



# Leadership and innovation capability development in strategic alliances

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## Abstract

**Purpose** – The purpose of this paper is to examine whether heterogeneity in alliance capability development can be attributed to the use of certain intra-firm leadership behaviors. The author suggests that transformational leadership behaviors have a stronger influence on the development of innovation (dynamic) capabilities of a strategic alliance than on the development of operational (substantive) capabilities, and that transactional leadership behaviors mainly preserve operational capabilities.

**Design/methodology/approach** – The author used in-depth expert interviews and a questionnaire survey comprising 369 strategic business alliances to develop and test the theoretical framework.

**Findings** – The data confirm the positive relationship between transformational leadership and the development of innovation and operational capabilities. Yet, transactional leadership behaviors are not only associated with operational capability development, but notably contribute to the development of innovation capabilities.

**Research limitations/implications** – While the study focusses on leadership, there are many more factors that impact on the strategic ability of alliances to deliver innovation outcomes. Other limitations are the multiple levels of analysis in the theoretical model, newly developed measurement scales and that responses for the empirical study only come from one partner of the alliance.

**Practical implications** – The study suggests advantages of exercising the full range of leadership behaviors when seeking innovation alliance outcomes.

**Originality/value** – This research contributes to the strategic management, innovation, leadership, and alliances literature by providing new and empirical validation of the effectiveness of particular leadership behaviors in collaborative settings.

**Keywords** Leadership, Dynamic capabilities, Strategic alliances, Innovation capabilities

**Paper type** Research paper

## 1. Introduction

Many organizations form alliances to combine and develop know-hows with external partners and create competitive advantages. While overall alliance activity and related alliance-dependent revenue has been growing extensively (Park and Zhou, 2005; Schreiner *et al.*, 2009) their outcome has not always been satisfactory (Wittmann, 2007). Firms differ a lot in their ability to achieve benefits from entering alliances (Heimeriks and Duysters, 2007). Previous studies have suggested that the factors that enhance alliance success include the partners' ability to match resources and align cultures, decision-making processes, and systems in the alliance team (Kale *et al.*, 2000); their ability to create trusting relationships (Zeng and Chen, 2003) and to manage conflict

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(Doz and Hamel, 1998); the ability to handle rivalry and managerial complexity (Sampson, 2005) and set up distinct processes and governance mechanisms to manage numerous alliance relationships at once (Heimeriks and Duysters, 2007). In studying antecedents of alliance success, one stream of research has underscored the alignment between partners' characteristics whereas another has concentrated on relational mechanisms (Lavie *et al.*, 2012). We contribute to the latter and focus on the role and influence of the leadership behavior within the alliance as a distinct relational mechanism and determinant of joint capability development and alliance success.

Following the strategic management and capabilities literature, capabilities can be of two types: operational (substantive) and innovation (dynamic) capabilities. Operational capabilities represent the structures, mechanisms, practices, and procedures that allow an organization to perform operational activities (Winter, 2003); they enable competitive advantage based on the scarcity of comparable resource combinations. Innovation capabilities, on the other hand, represent a capacity to purposefully create, extend, or modify an existing resource base (Helfat *et al.*, 2007); these capabilities are concerned with change and support the creation of competitive advantage based on their innovative nature.

To understand where capabilities come from, researchers (Bowman and Ambrosini, 2003; Eisenhardt and Martin, 2000; Teece *et al.*, 1997; Zollo and Winter, 2002) have pointed to learning processes and routines. The focus of this literature has been on resources adaptation (Helfat and Peteraf, 2003), on the routines that make resources operative, and on the routines that enable resource reconfiguration (Zollo and Winter, 2002). However, there has been a lack of agreement in the literature on the antecedents of capabilities and the true nature of the relationship between operational and dynamic capabilities as well as on their performance implications. While some (Eisenhardt and Martin, 2000; Helfat and Peteraf, 2003; Pavlou and El Sawy, 2006; Winter, 2003; Zahra *et al.*, 2006) have proposed that dynamic capabilities work (indirectly) through the development of operational (substantive) capabilities others (Deeds *et al.*, 2000; Henderson and Cockburn, 1994) suggest that dynamic capabilities have a direct effect on organizational performance.

Nevertheless, the logic associated with operational and innovation capabilities has provided the basis for a range of studies of collaborative rent creation (Lado *et al.*, 1997; Lavie, 2007; Madhok and Tallman, 1998), alliance performance and innovation (Gudergan *et al.*, 2012), as well as inter-organizational knowledge transfer and learning (Cegarra-Navarro, 2005; Lee *et al.*, 2011). But there has been no empirical study of the evolution and development of both operational and dynamic capabilities in the alliance, nor has the role of leadership been studied in that context.

We argue that the alliance manager's leadership has an effect on the alliance team's interactions and its joint effort in working toward the common goal. The leader provides a tangible vision of alliance outcomes; selects and combines resources; and agrees on objectives, timeframes, roles, and responsibilities. Hence, leadership provides the context for and affects the development of capabilities within the alliance. Extant approaches like full-range leadership theory (Bass and Bass, 2008) emphasize a systematic impact of two distinct types of leadership behavior – transformational and transactional behavior – on organizational innovation and individual performance (Jung and Avolio, 2000; Rowold and Heinitz, 2007; Sosik and Jung, 2012). Moreover, transformational leadership has been shown to support organizational learning (Vera and Crossan, 2004) and team effectiveness (Jung and Sosik, 2002). Whether these effects also apply within the alliance has not been studied much. Only one study

suggests that transformational leadership behavior is dysfunctional for innovation within alliances (Osborn and Marion, 2009).

We follow the research on strategic capability development and leadership and expand earlier conceptual work (Schweitzer and Gudergan, 2010) by investigating the capability-building mechanism of value creation in strategic alliances. In particular, we aim to shed light on how alliance leadership behaviors affect operational and innovation capabilities and how operational and innovation capabilities relate to one another. In what follows we explain leadership and capability development in alliances by interpreting different types of leadership behaviors based on the logic of full-range leadership theory and a dynamic capability perspective.

## 2. Theoretic background

### 2.1 Alliance leadership

Leading an alliance team involves unique challenges: Firms often design alliances to have a shared leadership function, informal leadership structures can evolve, and some managers might be engaged in multiple alliance teams, facing different contingencies in every one of them. Hence, for each alliance team factors like the relationship between partners, the strategic context, contractual agreements, and the characteristics of alliance team members can differ and require the leader to use a range of leadership skills. Full-range leadership theory clearly suggests that leadership is most effective if managers exhibit different behaviors depending on the situation and the task at hand (Antonakis *et al.*, 2003) and it addresses shared and informal aspects of leadership while highlighting two central types of behaviors – transformational and transactional.

Transformational behavior is charismatic, inspirational, intellectually stimulating, and individually considerate. This behavior is particularly relevant in situations of change and has been linked to motivation and creativity (Shin and Zhou, 2003), performance (Jung and Avolio, 1999), innovation, and effectiveness (Gumusluoglu and Ilsev, 2009; Jung *et al.*, 2003). Transformational behavior emphasizes an individually considerate behavior, which encourages followers to share their ideas and contribute to decision making. It also emphasizes an inspirational and stimulating conduct, which empowers critical thinking and development of individual solutions. Transactional leadership, on the other hand, motivates individuals through contingent-reward exchanges and management by exception. Transactional behavior encourages setting goals and articulating explicit agreements. In alliances, transactional behaviors inhibit shared leadership and, particularly when organizational cohesion among partnering firms is low, discourage the development of informal leadership. Intrapreneurial behavior among team members would be difficult to maintain when alliance leadership is transactional. Transactional leadership is, however, supportive of maintaining and improving established working practices because of its focus on goal and task achievement.

A third style of full-range leadership is passive avoidant (*laissez-faire*) leadership, which constitutes non-leadership characterized by individuals avoiding responsibility and failing to be involved when important issues arise (Antonakis *et al.*, 2003). Passive avoidant leadership is a predictor for role conflict, role ambiguity, and conflict among co-workers (Skogstad *et al.*, 2007), workplace bullying (Hoel *et al.*, 2010) and it has negative associations with, for example, personal knowledge development (Crawford, 2005). This would suggest likewise destructive effects of passive avoidant leadership on capability development in the alliance context. While we acknowledge the relevance

of such negative effect, in this study we exclude passive avoidant leadership from our deliberation since our focus is on the “capability-building” effects of the leader’s behaviors.

### 2.2 Capability development in alliances

An alliances’ ability to create value rests on the set of unique resources and capabilities that reside within the relationship (Jarillo, 1988; Miles *et al.*, 2000). The pooled resources and capabilities result from the alliance team’s search and selection processes (resource picking) and innovative configuration and deployment of new resource combinations (capability building) (Helfat *et al.*, 2007; Makadok, 2001). In other words, resource picking and capability building are two important value-creating mechanisms that facilitate an alliance’s unique proposition. Alliance strategists are particularly interested in understanding the mechanisms of joining capabilities and the conditions that lead to their development. One of the conditions that lead to the improvement of capabilities is the extent to which operational (substantive) and notably innovation or dynamic capabilities exist within the alliance.

Operational capabilities in the alliance represent the joint resource base, they are the established and shared resources and competencies that entail known routines and decision making based on accepted agreements between partners. Dynamic capabilities generally refer to the capacity of an organization to purposefully create, extend, and modify its resource base (Helfat *et al.*, 2007). Following this logic we consider dynamic capabilities in alliances as routines and procedures enacted by the alliance team members in conjunction with their managerial behaviors that enhance productivity and innovativeness of the given resources.

While such definition of dynamic capabilities suggests what they are and how they work, it does not answer the question of how they evolve. Depending on the context of the activity at hand, various processes, structures, and behaviors are relevant for dynamic capabilities to evolve, typically this includes the processes, structures, and behaviors that underlie resource allocation, decision making, learning, and knowledge transfer. For example, Bowman and Ambrosini (2003) and Teece *et al.* (1997) suggest incremental and sequential learning processes to underlie the development of dynamic capabilities, while Eisenhardt and Martin (2000) argue for learning mechanisms such as repeated practice, codification of experience, mistakes, small losses, and pacing of experience to assist their evolution. Zollo and Winter (2002) believe that dynamic capabilities are a result of learning to shape operational (substantive) capabilities based on the co-evolution of learning mechanisms like experience accumulation, knowledge articulation, and knowledge codification. Such view entails that learning itself may be seen as a dynamic capability (Winter, 2003). Learning is a central element in the creation and renewal of dynamic capabilities (Mahoney, 1995; Zollo and Winter, 2002).

Another perspective is offered through the organizational knowledge management literature, which suggests “exploration” activities that increase the resource base (or stock of knowledge), and “exploitation” activities’ as those that deploy existing knowledge to create value (March, 1991). In the context of alliances, this distinction corresponds not only to different motivations for alliance partners to engage in collaboration, but also to the way they share and jointly develop exploration and exploitation capabilities. Exploration then points to alliances in which each partner uses the alliance to transfer and absorb the other’s knowledge base through cognitive efforts that are aimed at generating insights and choosing the most suitable solution

through mutually agreed evaluation and legitimizations processes. Exploitation activities, on the other hand, are a form of knowledge sharing and capability development in which each partner accesses the other's stock of knowledge in order to achieve complementarities while relying on behavioral mechanisms that encompass the replication of new approaches and their absorption into routines (Grant and Baden-Fuller, 2003; Zollo and Winter, 2002).

Lastly, Zahra *et al.* (2006) suggest that dynamic capabilities require entrepreneurship, intrapreneurship, and learning to develop. This involves the ability to sense and seize opportunities of reconfiguring an asset base (Teece, 2007; Teece *et al.*, 1997; Winter, 2003), which in conjunction with an existing ability to learn, transform operational capabilities, alter the knowledge base and ultimately increase performance.

Following and linking the logic of the dynamic capabilities and the knowledge-based literature, operational capabilities in the alliance can be seen to serve exploration objectives while dynamic capabilities in the alliance enable exploitation activities. Yet, there is a recursive and co-evolutionary connection between exploration and exploitation through operational and dynamic capabilities, which frequently challenges alliance leaders to handle them both simultaneously. The ambidexterity of repeatedly and intentionally orchestrating shared alliance resources can itself be considered a dynamic capability (O'Reilly and Tushman, 2008; Schreyögg and Kliesch-Eberl, 2007) and, as such, a unique alliance leadership challenge.

Ultimately, the processes that reflect learning, knowledge management, entrepreneurship, intrapreneurship, and the existing resource (knowledge) base within the alliance determine the development of innovation capabilities leveling alliances. We suggest that alliance leadership behaviors affect all of the above processes and that especially dynamic capability theory provides important insights into the different effects that leadership has on the exploration of operational capabilities and the exploitation through dynamic capabilities within the alliance.

Our conceptual model therefore is based on the rationale that the influence of leadership on alliance capabilities can be assessed using a framework rooted in dynamic capability and full-range leadership theories. We develop specific hypotheses for the various effects of transformational and transactional leadership behaviors.

### 3. Hypotheses

#### 3.1 *Effects of transformational leadership behavior*

Transformational leadership behavior encompasses four dimensions: idealized influence, inspirational motivation, intellectual stimulation, and individual consideration. Given that these behaviors support entrepreneurship, intrapreneurship, learning, and/or the creative use of existing knowledge within the alliance, we propose that they influence the development of dynamic and operational capabilities. To support our argument we draw on research that not only documents the direct and indirect effects of transformational leadership but also clarifies how an individual's characteristics influence innovation and creativity at the group level.

The first dimension of transformational leadership, idealized influence, refers to behavior that represents a clear vision and sense of purpose. Transformational leaders who show this behavior foster a collective identity for their organization, its vision, and its values, (Jung *et al.*, 2003) and maintain high levels of intrinsic motivation and creativity among followers (Shin and Zhou, 2003). Intrinsic motivation, in turn, forms an integral aspect of entrepreneurial behavior and is a prerequisite for organizational learning (Osterloh and Frey, 2000). In accordance with this view, we

suggest that the extent to which the alliance manager displays idealized influence supports the intrinsic motivation of alliance team members. Likewise, we argue that the leaders' effort in aligning the personal values of followers with the alliance objectives supports internalization, co-operation, and congruence among team members (Shamir *et al.*, 1993). Furthermore, idealized influence behavior affects the alliance culture and communication among alliance team members. Zollo and Winter (2002), for example, argue that both vibrant communication among team members and a collective culture support learning which, in turn, is essential for capability development.

Inspirational motivation, the second dimension of transformational leadership, refers to inspiring followers by communicating a convincing vision of the future and challenging them with high standards while providing encouragement and meaning for the tasks at hand (Hater and Bass, 1998). Inspirational motivation behavior too influences followers' intrinsic motivation and the communicative interaction within the alliance team, both of which support learning mechanisms within the alliance team (Lyles, 1988). Intellectual stimulation, as the third dimension of transformational leadership, involves encouraging followers to be creative and innovative by challenging their beliefs and values, and questioning underlying assumptions and the status quo. The extent to which an alliance manager intellectually stimulates team members influences their critical thinking and entrepreneurial conduct since it reflects the ability to think cogently and to put thoughts into action. Further, in an intellectually stimulating work environment, followers are likely to seek innovative approaches when doing their work and to achieve superior performance (Howell and Avolio, 1993). Indeed, Dvir *et al.* (2002) argue that followers with a transformational leader have high self-confidence and take a critical and independent approach toward their work. Thus, when transformational leaders show intellectual stimulation behavior, they support a culture that values creative thought processes, risk taking, and innovative work approaches. For that reason we argue that the extent to which a transformational leader intellectually stimulates followers influences the risk orientation within the alliance team. A risk-taking attitude among alliance team members permits entrepreneurial action and supports the development of dynamic capabilities.

The last dimension of transformational leadership, individualized consideration, refers to the leaders' unique way of caring for their followers and showing empathy, appreciation, and support for individual initiatives, so that followers are likely to take risks when experimenting with ideas (Shamir *et al.*, 1993). A culture that supports risk taking also encourages the development of new ideas and knowledge within the alliance. We suggest that the extent to which an alliance team leader individually considers team members affects the alliance team's risk orientation. In addition, individually considerate leadership behavior focusses on the development of followers' competencies in providing information and resources and giving followers discretion to learn and act. Therefore followers are more likely to engage in new and different approaches to their work and to develop the capacity to think on their own. This implies an influence of the alliance team leaders' individualized consideration on followers' job autonomy, which is an additional integral part of entrepreneurial behavior.

The four dimensions of transformational leadership behaviors also support shared and informal leadership structures. A leader who, for example, motivates and stimulates the alliance team to work independently and in a self-responsible manner



and who directs them to be critical toward established routines is likely to share responsibility with a co-leader and those alliance team members who have no formally appointed leadership role. Supporting this view, Avolio and Gibbson (1988) propose that transformational leaders aim to develop followers' self-management and self-development skills by letting them implement actions without directly supervising or intervening. Hence the extent to which a transformational leader intellectually stimulates, motivates, and inspires followers increases the team members' job autonomy.

In conclusion, there is ample support for linking the behavioral dimensions of transformational leadership to alliance capability development. This fundamental influence leads to the following two hypotheses:

- H1. Transformational leadership behavior promotes the development of dynamic capabilities in the alliance.
- H2. Transformational leadership behavior promotes the development of operational capabilities in the alliance.

### 3.2 Effects of transactional leadership behavior

Transactional leadership behavior includes contingent-reward behavior and management by exception, both of which affect the development of operational capabilities. Contingent-reward exchanges are positively related to followers' commitment, satisfaction, and performance (Bycio *et al.*, 1995). The provision of rewards is usually formalized, so that the followers' participation in contingent-reward exchanges and their co-operation are mainly influenced by the leader's ability to clarify goals, provide feedback, and motivate followers by highlighting desirable outcomes upon successful task completion (Eisenberger *et al.*, 1998). The extent to which a transactional leader displays contingent-reward behavior influences the alliance team members' extrinsic motivation, which is in itself insufficient in motivating followers to perform in an entrepreneurial way or in encouraging learning. Contingent-reward behavior rewards the anticipated outcome and does not foster the development of dynamic capabilities. Yet, we assert that for the management of existing resources and established routines within the alliance, contingent-reward behavior helps support what Teece (2003) termed operations management.

The second dimension of transactional leadership, management by exception, refers to the supervision of task completion and dealing with any problems that might arise and correcting them to maintain performance. When employing management-by-exception behavior, the transactional leader specifies standards for compliance and ineffective performance. Decision making is formal and centralized, with formalized procedures reflecting a mechanistic, inflexible system of control. Such mechanistic practices in alliances hinder creativity and learning (Bucic and Gudergan, 2004) and reduce intrinsic motivation, with corresponding decreases in creativity and the ability to cope with problems and demands (Amabile *et al.*, 1996). Following this notion, we propose that the extent to which a transactional leader follows a management-by-exception approach affects formality of procedures and centrality of decision making within the alliance. This results in a decrease of entrepreneurial activity and obliterates the grounds on which dynamic capabilities can develop. The management of operational capabilities, however, can benefit from a management-by-exception approach because operational capabilities require maintenance, not

development. In addition, the development of capabilities within the alliance diminishes with restrictions in available inputs, employees, time, and state of managerial practices. Operational capabilities are leveraged through their continual employment, that is, routines that form operational capabilities are habitual and require less and less conscious thought (Helfat and Peteraf, 2003).

Overall, transactional leadership supports the preservation of operational alliance capabilities through extrinsic motivation, formalized structures, and procedures. However, transactional leadership is of no consequence for the development of dynamic capabilities since centralized decision making, formality of procedures, and extrinsic motivation, as a result of transactional leadership, do not support entrepreneurial and intrapreneurial action or learning within the alliance. We suggest the following two hypotheses:

- H3. Transactional leadership behavior does not promote the development of dynamic capabilities in the alliance.
- H4. Transactional leadership behavior promotes the preservation of operational alliance capabilities.

### 3.3 Effects of dynamic capabilities

Notwithstanding the expansion of research on dynamic capabilities, only a few studies have investigated how exactly dynamic capabilities instigate innovative results, let alone increase the performance of strategic alliances. Essentially, several researchers are still uncertain about the nature and role of dynamic capabilities (Winter, 2003), with some criticizing dynamic capabilities to be tautological (Mosakowski and McKelvey, 1997; Priem and Butler, 2001) or vague and non-operational (Williamson, 1999).

However, Eisenhardt and Martin (2000) understand dynamic capabilities as tools that can enhance existing resource configurations and (mainly in dynamic environments) build new competencies that would allow an alliance to achieve innovation advantages and ultimately a new and improved strategic position. Zott (2003) and Helfat and Peteraf (2003) too suggest an indirect link between dynamic capabilities and performance, which occurs through an impact on operational capabilities. Hence, revealing the causal relationships between dynamic capabilities and operational capabilities of the alliance team would shed further light on how innovation occurs at the inter-organizational level.

While related, operational and dynamic capabilities are different. Operational capabilities are the purposive combination of resources that enable the alliance to perform operational activities. The concept refers to a set of “ordinary” abilities and resources that go into solving a problem or achieving an outcome (Winter, 2003) or to the performance of an activity (manufacturing a specific product, providing a specific service) and using a number of routines to execute and coordinate a range of tasks required to perform that activity (Helfat and Peteraf, 2003). Hence, operational capabilities in the alliance are discrete business-level processes and associated activity systems that are fundamental to running the joint business activities.

Dynamic capabilities relate to the capacity of the alliance to create, extend, and modify purposefully its resource base (Leonard-Barton, 1992; Siggelkow, 2001; Siggelkow and Levinthal, 2005). Further clarifying what dynamic capabilities are, Zahra *et al.* (2006) state that the qualifier “dynamic” clearly distinguishes one type from the other. While the ability to reform the way a firm develops new products can be



considered a dynamic capability, the overall ability to develop new products at all represents the operational capability. Similarly, Collis (1994) distinguishes between capabilities that reflect an ability to perform basic functional activities and capabilities, which deal with the dynamic improvement to the activities of the firm.

Overall, researchers have differentiated between operational and dynamic capabilities and suggested that dynamic capabilities alter operational capabilities. Thus, considering the differentiation between dynamic capabilities and operational capabilities in alliances and their interdependence, we propose:

*H5.* An alliance's dynamic capabilities support the development of its operational capabilities.

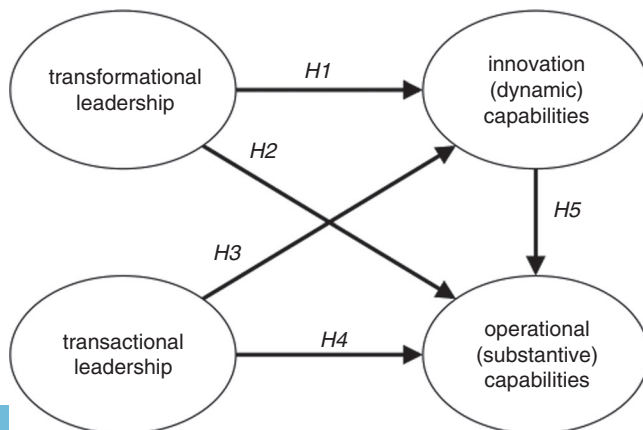
A graphical representation of the hypotheses that we advanced to encapsulate these theoretical arguments is presented in Figure 1.

**4. Method**

To test the hypothesized relationships empirically, we employed a questionnaire survey methodology, and estimated the resulting models using the partial least squares path modeling (PLS-SEM) approach, using smartPLS. We first discuss the sample and data collection procedure, our measures, and finally, comment on the method of estimation.

*4.1 Sample*

The unit of analysis in this study is the alliance team, since it is the actual practices of the individuals who represent the collaborating firms and manage the commercial (or operational) aspects of the alliance who determine the nature and effectiveness of working relationships (Yoshino and Rangan, 1995). The roles, behaviors, and interactions between alliance members and managers establish joint managerial practices and routines and their improvement. To collect data at the alliance team level we used the key informant approach, which is an established way of gathering data in strategy research (Kale *et al.*, 2002). In accordance with previous studies (Parkhe, 1993; Simonin, 1999), we chose the alliance manager who had operational responsibility for the alliance to be the key informant (Kumar *et al.*, 1993), since he or she is familiar with



**Figure 1.**  
Alliance leadership  
and capability model

all aspects of the alliance including prevailing leadership styles based either on reflection of own behavior or based on experiencing and witnessing others.

Key informants were requested to identify one specific, preferably well-established alliance with which they had experienced. To further validate their appropriateness to answer the questionnaire, informants were asked to provide details such as their role, the developmental stage and duration of the alliance, and how long they had been working for the focal alliance. Alliance managers were asked to answer all questions in relation to that alliance only. This ensured that the unit of analysis was adequately addressed and that relevant information was collected.

We directly contacted alliance managers who were members of the Association of Strategic Alliance Professionals or the professional business-networking platform Xing.com. As a second source of data we used a US senior manager panel. Overall, we received 436 responses representing a response rate of 22 percent, which is similar to other studies on alliances (Heimeriks *et al.*, 2005; Kale *et al.*, 2002; Reuer *et al.*, 2002; Zollo *et al.*, 2002). The final data set consisted of 369 valid responses. All responses to our survey were from individuals who were or had been directly involved in alliances. The majority of participants (66.4 percent) had been working for their organization for more than five years and 77 percent had been working for the focal alliance for more than two years. We consider the overall response rate satisfactory, given the experience and seniority of the respondents.

The three most frequently stated industry affiliations of participating alliance managers were information technology (22 percent), healthcare and life science (14 percent), and consulting and professional services (11 percent). The majority of participating organizations were based in North America (78 percent); the rest were from Europe (16 percent), Asia (5 percent), and the rest of the world (2 percent). We found no difference between early and late respondents with respect to the number of employees of alliance partners, sales revenue, and alliance experience (Mohr and Spekman, 1994; Poppo and Zenger, 2002), implying that there was no significant non-response bias (Armstrong and Overton, 1977). To minimize the potential for common method variance we designed the measurement constructs and the survey questionnaire following the suggestions made by Podsakoff and co-authors (2003) and used Harman's single-factor test (Luo and Tan, 2003). The presence of six factors with eigenvalues greater than one, which together account for 67.12 percent of the total variance, and the fact that no single underlying factor accounted for the majority of the variance among the variables suggests that there is no serious problem with the common method bias (Lane *et al.*, 2001).

#### 4.2 Construct measures

Existing measurement scales were adopted and where it was not appropriate to directly replicate existing scales, modifications were made to suit the research context. To assess leadership behavior in the alliance we reverted to original or slightly modified adaptations of previously tested and successfully applied measurement items of related studies. For the measurement of dynamic and operational capabilities we adopted various existing scales and designed new ones following Rossiter's (2002) approach for scale development.

The questionnaire items were comprehensively pre-tested to omit irrelevant aspects or aspects that could unnecessarily cause bias. We first used the questionnaire in personal interviews and early pre-tests with two professionals who were involved in strategic alliances and two experienced researchers. The objective was to verify the

clarity of the items and to assess whether the content of the items tapped the conceptual domain of the focal construct (DeVellis, 1991). The interviews helped gain a realistic understanding of the practices within alliances and significantly supported the appropriateness of the constructs for the theoretic measurement model. In a subsequent pilot study we sent 300 invitations to alliance managers and gained 38 complete data sets. The pilot data were analyzed to evaluate the relevance, validity, and reliability of the reflective and formative measurement model and the structural model. As a result we were able to pre-confirm the constructs and reduce the number of questionnaire items.

The two explanatory variables in our study were transformational and transactional leadership. To assess leadership behavior within the alliance team we used the Multifactor Leadership Questionnaire (MLQ) Form 5X Short (Bass and Avolio, 1997), the most frequently used measure of transformational and transactional leadership (Antonakis *et al.*, 2003; Hunt, 1999; Shin and Zhou, 2003; Yukl, 1999). Extensive research on the MLQ has confirmed that it is a psychometrically sound instrument (Rowold and Heinitz, 2007). The MLQ has four items for each of the seven sub-dimensions of transformational and transactional leadership: idealized influence (attributed), idealized influence (behavior), inspirational motivation, intellectual stimulation, and individual consideration as sub-dimensions of transformational leadership; and management-by-exception and contingent reward as sub-dimensions of transactional leadership.

Because we measured leadership at the alliance team level items were slightly modified (Rousseau, 1985). For example, one item that measured idealized influence was: "The manager(s) of this alliance go beyond self-interest for the good of the alliance team." Participants were asked to indicate on a five-point scale ranging from 1, "not at all," to 5, "frequently, if not always," how frequently each statement fitted the prevailing behavior within the alliance including their own behavior in case they had leadership responsibility.

Dependent variables in our study include dynamic capability development and operational capacity development. Following our conceptual definition of dynamic capabilities we defined seven dimensions for its measurement: proactiveness, innovativeness, risk taking, competitive aggressiveness, relational capital, knowledge, and learning. For each dimension we asked participants to evaluate randomly assorted statements on a five-point scale ranging from 1, "strongly disagree," to 5, "strongly agree."

The first dimension, proactiveness, is defined as the degree to which the alliance team members employ a forward-looking perspective and engage in using alliance resources, employing new technology and skills, uncovering and developing shared market opportunities ahead of the competition, and acting in anticipation of future requirements to create a shared competitive advantage and to improve the functioning and performance of the alliance. To measure the alliance team's proactiveness we used six items adapted from Covin and Slevin's (1986) corporate entrepreneurship scale.

The second dimension, innovativeness, is defined as the extent to which the alliance team establishes shared routines and procedures that support creativity and experimentation in developing new processes, and introducing the latest knowledge and technology to the alliance in order to research, develop, and introduce new products and services. We used six items based on Covin and Slevin's corporate entrepreneurship scale.

As the third dimension, we define risk taking as the degree to which the alliance team engages in routines and behaviors that reflect a bold and determined attitude toward uncertainty about the availability of resources, the partnership situation, and the competitive and market conditions for the alliance. We measured risk taking using five items based on Brush's (2003) scale of a firm's risk propensity, Covin and Slevin's corporate entrepreneurship scale, and Bucic and Gudergan's (2002) scale for risk taking.

The fourth dimension, competitive aggressiveness is defined as the degree to which the alliance team engages in routines and procedures that reflect the intention to take on and dominate competitors; it was measured using four items based on the work of Covin and Slevin (1989).

Relational capital, the fifth dimension, is defined as the degree to which the alliance team employs routines and procedures that facilitate personal interaction, friendship, mutual trust, respect, and high reciprocity among partners. We measured relational capital using three items previously introduced by Kale *et al.* (2002).

Finally, alliance knowledge is the level of accumulated expertise within the alliance compared to competitors, and alliance learning is the degree to which the alliance team acquires and develops new knowledge, information, and skills within the alliance compared to competitors. We developed four questionnaire items for alliance knowledge and four items for alliance learning.

To measure operational capabilities we designed a scale that assessed two dimensions: task control and task proficiency. Participants assessed these two dimensions in regards to a list of 12 general functions of the alliance, which included: research and development; business planning and strategy; finance and controlling; procurement and logistics; production and service delivery; marketing and sales; customer management and service; human resource management; training and development; IT and systems support; public, political, and legal management; and quality management. To measure the task control of one of these capabilities we asked key informants to indicate whether a task was performed by the alliance team, one of the partnering organizations, and/or by an external provider. The responses resulted in an index score from 1, "carried out by an external partner only," to 11, "carried out by the alliance team only," representing the degree to which the individual operational capability was performed by the alliance team. To measure task proficiency we asked key informants to indicate the alliances' expertise for each of the 12 functions of the alliance in comparison to the perceived expertise of the alliances' competitors. Participants rated each of the capabilities on a five-point scale from 1, "significantly worse," to 5, "significantly better."

We included a number of control variables for other factors that might be related to aspects of alliance capability development. First, a control for the scope of the alliance was incorporated. While less defined alliances are sometimes of greater strategic importance (Borys and Jemison, 1989), they are also more difficult to monitor and co-ordinate, possibly involving more transactional type of leadership behaviors. We measured the definition of alliance scope using one item asking participants to rate the extent to which objectives and activities of the alliance are defined on a five-point scale, ranging from 1, "very well defined," to 5, "very poorly defined." For a similar reason we incorporated a measure for the governance mode of the alliance. The involvement of shared equity may affect governance (Oxley and Sampson, 2004) and alliance success (Saxton, 1997). We measured the governance mode using a binary variable, assigning 1 to alliances that used equity and 0 for non-equity alliances.

In addition, the number of alliance partners seeking to co-ordinate their activities might also influence the extent to which partners are able to develop advanced capabilities as well as whether the alliance partners had collaborated before. Hence, we included a measure to assess whether the alliance was between multiple partners or two partners only and a measure of alliance history that measured whether the partners had previous joint alliance experiences with each other. As a final control variable, we assessed the alliance duration because partners in long-lasting alliances typically developed shared understanding, so that impeding conflicts were less likely (Lin and Germain, 1998; Martin *et al.*, 1998) and capability development more effective. We measured alliance duration by an item capturing the number of years an alliance had been in existence at the time of measurement (Kotabe *et al.*, 2003). Table I presents the measurement items for the main variables that were finally used in the survey instrument.

Construct	Item/scale
<i>Transactional leadership</i>	<i>The manager(s) of this alliance [...]</i>
Contingent reward	(1) Make clear what one can expect to receive when performance goals are achieved, (2) provide others with assistance in exchange for their efforts, (3) express satisfaction when others meet expectations
Management-by-exception	(1) Focus attention on irregularities, mistakes, expectations, and deviations from standards, (2) concentrate his or her full attention on dealing with mistakes, complaints, and failures, (3) keep track of all mistakes, (4) direct other team members' attention toward failures to meet standards
<i>Transformational leadership</i>	<i>The manager(s) of this alliance [...]</i>
Individual consideration	(1) Treat others as individuals rather than just members of the team, (2) help others to develop their strengths, (3) spend time teaching and coaching others, (4) consider everyone as having different needs, abilities, and aspirations from others
Idealized influence (A)	(1) Instill pride in others for being associated with him or her, (2) go beyond self interest for the good of the alliance team, (3) act in ways that build respect, (4) display a sense of power and confidence
Idealized influence (B)	(1) Talk about the most important values and beliefs, (2) specify the importance of having a strong sense of purpose, (3) consider the moral and ethical consequences of decisions, (4) emphasize the importance of having a collective sense of mission
Inspirational motivation	(1) Talk optimistically about the future, (2) express confidence that goals will be achieved, (3) talk enthusiastic about what needs to be accomplished, (4) articulate a compelling vision of the future
Intellectual stimulation	(1) Re-examine critical assumptions to question whether the assumptions are appropriate, (2) seek differing perspectives when solving problems, (3) suggest new ways of looking at how to complete assignments, (4) get others to look at problems from many different angles

**Table I.**  
Survey items for  
alliance leadership and  
capability study

(continued)

Construct	Item/scale
<i>Dynamic capabilities</i>	<i>Please rate the extent to which you agree with the following statements reflecting the current or latest stage of the alliance [...]</i>
Proactiveness	(1) In this team, we continuously engage in a process of finding and developing market opportunities, (2) In this team, we are proactive when implementing new products or services, (3) In this alliance team, we anticipate new trends and are normally the first to introduce new initiatives in the market, (4) We depart from established routines and behaviors to enhance the way we work with each other in the alliance, (5) In this alliance, team members are encouraged to actively identify new and better ways of working, (6) We proactively leverage alliance resources to foster best practices within the alliance
Innovativeness	(1) In this alliance, we have a strong emphasis on product and service innovation, (2) In this alliance, we jointly work on new solutions for our market(s), (3) In this alliance, we regularly bring in latest know-how on how to improve the way we work with our partners, (4) We always focus on identifying novel procedures and working routines for the alliance, (5) We encourage creativity among team members to improve internal operations within the alliance, (6) In this alliance, we support innovative approaches that help us work better together
Risk taking	(1) The alliance often engages in high risk, high reward situations in its market(s), (2) We respond to uncertain market conditions with bold actions, (3) The business strategy of this alliance is characterized by a strong tendency to undertake high-risk projects, (4) We believe that bold, wide-ranging acts are necessary to achieve our alliance objectives, (5) We experiment with established routines and structures of the alliance, even if expected outcomes are uncertain
Competitive aggressiveness	(1) We engage in very aggressive and intensely competitive actions towards competitors, (2) In this alliance, we are forceful in working towards market dominance, (3) In this alliance, we often experience competitive clashes with our competitors, (4) In this alliance, we are very competitive, showing an "undoing-the-competitors" attitude
Relational capital	(1) In this alliance, we interact closely and on a personal level with each other, (2) Alliance team members have mutual respect for each other, (3) Alliance team members trust each other
Alliance knowledge	(1) Compared to our competitors, this alliance has accrued more relevant know-how, (2) The accumulated knowledge of people in this alliance is wide-ranging and unique in our markets, (3) Our alliance team has greater and more relevant expertise than the competition, (4) In this alliance, the relevant knowledge of team members is superior to that of the competition
Alliance learning	(1) This alliance helps us gain a better understanding of leveraging our resources, (2) In this alliance, team members engage in professional development programs, (3) This alliance facilitates its members in acquiring new knowledge and skills, (4) In this alliance, we learn from each other

Table I.



4.3 Method of estimation

To estimate the hypothesized relationships, we used partial least squares (PLS-SEM) analysis with smartPLS (version 2.0 M3) (Ringle *et al.*, 2005). For an overview of the methodology see Chin (1998), Hair *et al.* (2011), Henseler *et al.* (2009), and Lohmöller (1989); and for some illustrative applications in strategic management see Birkinshaw *et al.* (1995), Johansson and Yip (1994), Robins *et al.* (2002), and Gudergan *et al.* (2012).

PLS-SEM is an analytical approach to situations where theory is less established and where the available variables or measures would not necessarily conform to a rigorously specified measurement model (Bagozzi and Yi, 1994; Fornell and Cha, 1994; Henseler *et al.*, 2009; Barclay *et al.*, 1995). This is particularly relevant given that alliance and dynamic capability research is still in its development stage with concepts and relationships not yet empirically examined or generally accepted as a central theory.

PLS-SEM has a number of other characteristics that are of advantage to our research: first, it accepts small sample sizes in order for the algorithm to work – which is important given that our samples are relatively small. Second, it does not require multivariate normality, which applies to our study. Third, it produces consistent parameter estimates; and, finally, PLS-SEM it is more suitable, compared to covariance-based methods, when measuring formative constructs, which applies to some of our constructs (Fornell and Bookstein, 1982; Hair *et al.*, 2012; Henseler *et al.*, 2009; Lohmöller, 1989; Reinartz *et al.*, 2009).

5. Results

The hypothesized relationships and empirical estimations are illustrated in Figure 2. Before interpreting results in the structural (inner) model, we evaluate the suitability of the measures (i.e. the outer models) used to operationalize the latent variables. Based on assessing the correct specification of the measurement models, we will evaluate the predictive power of the structural model (Henseler *et al.*, 2009), and report on the observed effects.

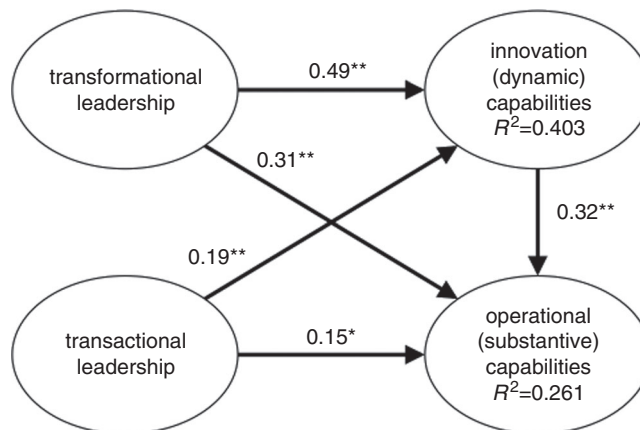


Figure 2. PLS model estimation using the combined data set

Notes: Significance-level (p-value): \*p < 0.05; \*\*p < 0.01

### 5.1 Model assessment

We conceptualized leadership and dynamic capabilities as reflective constructs. Hence, their convergent reliability (Bagozzi and Phillips, 1982) was assessed by indicator (Nunnally and Bernstein, 1994) and construct reliability (Peter, 1981). All factor loadings for the reflective constructs in the model were significant at the 0.01 level and exceeding the recommended 0.80 parameter value for the well established leadership constructs and above the recommended 0.70 parameter value for the new developed dynamic capabilities constructs. Significance tests were conducted using the bootstrap routine with 500 samples (Chin, 1998). Construct reliability and validity were tested by assessing the composite reliability (CR) and average variance extracted (AVE) (Fornell and Larcker, 1981). Table II presents values for CR and AVE for each construct and sub-dimension for the two sub-samples as well as the complete data set. The estimated indices for transformational and transactional leadership constructs were above the threshold (Bagozzi, 1988) of 0.60 for CR and 0.50 for AVE. For some sub-dimensions of the dynamic capability construct the indices for AVE were slightly below the threshold; however, CR indices clearly exceeded the threshold value.

Discriminant validity of reflective constructs was examined via cross-loadings, which were obtained by correlating the component scores of each latent variable with its indicators and all other items that were included in the model. The analysis of cross-loadings revealed that each item loaded higher on its respective construct than on any other constructs. We further examined whether the AVE measures for any two constructs that were related in the conceptual model exceeded their squared correlations (Fornell and Larcker, 1981) and found that this condition was also satisfied in every case. Overall, the analysis of the reflective measurement model implied discriminant validity for both sub-samples and the complete data set. Table III presents the cross-loadings; factor loadings on respective constructs are shown in italics.

The scales for operational capabilities were formative. While formative scales are seemingly heterogeneous from the respondent's perspective, they form a representative

Construct	Items	Sample I ( <i>n</i> = 113)		Sample II ( <i>n</i> = 256)		Model ( <i>n</i> = 369)	
		CR	AVE	CR	AVE	CR	AVE
<i>Transformational leadership</i>							
Individual consideration	4	0.85	0.58	0.87	0.62	0.86	0.61
Idealized Influence (A)	4	0.79	0.56	0.87	0.70	0.85	0.66
Idealized influence (B)	4	0.79	0.49	0.81	0.52	0.81	0.51
Inspirational motivation	4	0.86	0.61	0.87	0.62	0.86	0.61
Intellectual stimulation	4	0.84	0.58	0.84	0.57	0.84	0.57
<i>Transactional leadership</i>							
Contingent reward	4	0.80	0.50	0.81	0.51	0.80	0.51
Management-by-exception	4	0.87	0.63	0.87	0.63	0.88	0.64
<i>Dynamic capabilities</i>							
Proactiveness	6	0.82	0.44	0.81	0.42	0.81	0.42
Innovativeness	6	0.85	0.48	0.85	0.48	0.85	0.49
Risk taking	5	0.78	0.42	0.86	0.55	0.85	0.52
Competitive aggressiveness	4	0.63	0.38	0.86	0.61	0.84	0.58
Relational capital	3	0.81	0.60	0.83	0.62	0.82	0.61
Knowledge	4	0.87	0.64	0.83	0.56	0.85	0.59
Learning	4	0.77	0.46	0.82	0.53	0.81	0.51

**Table II.**  
Indicator and construct  
reliability for reflective  
measurement scales

**Table III.**  
Cross-loadings for  
reflective measurement  
scales

Measurement scale	Sample I (n = 113)			Sample II (n = 256)			Model (n = 369)		
	TFLS	TALS	DYC	TFLS	TALS	DYC	TFLS	TALS	DYC
Individual consideration	0.88	0.63	0.61	0.90	0.68	0.55	0.89	0.66	0.58
Idealized influence (A)	0.87	0.59	0.48	0.90	0.68	0.57	0.89	0.65	0.55
Idealized Influence (B)	0.85	0.58	0.52	0.82	0.60	0.42	0.83	0.58	0.45
Inspirational motivation	0.80	0.60	0.55	0.84	0.60	0.51	0.82	0.58	0.51
Intellectual stimulation	0.89	0.59	0.62	0.88	0.68	0.56	0.89	0.65	0.58
Contingent reward	0.69	1.0	0.49	0.78	0.97	0.58	0.75	0.97	0.55
Management-by-exception	0.07	0.20	0.07	0.05	0.34	0.12	0.09	0.40	0.11
Proactiveness	0.07	0.17	0.19	0.07	0.22	0.40	0.08	0.23	0.37
innovativeness	0.60	0.45	0.90	0.52	0.50	0.89	0.55	0.48	0.89
Risk taking	0.28	0.22	0.56	0.42	0.43	0.74	0.39	0.36	0.70
Competitive aggressiveness	0.47	0.38	0.71	0.55	0.47	0.83	0.54	0.44	0.81
Relational capital	0.52	0.44	0.84	0.62	0.54	0.91	0.59	0.50	0.89
Knowledge	0.52	0.35	0.68	0.48	0.43	0.72	0.48	0.37	0.68
Learning	0.33	0.26	0.51	0.16	0.23	0.49	0.22	0.25	0.52

set of categorical responses that constitute the construct. We defined each item of the operational capability scales as an independent dimension and we expected responses for each item to vary among each other. Cha Fornell *et al.* (1991) suggest that the criterion for indicator choice should be substantive theory, followed by predictive power. The items for the operational capabilities construct have expert validity since their definition is based on managerial insights and pre-testing during the pilot study. As a further test for indicator relevance we compared the weighted scores of formative items and found significant estimates for the scales in this study. We also tested for multicollinearity by looking at the variance inflation factor (VIF). None of the constructs revealed a VIF higher than the threshold of 10, indicating no critical levels of multicollinearity (Höck and Ringle, 2006).

The evaluation of the structural (inner) model is based on assessing the percentage of variance explained, or the  $R^2$ , for the dependent latent constructs and by examining the size and significance of the structural path coefficients as well as the statistical power of the model. We refer to the  $t$ -statistics obtained from the bootstrapping re-sampling procedure (Ringle *et al.*, 2005) to evaluate our estimations. The results for the combined data set are presented in Table IV, which also shows  $t$ -statistics. The predictor constructs explained capability development of dynamic and operational capabilities in alliances adequately in terms of  $R^2$  (see Figure 2). Statistical power was above the commonly accepted threshold of 0.8 (Cohen, 1992) for the combined sample. Overall, our estimations provided significant support for the relationships, and the directions and magnitudes of almost all relationships (except for  $H3$ ) were consistent with our hypothesis, which suggest that our model is robust.

### 5.2 Effects of alliance leadership behavior and dynamic capabilities

The model estimation showed a significant and positive effect of transformational leadership (TFLS) on dynamic capabilities (DYC) and operational capabilities (OPC). Furthermore, we find a significant positive effect of transactional leadership behaviors (TALS) on the development of operational capabilities, and a significant positive effect of transactional leadership behavior on the development of dynamic capabilities. A comparison of the strength of leadership effects on capability development shows

Hypotheses (proposed effect)	Path coefficient	Model ( $n = 369$ ) $t$ -statistic ( $p$ -value)
<i>Effects of transformational leadership</i>		
<i>H1: TFLS → DYC (+)</i>	0.49	8.50** (0.0001)
<i>H2: TFLS → OPC (+)</i>	0.31	4.36** (0.0001)
<i>Effects of transactional leadership</i>		
<i>H3: TALS → DYC (-)</i>	0.19	3.17** (0.0017)
<i>H4: TALS → OPC (+)</i>	0.15	2.11* (0.0355)
<i>Effects of innovation (dynamic) capabilities</i>		
<i>H5: DYC → OPC (+)</i>	0.32	4.01** (0.0001)
<i>Effects of control variables</i>		
Alliance scope (SCOPE)	-0.19	3.45** (0.0006)
Alliance duration (DURA)	0.09	1.95* (0.0519)
Alliance governance mode (MODE)	-0.04	1.10 ns (0.272)
Number of alliance partners (NUM)	-0.01	0.14 ns (0.8887)
Alliance history (HIS)	0.09	1.59 ns (0.1127)

**Notes:** ns, insignificant; total effect-size ( $f^2$ ), path coefficient. \* $p < 0.05$ ; \*\* $p < 0.01$ ; \*\*\* $p < 0.10$

**Table IV.**  
Model estimation results

that the effect of transformational leadership behaviors on dynamic and operational capabilities is generally stronger than the effect of transactional leadership behaviors. In particular, transformational leadership behaviors have a strong effect on the development of dynamic capabilities. The model also shows a significant, positive effect of dynamic capabilities on operational capabilities. Overall, 66 percent of the variation in alliance capability development can be explained by the explanatory variables in the model (innovation capabilities  $R^2 = 0.403$  and operational capabilities  $R^2 = 0.261$ ). The analysis of the PLS estimation indicates the existence of strong and significant relationships between leadership behaviors and capability development in alliances.

Finally, the analysis of the effects of control variables in the model showed differences depending on the definition of alliance scope (SCOPE) and the duration of the alliance (DURA). The results revealed a negative effect of alliance scope definition on the overall model and a positive effect by the duration of the alliance.

We summarize our findings in terms of our hypotheses. In support of *H1* we find that transformational leadership behavior supports the development of dynamic capabilities in the alliance. In support of *H2*, transformational leadership behaviors support the development of operational capabilities. *H3*, however, is not supported – that is, transactional leadership behaviors – according to this study – do support the development of dynamic alliance capabilities; *H4* is supported in the results, which show that transactional leadership behaviors support the preservation of operational

capabilities. Lastly, *H5* is supported, showing a significant role of dynamic capabilities for the development of operational capabilities. Hence, the full range of alliance leadership, namely, transformational and transactional leadership behaviors, influence both, dynamic and operational capability developments. And, dynamic capabilities alter operational capabilities.

## 6. Discussion

### 6.1 Theoretical contributions

The findings of our study have various implications for our understanding of leadership behaviors and the management of strategic alliances. First, since the results clearly confirm *H1* and *H2*, we conclude that transformational leadership significantly directs the development of dynamic and operational capabilities in alliances. This is in line with earlier studies that have linked transformational leadership at the organizational level to increased innovation and performance (Jung and Avolio, 1999; Yukl, 2008), learning (Vera and Crossan, 2004), team effectiveness (Jung and Sosik, 2002), and group or individual performance (Jung and Avolio, 2000).

Second, the empirical study clearly shows that the full range of leadership behaviors affects the development of both types of capabilities within the alliance. Hence, transactional leadership too has a significant, though weaker, effect on dynamic capability development (*H3*) and operational capability development (*H4*). That is, while in our theoretical line of reasoning full-range leadership theory and dynamic capability theory imply that only transformational behaviors affect the development of dynamic capabilities, the empirical results show a considerable influence of transactional behaviors as well. This finding implies that the transactional leadership behavior of managers who work in alliances is in fact relevant for altering the alliances' capabilities. While unexpected, this finding can potentially be explained by research that suggests that transactional contingent-reward style leadership can be very effective (Podsakoff *et al.*, 1990) and positively related to followers' commitment, satisfaction, and performance (Bycio *et al.*, 1995; Podsakoff *et al.*, 1984). Hence, we suggest that successful alliance managers draw on the full range of leadership behaviors to achieve alliance objectives and strategically manage alliance outcomes. Capability development in alliance teams is consequently a function of the alliance managers' capacity to apply various leadership behaviors depending on the situational requirements.

Yet, while both types of leadership in our study contribute to the development of operational and dynamic capabilities, transformational behavior has a much stronger influence on the development of dynamic capabilities than transactional behavior. A possible explanation for the lesser importance of transactional leadership can come from the observed effects of the included control variables.

We found that in alliances for which partnering firms take greater effort defining the scope of the alliance to evade, for example the risk of alliance managers' adverse behavior or negligence managers are less empowered or motivated to sustain the advancement of the alliance's capabilities. Hence, the alliance manager mainly administers, without promoting change or development through leadership action. This is in line with earlier research, which suggests that transactional leadership does not involve the leader's commitment toward the follower's personal development nor does it involve higher levels of identification and trust among the leader and team members (Jung and Avolio, 2000; Podsakoff *et al.*, 1990). Hence, the alliance manager's lack of obligation in maintaining and developing alliance capabilities by promoting

individual alliance team members' capabilities may result in the observed lesser significance of transactional leadership behavior for capability development.

Another explanation for the lesser importance of transactional leadership for capability development could be the importance of the overall duration of the alliance. We found that 73 percent of the surveyed alliances were established for more than two years and that, according to the model estimation, the alliance duration has a significant positive influence on the overall capability development in the alliance. Obviously, alliance capability development is restricted by short-term arrangements, which is in accordance with research that suggests that long-term strategic collaboration is more valuable than short-term agreements (Das, 2006; Kotabe *et al.*, 2003; Pangarkar, 2003). However, whether this means that long-term or short-term alliances influence the effectiveness of the alliance manager's leadership behavior, or whether leadership behavior is less important for capability development in short-term alliances is not yet understood and requires further investigation.

### 6.2 Managerial implications

From a managerial perspective, this study offers ideas on where to focus attention when attempting to enhance innovation capabilities in alliances. First and foremost this study suggests that those alliances that are formed to facilitate strategic renewal, and to drive innovation and diversification, would benefit from a presence of both transformational and transactional leadership behaviors. When implementing alliance strategies and processes, alliance managers should exert leadership in a flexible, conscious and innovative manner. The study shows that in alliances where leaders put in more effort to perform the full extent of their designated leadership roles and overall greater innovation capabilities exist, innovation objectives are likely to be more fully accomplished. This implies that the presence of appropriate and efficient alliance management and leadership skills in the alliance should not be left to chance when setting up strategic partnerships and alliance teams. The choice of the alliance leader (or leadership team) in particular and the design of the role is an important decision, for which the partnering organization should take into account alliance objectives and the leadership characteristics of the team. Partnering firms that choose to employ alliance managers who use the full range of leadership behaviors will support entrepreneurship, learning, and knowledge transfer among alliance team members that can ultimately result in superior innovation performance.

Our findings also point out that partners should understand that alliance scope definition and alliance duration are interrelated with the effectiveness of the alliance managers' leadership behavior and emerging alliance capabilities. When alliances are set up to develop innovation capabilities an overly firm definition of the alliance scope might impede innovative developments. Degrees of freedom for decision-making and room to maneuver allow alliance managers and their teams to explore, test and trial ideas, learn and improve to ultimately innovate.

Our findings suggest that alliance leaders should facilitate learning and creativity in order to boost innovation. Therefore, managers should put in place structures and processes for interactions that support learning and creativity, while avoiding associated impediments. Building effective structures and processes requires time. Hence, long-term partnerships – in our study – were more suited to provide the necessary environment for innovation capabilities to develop. If innovation is on the agenda for strategic partnerships, partners should aim for long-term relationship.



### 6.3 Limitations and directions for future research

We see this study as a basis for forthcoming studies that will further examine, in greater detail, the many individual factors that contribute to the development of innovation capabilities in alliances. Our study provides a starting point in that it focusses on the role of alliance leadership as one important stimulus in the context of alliance innovation. While the study reveals some initial findings, it also illustrates that we need to understand many more factors that impact on the strategic ability of alliances to deliver innovation outcomes. Particularly the roles of different governance modes for the alliance, perceived levels of trust among alliance partners, the specificity of alliance resources and partner search costs are just a few additional aspects that require further investigation in the context driving collaborative innovation capabilities through alliances.

A limitation of the framework that we employed in this study is the multiple levels of analysis. Although we measure leadership at the alliance team level, the results ultimately relate to individual characteristics, which are then compared to alliance level capabilities and performance outputs. However, since capability development is highly related to the processes, practices, structures, routines, and underlying behaviors at various levels of analysis, the advancement of strategic management research in this area requires studies that cross-multiple levels of analysis while addressing related concerns by adopting an appropriate research process (Goldstein, 1995; James, 1982; Rousseau, 1985). In addition, our responses come only from one partner of the alliance. Combining the responses from both partners of the dyad would allow assessment of whether both partners' perspectives are consistent, and this would provide additional insights into the validity of our model.

Finally, while we relied on established measurement scales wherever possible, we had to design the measurement constructs for dynamic and operational capabilities. Although we followed a consistent approach for the scale development and tested the items in a pilot study, the measurement instrument requires further validation in subsequent studies. The measurement instruments as well as the conceptual framework should be tested in additional empirical studies before generalizations can emerge. Further support for the proposed framework could come from case studies, cross-sectional studies, and longitudinal studies of alliances.

The above limitations give rise to a number of research directions. An additional area for research is to undertake industry-specific surveys and analyses. This would provide greater depths of understanding into the generalizability of our framework across different sectors. Finally, a potential though challenging endeavor for future research is to collect and analyze dyadic data.

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