



# Ambidextrous in new ventures: The impact of new product development alliances and transactive memory systems



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## ABSTRACT

Unlike established firms, new ventures often lack the resources and structure necessary to simultaneously pursue exploration and exploitation activities in the process of developing and introducing new products into markets. Thus, it remains unclear whether and how ambidexterity (i.e., simultaneous pursuit of exploration and exploitation activities) can develop in new ventures. This study posits that product development alliances and the transactive memory systems of entrepreneurial teams contribute to new venture ambidexterity. Moreover, we propose that the two mechanisms reinforce one another. Data collected from 148 new Chinese ventures support these hypotheses.

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## 1. Introduction

Organizational ambidexterity is a firm's capability to synchronously pursue exploration and exploitation in innovation activities (Gupta, Smith, & Shalley, 2006; Levinthal & March, 1993; Raisch, Birkinshaw, Probst, & Tushman, 2009).<sup>1</sup> Ambidexterity is indispensable for the adaptation of established firms (Filippini, Güttel, & Nosella, 2012; O'Reilly & Tushman, 2008; Raisch & Birkinshaw, 2008; Wu & Wu, in press) and can enhance organizational performance and long-term survival rates (Junni, Sarala, Taras, & Tarba, 2013; Raisch & Birkinshaw, 2008).

Organizational ambidexterity is equally important to new ventures because these ventures' stage of development requires that they

simultaneously juggle exploration and exploitation.<sup>2</sup> Specifically, imminent pressures for short-term survival require new ventures to increase operational efficiency by quickly exploiting existing resources and competencies; however, new ventures also have a unique window of opportunity for exploring new prospects made possible by their limited organizational inertia and rigidity (Baron, 2006). This window of opportunity is fleeting because, to make the best use of exploration outcomes, new ventures need to increase their efficiency by quickly developing organizational routines and processes. However, path dependence, often arising from the crystallization of routines and processes, can quickly eliminate available strategic options that leave the door open for further exploration (Eisenhardt & Schoonhoven, 1990). Lack of resources may exacerbate this dilemma by making it more difficult for new ventures to break away from any undesirable path trajectories resulting from a

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<sup>1</sup> From an organizational learning perspective, exploitation refers to "learning gained via local search, experiential refinement, and selection and reuse of existing routines," whereas exploration refers to "learning gained through processes of concerted variation, planned experimentation, and play" (Baum, Li, & Usher, 2000: 768). In this paper, we contextualize exploitation and exploration within organizational innovations and define exploitation as organizational activities that enable incremental innovations to improve existing products, and exploration as organizational activities that foster radical product innovations to create new products.

<sup>2</sup> Gupta et al. (2006) indicated that, under certain conditions, a balance between exploitation and exploration could be realized at the level of the broader social system rather than that of the individual organization. In this case, the balance is obtained through certain contractual arrangements so that some organizations specialize in exploration and others in exploitation. However, ambidexterity is still valuable to new firms in general for two reasons. First, balancing exploitation and exploration through contractual arrangements is feasible only in some industries. It requires the satisfaction of certain stringent conditions such as industry-wide product standards and modularized R&D and production among firms (Gupta et al., 2006). Second, even if balancing through market interfaces is feasible, it creates value appropriation issues. New firms are often in a disadvantageous position when bargaining with large and established firms due to their smaller sizes and lack of market influence.

possible imbalance between exploration and exploitation (Liebowitz & Margolis, 1995). Thus, to reconcile the conflict between short-term survival and long-term prosperity, new firms need to be ambidextrous, that is, possessing the capability of simultaneously pursuing exploitation and exploration.

To foster ambidexterity, studies using large and established firms as contexts have suggested the use of *differentiation* mechanisms, such as the structural or temporal separation of exploratory and exploitative activities, and *integration* mechanisms, such as leadership, a shared vision, or cross-functional interfaces that enable organizations to coordinate exploitation and exploration within the same organization (see extensive reviews by Nosella, Cantarello, & Filippini, 2012; O'Reilly & Tushman, 2013; Raisch & Birkinshaw, 2008). However, the traditional differentiation and integration approaches found to work in large and/or established firms may not be available to or suitable for new ventures, which lack the resources, processes, experiences, and mature cultures needed for implementing these approaches (Burgers & Covin, 2015; Boumgarden, Nickerson, & Zenger, 2012; Jansen, Tempelaar, van den Bosch, & Volberda, 2009; Lubatkin, Simsek, Ling, & Veiga, 2006; Tushman & O'Reilly, 1996).

Strategic alliances, particularly those adopted by new ventures for new product development (Bouncken, Pesch, & Gudergan, 2015; Rothaermel, 2001; Rothaermel & Deeds, 2004), seem to serve as a promising vehicle through which new ventures pursue and balance exploration and exploitation (Kauppila, 2010; Lavie, Stettner, & Tushman, 2010). However, firms encounter path dependence in exploration or exploitation so that prior experience in exploration (exploitation) can reinforce the tendency to explore (exploit) (Lavie & Rosenkopf, 2006). As a result, while providing opportunities for new ventures to reduce possible imbalance between their exploration and exploitation, alliances for new product development also expose these ventures to the same risk of imbalance by making them rely too much on alliance partners for outsourcing exploration or exploitation (Kauppila, 2010). Indeed, even though firms tend to balance their exploration and exploitation activities across different domains *within* alliances themselves over time (Lavie & Rosenkopf, 2006), it is still unclear whether new ventures' strategic alliances can contribute to the formation of firm-level ambidexterity.

More intriguingly, it remains a mystery how new ventures engaging in strategic alliances manage these alliances to achieve organizational ambidexterity. Specifically, it is unknown what mechanism exists to enhance, or, when alliances do not provide sufficient opportunities for fostering ambidexterity, compensate for the role of alliances. A new venture's capability of simultaneously pursuing exploration and exploitation is argued to depend on "*the ability of senior leadership to orchestrate the complex trade-offs that ambidexterity requires*" (O'Reilly & Tushman, 2008: 200). This implies that a well-developed transactive memory system (TMS) of an entrepreneurial team is likely to serve as another vehicle on which new ventures can rely for the development of ambidexterity either independently or along with alliances for new product development.

A TMS refers to a shared team (or organizational) system that members develop to collectively encode, store, and retrieve information or knowledge in different domains (Chiang, Shih, & Hsu, 2014; Lewis & Herndon, 2011; Ren & Argote, 2011). It enables both the differentiation and integration of team and/or firm knowledge and may thus serve as a promising leadership antecedent of ambidexterity. Therefore, examining the TMS of an entrepreneurial team will help clarify whether and how the senior leadership can take advantage of the team's capability of knowledge management in developing ambidexterity. In this paper, we particularly examine the role of TMS in the context of new ventures engaging in alliances, with a research objective to understand whether and how TMS helps balance exploration and exploitation *across* organizational boundaries, as in the case of strategic alliances.

Without comprehensively examining the effects of alliances, the TMS of entrepreneurial teams, and their interaction, a general theory

of ambidexterity in new ventures cannot be developed. By examining a sample of 148 high technology ventures, this study attempts to address this gap by modeling and testing, first separately and then jointly, the effects of alliances and an entrepreneurial team's transactive memory system on new ventures' ambidexterity.

## 2. Theoretical background and hypothesis development

### 2.1. Theoretical background

Scholars examining the antecedents of organizational ambidexterity have suggested that, to achieve ambidexterity, organizations need to implement two types of mechanisms: (1) differentiation mechanisms that separate exploration and exploitation to avoid process conflicts and resource competition and to develop specific organizational resources and capabilities related to each task; and (2) integration mechanisms that create unity between exploration and exploitation activities to accomplish the organization's tasks (cf. Raisch & Birkinshaw, 2008).

Ambidexterity research examining established firms generally focuses on *within* firm boundaries and suggests that structural or temporal arrangements can contribute to ambidexterity. For instance, organizations may create different units to separately manage exploitation and exploration (Jansen et al., 2009), or they may oscillate between exploitation and exploration sequentially (as suggested in the "punctuated equilibrium" approach; Burgelman & Grove, 2007). Such differentiation mechanisms contribute to the development of ambidexterity in large and established firms when used along with integration mechanisms, such as formal cross-functional interfaces and informal social connectedness (e.g., Jansen et al., 2009) as well as the social and behavioral integration or shared leadership of top management teams (Lubatkin et al., 2006; Mihalache, Jansen, Van den Bosch, & Volberda, 2014).

However, these types of differentiation mechanisms are unlikely to be effective in new ventures. First, structurally separating exploration and exploitation across different organizational units is difficult or even impossible for new ventures because, in their early stages, new ventures typically operate as single-unit organizations. Within a single unit, entrepreneurs often unavoidably undertake multiple work roles that include both exploration and exploitation activities. Second, even for large established firms, sequentially shifting between exploration and exploitation can cause significant disruptions to their structures and operations (Gupta et al., 2006). For resource-constrained and fragile new ventures, the disruption can be overwhelming.

The problems associated with internal differentiation mechanisms may prompt new ventures to resort to inter-organizational mechanisms, such as product development alliances, to externalize some of their exploration and/or exploitation activities and thus reduce potential conflicts. However, studies of ambidexterity in the context of strategic alliances so far have primarily examined the *performance* implications of the balance between exploration and exploitation activities within strategic alliances but to the neglect of examining its antecedents (Lavie & Rosenkopf, 2006; Lavie et al., 2010; Rothaermel & Deeds, 2004; Stettner & Lavie, 2014). Two papers, as exceptions, focus on the formation of ambidexterity in strategic alliances (Tiwana, 2008; Lavie & Rosenkopf, 2006). They reveal that established firms tend to balance their exploration and exploitation across different domains *within* their strategic alliances over time, that is, they often attempt to balance their exploration and exploitation activities specified in or directly related to their alliance contracts. None of these studies, however, provide a direct answer to whether strategic alliances can function as a mechanism to contribute to the development of a general balance between exploration and exploitation *across a whole firm*, a balance between *all* exploration and exploitation activities conducted by the new ventures.

Indeed, it is not clear from prior work the role of strategic alliances in developing a general organizational balance between the exploration and exploitation efforts in firms and particularly in new ventures.

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