The Process of Cooperation in Strategic Alliances[1]

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Strategic alliances are formed on the expectation of value creation beyond what individual partners could achieve alone (Borys & Jemison, 1989). The creation of that value, in turn, is conditional on alliance partners' cooperation in combining their resources and capabilities over a relatively long time span. Cooperation, however, does not emerge automatically, nor does it remain stable during the life of the alliance. Instead, cooperation remains subject to a dilemma where a partner can maximize its own benefits at the expense of the other, and increase its share of the 'alliance pie' (Khanna, Gulati & Nohria, 1998; Larsson et al., 1998). The dilemma arises because of the uncertainties surrounding partners' collaborative intentions and the true value of their contributions.

A substantive part of the strategic alliance literature deals with the cooperation dilemma, and searches for the appropriate mechanisms to curtail partner opportunism. Parallel to the transaction cost economics' strong influence on the study of governance mode choice, the alliance management literature predominantly focused on the structural elements of alliances as determinants of partners' behavior during the course of cooperation (e.g. Yan & Gray, 1994, 2001; Park & Ungson, 1997; Hennart &

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Zeng, 2005). This approach treats alliances as a 'black box', and suggests a deterministic link between the initial conditions of an alliance and its collaborative outcome.

Over time, however, an alternative view of alliances has emerged which recognizes that cooperation has a social character -- i.e., cooperation is strongly influenced by the quality of partner interaction emerging over long periods of time (Das & Teng, 2002; Poppo & Zenger, 2002; Luo, 2007). As a response, a new stream of research emerged that characterizes cooperation as a *process,* and alliances as a *trajectory* developing under the influence of a series of micro-interactions and events. The accumulation of these determines partner's dispositions towards cooperation and, in turn, the achievement of collaborative objectives.

In the alliance literature, one may find process explanations in the narrative of how inputs and outputs are causally related. However, these narratives usually remain unsystematic and unobserved. The process view of alliances, on the other hand, moves beyond the so-called 'black box' (Van de Ven, 1992) between inputs and outputs -- in particular, between initial conditions and alliance outcomes. Scholars in this perspective conceptualize process as a 'sequence of events or activities that describes how things change over time' (Van de Ven, 1992, p. 170). In doing so, the process view of interpartner cooperation challenges a strictly deterministic relationship between initial conditions and alliance outcomes. Instead, it points out to the possibility both of destructive processes despite favorable initial conditions of the alliance -- e.g. a downward spiral of fairness perceptions (Ariño and Ring, 2010), -- and of a constructive influence of partner interactions despite unfavorable initial conditions -- e.g. the emergence of interpartner trust despite previous collaboration failure (Faems et al., 2008).

The foundations – Models of collaborative processes

The process view of cooperation in alliances may be examined from the perspective of three main schools of thought on change and development: (1) life-cycle, (2) evolutionary, and (3) dialectic theories

(Van de Ven, 1992; Van de Ven and Poole, 1995; de Rond and Bouchikhi, 2004). They all explain how and why change occurs; yet, each theory takes a different position on the nature and drivers of change. Table 1 provides an overview of pioneering research on collaboration processes, which we review briefly next.

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Life-cycle models

The life-cycle theory assumes that an alliance -- like an organism -- passes linearly and irreversibly through a predetermined set of life-stages (Van de Ven & Poole, 1995; de Rond & Bouchikhi, 2004). An underlying logic -- similar to the genetic code in organisms -- determines a certain order of life-stages, each of which 'sets the stage for the next' (Van de Ven, 1992; p. 177).

D'Aunno and Zuckermann's (1987) were among the first to apply life-cycle theory to alliances. They describe the life of multipartner alliances as a linear sequence of stages. Change stems from the natural transition from one stage to the next, and can be observed in the set of tasks undertaken by partners. However, what drives change is rather unclear because it is only logical and natural for the alliance to pass each stage. Inkpen and Beamish (1997) propose another linear life-cycle model that considers change to occur inevitably as partners learn from each other over time. As the driver of change, interpartner learning renders one or more partners' contributions obsolete, damaging the basis for continued cooperation. Larsson and her colleagues (1998) develop a framework of multiple possible trajectories for interpartner collaboration to converge on cooperative states. The alliance progression towards one among a potential set of cooperative states depends on the learning strategies adopted by

the partners. In this model, change occurs depending on partners' responses to interpartner learning in previous periods.

All of these models consider alliance progress as linear and deterministic. However, they present differences. D'Aunno and Zuckermann (1987) assumed an almost automatic progression towards a final stage, while the other two identify interpartner learning as the main driver of change. Also, unlike the other models, that proposed by Larsson and colleagues (1998) allows for multiple trajectories and end-states as it considers partners' strategic responses to counterparts' choice of behavior.

Evolutionary models

According to evolutionary theory, change occurs through iterative cycles of variation, selection, and retention for the purpose of fit between environmental requirements and individual characteristics. From this perspective, alliances progress in recurring cycles of interdependent stages generating strong feedback loops that may be constructive or destructive.

Ring and Van de Ven's (1994) evolutionary framework consists of recurring cycles of negotiation, commitment, and execution. At each stage, partners assess the cooperative relationship based on the alliance's efficiency in obtaining partner objectives and the alliance's equity in outcome distribution. If, at each stage, partners' efficiency and equity expectations are met, cooperation is reinforced. In the case of a misfit between expectations and outcomes, cooperation deteriorates in a downward spiral. Doz (1996) proposed a similar cyclical process consisting of learning, reevaluation and readjustment stages. In this model, interpartner learning is the main driver of the relationship dynamics as the alliance's efficiency, equity and adaptability is reevaluated depending on the outcomes of learning about the environment, the partner and the alliance tasks. Ariño and de la Torre (1998) integrate these two models, and extend the evolutionary model beyond internal dynamics. In their model, external changes in the environmental or strategic context trigger the alliance's reevaluation based on its efficiency, equity and

the relationship quality. In contrast to the previous models, external shocks may lead to different paths leading to either renegotiation, unilateral readjustment or dissolution. Here, relationship quality, as the cumulative stock of goodwill, plays an important role in determining the path that the alliance will take after external shocks.

In Kumar and Nti's (1998) model managers conduct recurrent evaluations of the alliance relationship in terms of outcome and process expectations. As unfavorable discrepancies between expectations and actual outcomes arise, the psychological attachment to the alliance deteriorates with a negative feedback to the quality of the pattern of interaction among alliance partners. In this model, the psychological attachment is the cumulative variable determining the overall direction of the alliance whether to one with contestations or one with harmony.

Inkpen and Currall (2004) introduce a co-evolutionary mechanism between trust and control. Initial reliance on social (formal) control mechanisms lead to high (low) levels of trust in a self-reinforcing way. However, positive loops can be broken if learning from the partner results in shifts in the balance of dependence and bargaining power, and negative loops by learning about the partner objectives and intentions. Here, interpartner learning once again emerges as the main driver of change in the alliance's trajectory.

From an evolutionary perspective, cooperation in alliances develops in iterative cycles. Whether the consecutive iterations will help cooperation to emerge depends on the nature of the feedback loops. Positive feedback loops appear under the condition of interpartner harmony (e.g. high levels of trust) and negative feedback loops appear under low relational quality (e.g. perceptions of injustice). Main drivers of change are evaluations of the alliance relative to expectations, and interpartner learning. In contrast to life-cycle models, evolutionary ones shed more light onto the social interaction among alliance partners.

Dialectic models

According to dialectic theory, change is the result of inherent tensions among opposing forces. From this perspective, the cooperation process evolves sporadically as a result of the tensions among dialectic forces.

The work of Das and Teng (2000) puts forward three such dialectic forces: cooperation vs. competition, rigidity vs. flexibility, and short-term vs. long-term orientation. Accordingly, any imbalance between these forces will inevitably lead to alliance instability. De Rond and Bouchikhi (2004) add other dialectic forces such as design vs. emergence, trust vs. vigilance, expansion vs. contraction, and control vs. autonomy. This view denies a cumulative, deterministic coevolution among dialectical factors. Instead, these factors randomly reach highs and lows during the life of the alliance inducing change into the relationship; whether change is for the better or for worse remains uncertain. The dialectic view, the authors argue, "does not assume, a priori, that what happens within (and to) alliances is either particularly functional or dysfunctional" (De Rond & Bouchikhi, 2004; p. 67). In that sense, alliance stability or continued collaboration is not necessarily the desired end-state.

The dialectic view proposes the most flexible framework for studying cooperation processes; however, the plurality and indeterminism embraced by this view hampers generalization and prediction (Bell, den Ouden & Ziggers, 2006). Therefore, the dialectic approach has generated less research on alliance processes than life-cycle and evolutionary perspectives.

Further Research on Collaboration Processes

The above mentioned pioneering work on collaboration processes branched out to several research fields. The life-stage models inspired research on key success factors for the management of various alliance stages. Kumar and Das (2007) proposed appropriate legitimacy building strategies at the stages of formation, operation, and outcome. Pragmatic or moral legitimacy are critical depending on the life-

cycle stage. Das and Kumar (2011) map negotiation strategies with their impact on the formation, operation, and outcome stages of alliances. Whereas a problem solving strategy of negotiation enhances mutual trust across all life-stages, other negotiation strategies diminish relationship quality at least in one of these stages. Jiang, Li and Gao (2008) integrate life-cycle and evolutionary approaches to alliance process to delineate a comprehensive list of stage-specific factors promoting instability throughout the alliance life. Other researchers focused on specific stages within the alliance life-cycle. For instance, Ariño and Ring (2010), in a case study of an emerging IJV agreement, investigated the process leading to alliance formation from the perspective of justice perceptions, although their findings have implications beyond the alliance formation stage.

The co-evolutionary models of collaboration processes pointed out to the importance of cumulative variables such as trust and learning, thus inspiring further research on mechanisms of their accumulation. From the perspective of Faems and his colleagues (2008), achievement of positive trust dynamics starts with the adoption of broad contractual interfaces that make joint sensemaking on unexpected problems possible, in turn increasing competence-based trust. With increased trust, contracts become even more broadly defined. McCarter, Mahoney and Northcraft (2011) propose an alternative trust-building mechanism where alliance partners invest in a collective real option starting with small initial investments of resources to uncover the viability of the alliance and the trustworthiness of each other. These investments grow over time as previous 'small' wins decrease perceptions of relational risk, and encourage subsequent cooperation. Kale and Singh (2007) develop a linear process by which learning how to best manage alliances goes through several stages. When alliance know-how is internalized, the effectiveness of a dedicated alliance management function improves, and the firm is more likely to achieve higher levels of alliance success. Lumineau, Fréchet, and Puthod (2011) investigate how an alliance contract evolves through re-negotiations as partners learn about themselves, their partners, the transaction's features, and the contracting process in general. Their findings indicate

that initial contractual clauses may foster learning that triggers contractual re-negotiations, and that transactional characteristics of a joint endeavor may not be entirely exogenous to the alliance process but may evolve as interorganizational learning takes place.

The first study applying the dialectical perspective to the process of cooperation is that by Vlaar, Van Den Bosch and Volberda (2007). The authors argue that formalization has both functional and dysfunctional effects on cooperation. While formalization improves coordination and control, it inhibits. The authors, then, layout how managers cope with these internal tensions. Luo, Shenkar and Gurnani (2008) investigate the interdependence between control and cooperation. Relational aspects determine the typology of the 'loose coupling system' of the alliance, and in turn, the alliance partners may choose appropriate strategic responses to each control-cooperation typology depending on partner-specific factors. This study responds well to the criticisms to the dialectic perspective by providing predictions for the choice of possible strategic responses on the part of alliance partners.

Future Research

Conceptualizing organizational phenomena as processes benefits the research in the following ways. First, the process view frees the research from the constraints of causal determinacy and allows for alternative causation and explanations. Second, it takes a more holistic view on how a multiplicity of factors, including actors, events, context and patterns, lead to organizational outcomes (Van de Ven and Poole, 2005). Therefore, in the context of strategic alliances, the process view provides the opportunity for developing a more fine-grained understanding of the complexity and contingencies associated with important aspects of alliances across multiple levels of analysis and at various times. Notwithstanding the associated logistical difficulties, process research on alliances can generate valuable insights and contribute to our knowledge by modifying and enriching received theory. In particular, taking a process

view, scholars can expand the alliance literature in two directions; (a) by changing the level of analysis and (b) incorporating the temporal aspect into their studies.

Alternative levels of analysis

While process research identifies several stages in its life, the alliance –with emphasis on the execution stage– remains the predominant level of analysis is in the literature. However, we observe recent revival of interest in other alliance stages including partner selection and contract renegotiation or termination employing the tradition of 'variance analysis' (Langley, 1999). Recent research in partner selection, for instance, utilizes a matching framework which takes into account the competition for the best partners in the industry which, in turn, constrains firms' ability to match with their ideal partners (Mindruta, Moeen, Agarwal, 2016). The matching framework opens up novel research areas on the processes through which firms compete for the best partners and on the co-evolution of the alliance decision with the partner sorting in the industry. The latter is a rather intriguing area of study as existing research considers the alliance decision and partner selection as independent rather than simultaneous (Li et al., 2008).

Another emerging stream of research is alliance portfolios. Despite the early contributions of Koza and Lewin (1998, 1999), Gulati (1995), and Gulati and Garguilo (1999), there is very limited research on the emergence of cooperation at the level of alliance portfolios and networks with the notable exceptions of Ozcan and Eisenhardt (2009) and Greve et al. (2010). Furthermore, scholars call for research on the dynamics of organizational learning within a firm's portfolio of exploration and exploitation alliances. For instance, we do not know how firms transition from exploration to exploitation in the same area of collaboration (Rothaermel & Deeds, 2004; Stettner and Lavie, 2014).

The Temporal Aspect

A main distinction of the process view lies in its conceptualization of alliances as a sequence of partner interactions spanning a long period of time. This approach provides a valuable opportunity for incorporating exogenous shocks, critical events, milestones and turning points into alliance research. While the studies by Makino et al. (2007) and Cui, Calantone, and Griffith (2011) show that changes in the environment and partner strategy increases the likelihood of termination in alliances, we still lack a clear understanding of how partners respond to exogenous shocks to adjust and maintain their cooperation. Answering this question would also contribute to the literature on alliance management capability; in particular, to our knowledge of how failures in the past transfer into the future cooperative strategy of the firm (Li et al., 2008).

The process view can also be used to study changes in a firm's cooperative strategies over time. Scholars have been particularly interested in the alliances of small firms as they are in greater need for external resources, while they are also the most vulnerable to resource appropriation (e.g. Kalaignanam, Shankar and Varadarajan, 2007; Ariño, Ragozzino, and Reuer, 2008; Vandaie and Zaheer, 2014; Yang, Zheng, and Zhao, 2014). The question remains, however, how small firms' alliance strategies evolve as they accumulate alliance experience or as they grow to become stronger rivals to the incumbents.

Lastly, the two directions we propose can be combined in industry-level long-term studies. The study by Rosenkopf and Schilling (2007) showed significant heterogeneity across industries in terms of the alliance network size and alliance intensity. The authors propose that technological dynamism, as in rapid changes in technology and the resulting uncertainties, increases alliance intensity in an industry. The process view can broaden our understanding of industrial dynamics; i.e. how competition and interorganizational cooperation co-evolve throughout the industry life-cycles from inception to decline.

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Table 1. Overview of Research on Processes of Cooperation

Theoretical perspective	Authors	Role of Initial Conditions	Stages	Flow	Drivers of Change
Life-cycle theory	D'Aunno & Zuckermann (1987)	Resource dependence and common purpose make alliance possible.	Emergence Transition Maturity Critical crossroads	Linear	None: automatic entry to the next stage
	Inkpen & Beamish (1997)	Partners' intentions towards knowledge transfer	Knowledge acquisition Alliance instability	Linear	Interpartner learning
	Larsson et al. (1998)	Initial choice of learning strategy casts a shadow of the past on subsequent interaction.	e.g. Accommodation & Collaboration => Integration Competition & Collaboration => Moderation Accommodation & Compromise => Moderation	Linear, but multiple trajectories possible	Interpartner learning
Evolutionary theory	Ring & Van de Ven (1994)	Provide a context for initial interactions	Negotiation Commitment Execution	Cyclical	Re-assessments based on: Efficiency Equity
	Doz (1996)	Facilitate or hamper consequent stages of interpartner learning	Learning Re-evaluation Revision of conditions	Cyclical	Re-evaluations based on: Efficiency Equity Adaptability
	Ariño & de la Torre (1998)	Favorable conditions necessary for emergence of the alliance.	Negotiation & Commitment Execution Re-evaluation Readjustment – Unilateral Reaction - Dissolution	Cyclical	Re-evaluations based on: Efficiency Equity Relationship Quality

Theoretical perspective	Authors	Role of Initial Conditions	Stages	Flow	Drivers of Change
Evolutionary theory	Kumar & Nti (1998)	Initial psychological attachment and expectations become an anchor for subsequent evaluations	Interaction & Absorptive Capacity Realized Outcomes Discrepancies from Expected Outcomes	Cyclical	Convergence or divergence between expected and realized outcomes
Dialectic theory	Inkpen & Currall (2004)	Not only are initial levels of trust and control interdependent, but they also jointly determine subsequent levels of trust and control	Learning about and from partner Changes in Interfirm Trust Shifts in Bargaining Power	Cyclical	Trust Control Interpartner Learning
	Das & Teng (2000)	Negligible; how the relationship and external events unfold has more important repercussions.	No deterministic stages. Internal Tensions: Cooperation vs. Competition Rigidity vs. Flexibility Short-term vs. Long-term Orientation	Dialectic	Imbalance between dialectic forces
	De Rond & Bouchikhi (2004)	Negligible; how the relationship and external events unfold has more important repercussions.	No deterministic stages. A Coevolution of Dialectical Tensions Design vs. Emergence Cooperation vs. Competition Trust vs. Vigilance Expansion vs. Contraction Control vs. Autonomy	Dialectic	Imbalance between dialectic forces