bello, 2008), and the attainment of high professional, technical or scientific standards (Dussauge & Garrette, 1995; Mitsuhashi, 2003). The second area of emphasis concerns goal fulfillment⁴, including the extent to which initial goals were satisfied (Krishnan et al., 2006; Lioukas, Reuer, & Zollo, 2016; Saxton, 1997; Schilke & Lumineau, 2018) and the degree of progress toward long-term and strategic objectives (Ariño, 2003; Pearce, 2001). The third area of emphasis is perceived gains by partners, including the development of competencies (Lunnan & Haugland, 2008; Saxton, 1997) and increased bargaining power (Lioukas et al., 2016). This third emphasis also includes perceptions of the alliance’s ‘net spillover effect’ or, in other words, the net gains from the strategic alliance for the individual activities of the partners after costs and investments (Ariño, 2003, Parkhe, 1993a). These three different emphases are rarely isolated from each other (c.f., Ariño, 2003). Instead, as Table 2 illustrates, researchers often combine the different areas of satisfaction within constructs labelled ‘alliance performance’, which oftentimes also incorporate aspects of SAOs.

Stability

Stability refers to the absence of major changes or disruptions within a strategic alliance (instability refers to alliance reorganization or termination) (Greve, Baum, Mitsuhashi, & Rowley, 2010; Park & Ungson, 2001). Treatments of stability in the alliance literature have focused on disruptions associated with alliance termination (Bakker, 2016; Park & Russo, 1996;) and the addition or withdrawal of partners (Bruyaka et al., 2018; Greve, Mitsuhashi, & Baum, 2013). Conceptually, it is worth noting that alliances are generally created as transitory arrangements; meaning some change is to be expected and the absence of unplanned and

⁴ Some have argued that goal fulfillment is distinct from partner satisfaction (e.g., Ariño, 2003). Our review reflects the majority of literature where goal fulfilment is a dimension of satisfaction (e.g., Bercovitz et al., 2006; Reuer & Zollo, 2005).

premature change may be a better indicator of functioning (Bakker, 2016; Park & Ungson, 2001). Although studies have pointed out that unplanned instability can be adaptive (e.g., recalibrating to a changing environment; Bakker, 2016), most studies have viewed instability as disruptive and focused on the desirable aspects of stability. For instance, stability might suggest that partners have been able to find enough compatible ground to continue their working relationship (Park & Russo, 1996; Park & Ungson, 2001), even during low points or uncertainties; whereas instability might reflect an irreconcilable conflict (Kogut, 1988). The empirical study of stability usually relies on duration data constructed from archival news and industry databases (18 articles, 46.2%) (Greve et al., 2013; Park & Russo, 1996). Many empirical measures of stability which are reliant on secondary data are ill-equipped to determine whether reported instability is, in fact, undesired (e.g., limited, if any, data on reasons for termination; no data available regarding SAOs).

The Distinctiveness of Strategic Alliance Functioning

As noted above, equating indicators of alliance functioning with SAOs has led to conceptual and empirical confusion in the literature. We acknowledge that the two concepts are entangled, however, we see value in drawing attention to the distinctiveness of each. SAOs refer to substantive results from strategic alliances—for example, a new drug (Hoang & Rothaermel, 2005) or acquired knowledge (Inkpen & Tsang, 2007) whereas functioning reflects how well particular aspects of the alliance are working.

We suggest two conceptual distinctions between functioning and outcomes. First, functioning indicators report on relational aspects of the alliance. Functioning encapsulates partners' commitment to each other and their joint actions, contentment with the alliance, and the extent to which relations between partners are stable. Functioning indicators, therefore, provide signals about how the partners' relationship is working. Strong functioning (i.e., alliance working well) can offer clues about the potential for an alliance to lead to certain positive SAOs

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(Ariño, 2003) but, equally, there are limits to the association between strong functioning and positive SAOs. For instance, a high level of stability might reflect a tight-knit, productive partnership in one setting, but indicate two stagnant and inertial partnership in another setting (Krishnan et al., 2006; Reuer & Zollo, 2005). Similarly, high satisfaction might suggest that certain relational outcomes are ‘on track’ in one alliance, but might suggest firm complacency in another alliance. Thus, the association between relational elements signalled by functioning on one hand, and positive and detrimental SAOs on the other hand, is likely to vary depending on the extent to which particular SAOs are reliant on strong functioning, as well as nuances of partner relations in a given alliance.

Second, whereas SAOs refer to results that might not be realized until a future point, functioning is ongoing, dynamic, and transient during the operational life of an alliance. Reuer and colleagues (2002) found that almost half of alliances experienced significant changes, the sort which can alter functioning. Contracts are adjusted, resources get reconfigured, new resources are added, and old resources get divested. Similarly, new goals emerge, tasks change, and partners make adjustments. For instance, the Pfizer-BioNTech alliance realized extremely positive outcomes despite some major functioning issues at an earlier time point. Functioning tends to be studied through a snapshot of how well the alliance is working at a particular time, yet snapshots fail to capture changes in functioning during the life of an alliance. Whereas outcomes (e.g., revenues or product innovations), once accomplished, might continue to exist so that they can be drawn upon in the future (suggesting that earlier SAOs can predict certain later SAOs); functioning is heavily influenced by ongoing events and interactions. Functioning, and especially the perceptual dimensions, can be altered by day-to-day decisions and routine managerial interactions, meaning that earlier functioning may have limited relevance to later SAOs. For instance, commitment likely rises and falls as alliances proceed through different

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3 stages and face different events, such as contractual and personnel changes. Thus, the validity
4 of snapshots of functioning, and their relevance to future SAOs, may depreciate rather quickly.
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6 The distinctively relational and dynamic nature of functioning reinforces the importance of
7 distinguishing functioning from outcomes, and is suggestive of potential problems that arise
8 when alliance functioning indicators are used to infer SAOs. Left unchecked, the persistence of
9 confusion among these distinct concepts can lead to unreliable and conflicting findings and
10 impede the accumulation of knowledge.
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19 **When are Functioning and Outcomes Not Correlated?**

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21 The conceptual and empirical confusion raises the question of when strategic alliance
22 functioning does not align with SAOs. To further this conversation, we suggest two situations
23 when functioning and outcomes may not correlate: actor asymmetry and temporal asymmetry.
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- 28 • *Actor asymmetry* refers to situations where firm SAOs are unrelated to the relational
29 elements of alliances which are reflected by the functioning indicators. Such
30 orthogonality is often a consequence of a well-recognized challenge for managing
31 strategic alliances: conditions which maximize collective interests are different from
32 conditions which maximize individual interests (Arslan, 2018; Khanna et al., 1998;
33 Larsson, Bengtsson, Henriksson, & Sparks, 1998). Hence, SAOs which are positive in
34 terms of individual interests might occur alongside weak functioning which is
35 suggestive that collective interests have been neglected. For example, the stability of an
36 alliance might be somewhat trivial in determining whether a particular firm
37 accomplishes knowledge acquisition (Hamel, 1991). Indeed, alliance termination (i.e.,
38 instability) might be a more relevant indicator that a firm has accomplished knowledge
39 acquisition (Grant & Baden-Fuller, 2004; Reuer & Zollo, 2005). Taking this a step
40 further, the differing motivations of individual alliance partners (e.g., Das & Kumar,
41 2011) could lead the same functioning snapshot to correlate with one firm's SAOs and
42 not with others'. For example, commitment may correlate with one partner's innovation
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SAOs but not with the innovation SAOs of another partner, if the former partner (but not the latter) matches its alliance commitments with internal R&D investments (e.g., Hagedoorn & Wang, 2012). Such asymmetries underscore the challenges with inferring SAOs based on strategic alliance functioning.

- **Temporal asymmetry** refers to situations where functioning and SAOs are unrelated due to the dynamic and transient nature of functioning. As noted, functioning difficulties at an early stage may give way to stronger functioning at a later stage, and an earlier snapshot of functioning may be of limited consequence to later outcomes. As an alliance relationship develops over time, the level of functioning which correlates with SAOs might also change. For instance, depending on the relationship stage, stability might indicate the sustained exploitation of common benefits in an early-stage relationship (e.g., Khanna, 1998; Segrestin, 2005), and thus correlate with positive SAOs; or failure to achieve such outcomes in a timely manner in a late-stage relationship (Cui et al., 2011; Kale et al., 2002; Krishnan et al., 2006), and thus correlate with detrimental SAOs. Therefore, temporal issues which are distinct to functioning may create problems when inferring SAOs based on indicators of functioning.

In summary, functioning has been commonly used as a proxy for positive and detrimental outcomes, resulting in conceptual and empirical confusion. Indicators relating to commitment, satisfaction, and stability have been used to infer and draw conclusions about SAOs. We have argued that the relational and dynamic nature of functioning makes it conceptually and empirically distinct from outcomes. We have also suggested that actor and temporal asymmetries are two preliminary conditions when functioning might not correlate with outcomes.

BEHAVIORAL MANIFESTATIONS OF PARTNER INTERDEPENDENCE

We identified a vast range of behavioral issues surrounding functioning and SAOs during our review, which included conflicts (Schilke & Lumineau, 2018), incidences of competitive

behavior (Park & Russo, 1996), and decision-making challenges (Walter, Lechner, & Kellermanns, 2008)⁵. It would seem that many behavioral issues can be traced back to partner interdependence. For instance, the extent of decision-making challenges is shaped by the interdependence of tasks between partners (Gulati & Singh, 1998); whereas conflicts, along with incidences of competitive behavior, can frequently be traced to partners' interdependent resources (Das & Teng, 2000b), and interdependent goals (Khanna et al., 1998). Partner interdependence can be helpful and lead to mutually beneficial outcomes, but it can also cripple an alliance relationship; making it a core issue in strategic alliance research (Dyer et al., 2018; Gulati & Singh, 1998; Steensma & Corley, 2000).

Partner interdependence is an inherent feature of strategic alliances and a key reason why alliances are both beneficial and challenging. Partner interdependence refers to situations whereby the reward to one partner from their actions and resources depends on other partners' actions and resources (see Puranam, Raveendran & Knudsen, 2012: 422). Interdependence means that partners depend on each other for knowledge, resources, and contributions to joint tasks; and that the actions and choices of one partner are affected by, and affect, the actions and choices of other partners (e.g., Raveendran, Silvestri, & Gulati, 2020). One way in which partner interdependence manifests is through the *flow* (i.e., pattern of motion) of knowledge, resources and tasks between partners (Ghosh & Rosenkopf, 2015; Steensma & Corley, 2000). Interdependent partners rely on each other for jointly and individually controlled knowledge, resources, and tasks, which need to flow between the interdependent partners for the alliance to function and generate desirable results.

Tradeoffs, Frictions, and Tensions as Behavioral Manifestations of Partner Interdependence

⁵ In this paper, we follow prior research which has used 'behavior' to refer to organizational aspects that encompass cognition and behavior (Gavetti, Greve, Levinthal, Ocasio, 2012).

We highlight three core behavioral issues surrounding functioning and outcomes—*tradeoffs*, *frictions*, and *tensions*. We focus on these three issues because during our review, tradeoffs (68 articles), frictions (24 articles), and tensions (65 articles) were among the most common behavioral issues linked to either alliance functioning or SAOs. In many articles, tradeoffs, frictions, and tensions are linked directly to detrimental outcomes (Holloway & Parmigiani, 2016; Kumar, 2011) and detrimental functioning (Das & Teng, 2000a; Ghosh & Klueter, In-Press), and many more articles acknowledged that managers must navigate tradeoffs, frictions, and tensions in order to eschew detrimental outcomes (Hardy, Phillips, & Lawrence, 2003; Siedl & Werle, 2018).

We analyzed these behavioral issues through an iterative coding process, aimed at picking apart key factors underlying functioning and outcomes. We found that, because prior research has sometimes conflated tradeoffs, frictions, and tensions, linkages to functioning and outcomes were underdeveloped in the literature. Table 3 presents an illustration of the same terms (tradeoffs, frictions, and tensions) used to describe different issues and shows how these concepts have been linked to various consequences. For example, frictions have been used to describe economic disturbances (e.g., Panico, 2017), impediments which temper knowledge flows (e.g., Ghosh & Klueter, In-Press) and disruptive forces (Bruyaka et al., 2018), making it difficult to establish conceptual consensus.

Insert Table 3 about here

We applied the lens of partner interdependence to make sense of and conceptually disentangle tradeoffs, frictions, and tensions. Once knowledge, resources, and tasks are in motion, there are several ways in which behavioral issues can interfere with the flow. Tradeoffs are a manifestation of *constraints* to the flow of knowledge, resources, and tasks between partners. Frictions are a manifestation of *stalling*, where a flow is slowed or halted completely. Tensions

are a manifestation of *straining*, where persistent elements of the flow are pulling in competing directions. Because they arise from partner interdependence, we use the term ‘behavioral manifestations of partner interdependence’ instead of ‘behavioral issues’ from this point forward. Whereas Table 3 shows the messiness that exists in the literature, Table 4 illustrates our initial attempt to provide conceptual clarity on the meaning and distinctiveness of tradeoffs, frictions, and tensions.

Insert Table 4 about here

Tradeoffs

Tradeoffs refer to decision challenges experienced due to competing choices relating to alliances. There are two common usages of the term tradeoffs in the alliance literature as laid out in Table 3. The first usage concerns choices between two competing alternatives (Larsson et al., 1998; Siedl & Werle, 2018). For example, Gnyawali & Ryan Charleton, 2018 discussed the tradeoff between joint value creation versus firm value creation. Since it is not possible to pursue both options (due to, for example, resource scarcity and negative synergies) alliance managers are faced with a decision of which option to pursue and which to forego. In turn, they must adapt their actions and resources accordingly. The second usage of tradeoffs (Diestre, 2018; Panico, 2017) refers to the balance between costs and benefits associated with one particular option (e.g., the coordination benefits and efficiency costs of working with repeated partners; Holloway & Parmigiani, 2016).

Much of the alliance literature uses the term tradeoffs while referring to the finite nature of firms’ resources. For example, tradeoffs between joint value creation and firm value creation occur because both competing choices exert demands on the same finite capabilities, knowledge, and managerial attention. We also found instances of tradeoffs arising from constraints due to beliefs, ideals, culture, and norms (i.e., values). For example, when

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contemplating shifting blame to a partner (Park et al., 2018)—or when collaboration leads to firefighter casualties in order to save property (Horwitz & McGahan, 2019)—the decision challenge is primarily influenced by a values constraint.

Tradeoffs can result in paralysis or stagnation because decisions affecting multiple partners usually require consultation and bargaining across firm boundaries. Such efforts expend scarce managerial attention, so managers may be tempted to leave tradeoffs unaddressed, resulting in paralysis and inhibiting the timeliness and quality of decisions. In such situations, resources may be expended in weighing upsides and downsides of different strategic choices, without necessarily engaging in constructive activity. Indeed, tradeoffs left unaddressed can lead to tensions (Gnyawali, He, Madhavan, & Bengtsson, 2016; Hoffman et al., 2018). Once a decision between competing choices is made, implementation requires compromise, meaning that acceptance of consequences and concessions is inherent in tradeoffs. For example, Diestre (2018) found that choosing a hierarchical governance structure reduces the likelihood of a partner suffering a negative event but increase the negative spillover should such an event occur. Although rarely discussed, tradeoffs could also have positive implications. For example, Gerwin (2004: 253) noted that increasing socialization between partners brings appropriation risks; however, it can speed up coordination and increase partners’ ability to work jointly rather than modularly. Making a decision between competing choices may reduce demands on knowledge and attention, and enable partners to specialize towards one particular course of action.

The view of tradeoffs in the strategic alliance literature differs in two ways relative to the wider organization and management literature. First, the behavioral aspects of tradeoffs—well-recognized in literature on individuals and teams (Grant, Christianson, & Price, 2007; Simonson & Tversky, 1992)—tend to be overlooked in the alliance literature. Tradeoffs are an important behavioral component of alliances because they engender cognitive challenges for managers

who must assess the competing choices, make and implement a difficult decision, and weigh costs and benefits which are frequently uncertain or complex. The same choices might be perceived as competing by one manager and not by another manager, so competition between choices is also governed by managerial perception. This suggests that tradeoffs and associated decision challenges are subject to cognitive biases and constraints (Einhorn & Hogarth, 1981; Slovic, Fischhoff, & Lichtenstein, 1977). Second, tradeoffs are arguably thornier and more complex in strategic alliances since the decisions are not ‘owned’ by a single firm. Making and implementing decisions affecting multiple partners is a result of bargaining, negotiation and, ultimately compromise (Adegbesan & Higgins, 2010; Ozmel, Yavuz, Reuer, & Zenger, 2017). Ramifications of compromise may also be more difficult to manage, since concessions may not be spread evenly across partners and the alliance may encounter challenges relating to fairness as perceived by partners (e.g., Ariño & Ring, 2010; Luo, 2008a).

Frictions

Frictions refer to “the resistance that one surface or object encounters when moving over another” (Ghosh & Rosenkopf, 2015: 625). The term has been used in several ways in the alliance literature, as Table 3 illustrates. First, it has been used to describe disruptive forces (Bruyaka et al., 2018; Greve et al., 2013; Oliveira & Lumineau, 2019). From this view, frictions are “forces for change” within and surrounding an alliance (Greve et al., 2010: 304). Second, the term frictions has been used to refer to inefficiencies (Cabral & Pacheco-de-Almeida, 2019; Carson et al., 2003; Zajac & Olsen, 1993). Sometimes using the term ‘economic frictions’ (Panico, 2017: 1648), the inefficiencies view of frictions was popularized by transaction cost economics research on alliances, whereby “transaction costs are the economic equivalent of friction in physical systems” (Williamson 1985: 19). Third, frictions have been used to describe impediments (Ariño & de la Torre, 1998; Luo, 2008a), such as limits to top management attention (Ghosh & Klueter, In-Press), which are obstacles to desired progress of an alliance.

As noted, the term friction has been used to illuminate delays, distractions, or the halting of progress, associated with the alliance. All three usages of frictions associate the concept with *stalling*, as related to knowledge and resources (Simonin, 2004), cooperative norms (Greve et al., 2010), and agreed-upon tasks (Zajac & Olsen, 1993). Frictions may occur due to transferring tacit knowledge between partners (e.g., Diestre, 2018; Simonin, 2004) and from overwhelmed capacity-constrained resources (e.g., managers' ability to process information) (Ghosh & Klueter, In-Press). Nonetheless, reasons for frictions are not limited to knowledge-based resources (c.f., Ghosh & Rosenkopf, 2015). Frictions can stem from task-related sources; for example, when an adverse event undermines the execution of joint tasks (Bruyaka et al., 2018). Frictions can also stem from goals changes, perhaps due to outside options (Greve et al., 2013) or a shift in partner's priorities (Ariño & de la Torre, 1998).

Implications of frictions include delays, mismatches, and safety against spillovers. Delays occur because frictions reduce the volume and momentum of knowledge and resource flows (Ghosh & Rosenkopf, 2015) as well as impetus among the partners for joint action (Greve et al., 2010). At one extreme, frictions might undermine value creation (Agarwal et al., 2010), whereas, at the other extreme, frictions could bring an entire alliance to a standstill (Ariño & de la Torre, 1998; Ghosh & Klueter, In-Press). Delays also add to transaction costs when there are mismatches between the knowledge, resources, and tasks required for a particular outcome and those available at the relevant time (e.g., Masten, Meehan, & Snyder, 1991). In contrast, frictions might also have positive implications. By constraining flows of knowledge and resources between partners, frictions can limit incidences of unintended spillovers and potential damage from such spillovers.

Tensions

Tensions refer to the cognitive and emotional stress experienced by managers of alliance partners, and arise from contradictory yet interrelated elements that persist over time (Das & Teng, 2000a; Gnyawali et al., 2016; Smith & Lewis, 2011). The difference between tradeoffs

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3 and tensions is that a competing choice exists between two elements in the case of the former
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5 (i.e., choose A or B); whereas in the case of the latter, the persistence of both contradictory
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7 elements over time results in stress experienced by managers (i.e., maintaining both A and B as
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9 a balancing act). Tensions might arise from a tradeoff that is left unresolved and where both
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11 competing choices are allowed to persist, thus resulting in cognitive and emotional stress
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13 (Gnyawali et al., 2016; Hoffman et al., 2018). For example, Hoffman and colleagues note that
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15 tensions between competition and cooperation in strategic alliances can occur due to frequent
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17 tradeoffs (competing choices) that arise and persist between cooperative and competitive
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19 activities (2018: 3042).
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24 The term tensions has been used in three distinct ways in the literature. First, tensions have been
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26 used to describe persistent and competing opposites (Das & Teng, 2000a; De Rond &
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28 Bouchikhi, 2004; Greve et al., 2013). From this view, tensions are about a persistent tug-of-war
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30 between contradictory elements (e.g., the tension between one partner's goals and another
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32 partner's goals; Arslan, 2018; or the need to concurrently acquire and protect knowledge from
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34 partners; Nielsen & Nielsen, 2009). Second, tensions have been viewed as conflict (Doz, 1996;
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36 Schilke & Lumineau, 2018; Siedl & Werle, 2018), sometimes called "political tensions" (Park
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38 & Ungson, 1997: 281) or "competitive tensions" (Arora, Belenzon, & Pataconi, 2021: 1571).
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40 From this view, tensions are akin to disagreement (Reuer et al., 2002), or simmering suspicion
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42 (Doz, 1996), between partners. Contradictory yet persistent elements in this regard refer to the
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44 competing interests of the partners. Third, a small group of articles have viewed tensions as
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46 competing choices (Holloway & Parmigiani, 2016; Steensma & Corley, 2000); however, this
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48 third usage of the term tensions is conceptually distinct from the first two. Competing choices
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50 manifest from constraints, and can be resolved by making a decision between the two;
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52 suggesting that this third usage of tensions may be more appropriately characterized as
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Tensions are a manifestation of the *straining* of flows between interdependent partners. The first two usages of tensions (persistent and competing opposites, and conflict) describe different manifestations where interdependent knowledge, resources and actions are being pulled (strained) in contradictory directions. As an example of tensions, consider the contradictory elements of flexibility and rigidity in alliances. Flexibility and rigidity require a delicate balance in order for the alliance to persist. Whereas flexibility involves loosely connected partners, with opportunities to modify and adapt how resources are shared and how tasks are configured, rigidity involves binding task structures and fixed expectations for the transfer of resources. Yet, “...a relative balance between the two factors is essential for a sustainable alliance...[and] to make an alliance durable, both characteristics should be nurtured” (Das & Teng, 2000a: 86-87). Efforts to nurture these competing opposites results in strain experienced by managers of alliance partners.

Implications of tensions include conflict, wastage of time and resources, as well as creativity and problem-solving. Tensions can result in conflict when the persistent contradictory elements are divided across partners (e.g., one partner’s short-term orientation and another’s long-term orientation; Das & Teng, 2000a), meaning that partners themselves are pulling in different directions (e.g., Doz, 1996; Schilke & Lumineau, 2018). For instance, in their study of two exploratory collaborations, Seidl & Werle report how “some participants noted that... ‘there was *a lot of* tension in that workshop...”, referring to the presence of conflict between the partners (2018: 845, emphasis in original). Tensions also lead to time and resource wastage through cognitive and emotional stress as managers grapple with persistent contradictions (Das & Teng, 2000a; Gnyawali et al., 2016). Managers experiencing tensions are vulnerable to spending time processing stress rather than executing tasks (Gnyawali et al., 2016). These experiential aspects impede managerial sensemaking (Seidl & Werle, 2018) and, at extremes, managers may become overwhelmed by the cognitive load. For example, Ghosh & Klueter (In-

Press) highlighted the information processing challenges experienced by top managers who evaluate and make decisions about the balance of tensions within an alliance. In contrast, creative tensions—that is, instances where contradiction gives rise to superior ideas—can be beneficial when partners engage in problem-solving and innovation. Tensions might also cause “mindful engagement and constructive debate about contentious issues...” (Gnyawali et al., 2016: 12), which sharpens partners’ understanding of key issues. Thus, tensions need not undercut alliances, and may indeed be a source of progress and growth (Smith & Tushman, 2005).

Linking the Behavioral Manifestations to Functioning and Outcomes

Prior research has connected the behavioral manifestations to various aspects of functioning, usually focusing on negative aspects. For instance, tradeoffs may limit satisfaction (Sobrero & Roberts, 2001); frictions may drive instability (Ariño & de la Torre, 1998; Greve et al., 2010); and tensions may constrain commitments (Agarwal et al., 2010). (In Table 3, the second, fourth, and sixth columns illustrate some of these connections in prior research.) Tradeoffs, frictions, and tensions have also been linked to suboptimal SAOs, such as incomplete and incorrect learning (Park et al., 2018), and reduced profitability (Holloway & Parmigiani, 2016).

Certain implications of tradeoffs, frictions, and tensions might be less-than-intuitive given the context-specific nature of functioning discussed earlier. Consider delays, a negative implication of frictions. Delays could increase stability by forcing partners to maintain the status quo; whereas creativity and problem-solving, a positive implication of tensions, could decrease stability by steering partners towards new approaches. Similarly, Zajac and Olsen suggest that despite the associated inefficiencies, frictions can be a source of competitive and strategic value for the alliance (1993: 133). Another intriguing possibility is that the pursuit of outcomes might itself activate tradeoffs, frictions, or tensions, because interdependent knowledge, resources, and tasks are engaged in different ways depending on the outcome(s) pursued. This is an insight

derived from adopting an outcome-centric perspective, which we develop further within the future research agenda.

CONTRIBUTIONS AND FUTURE RESEARCH AGENDA

Our review was motivated by three problems inhibiting research progress on strategic alliances: fragmentation of research on outcomes, confusion between outcomes and functioning, and messiness regarding behavioral issues surrounding functioning and outcomes. We addressed fragmentation by laying out a spectrum of outcomes and by illuminating those which were more and less studied. We also suggested that pursuing one SAO often has consequences for other SAOs, offering what is probably the first overarching discussion of the intertwined nature of SAOs. We addressed confusion by distilling three distinct indicators of strategic alliance functioning, elaborating on the meaning and conceptual distinctiveness of functioning, and laying out preliminary ideas about when functioning may not correlate with outcomes. We addressed messiness by grounding three common behavioral issues in partner interdependence and showing how tradeoffs (constraints), frictions (stalling), tensions (straining) are different manifestations of interdependence with different implications.

Our review contributes to the strategic alliance literature in three ways. First, by highlighting the distinctiveness and unique theoretical value of SAOs, functioning, and the behavioral manifestations, we alleviate some of the confusion and messiness and offer a rounded perspective on SAOs and related concepts. Our demarcation of the conceptual boundary between alliance functioning and SAOs can aid the design of future research and develop cumulative knowledge in both areas. Further, an illumination of tradeoffs, frictions, and tensions which are salient behavioral issues surrounding functioning and outcomes, as well as the provision of distinct definitions, provides a basis to further disentangle these important issues in future research.

Second, establishing clear definitions and conceptual boundaries regarding the behavioral manifestations sets a foundation for better understanding functioning and outcomes, since

tradeoffs, frictions, and tensions, are used to explain detrimental outcomes and functioning. Importantly, while much of the literature has focused on negative implications (Das & Teng, 2000a; Greve et al., 2010), we highlight how tradeoffs, frictions, and tensions can also have positive implications. By grounding these issues in partner interdependence, we underscore the importance of incorporating a behavioral dimension into the conversation about partner interdependence and its role in shaping strategic alliance outcomes (Gulati & Singh, 1998; Steensma & Corley, 2000).

Third, by bringing outcomes to the foreground of the conversation on strategic alliances, we put forth a somewhat different perspective on the management of strategic alliances. We offer an ‘outcome-centric perspective’ which calls for a shifting of emphasis from SAOs as end results, or dependent variables, to SAOs as goals which influence how alliances function and what behavioral issues arise. The impacts of pursuing SAOs on other aspects of alliances has long been an implicit theme in the alliance literature (Doz, 1996; Stettner & Lavie, 2014). We concretize some of these ideas and highlight areas for future inquiry relating to functioning, the behavioral manifestations of interdependence, and the pursuit of multiple outcomes.

The remainder of the paper details a two-part research agenda—outlined in Table 5—offering suggestions to build on and extend the stated contributions. Part one concentrates on addressing important shortcomings across the three building blocks of our review framework. Part two elaborates on the outcome-centric perspective and demonstrates how a shift from viewing outcomes merely as end results unlocks opportunities to theorize about alliance functioning, behavioral manifestations of interdependence, and connections among these concepts.

Insert Table 5 about here

Conceptual Development across the Three Building Blocks

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Our review gives rise to research opportunities in overlooked areas relating to SAOs, functioning, and behavioral manifestations of interdependence. Our aim in each case is not merely to expand the breadth of research, but to isolate a few important topics which can advance our understanding of strategic alliances in substantive ways.

Strategic Alliance Outcomes. Our review shows that existing research on outcomes largely overlooks explicitly detrimental SAOs. Perhaps this deficit is because alliance partners are not keen to share such data, and academic publication practices tend to prioritize significant effects over non-effects. Systematic attention to detrimental SAOs would rebalance the knowledge stock since the pitfalls of managing alliances are long acknowledged in both academic and practitioner literatures. For example, studies could build upon what we know about potentially detrimental mechanisms (such as relational inertia, Dyer et al., 2018; or one partner becoming overdependent on another, Hamel, 1991), and ask questions about when strategic alliances might result in destructive innovation outcomes. Other aspects of value destroying outcomes in strategic alliances also merit scrutiny, such as when learning in strategic alliances might require unlearning other valuable knowledge (Inkpen & Tsang, 2007). Examining partner knowledge application (e.g., Howard et al., 2016) may also advance the study of detrimental knowledge outcomes since acquired knowledge may be misapplied (e.g., Lavie & Miller, 2008) and partners internal capabilities can be blunted through dependencies on their collaborators (e.g., Hamel, 1991). Due to the apparent reluctance of firms to disclose detrimental SAOs, scholars may turn to covert research (e.g., Roulet, Gill, Stenger, & Gill, 2017) or agent-based simulation (e.g., Aggarwal, Siggelkow, & Singh, 2011) to isolate difficult-to-capture detrimental outcomes.

Most alliance research has focused on outcomes occurring while the alliance is operational (for exceptions, see Howard et al., 2016; Zaheer, Hernandez, & Banerjee, 2010), so we also call for more attention to SAOs that occur after the alliance has concluded (i.e., post-alliance

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3 outcomes). Various important SAOs occur post-alliance (e.g., Mayer & Argyres, 2004),
4 including knowledge (e.g., depreciation of valuable knowledge), innovation (e.g., replication
5 of products and processes), competitive positioning (e.g., entry and exit from each other's
6 markets), and financial (e.g., sales in partner's markets). Timing is a critical dimension of SAOs
7 and we suggest that one cannot fully appreciate the intertwined nature of SAOs without
8 recognizing post-alliance outcomes. In turn, scholars might draw on the literature on
9 temporality (Mitchell & James, 2001; Shi, Sun, & Prescott, 2012) to delve into, for example,
10 timing, tempo and sequencing across a full temporal spectrum of SAOs (e.g., Ganitzky, Rangan,
11 & Watzke, 1991; Kunisch, Bartunek, Mueller, & Huy, 2017).

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24 ***Strategic Alliance Functioning.*** Having offered some suggestions for conceptually
25 distinguishing strategic alliance functioning vis-à-vis outcomes, we now call for further
26 research that supports cumulative knowledge in these directions. We urge future researchers to
27 consider the distinctiveness of functioning when designing empirical research, particularly
28 when data is collected through questionnaires. In prior literature, there are several lineages of
29 constructs which combine elements of functioning and outcomes, often called 'alliance
30 performance' or similar (e.g., Judge & Dooley, 2006; Mjoen & Tallman, 1997; Saxton, 1997).
31 Future research that disentangles functioning and outcomes can avoid further confusion due to
32 blending functioning and outcomes.

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The question of when functioning might correlate with outcomes remains a core topic and,
despite the challenges of disentangling functioning from SAOs, we advise caution when
attributing positive (detrimental) SAOs to strong (weak) functioning. High-quality alliance
functioning—say, high level of commitment—might not correlate with superior SAOs for
reasons outlined earlier such as actor and temporal asymmetries. Future research might explore
whether the association between functioning and SAOs differs according to types of SAOs or
the temporal stage of the alliance. For example, is commitment more difficult to maintain in

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long-running alliances due to the threat of relational inertia? Addressing important questions about alliance functioning often also requires surmounting adjacent empirical issues. Asymmetries between partners might mean that they prioritize different SAOs and, therefore, inferring indicators of alliance functioning (e.g., satisfaction) based on information gathered from one partner only is problematic (Lumineau & Oliveira, 2018). Researchers can address this issue by devising dyadic and multi-informant approaches for examining the influence of alliance functioning on specific SAOs.

Future research might also explore various ways that functioning evolves and changes during an alliance’s life (e.g., Doz, 1996; Ness, 2009). Scholars could draw from the project teams literature, where longitudinal approaches accompany the various theoretical models of team development over different temporal stages (e.g., Gersick, 1991; Tuckman, 1965; Wheelan, 1994). Such approaches could inform models to isolate the evolution of alliance functioning during the stages of an alliance’s life, perhaps incorporating alliance life-cycle literature from Jap & Anderson (2007), Ring & Van de Ven (1994), and others. There are opportunities to build on the rich tradition of process studies in alliance research—with a focus on how and why things emerge, develop, or terminate over time (e.g., Ariño & De La Torre, 1998; Capaldo, 2007)—while incorporating advanced methods at the cross-roads of alliance functioning and alliance dynamics (e.g., Majchrzak et al., 2015). We urge scholars to shift away from capturing static snapshots of functioning and towards dynamic benchmarks over time, which allow for the fact that partners might notice and improve (or undermine) functioning between one period and the next. Methodologically, it may be possible to aggregate publicly available data (e.g., press releases, 8-K filings from U.S. public firms) to generate data points regarding the expansion or contraction of partner commitments, and of other key functioning changes in strategic alliances.

Behavioral Manifestation of Interdependence. We underscore that tradeoffs, frictions, and tensions need not be detrimental. Research has often neglected the beneficial role of these behavioral manifestations in strategic alliances. Zajac & Olsen (1993) are a rare exception within the alliance literature in that they consider the possible positive aspects of frictions. Future researchers might find useful to build from the dialectics (Benson, 1975; Zeitz, 1980) and paradox (Lewis, 2000; Smith & Lewis, 2011) traditions to take a broader view of tradeoffs, tensions and frictions, that allows for benefits and positive implications such as those outlined above and in Table 4. For instance, one might investigate frictions or tensions from the assumption that disruptions are no less desirable than the status quo in strategic alliances (e.g., de Rond & Bouchikhi, 2004). Research can explore new questions, such as: What are the benefits available from the decision challenges posed by tradeoffs?; When can frictions be integrated within alliance designs as a force-for-good?; What could partners gain from amplifying tensions in their relationship?

Behavioral issues are a critical challenge for alliance managers. Augmenting the organization design perspective of interdependence (Galbraith, 1977; Thompson, 1967) to explore the associated behavioral manifestations may help to unpack key issues affecting functioning and outcomes. One important area for future research is how managers in different roles experience interdependence in different ways. Organizational roles govern managers' norms, the incentives they are exposed to, and the types of knowledge they accumulate (Simon, 1947; Walsh & Ungson, 1991). CEOs and alliance managers may experience frictions in different ways, as the salience of interdependence is not uniformly distributed across roles in strategic alliances. To support future research, we suggest that role theory (Merton 1957), as applied to interorganizational settings (Bercovitz & Tyler 2014; Noorderhaven, Peeters, & van den Elst, 2011), can guide studies of how different managers hold different views of tensions, tradeoffs, and frictions. For instance, are certain roles more susceptible to experiencing tradeoffs,

frictions, and tensions? Can certain personnel be protected from (or exposed to) the various implications of the behavioral manifestations? Such research can illuminate role-specific factors that make managers more or less equipped to navigate tradeoffs, frictions, and tensions. We also envision research opportunities to examine how the manifestations of interdependence change during the operational life of an alliance, requiring managers to engage in adaptive work. Events such as technology shocks (Madhavan, Koka, Prescott, 1998; Schilling, 2015), firms’ entry or exit (Bakker, 2016; Greve et al., 2010), and personnel turnover (Keller, Lumineau, Mellewigt, & Ariño, 2021) can soften existing tradeoffs, frictions, or tensions, generate new ones, and alter connections and interplays between them. We call for research that explores how different types of disruptions alter the manifestation of interdependence, and how managers might navigate such situations. For instance, future research could compare and contrast ability-led disruptions (e.g., partner’s loss of capability) versus integrity-led disruptions (e.g., partner’s wrongdoing). Research on adverse events in alliances (Bruyaka et al., 2018) suggests that partner interdependence matters for adaptation to such events, but the role of tradeoffs, tensions and frictions, in constraining or stimulating adaption remains a black box.

Towards an Outcome-Centric Perspective

Rich qualitative studies on alliances have sensitized us to how the nature of SAOs being pursued have non-trivial implications for alliance functioning and behavioral underpinnings in strategic alliances (Doz, 1996; Gnyawali & Park, 2011). For example, Doz (1996: 79) observes that “one latent source of tension between GE and SNECMA was their willingness to push cospecialization as far as possible, but not so far as to compromise the ability of either company (and of course of SNECMA in particular as the newer smaller partner) to make a *complete engine* [emphasis in the original].” Furthermore, literature streams on international expansion by small and medium enterprises through partnerships with cross-national partners (Lu & Beamish, 2001; Vuorio, Torkkeli, & Sainio, 2020), and the balance of competition and

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3 cooperation in alliances (Gnyawali & Ryan Charleton, 2018; Hoffman et al., 2018), are
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5 suggestive that the pursuit of specific outcomes influences behavioral issues.
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8 The pursuit of multiple outcomes is also a common occurrence in alliances, raising its own set
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10 of challenges for functioning and managerial behavior. For instance, pursuing both exploitative
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12 outcomes (e.g., product sales) and explorative outcomes (e.g., knowledge creation) requires
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14 opposing routines “...which introduces organizational tension, complexity and coordination
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16 challenges...” (Stettner & Lavie, 2014: 1906). Similarly, the pursuit of short-term outcomes
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18 alongside long-term outcomes engenders distinct functioning and behavioral issues between
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20 partners (Das & Teng, 2000a; Lunnan & Haugland, 2008).
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24 The outcome-centric perspective we offer redirects the focus from SAOs as end results to SAOs
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26 as goals which determine how an alliance functions and what behavioral issues arise. We draw
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28 on goal-framing theory (Lindenberg & Foss, 2011; Foss & Lindenberg, 2013) to offer a basis
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30 for understanding how, prior to accomplishment, outcomes are goals and their pursuit
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32 influences the cognitive processes, decision-making, and actions of managers. Goal-framing
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34 theory recognizes that goals ‘frame’ what managers attend to, what knowledge and attitudes are
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36 cognitively most accessible, and what alternatives are considered (Lindenberg, 2001;
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38 Lindenberg & Foss, 2011; Lindenberg & Steg, 2007). From a managerial viewpoint, goal-
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40 framing theory seems highly relevant for closing the gap between theory and practice in regard
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42 to the pursuit of multiple outcomes in alliances because goal-framing theory attends how goals
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44 compete and shape behavior (Foss & Lindenberg, 2013; Lindenberg & Foss, 2011). Goal-
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46 framing theory therefore draws attention to the salience of different SAOs at particular points
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48 in time, and how the relative importance of SAOs influences functioning and behavioral
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50 manifestations. We now elaborate on three specific areas where an outcome-centric perspective
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52 can add value to the literature: how SAOs shape functioning; how SAOs shape the behavioral
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54 manifestations of interdependence; and pursuing multiple SAOs.
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How SAOs Shape Functioning. An outcome-centric perspective suggests that outcomes being pursued have nontrivial implications for specific functioning indicators. Partners make decisions and undertake actions in pursuit of specific outcomes, resulting in different levels of strategic alliance functioning. Outcomes therefore operate as framing devices. Managers’ pursuit of outcomes will influence the commitments made by partners, the extent to which an alliance is stable or unstable, and the extent to which partners are (dis)satisfied during an alliance. For example, one promising area for research concerns satisfaction in alliances pursuing innovation SAOs versus alliances where partners prioritize profit outcomes. Innovation-orientated alliances might require sustained problem-solving, leading to lengthy and conflict-laden managerial experiences and, as a result, lower satisfaction. We call for research which examines how the type of outcomes being pursued engenders functioning and whether pursuit of specific SAOs is particularly problematic for specific domains of functioning. At extremes, we expect that the pursuit of outcomes can undermine functioning indicators to such an extent that the alliance is beyond repair, so we encourage scholars to explore such tipping points. In contrast, we also encourage scholars to reflect upon when the pursuit of SAOs might mean that managers are willing to overlook weak functioning. How might the pursuit of outcomes cause managers to persist with alliances where commitment is weak, satisfaction is low, or stability is precarious?

How SAOs Shape the Behavioral Manifestations of Interdependence. By influencing how tasks are organized and executed, which resources are prioritized, what knowledge is called upon, the pursuit of different SAOs also offers explanatory potential with regard to the behavioral manifestations of interdependence. Partner interdependence may not predict tradeoffs, frictions, and tensions directly—rather, tradeoffs, frictions and tensions could emerge from the alignment between partner interdependence and outcomes pursued. In other words, depending on the outcomes pursued, the same interdependencies between tasks, knowledge,

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3 and resources may result in more, or less, tradeoffs, frictions, and tensions. For instance, if tasks
4 are set up in a way that facilitates the pursuit of joint innovation outcomes, this could create
5 frictions by inhibiting knowledge acquisition (e.g., Kavusan et al., 2016). We encourage
6 scholars to consider how pursuing certain SAOs may engender specific tradeoffs, frictions, and
7 tensions. Which SAOs are compatible with what configurations of partner interdependence? In
8 contrast, which SAOs are particularly susceptible to tradeoffs, frictions, and tensions and under
9 what conditions? Noting that some aspects of partner interdependence can be designed and
10 redesigned (i.e., tasks), whereas others may be path dependent and somewhat fixed (i.e., certain
11 knowledge and resources), it would also be important to examine when and how the pursuit of
12 SAOs alters interdependence between partners.
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26 ***Pursuing Multiple SAOs.*** In many alliances, there may not be a well-defined, single
27 outcome. Multiple outcomes are a common occurrence, as illustrated by the alliances between
28 Pfizer and BioNTech, T-Mobile and Nokia, and Samsung and Sony mentioned earlier in the
29 paper. Insights from goal-framing theory can offer a novel and overdue perspective for
30 understanding how pursuit of multiple SAOs creates challenges for alliance management. In
31 situations where multiple goals are present, goal-framing theory highlights how goals are in
32 competition for the privilege of becoming focal (Brewer, 2004; Fishbach & Dhar, 2008). When
33 a goal is focal, it ‘frames’ a situation by steering important cognitive processes and behaviors
34 in the service of the goal (e.g., how information is processed and acted upon). When an outcome
35 becomes a focal goal, other outcomes remain in the cognitive background. These background
36 SAOs can either strengthen or weaken the focal SAO depending whether they are compatible
37 or conflicting (e.g., Lindenberg & Foss, 2011). As a background SAO strengthens, it may move
38 to the foreground and potentially displace the incumbent goal-frame (e.g., Lindenberg & Steg,
39 2007).
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Applied to understand the pursuit of strategic alliance outcomes, goal-framing theory motivates two new and parallel lines of inquiry. First, more research is needed into which SAOs are in conflict and which SAOs are compatible, and under what conditions. Based on our analysis of a small amount of literature, we provide some preliminary insights (see The Intertwined Nature of Strategic Alliance Outcomes)—for example, regarding the potential compatibility of knowledge outcomes and innovation outcomes. We encourage scholars to delve more deeply into these ideas and ask questions such as: How can firms optimize compatibility (mitigate incompatibility) between particular sets of outcomes? Can the downsides of conflicting SAOs be offset by separating efforts towards these outcomes in a temporal or geographic manner, or in terms of assigned personnel? Scholars who wish to empirically examine compatibility and conflict between outcomes could build questionnaire items about the pursuit of outcomes, while archival datasets could leverage information about stated goals contained in alliance announcements. Such data might make it possible to empirically examine the effects of pursuing multiple SAOs across partners (e.g., A and B pursuing different outcomes) or time horizons (e.g., ratio of short-term SAOs to long-term SAOs), as well as tracking changes to focal and background SAOs over time.

The second line of inquiry concerns the determinants of focal SAOs. What determines which SAOs are focal and when? Focal SAOs might vary over time, so the earlier points about post-alliance outcomes, and the tempo and sequencing of SAOs, appear relevant here also. It will also be helpful to consider how internal changes (e.g., personnel turnover; knowledge obsolescence) and external forces (e.g., technological standards) might alter focal SAOs over the course of an alliance’s life. Mindful of the psychological origins of these ideas, different SAOs might also be focal for different organizational roles. Whereas the focal outcome for a CEO might be firm-wide profitability, or stock price, the focal outcome for an alliance manager might be the acquisition of a valuable piece of knowledge or completion of a specific project.

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3 We urge further examination of these role-based differences and how they may lead a CEO and
4 alliance manager to process information differently and take different, potentially conflicting
5 decisions relating to an alliance.
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9 10 **CONCLUDING REMARKS**

11 By addressing fragmentation, confusion, and messiness, we aim to add conceptual clarity to the
12 scholarly literature on strategic alliance outcomes. Our paper envisages several opportunities
13 for rejuvenating strategic alliance research and generating questions capable of exciting and
14 sustaining both scholars and practitioners. Novel opportunities include intriguing behavioral
15 aspects of alliances, important outcomes that have been underexplored, and an outcome-centric
16 perspective which allows us to reimagine specific aspects of alliance management. We hope
17 that our review can offer guidance for those wishing to seize such opportunities which, in turn,
18 can inform alliance managers charged with finding solutions to increasingly important and
19 complex societal problems.
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TABLES AND FIGURES

TABLE 1

Strategic Alliance Outcomes

Type of Outcome	Outcomes Studied	Common Sources of Empirical Data
KNOWLEDGE <i>Creation, acquisition, or application of knowledge, with or from partners.</i> (37 articles)	<p><i>Firm-level</i></p> <p><u>Knowledge creation</u> <i>Improved capability to manage R&D alliances</i> (Feller, Parhankangas, Smeds, & Jaatinen, 2013) <i>Knowledge building</i> (Almeida, Dokko, & Rosenkopf, 2003; Devarakonda & Reuer, 2018) <i>Knowledge creation</i> (Hardy, Phillips, & Lawrence, 2003; Jiang & Li, 2009)</p> <p><u>Knowledge acquisition</u> <i>Incomplete and incorrect learning from failure</i> (Park, Park, & Ramanujam, 2018) <i>Increase in internal collaboration due to knowledge acquisition from a partner</i> (Howard, Steensma, Lyles, & Dhanaraj, 2016) <i>Knowledge acquisition</i> (Frankort, 2016; Grant & Baden-Fuller, 2004; Hardy, Phillips, & Lawrence, 2003; Hohberger, Kruger, & Almeida, 2020; Inkpen, 2000; Inkpen & Crossan, 1995; Inkpen & Tsang, 2007; Janowicz-Panjaitan & Noorderhaven, 2008; Jiang & Li, 2009; Hamel, 1991; Kale, Singh, & Perlmutter, 2000; Lane & Lubatkin, 1998; Makhija & Ganesh, 1997; Muthusamy & White, 2005; Nielsen & Nielsen, 2009; Simonin, 1999: 2004; Subramanian, Bo, & Kah-Hin, 2018) <i>Rate of interorganizational learning</i> (Schildt, Keil, & Maula, 2012)</p> <p><u>Knowledge application</u> <i>Alliance-related technology building</i> (Oxley & Wada, 2009) <i>Future intangible benefits achieved from learning</i> (Simonin, 1997) <i>Knowledge utilization from an alliance partner</i> (Kok, Faems, & de Faria, 2020) <i>Speed of knowledge integration and technology building</i> (Oxley & Wada, 2009)</p>	<p>Patents – 12 articles (32.4%)</p> <p>Questionnaires – 12 articles (32.4%)</p> <p>Interviews – 8 articles (21.6%)</p>

<p>KNOWLEDGE</p> <p><i>(cont'd)</i></p>	<p style="text-align: center;"><i>Alliance-level</i></p> <p><u>Knowledge creation</u> <i>Knowledge creation</i> (Ariño & de la Torre, 1998; Doz, 1996) <i>Learning to contract</i> (Mayer & Argyres, 2004) <i>Partner learning about each other's behavior</i> (Lioukas & Reuer, 2015)</p> <p><u>Knowledge acquisition</u> <i>Increase in technological overlap between alliance partners</i> (Mowery, Oxley, & Silverman, 1996) <i>Interfirm knowledge transfer</i> (Faems, Janssens, & van Looy, 2007; Janowicz-Panjaitan & Noorderhaven, 2009) <i>Knowledge acquisition between alliance partners</i> (Kavusan, Noorderhaven, & Duysters, 2016) <i>Transfer of tacit and explicit knowledge</i> (Becerra, Lunnan, & Huemer, 2008)</p> <p><u>Knowledge application</u> <i>Knowledge recombination</i> (Rosenkopf & Almeida, 2003)</p>	
<p>INNOVATION</p> <p><i>New products, processes, and services</i></p> <p>(37 articles)</p>	<p style="text-align: center;"><i>Firm-level</i></p> <p><u>Overall innovation performance</u> <i>Firm position relative to the industry's innovation focus</i> (Hohberger, Almeida, & Parada, 2015) <i>Innovation performance</i> (e.g., patent counts, patent citations, aggregated improvements to innovative outputs) (Caner, Cohen, & Pil, 2017; Chung & Kim, 2003; Hagedoorn & Schakenraad, 1994; Hohberger, Kruger, & Almeida, 2020; Jiang & Li, 2009; Keil, Maula, Schildt, & Zahra, 2008; Li, Qui, & Wang, 2019; Müller & Zaby, 2019; Nielsen & Nielsen, 2009; Runge, Schwens, & Schulz, 2022; Sampson, 2005; 2007; Schilling, 2015) <i>Patent competitiveness</i> (Weck & Blomqvist, 2008) <i>Rate of innovation</i> (Stuart, 2000) <i>Technological diversity of firm innovation</i> (Hohberger, Kruger, & Almeida, 2020)</p> <p><u>Product innovation and development</u> <i>Drug safety crisis suffered by R&D partner</i> (Diestre, 2018) <i>New product development</i> (Frankort, 2016; Gnyawali & Park, 2011; Lee, Park, Ryu, & Baik, 2010)</p>	<p>Patents – 13 articles (35.1%)</p> <p>Questionnaires – 12 articles (32.4%)</p> <p>Archival news and industry databases – 10 articles (27.0%)</p>

<p>INNOVATION</p> <p><i>(cont'd)</i></p>	<p><i>New product innovativeness</i> (Fang, 2011; Kotabe & Swan, 1995)</p> <p><i>Number of approved pharmaceutical drugs on the market</i> (Banerjee & Siebert, 2017)</p> <p><i>Product development productivity</i> (Lavie, Lechner, & Singh, 2007)</p> <p><i>Product innovation</i> (Wu, 2012)</p> <p><i>Product quality</i> (Chung & Kim, 2003)</p> <p><i>Products in development</i> (Rothaermel & Deeds, 2004)</p> <p><i>Products on market</i> (Rothaermel & Deeds, 2004)</p> <p><i>Realization of product innovations</i> (Becker & Dietz, 2004)</p> <p><i>Time-to-market</i> (Castañer, Mulotte, Garrette, & Dussauge, 2014)</p> <p><u>Process innovation</u></p> <p><i>Implementation of management innovation</i> (Meuer, 2014)</p> <p><i>Operational improvement</i> (Aviv, 2007; Luo, 2008a)</p> <p><i>Supplier performance</i> (Mesquita, Anand, & Brush, 2008)</p> <p><i>Supplier performance improvement</i> (Kotabe, Martin, & Domoto, 2003)</p> <p><i>Alliance-level</i></p> <p><u>Overall innovation performance</u></p> <p><i>Complementary specialization of partners</i> (filings within complementary patent classes, before vs. after) (Kavusan, Noorderhaven, & Duysters, 2016)</p> <p><i>Innovation performance</i> (Davis, 2016)</p> <p><u>Product innovation and development</u></p> <p><i>Drug approvals</i> (Hoang & Rothaermel, 2010)</p> <p><i>Successful completion of a new drug development project</i> (Hoang & Rothaermel, 2005)</p>	
<p>COMPETITIVE POSITIONING</p> <p><i>Changes to firms' competitive stance in a market or industry.</i></p> <p>(10 articles)</p>	<p><i>Firm-level</i></p> <p><u>Market positioning</u></p> <p><i>Achievement of competitive advantages</i> (Jap & Anderson, 2003)</p> <p><i>Changes in organizational influence</i> (Hardy, Phillips, & Lawrence, 2003)</p> <p><i>Market success and market exposure</i> (Lavie, Lechner, & Singh, 2007)</p> <p><i>Overall competitive position</i> (Arend, 2006)</p> <p><u>Inter-partner acquisitions</u></p>	<p>Archival news and industry databases – 6 articles (60.0%)</p> <p>Questionnaires – 3 articles (30.0%)</p>

<p>COMPETITIVE POSITIONING</p> <p><i>(cont'd)</i></p>	<p><i>Mergers and acquisitions between partners</i> (Hagedoorn & Sadowski, 1999)</p> <p><i>Probability of acquisition among prior alliance partners</i> (Vanhaverbeke, Duysters, & Noorderhaven, 2002)</p> <p><i>Subsequent acquisitions of alliance partners</i> (Yang, Lin, & Peng, 2011)</p> <p><u>Rivalry</u></p> <p><i>Aggressiveness of a firm's competition against its partner in the product market</i> (Cui, Yang, & Vertinsky, 2018)</p> <p><i>Investments in competition outside the scope of the alliance</i> (Amaldoss & Staelin, 2010)</p> <p><i>Alliance-level</i></p> <p><u>Rivalry</u></p> <p><i>Changes in relative competitive positions</i> (Dussauge, Garrette, & Mitchell, 2004)</p>	
<p>FINANCIAL</p> <p><i>Economic results from an alliance.</i></p> <p>(68 articles)</p>	<p><i>Firm-level</i></p> <p><u>Stock market performance</u></p> <p><i>Abnormal returns after a R&D partner suffers a drug safety crisis</i> (Diestre, 2018)</p> <p><i>Abnormal returns following joint venture acquisition or divestiture</i> (Kumar, 2005)</p> <p><i>Abnormal returns following post-alliance acquisition</i> (Zaheer, Hernandez, & Banerjee, 2010)</p> <p><i>Abnormal returns following joint venture buyout announcement</i> (Reuer, 2001)</p> <p><i>Abnormal returns surrounding alliance announcement</i> (Anand & Khanna, 2000; Das, Sen, & Sengupta, 1998; Gulati, Lavie, & Singh, 2009; Kalaignanam, Shankar, & Varadarajan, 2007; Kale, Dyer, & Singh, 2002; Koh & Venkatraman, 1991; Liu & Ravichandran, 2015; Madhavan & Prescott, 1995; Park, Mezias, & Song, 2004; Park & Mezias, 2005; Oxley, Sampson, & Silverman, 2009; Reuer & Koza, 2000; Sytch, Wohlgezogen, Zajac, 2018; Woolridge & Snow, 1990; Yang, Zheng, & Zaheer, 2015)</p> <p><i>Abnormal returns surrounding joint venture sell-off</i> (Meschi, 2005)</p> <p><i>Firm market value</i> (Tobin's q) (Tafti, Mithas, & Krishnan, 2013)</p> <p><i>Firm shareholder value-related risk from alliance announcement</i> (Arend, 2004)</p> <p><i>Investor expectations</i> (variance from CAPM predicted returns) (Morrow, Sirmon, Hitt, & Holcomb, 2007)</p>	<p>Archival financial databases – 38 articles (55.9%)</p> <p>Archival news and industry databases – 14 articles (20.6%)</p> <p>Questionnaires – 7 articles (10.3%)</p>

<p>FINANCIAL <i>(cont'd)</i></p>	<p><i>Market valuation of firm equity</i> (Yang, Zheng, & Zhao, 2014)</p> <p><u>Accounting performance</u> <i>Firm financial performance</i> (e.g., ROA, ROS, sales, profit, and growth) (Afuah, 2000; Ang, 2008; Arend, 2006; Broekhuizen, Lampel, & Rietveld, 2013; Castañer, Mulotte, Garrette, & Dussauge, 2014; Chung & Kim, 2003; Combs & Ketchen, 2009; Gnyawali & Park, 2011; Goerzen, 2007; Hagedoorn & Schakenraad, 1994; Holloway & Parmigiani, 2016; Hu, Caldentey, & Vulcano, 2013; Lin, Yang, & Arya, 2009; Luo, 2008a; Mitsunashi & Greve, 2009; Müller & Zaby, 2019; Sarkar, Echambadi, & Harrison, 2001; Simonin, 1997; Singh & Mitchell, 2005; Srinivasan & Brush, 2006; Stuart, 2000; Vandaie & Zaheer, 2015) <i>Firm survival</i> (Mitchell & Singh, 1996; Mitsunashi & Greve, 2009; Singh, 1997; Singh & Mitchell, 1996) <i>Post-alliance acquisition performance</i> (Porrini, 2004)</p> <p><u>Alliance-specific financial results</u> <i>Financial capital acquisition when forming an alliance</i> (Gopalakrishnan, Scillitoe, & Santoro, 2008) <i>Firm payoffs from alliance</i> (Arend & Seale, 2005) <i>Firm performance in alliance</i> (simulation) (Aggarwal, Siggelkow, & Singh, 2011) <i>Internal rents, appropriated relational rents, spillover rents</i> (Lavie, 2006)</p> <p><i>Alliance-level</i></p> <p><u>Stock market performance</u> <i>Association between partners' stock market values following JV announcement</i> (Kumar, 2011) <i>Differential benefits</i> (Arslan, 2018; Kumar, 2010)</p> <p><u>Accounting performance</u> <i>Dyadic sales volume</i> (Mohr & Spekman, 1994) <i>Financial performance relating to a less-intrinsically motivating goal</i> (property saved) (Horwitz & McGahan, 2019) <i>Joint profit performance</i> (Jap & Anderson, 2003) <i>Total profit for alliance members</i> (Chun, Kleywegt, & Shapiro, 2017)</p> <p><u>Alliance-specific financial results</u> <i>Alliance profitability</i> (Luo, 2005; Luo, 2008b) <i>Auction price of co-owned thoroughbred yearling</i> (Fudge Kamal, Honoré, & Nistor, In Press) <i>Joint venture gross returns</i> (Kent, 1991)</p>	
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	<i>Relational rents</i> (Dyer & Singh, 1998; Dyer, Singh, & Hesterly, 2018) <i>Strategic alliance asset turnover</i> (Luo, 2007)	
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Notes: We include conceptual outcomes (e.g., Arend & Seale, 2005; Lavie, 2006) as well as empirical outcomes. For clarity, we have consolidated instances using different labels for the same outcome (e.g., ‘differential benefits’ and ‘differential gains’; Arslan, 2018; Kumar, 2010). Papers studying multiple outcomes (e.g., Diestre, 2018) feature multiple times in the table. Articles relating to overall results without distinguishing among different outcome types (e.g., benefits or value; Rai, 2016; Zajac & Olsen, 1993) are part of our review but do not feature in the table. A small number of outcomes (e.g., casualties averted; Horowitz & McGahan, 2019) are not included in Table 1 because they do not fit within the four types specified.

TABLE 2
Strategic Alliance Functioning

Functioning Indicator	Constructs/ Items Studied	Common Sources of Empirical Data
COMMITMENT <i>Extent of joint actions, investments, and efforts toward cooperation by partners.</i> (7 articles)	<u>Joint actions</u> <i>Joint action between partners</i> (Schreiner, Kale, & Corsten, 2009) <i>Partners' free-riding</i> (i.e., effort-withholding) (Fonti, Maoret, & Whitbred, 2017) <u>Cooperation</u> <i>Likelihood of alliance partners cooperating with each other</i> (Zeng & Chen, 2003) <i>Perceived peers' collaboration</i> (Fonti, Maoret, & Whitbred, 2017) <i>Relationship quality</i> (Ariño & de la Torre, 1998) <i>Willingness to cooperate in the future</i> (Bercovitz, Jap, & Nickerson, 2006) <u>Joint investments</u> <i>Collective investment into an alliance</i> (Amaldoss & Staelin, 2010) <i>Resources in the alliance common pool</i> (Agarwal, Croson, & Mahoney, 2010)	Questionnaires – 4 articles (57.1%) Interviews – 1 article (14.3%)
SATISFACTION <i>Contentment with alliance processes, fulfillment of goals, and perceived gains by partners.</i> (45 articles)	<u>Net spillover effect</u> (i.e., partner net gains) <i>Net spillover effects</i> (Ariño, 2003) <u>Goal fulfillment</u> <i>Goal fulfillment</i> (Ariño, 2003; Garcia-Canal, Valdés-Llaneza, & Ariño, 2003; Schreiner, Kale, & Corsten, 2009) <i>Satisfaction with the degree to which the alliance met objectives</i> (Reuer & Zollo, 2005) <u>Contentment with alliance processes</u> <i>Perceived alliance effectiveness</i> (Fonti, Maoret, & Whitbred, 2017) <i>Relationship efficiency and learning opportunities</i> (Sobrero & Roberts, 2001) <u>Constructs reflecting multiple aspects of satisfaction</u> <i>Alliance outcomes</i> (initial and overall satisfaction) (Saxton, 1997) <i>Alliance performance</i> (incl. constructs which mix net spillovers, goal fulfillment, contentment with processes,	Questionnaires – 40 articles (88.9%) Interviews – 3 articles (6.7%)

<p>SATISFACTION</p> <p><i>(cont'd)</i></p>	<p>and/or elements of SAOs) (Bercovitz, Jap, & Nickerson, 2006; Carson, Madhok, Varman, & John, 2003; Cheung, Myers, & Mentzer, 2011; Dussauge & Garrette, 1995; Gulati & Nickerson, 2008; Hill & Hellriegel, 1994; Hoetker & Mellewigt, 2009; Im & Rai, 2008; Jap & Anderson, 2007; Koh & Venkatraman, 1991; Krishnan, Geyskens, & Steenkamp, 2016; Krishnan, Martin, & Noorderhaven, 2006; Lavie, Haunschild, & Khanna, 2012; Lioukas, Reuer, & Zollo, 2016; Lunnan & Haugland, 2008; Heimeriks & Duysters, 2007; Hoegl & Wagner, 2005; Mitsuhashi, 2003; Parkhe, 1993a: 1993b; Pearce, 1997: 2001; Robson, Katsikeas, & Bello, 2008; Schilke & Lumineau, 2018; Steensma & Corley, 2000; Walter, Kellermanns, & Lechner, 2012; Walter, Lechner, & Kellermanns, 2008; Vlaar, Den Bosch, & Volberda, 2007; Zollo, Reuer, & Singh, 2002)</p> <p><i>Alliance success</i> (Becerra, Lunnan, & Huemer, 2008)</p> <p><i>Managerial assessments of alliance success</i> (Brockhoff, 1992; Kale, Dyer, & Singh, 2002; Okamuro, 2007)</p> <p><i>One partner's satisfaction with the other's performance</i> (Jap & Anderson, 2003; Mohr & Spekman, 1994; Zaheer, McEvily & Perrone, 1998)</p> <p><i>Overall performance satisfaction</i> (Ariño, 2003)</p> <p><i>Parent satisfaction with joint venture performance</i> (Geringer & Herbert, 1991)</p> <p><i>Perceived alignment between actual performance and initial projections</i> (Geringer & Herbert, 1991)</p> <p><i>Perceived performance</i> (De Rond & Bouchikhi, 2004)</p>	
<p>STABILITY</p> <p><i>Absence of major changes or disruptions within a strategic alliance.</i></p> <p>(39 articles)</p>	<p><u>Alliance terminations and longevity</u></p> <p><i>Alliance duration/ longevity</i> (Ariño, 2003; Li, Eden, Hitt, Ireland, & Garrett, 2012; Parkhe, 1991)</p> <p><i>Alliance stability</i> (possibility that the alliance will last until common benefits are realized) (Khanna, 1998)</p> <p><i>Alliance survival</i> (Ariño, 2003; Pearce, 1997)</p> <p><i>Alliance termination</i> (Ariño & de la Torre, 1998; Clough & Piezunka, 2020; Cui, Calantone, & Griffith, 2011; Ghosh & Klueter, In-Press; Kogut, 1991; Hoang & Rothaermel, 2010; Makhija & Ganesh, 1997; Min, 2017; Pangarkar, 2009; Panico, 2011: 2017; Park & Rogan, 2019; Park & Ungson, 1997; Park, Park, & Ramanujam, 2018; Reuer & Zollo, 2005; Ring & Van De Ven, 1994; White, 2005)</p> <p><i>Joint venture failure</i> (Park & Russo, 1996)</p> <p><i>Joint venture survival, stability and duration</i> (Geringer & Herbert, 1991)</p> <p><i>Stoppage, delay or abandonment of partnerships</i> (Lokshin, Hagedoorn, & Letterie, 2011; Lhuillery & Pfister, 2009)</p>	<p>Archival news and industry databases – 18 articles (46.2%)</p> <p>Questionnaires – 7 articles (17.9%)</p>

STABILITY <i>(cont'd)</i>	<i>Unplanned/ premature alliance termination</i> (Arora, Belenzon, & Pataconi, 2021; Bakker, 2016; Heidl, Steensma, & Phelps, 2014; Lunnan & Haugland, 2008; Park & Ungson, 2001) <u>Alliance reorganization and major changes</u> <i>Alliance contractual changes</i> (Ariño, 2003) <i>Alliance instabilities</i> (Das & Teng, 2000a; Kogut, 1988) <i>Alliance reorganization, takeover, or dissolution</i> (Dussauge, Garrette, & Mitchell, 2000) <i>Alliance restructure</i> (White, 2005) <i>Joint venture entry and exit rates</i> (Duso, Pennings, & Seldeslachts, 2010) <i>Partner withdrawal</i> (Bruyaka, Philippe, & Castañer, 2018; Greve, Baum, Mitsuhashi, & Rowley, 2010; Greve, Mitsuhashi, & Baum, 2013) <i>Stability of the alliance's major operating results</i> (Luo, 2008b)	
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Notes: We have consolidated similar constructs that are labeled differently (e.g., ‘alliance termination’ and ‘tie dissolution’). Papers studying multiple aspects of functioning (e.g., Ariño, 2003) feature multiple times in the table. As described in the text, it has been common to combine different aspects of satisfaction within constructs labeled ‘alliance performance’ and similar, which oftentimes also incorporate aspects of SAOs.

TABLE 3

Illustration of Messiness Regarding Tradeoffs, Frictions, and Tensions

TRADEOFFS		FRICTIONS		TENSIONS	
Multiple Intended Meanings	Consequences	Multiple Intended Meanings	Consequences	Multiple Intended Meanings	Consequences
“...the mechanism that we identified points to a different <i>tradeoff</i> ; namely, between requisite variety and the challenges of conflicting interests.” (Siedl & Werle, 2018: 854)	Sensemaking difficulties	“This finding suggests <i>frictions</i> due to attention – that is, loss during the dissemination of information...” (Ghosh & Klueter, In-Press: 34)	Alliance termination	“ <i>Tension</i> results from the presence of contradictions and the attempts to resolve such contradictions.” (Das & Teng, 2000a: 84)	Stability and instability
“... this analysis illuminates an important <i>trade-off</i> for managing research collaborations, in which stabilization efforts conflict with the provision of incentives.” (Panico, 2011: 1404)	Alliance termination	“...disruptive forces—or internal <i>frictions</i> —result from instrumental concerns of task execution and goal conflict, leading to tensions between alliance partners.” (Bruyaka et al., 2018: 448)	Partner withdrawal	“Conflict refers to <i>tensions</i> that arise from disagreements between alliance partners.” (Schilke & Lumineau, 2018: 2838)	Reduced satisfaction
“...the <i>trade-off</i> between the common interests in efforts spent on producing a greater joint outcome and conflicting interests in efforts spent on securing a greater individual part of this joint outcome.” (Larsson et al., 1998: 288)	Barriers to knowledge SAOs	“Trust supports economically valuable adjustments by lowering the <i>friction</i> costs of bargaining between profit-seeking parties.” (Carson et al., 2003: 46)	Reduced satisfaction	“...there are inescapable <i>tensions</i> between knowledge creation and strategic effects...there are tradeoffs between different kinds of effects and what forms of collaboration are most appropriate ...” (Hardy et al., 2003: 342-343)	Managerial decision challenges

“... <i>trade-offs</i> exist, as repeated partners can be counted on for better coordination and collaboration, but not necessarily for optimal efficiency, and they may want some compensation for their commitment...” (Holloway & Parmigiani, 2016: 461)	Constraints on financial SAOs	“...the business was at a standstill... <i>Friction</i> was also caused by an ill-timed request by Hexagon for distribution assistance in unrelated products...” (Ariño & de la Torre, 1998: 322)	Joint venture termination	“Some participants noted that a "sort of <i>tension</i> existed in the conversations" that took place (Manager, ConsuCo) and some even thought that "there was <i>a lot of tension</i> in that workshop"” (Siedl & Werle, 2018: 845)	Sensemaking difficulties
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Note: Bold text has been added to quotes for emphasis.

TABLE 4
Distilling Tradeoffs, Frictions, and Tensions




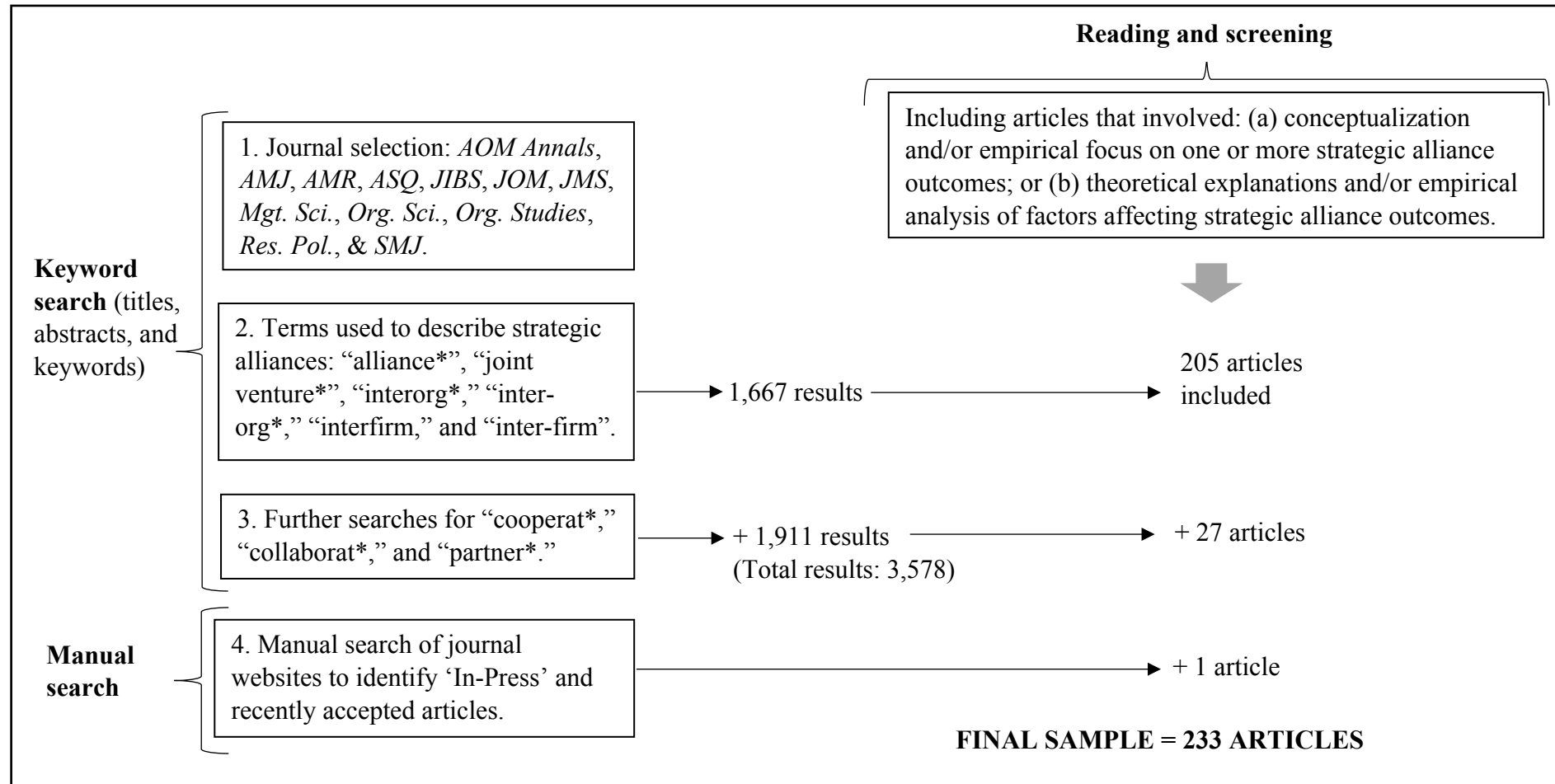
Concept		Definition	Flow Interference	Implications
TRADEOFFS		Decision challenges experienced due to competing choices relating to alliances.	<i>Constraint</i>	<ul style="list-style-type: none"> - Paralysis - Compromise - Specialization
FRICTIONS		Resistance that one surface or object encounters when moving over another.	<i>Stalling</i>	<ul style="list-style-type: none"> - Delays - Mismatch between required and available inputs - Safety against spillovers
TENSIONS		Cognitive and emotional stress experienced by managers of alliance partners, resulting from contradictory yet interrelated elements that persist over time.	<i>Straining</i>	<ul style="list-style-type: none"> - Conflict - Time and resource wastage - Creativity and problem-solving

TABLE 5
Future Research Agenda

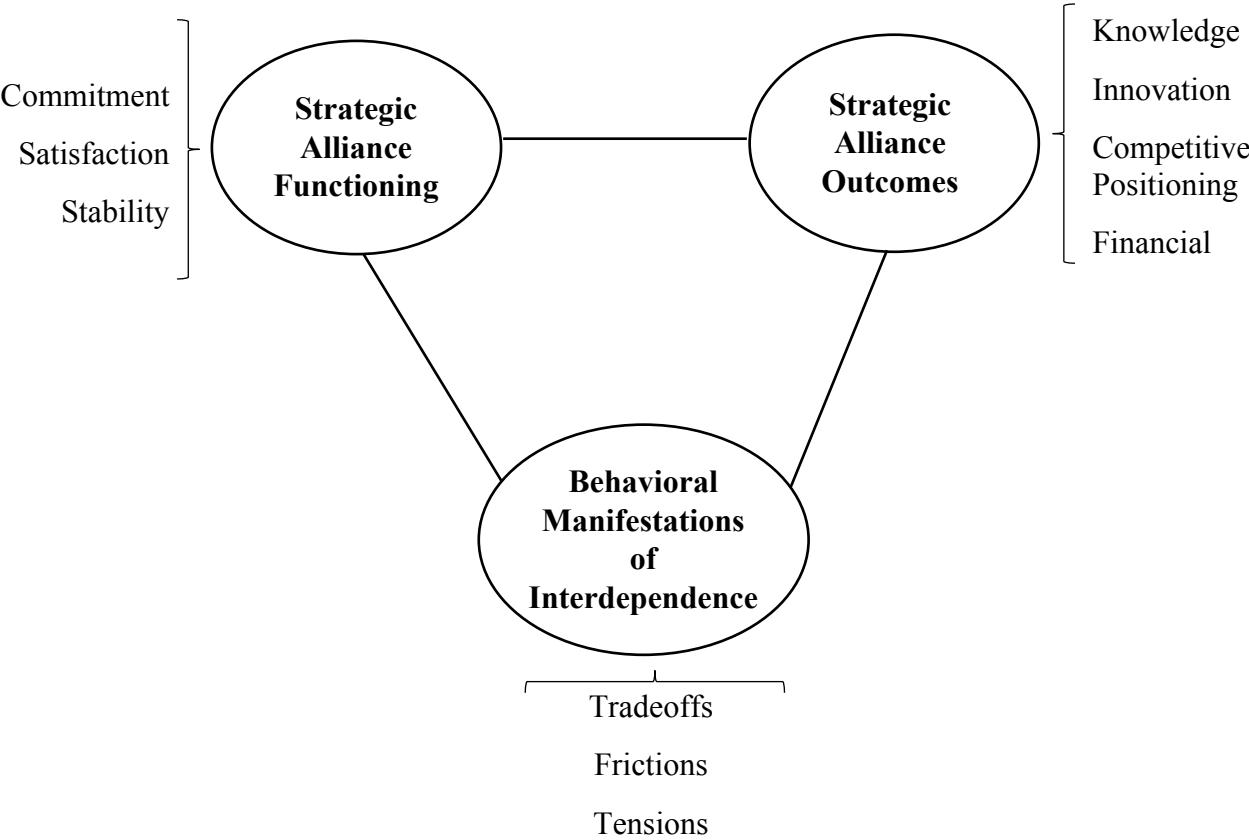
Areas for Future Research		Research Questions
Conceptual Development across the Three Building Blocks	Strategic Alliance Outcomes	What detrimental and value destroying outcomes are common in strategic alliances?; What SAOs occur after the alliance’s life has concluded?; How do such outcomes influence the intertwining of SAOs, both in terms of timing and their positive-detrimental nature?
	Strategic Alliance Functioning	When are particular functioning indicators correlated with outcomes?; How does the association between functioning and SAOs differ according to types of SAOs or the temporal stage of an alliance?; How does functioning evolve and change during an alliance’s life?
	Behavioral Manifestations of Interdependence	What are the positive aspects of the behavioral manifestations of interdependence?; How do managers in different roles experience interdependence in different ways?; How do the manifestations of interdependence change during the operational life of an alliance and what adaptive work is required by managers?
Towards an Outcome-Centric Perspective	How SAOs Shape Functioning	How is functioning affected by the type and timing of outcomes pursued?; Which SAOs cause problems for specific domains of functioning?; When might the pursuit of SAOs render functioning indicators insignificant?; In contrast, when would the pursuit of outcomes undermine functioning to a point where the alliance is beyond repair?
	How SAOs Shape the Behavioral Manifestations of Interdependence	When does pursuing certain SAOs result in more, or less, tradeoffs, frictions, and tensions? What SAOs are compatible with what configurations of interdependence? When and how does the pursuit of SAOs alter partner interdependence?
	Pursuing Multiple SAOs	Which SAOs are in conflict with each other, which SAOs are compatible, and under what conditions?; How can firms optimize compatibility (mitigate incompatibility) between particular outcomes? Can the downsides of conflicting SAOs be offset by separating efforts in a temporal or geographic manner, or through assigned personnel?; What determines which SAOs are focal and when?

FIGURE 1
Systematic Search



Note: We took several steps to mitigate biases in our search process. To mitigate retrieval bias, we did not restrict the time window of our sample, included a variety of journals publishing both theoretical and empirical research, and iteratively developed keywords that balanced scope and traceability. To mitigate article selection bias, we used a coding booklet with examples. Complex selection decisions were discussed among authors until consensus was reached.

FIGURE 2
Review Framework



Note: We discuss connections among different aspects of the framework, but causal arguments are beyond the scope of the paper.

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(† indicates articles included in the sample.)

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APPENDIX A

Table A1

Prior Reviews of Strategic Alliance Research

Review	Scope
Castañer & Oliveira (2020)	Reviews terms associated with three related but distinct activities shaping the nature and dynamics of alliances: collaboration, coordination and cooperation. Articulates interactional dimensions, overlaps between the three terms, and discriminating dimensions which facilitate distinctions between them.
Oliveira & Lumineau (2019)	Reviews negative dimensions of inter-organizational relationships (i.e., “the dark side”), manifesting mostly through conflict, opportunism and unethical practices. Articulates future research opportunities across four interrelated dimensions. Includes a discussion of outcomes associated with some specific dark side manifestations in strategic alliances (e.g., opportunism, unethical practices; p. 246-247). No further analysis of outcomes.
Lumineau & Oliveira (2018)	Articulates four blindspots on research on inter-organizational relationships related to structural aspects of the phenomenon (organizations, relationship, context, and time). In each instance, highlights future research opportunities for overcoming blindspots.
Salvato, Reuer & Battigalli (2017)	Offers a multidisciplinary, multilevel analysis of the nature of cooperation through investment, governance and design decisions. Illustrates the individual-level foundations of cooperative relations between firms and showcases opportunities for greater mutual learning between distinct literatures.
Albers, Wohlgezogen, & Zajac (2016)	Reviews strategic alliance structures from an organizational design perspective. Offers a five-dimensional typology of alliance structures and articulates how each dimension shapes intra-alliance issues such as coordination and trust.
Majchrzak, Jarvenpaa, & Bagherzadeh (2015)	Reviews interorganizational relationship dynamics from 22 qualitative cases, identifying six patterns of dynamics. The authors argue, based on the case studies, that more complex dynamic patterns are associated with more successful results. (Success was indicated by continuation of the collaboration or achievement of intended outcomes.)
Wang & Rajagopalan (2015)	Reviews preformation and postformation alliance capabilities at the firm, dyad, and portfolio levels. Offers a future research agenda built on value creation and value capture. Several outcomes are noted in relation to alliance capabilities.

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Gulati, Wohlgezogen, & Zhelyazkov (2012)	Explores how cooperation and coordination impact three early stages of an alliance life cycle. Distinguishes between cooperation (i.e., prosocial behavior) and coordination (i.e., mechanics of organizing interactions), arguing that both are indispensable facets of collaboration.
Parmigiani & Rivera-Santos (2011)	Offers a meta-review of interorganizational relationships (consortia, buyer-supplier agreements, strategic alliances, etc.) and analyses motives for their pursuit. Highlights two ‘pure’ forms of interorganizational relationships: co-exploration and co-exploitation.
Inkpen & Tsang (2007)	Explores learning opportunities as a motivation for alliance participation. Issues with learning implementation, such as learning processes and bargaining power are considered, as are outcomes related to learning.
Barringer & Harrison (2000)	Articulates advantages and disadvantages of interorganizational relationship formation via six theoretical perspectives. Delineates commonly pursued interorganizational relationships (joint ventures, consortia, strategic alliances, etc.).

APPENDIX B

Figure B1

Data Structure: Strategic Alliance Outcomes

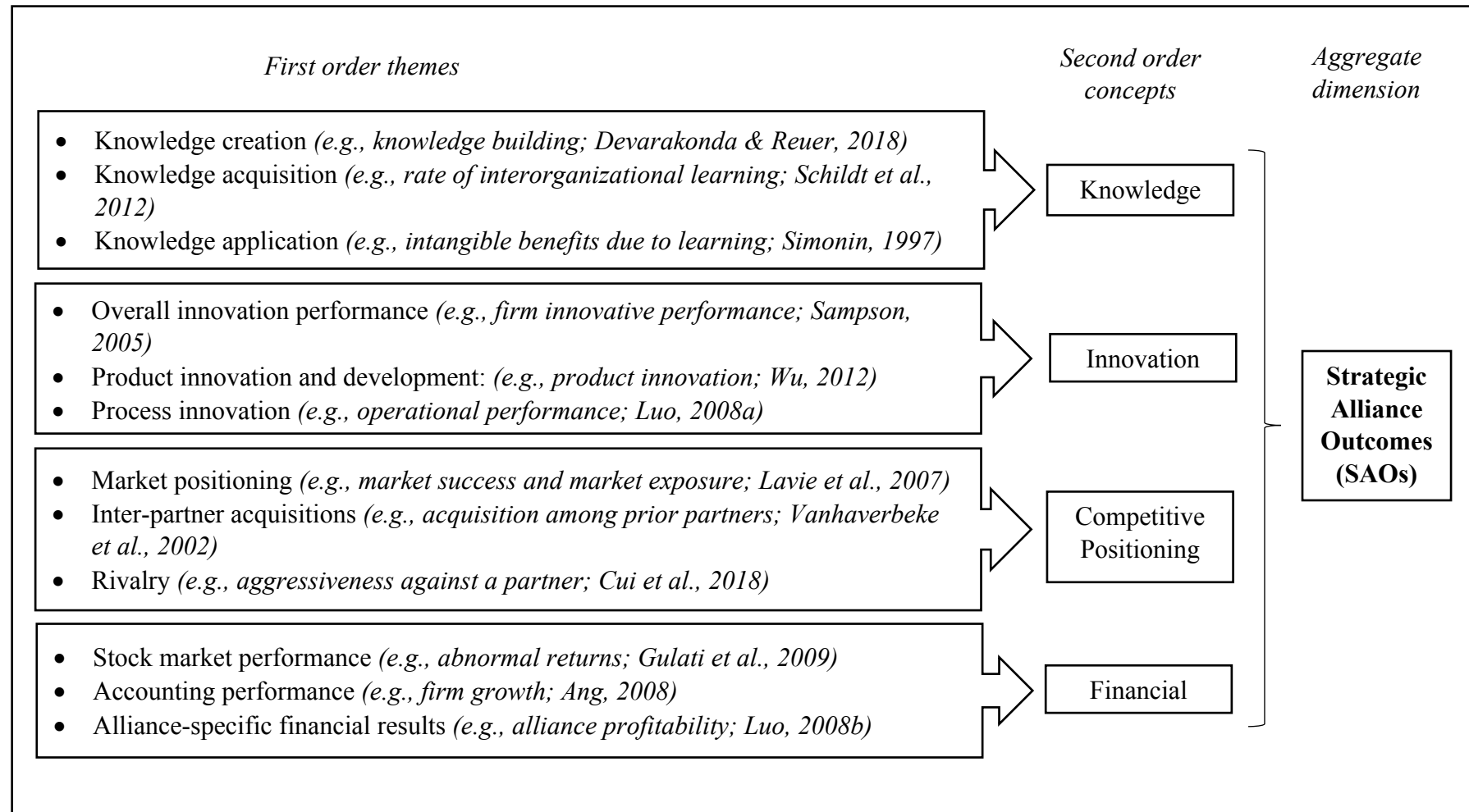


Figure B2
Data Structure: Strategic Alliance Functioning

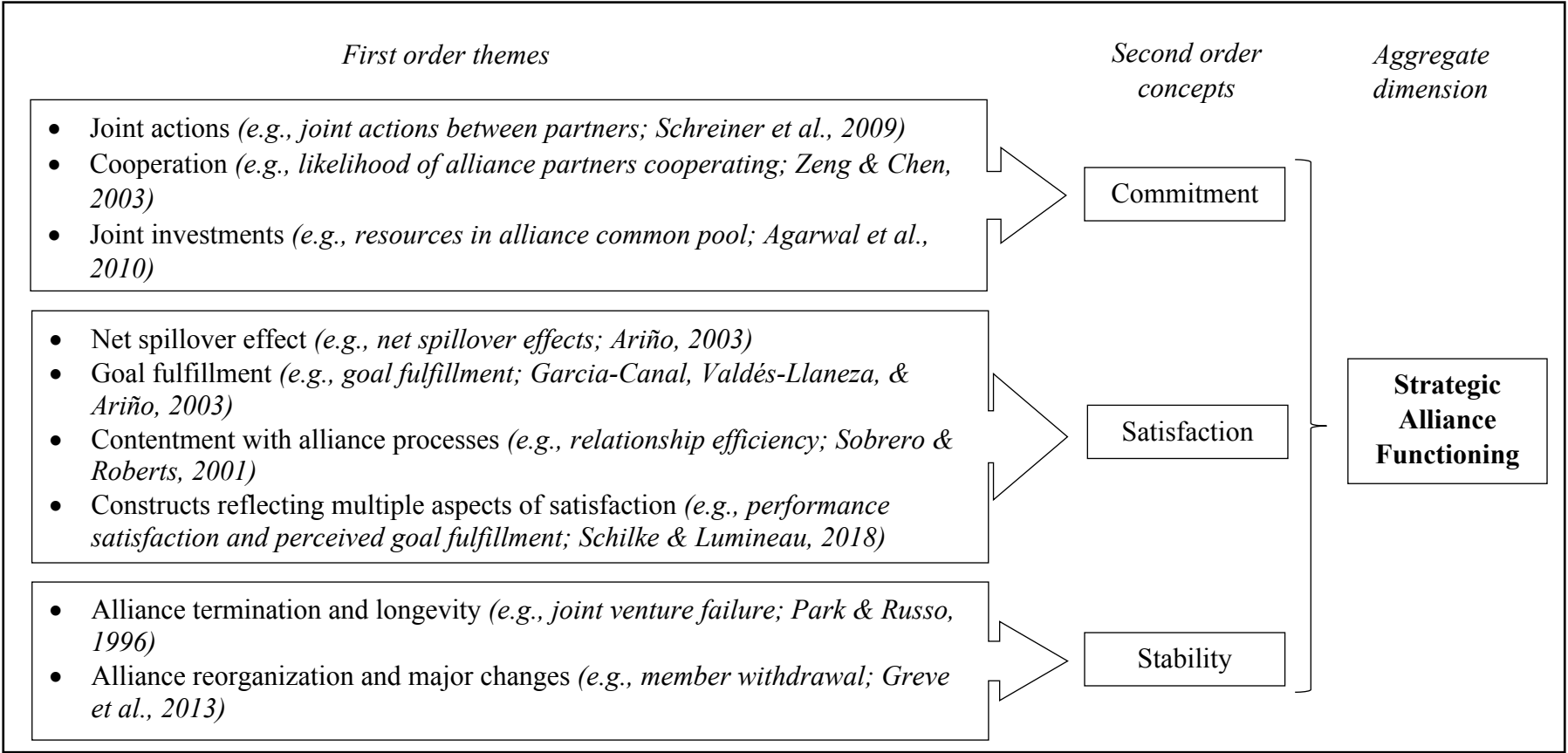


Figure B3

Data Structure: Behavioral Manifestations of interdependence