The Exploration–Exploitation Dilemma: A Review in the Context of Managing Growth of New Ventures

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The metaphor of ambidexterity has been used by researchers to refer to the ability of the organization to maintain dual attention on exploration and exploitation activities in order to survive and excel the present, and secure the future, by creating potential for sustainable growth in future. Managing this duality is a challenge as often the needs of both these activities are contradictory. With business environment becoming increasingly dynamic, it is becoming more essential for start-up firms to balance their attention and resource allocation for exploration and exploitation activities. In our interaction with several start-up founders for another research, we found that at times start-ups were too focused on exploring the new, and engaged in too much experimentation, and in the process lost the scope of exploiting the outputs of their exploration activities. At the same time, we found start-up firms which seemed to be getting over-engaged in exploitation. However, it is unclear how start-ups cope with the dilemma of exploration and exploitation. In this article, we raise the need for investigating the mechanisms of how ambidexterity is managed in the growth phase of start-up firms.

The article starts with the discussion on why focusing on exploration and exploitation at the same time in the organization is so challenging. Thereafter, the discussion extends to how the theme of ambidexterity has developed drawing from different streams of literature and the mechanisms of managing ambidexterity. The article then looks into how this dilemma operates in the case of start-up firms in their growth phase, the role of top management teams (TMTs) in the process of managing ambidexterity and the effect of ambidexterity on firm performance.

THE CONFLICT BETWEEN EXPLORATION AND EXPLOITATION ACTIVITIES

Exploration refers to the discovery of new products, resources, knowledge and opportunities, and it is associated with radical changes and learning through experimentation. Exploitation refers to the refinement of existing products, resources, knowledge and competencies, and is associated with incremental changes and learning through local search (Benner & Tushman, 2003; March, 1991).
The unknown needs to be discovered or explored, and the known needs to be exploited, to generate more rents for the organization. Exploration involves activities such as search, variation, risk taking, experimentation, discovery, and innovation. Exploitation involves activities such as refinement, efficiency, selection, implementation, and execution (March, 1991). The activities of exploration and exploitation are also different in terms of their organizational structures, processes, cultures, and capabilities (Ghemawat & RicartCosta, 1993). The learning process in exploration and exploitation follows two different trajectories: exploration involves following a new trajectory, while exploitation follows an existing trajectory. While exploration involves double-loop learning, exploitation involves single-loop learning (Gupta, Smith, & Shalley, 2006). Exploitation and exploration have different characteristics in terms of timeline, risk, and potential return. In the case of exploration, returns are less certain and more distant in time, whereas in the case of exploitation, the returns are more certain and achievable in a shorter timeframe. Thus, as described by March (1991), exploration and exploitation place essentially conflicting demands on organizational resources, and so trade-offs between exploration and exploitation are seen as unavoidable.

Organizations have to manage their present achieving efficiency in the short term and manage their future by continuous innovation (Govindarajan, 2006; Govindarajan & Trimble, 2011). Often, firms focus more on either exploration or exploitation, and their performance gets affected. With rapidly changing tastes and preferences of consumers, organizations that focus exclusively on exploitation may become obsolete (Levinthal & March, 1993). Alternately, when an organization focuses solely on exploration, it may not survive to reap the benefits of the hard work being done and the investments being made (Chesbrough & Rosenbloom, 2002), and it may prevent the organization from benefiting from the economies of scale or economies of scope (Güttel & Konlehner, 2009). Exclusive focus on exploration keeps the organization in denial that it has to survive the present to be the frontrunner in future. Those focusing only on the present remain in a state of oblivion that future is not very far and is usually significantly different from the present. Unless there is continuous innovation and exploration, the same competencies which facilitate one’s leadership position in the present become a trap in the future. Thus, organizations need to focus on exploration and exploitation activities to survive the present, and sustainably grow in future.

Multiple literature streams have addressed this issue of the need of pursuing contradictory activities in organizations and the managerial tensions arising due to managing such activities simultaneously or sequentially (Figure 1). Multiple labels have been used in the literature while referring to managing or balancing the dualities such as the simultaneous practice and balancing of exploration and exploitation, induced and autonomous strategy processes, incremental and discontinuous growth.

Figure 1: Literature Streams for Ambidexterity

Source: Author’s conceptual visualization.
innovation, and search and stability. Although these labels are different, they essentially refer to the phenomenon of ambidexterity and cite it as a critical antecedent of firm performance (Raisch & Birkinshaw, 2008).

March’s (1991) seminal article in the area of organizational learning initiated the discussion on exploration versus exploitation. March argued that both these types of learning were fundamentally incompatible, and hence one had to be traded off against the other. March discussed about the trade-offs involved in the choices related to alternative investments, search rules, and practices, incentive structures, and procedures for accumulating and reducing slacks, for exploration and exploitation activities. These choices are affected by the inter-temporal, inter-personal, and inter-institutional risk preferences. It has been argued that the learning activities associated with exploration and exploitation operate in two orthogonal trajectories (Auh & Menguc, 2005; Gupta, Smith, & Shalley, 2006; Katila & Ahuja, 2002), and thus can be achieved simultaneously. For long-term organizational success, pursuing both types of learning is essential. There is an inherent risk in the one-sided focus on one of these learning types (March, 1991), as it leads to suboptimal equilibrium (Ahuja & Lampert, 2001), which impacts the survival and sustainability of an organization.

The discussion in the literature on technological innovation and change revolves around the tensions of managing incremental versus radical innovation and whether they can be pursued simultaneously (Smith & Tushman, 2005; Tushman & Anderson, 1986; Tushman & Nadler, 1986). Incremental innovations serve the needs of the existing customers and, thus, tackle current competition, while radical innovations serve the need of the future customers and, thus, tackle future competition (Benner & Tushman, 2003).

The concepts of balancing continuity and change, and long consolidation period intervened by short periods of discontinuous change (Tushman & Romanelli, 1985) in organizational adaptation and change literature are similar to the concept of organizational ambidexterity. Exploitation and alignment activities are part of evolutionary change necessary to prevent organizational chaos; and exploration and radical transformation are part of revolutionary change necessary to prevent organizational inertia (Levinthal & March, 1993). The discussions in this literature stream broadly agree that (a) there are two types of change, (b) balance needs to be maintained between these two types of changes and (c) top leadership is one of the key drivers in maintaining this balance (Raisch & Birkinshaw, 2008).

The challenges of trade-off between efficiency and flexibility have been discussed since the 1960s (Thompson, 1967) in the organizational theory stream. However, differences in the organization structures needed for creating innovation, on one hand, and implementing, on the other, make reconciling both these activities in a single firm extremely challenging (Burns & Stalker, 1961; Duncan, 1976). However, some researchers suggest that this paradox can be resolved by combining both features (Jansen, Bosch, & Volberda, 2005a) or designing an appropriate organizational context (Gibson & Birkinshaw, 2004).

In the strategic management stream, the internal ecology model of strategy suggests that a combination of induced strategy processes and autonomous strategy processes is more beneficial than exclusively focusing on any one of them (Burgelman, 1991, 2002). Similar thoughts are evident in discussions on static versus dynamic efficiency (Ghemawat & RicartCosta, 1993), leverage versus stretch (Hamel & Prahalad, 1993), competence leveraging versus competence building activities (Sanchez, Heene, & Thomas, 1996) and selective strategic action versus adaptive strategic action (Volberda, Baden-Fuller, & Bosch, 2001). The essence of these discussions is that successful firms are engaged in two types of strategic activities, which have different resource needs and outcomes. While the objective of one set of strategic activities is to leverage the current resources and capabilities for gaining competitive advantage in the present, the objective of the other set of strategic activities is for future competitive advantage. The idea of best practices versus next practices, where the former is about managing the present competition and the latter is about managing competition in future (Govindarajan, 2006), echoes the need of managing these dual strategic focus.

MANAGING AMBIDEXTERITY: MECHANISMS OF BALANCING EXPLORATION AND EXPLOITATION

The term ambidexterity was first used by Duncan (1976). Ambidexterity can be defined as an organization’s capability to simultaneously pursue and balance exploration and exploitation (Benner & Tushman, 2002; Gibson & Birkinshaw, 2004; Tushman & O’Reilly, 1996). This is a complex capability and is a source of an organization’s competitive advantage (Colbert, 2004).
In simpler words, exploitation refers to the building of capabilities and resources to manage the present (short-term organizational goals and stay ahead of current competition), while exploration refers to the building of capabilities and resources for managing the future (strategic goals and stay ahead of future competition). While exploitation addresses the survival needs of the firm, exploration addresses the sustainable growth needs of the firm. Ambidexterity is the ability of the firm (through a collective effort of organizational actors) to simultaneously pursue exploration and exploitation. Antecedents of ambidexterity can be broadly categorized under three heads: organizational, inter-firm networks, and environmental (Güttel & Konlechner, 2009). The elements within organizational factors are structure, context and leadership (Gibson & Birkinshaw, 2004; Jansen, Van Den Bosch, & Volberda, 2006; Jansen, Vera, & Crossan, 2009; Raisch & Birkinshaw, 2008; Smith & Tushman, 2005).

Prior research suggests two basic mechanisms of managing the conflicting demands of exploration and exploitation activities. These mechanisms are referred to as sequential ambidexterity and simultaneous ambidexterity (Simsek, Heavey, Veiga, & Souder, 2009). Sequential ambidexterity refers to managing exploration and exploitation by temporally separating the two activities. Thus, exploration and exploitation can be pursued by the same organizational unit but at two different points in time. Exploration and exploitation are pursued in sequential cycles. Simultaneous ambidexterity refers to the simultaneous perusal of exploration and exploitation in an organization. Existing research of ambidexterity identifies three modes through which the simultaneous perusal of exploration and exploitation is made possible. These are: structural separation, domain separation, and contextual ambidexterity (Gibson & Birkinshaw, 2004; Lavie, Stettnar, & Tushman, 2010; Tushman & O’Reilly, 1996). Structural ambidexterity resulting from the structural separation of exploration and exploitation refers to the spatial separation of the two activities. Exploration and exploitation activities are pursued at the same time but in separate organizational units. Domain separation suggests the perusal of exploration and exploitation in different domains but balancing these activities across domains (Lavie et al., 2010). Contextual ambidexterity arises from the creation of a context that allows employees to pursue exploratory and exploitative activities by accordingly designing the cultural values, set of processes, and the systems and norms of the organization (Gibson & Birkinshaw, 2004).

**Structural ambidexterity** as a mode of balancing has remained the area of focus in the discussion on managing ambidexterity (Cao, Gedajlovic, & Zhang, 2009; He & Wong, 2004; Jansen, Tempelaar, van den Bosch, & Volberda, 2009; Tushman & O’Reilly, 1996). The balance of exploration and exploitation attained by ’developing structural mechanisms to cope with the competing demands faced by the organization for alignment and adaptability’ (Gibson & Birkinshaw, 2004; Raisch & Birkinshaw, 2008) is known as **structural ambidexterity**. The idea is to design units for pursuing exploration and exploitation as per specific needs of its respective task environments. Units pursuing exploitation are usually less decentralized, are large-sized and have less flexible processes. Alternately, exploration units are usually smaller in size, have relatively loose processes and are more decentralized. Conflicting demands of these antagonistic activities are carried out in separate units. Two units are separated from each other physically and culturally (Lavie et al., 2010; Tushman & O’Reilly, 1996). The integration of these two units is either by loose coupling of tightly coupled subunits or through a strong shared organizational culture and coordination by the TMT (O’Reilly, Harrel, & Tushman, 2009).

**Domain separation** is comparatively a recent idea and assumes that exploration and exploitation activities can be pursued in multiple domains; firms may not try for a balance within a domain but the balance is maintained at the organizational level across domains. The idea was identified and suggested by Lavie and Rosenkopf (2006), demonstrating how the US software firms maintain specific domains of alliance formation. Research on this mode of balancing is rare. Lavie et al. (2010) stressed for further research to understand the domain separation mode.

**Contextual ambidexterity** is attained by building the behavioural capacity to simultaneously balance exploration and exploitation across an entire business unit (Gibson & Birkinshaw, 2004; Raisch & Birkinshaw, 2008). Based on Ghoshal and Bartlett (1994), Gibson and Birkinshaw (2004) define context as the set of systems, processes and beliefs, which influences individual-level behaviour in organizations. The leadership’s role is to create such a supportive context that enables and motivates individuals to design for themselves the way they would address the conflicting demands of exploration and exploitation. A combination of stretch, discipline, support and trust facilitates contextual ambidexterity (Ghoshal & Bartlett, 1994; Gibson & Birkinshaw, 2004).
Discipline leads to setting clear benchmarks and expectations for performance, having a system of fast and transparent feedback mechanism and having a set of consistent rules and standardized procedures. Stretch is manifested through the development of a shared vision and a collective identity of organizational members, which motivates organizational actors to do much more than what they are expected to do. Trust is manifested through a sense of fairness and equity among organizational actors and higher participation of organizational actors in decisions affecting them. Support is exhibited through the helping attitude of managers by making more resources available, giving higher autonomy and encouraging entrepreneurial initiatives (Birkinshaw & Gibson, 2004; Lubatkin, Simsek, Ling, & Veiga, 2006). From a study on 41 business units, with respondents from different hierarchies in the organizations, Gibson and Birkinshaw (2004) found that such a context facilitates balancing of exploration and exploitation. The supportive context facilitates individuals to excel, guided by shared ambitions and collective identity (Ghoshal & Bartlett, 1994). Gibson and Birkinshaw (2004) suggested that contextual ambidexterity could be supported through the processes of designing appropriate meta-routines and job-enrichment schemes, and creation of shared vision. Empirical evidence suggests that it is possible to attain contextual ambidexterity, and it positively influences firm performance (Gibson & Birkinshaw, 2004).

**Exploration–Exploitation Dilemma for Start-up Firms in the Growth Phase**

The issue of conflict between exploration and exploitation activities is equally relevant for start-up firms, as it is in the case of matured firms. Start-ups are new ventures created by independent entrepreneurs. There is little discussion of the phenomenon of ambidexterity in the context of start-ups, but we argue that there is no reason why it should not be relevant and important in the context of start-up firms. Lubatkin, Simsek, Ling, and Veiga (2006) found that small and medium enterprises (SMEs) faced the dilemma of managing exploration and exploitation activities. Lubatkin et al. (2006) argued that compared to large established firms, it was more challenging for SMEs to cope with the dilemma of managing exploration and exploitation. Based on a survey data from 139 SMEs, they found that behavioural integration of TMTs in SMEs positively influenced the extent of their ambidextrous orientation (joint perusal of exploratory and exploitative orientation), which in turn positively influenced SME firms’ performance. For a start-up firm to successfully commercialize, it is critical that the firm pursues both ideation (exploration) and monetization of the idea (exploitation). We believe that for sustaining the initial success in the market, it is important that the firm continues to think new as well as have execution plans of exploiting the new ideas. Thus, if the founder or the founding team recognizes the need to pursue both exploration and exploitation, it may be beneficial for early commercialization, and survival and growth there after.

Survival for start-up firms (new firms) is always a concern. More than 50–80 per cent of the new ventures wrap up within five years (Shane, 2008). Timmons (1990) found that the failure rate for new ventures was 40 per cent in the first year and became as high as 78 per cent over 10 years. The biggest drop came in the first five years.

Conflicts between exploration and exploitation arise due to their conflicting demands for resources. Start-up firms operate in relatively more resource constraint contexts (money, time, manpower, etc.) compared to established and mature firms. They also have the pressure of performing for survival in the present and sustainably grow in future (at least for those who aspire to grow). Thus, start-up firms have to balance their exploration and exploitation activities.

Cottrell and Nault (2004), Quinn and Cameron (1983) and Teeter and Whelan-Berry (2008) mentioned life cycle stages in their work on start-ups and small firms. Masurel and van Montfort (2006) found that as a firm grew and was in the matured state, the portfolio diversified in terms of products, clients, and activities. The growth stage required fast expansion (exploitation) and a focus on creativity and innovation (exploration). The founder’s ability to transfer the responsibility and control, and delegate to others, are critical if the growth is to be maintained (Quinn & Cameron, 1983). During the rapid growth stage, a sense of collectivism develops. There is the development of a shared mission, innovation continues, and commitment is high. There is emphasis on innovation and expansion (exploration and exploitation); the sense of family and cooperative ness among members is high. Thus, although scant and not related to the discussion of the efforts of balancing exploration and exploitation activities, there is evidence that start-up firms undertake exploration and exploitation activities at different stages during their life cycle.
In the growth phase, a start-up firm needs to become more disciplined in exploiting its existing tangible and intangible resources. At the same time, it cannot lose its agility and opportunity driven entrepreneurial approach, which had been the reason for the success it has achieved so far. It has to balance its need for exploration and exploitation to grow at a high rate, and also sustain this growth (Hamermesh, Heskett, & Roberts, 2005). As the firm moves into a rapid growth phase, the leadership’s ability to balance efficiency (exploitation) and adaptability (exploration), both of which require different styles of delegation and control, decide the possibility and sustainability of the growth of the firm. It also demands changes in organizational systems, structure, control systems, attitudes and behaviours of the organizational actors (Roberts, 1993). To address this dual need of growing start-up firms, the TMT would need to have members who value the need for exploratory activities, are skilled in such activities and promote the same; TMT would also need to have members who are skilled in exploitation activities, value their need and promote them. In the case of the firm being led by a single founder, he/she may need to have ambidextrous orientation and multi-tasking abilities to address the dual needs of exploration and exploitation activities.

Building on the discussions above, we propose:

**Proposition 1 (a):** The founder’s ambidextrous orientation and multi-tasking abilities positively influence organizational ambidexterity in the growth phase of start-up firms/new ventures.

**Proposition 1 (b):** TMT’s ambidextrous orientation and complementary abilities positively influence organizational ambidexterity in the growth phase of start-up firms/new ventures.

### Role of Leadership in Facilitating the Balance between Exploration and Exploitation

Leadership characteristics, composition and processes facilitate ambidexterity. Multiple studies have highlighted the criticality of leadership processes in the implementation of structural as well as contextual ambidexterity (Gibson & Birkinshaw, 2004; Lubatkin et al., 2006; Simsek et al., 2009; Smith & Tushman, 2005). Gibson and Birkinshaw (2004) and Beckman (2006) stressed on the importance of the role of leaders at the apex of the organization and business unit in designing an effective context for the implementation of ambidexterity. Leadership processes have been posited as an independent antecedent (Lubatkin et al., 2006), as well as a moderator variable (Smith & Tushman, 2005) for ambidexterity. Empirical evidence suggests that characteristics, leadership processes, team composition and behavioural integration of TMT are important antecedents of the attainment of balance between the activities of exploration and exploitation (Beckman, 2006; Gibson & Birkinshaw, 2004; Lubatkin et al., 2006; Smith & Tushman, 2005). TMT needs to invest more resource and time to coordinate temporal and structural modes of balancing exploration and exploitation. Contextual and domain separation modes need less TMT attention for coordination of the two activities. TMT contributes by creating a supporting context to facilitate the mechanism (Lavie et al., 2010).

Upper echelon theory suggests that executives act based on their personal interpretation of the signals they sense, and that these personal interpretations are dependent on their past experiences, personal characteristics, personalities and values (Hambrick, 2007). TMT composition and processes influence organizational outcomes. The leader at the top is important, but TMT characteristics and activities better explain the variation in firms’ outcomes (Hambrick, 2007; Hambrick & Mason, 1984).

In the context of start-ups, the founding team composition is an important antecedent of exploration and exploitation and organizational ambidexterity (Beckman, 2006). Founding team members (or the TMT) coming from the same company affiliation tend to engage in more exploitative behaviours, and those coming from different company affiliations engage in more exploration behaviours (Beckman, 2006). This is because sharing the same values and frame of reference does not allow executives to think differently. Diverse team composition increases the diversity of the options discussed. Thus, when both kinds of people, that is, the same company affiliation and different company affiliations, are present in a firm, then the firm performs better (Beckman, 2006).

As getting access to psychometric data on TMTs is extremely difficult, executives’ profiles (educational backgrounds, functional backgrounds, roles, industries and years of experience) can be considered as proxies for their cognitive frames. Also, TMT profiles have been found to be important predictors of firms’ strategy and firms’ outcomes (Hambrick, 2007, 1994; Hambrick & Mason, 1984). Besides TMT characteristics, what is also important is TMT behavioural integration. ‘Behavioural
integration is the degree to which a TMT engages in mutual and collective interaction. A behaviourally integrated TMT shares information, resources, and decisions (Hambrick, 2007, p. 336). Thus, the idea of behavioural integration refers to the level of team’s collaborative behaviour, emphasis on joint decision-making, and quality and quantity of information exchanged within the team (Hambrick, 1994; Lubatkin et al., 2006).

Behavioural integration has been found to be facilitating in balancing of exploration and exploitation, and thus positively influences the firm performance (Lubatkin et al., 2006). This result was based on a study on CEOs and TMTs from 139 SMEs. TMT behavioural integration facilitates idea sharing and creates trust among TMT members; it also influences mutual trust among units and individuals in the organization. The tacit knowledge sharing in such an environment is high; therefore, people learn from one another. Small firms lack slack resources and hierarchical administrative systems and hence find it difficult to afford structural ambidexterity. They rely more on the skills of their TMT to attain ambidexterity (Lubatkin et al., 2006).

Lubatkin et al. (2006) argued that competition pressurized SMEs to jointly pursue exploration and exploitation. However, the lack of slack resources and limited administrative systems made this all the more challenging for them. It is difficult for such firms to adopt solutions such as structural separation where costs of managing (resources needed for managing) are high. Thus, the role of TMT becomes more critical in such contexts. Lubatkin et al. (2006) argued that TMTs’ behavioural integration was critical in coping with contradictory demands of exploration and exploitation activities.

Building on the discussions above, we propose the following:

Proposition 2: TMT’s ability to recognize the needs for exploration and exploitation activities, and further to create the context to support both types of activities, influences the process of exploration and exploitation in the growth phase of new ventures.

Proposition 3: The ability to pursue both exploratory and exploitative activities in the TMT and TMT’s behavioural integration positively influences the recognition of the need of exploration and exploitation, and further in designing the context to support the process of balancing exploration and exploitation in the growth phase of new ventures.

**Effect of Ambidexterity on Firm Performance**

Building on the ‘ambidexterity premise’, Levinthal and March (1993) suggested that organizational ambidexterity positively affected organizational performance. Subsequent studies also found empirical evidence to further strengthen this premise and concluded that organizational ambidexterity directly improved performance (Gibson & Birkinshaw, 2004; He & Wong, 2004). Gibson and Birkinshaw (2004) conceptualized ambidexterity as a multi-dimensional construct, and collected responses to measure it using six Likert-scale items, three items each for exploration (adaptability) and exploitation (alignment); and then used a multiplicative index of exploration and exploitation (i.e., considering that they are non-substitutable). He and Wong (2004) conceptualized exploration and exploitation as two distinct dimensions, and they used eight Likert-scale items designed to measure how important it was for an organization to have innovation for entering a new product-market domain, versus innovation for improving the existing product-market efficiency.

Exploitation enables tackling current competition and exploration enables tackling future competition; ambidexterity ensures current as well as future viability (Govindarajan, 2006; Levinthal & March, 1993) of an organization. Thus, ambidexterity positively influences a firm’s operational as well as strategic performance (Schulze, Heinemann, & Abedin, 2008). However, differences in firm size, its resource endowments and its environmental dynamism moderate the relationship between ambidexterity and firm performance (Cao et al., 2009). Ambidexterity has been found to be positively influencing firm performances in the context of SMEs as well (Lubatkin et al., 2006).

**Proposition 4: Attention on both exploration and exploitation activities in the growth phase of new ventures influences better performance (sustainable growth) of the new ventures.**

**OPPORTUNITY FOR FUTURE RESEARCH**

Ambidexterity seems to have rarely been studied in the context of start-up firms. Generally, start-ups differ from mature firms in important ways. Many start-ups are based on an original model or idea and, as such, their innovativeness and capability for exploration are the very essence of their raison d’être (Amason, Shrader, & Tompson, 2006; Schumpeter, 1934). But they are also under pressure to manage the present cash flows and
generate an early surplus so that they can fund their exploitation activities on a sustainable basis. Also, start-up firms operate in relatively more resource constraint contexts (money, time, manpower, etc.), as compared to the established and mature firms, which may make managing this dilemma more difficult. With the business environment becoming increasingly dynamic, it has become more essential for start-ups to balance their attention and resource allocation for exploration and exploitation activities. It is unclear how start-ups cope with the dilemma of exploration and exploitation. This challenge faced by start-ups does not seem to have been addressed in the literature. Thus, studying the phenomenon of ambidexterity in the context of a start-up firm’s growth would be useful and interesting.

Empirical studies on the ambidexterity theme have mostly focused on the structural antecedents of ambidexterity and the linkage between ambidexterity and firm performance. However, there has been a lack of understanding of the context antecedent and leadership antecedent of ambidexterity (Lavie et al., 2010; Raisch & Birkinshaw, 2008). There is a lack of sufficient understanding of how to build and maintain a supportive context for facilitating the behavioural orientation of the individuals of the organization to be ambidextrous. So, in-depth studies focused on the understanding of how leadership and TMT characteristics, actions and capabilities facilitate in designing and managing the contextual ambidexterity will enrich the discussion on ambidexterity (Lavie et al., 2010; Raisch & Birkinshaw, 2008). Start-ups are an apt setting to focus on these issues as one would be able to observe the phenomenon in its entirety; some of the findings could be later tested for its relevance in a matured firm context. Thus, studying the ambidexterity phenomenon in a start-up firm context would also possibly add greater depth to the discussions on leadership and context antecedents of ambidexterity.

Extant literature suggests that context and leadership antecedents are more critical for start-ups and small firms (Lavie et al., 2010; Lubatkin et al., 2006). Therefore, we emphasize the need to focus on how start-ups manage the joint perusal of exploration and exploitation, and how founders/leaders/TMT factors facilitate in creating the environment to influence ambidexterity in start-up firms. The studies may focus on firms from multiple industries or on firms from a single industry. It would be interesting to investigate what mechanisms are used to manage the tension between exploration and exploitation activities of start-up firms, and how capabilities of leaders (founders and TMT members) facilitate in managing the balance of exploration and exploitation activities of start-up firms. A large sample study to confirm or disprove the propositions presented in this article would also add an interesting direction to the current debates on the theme of exploration, exploitation and ambidexterity. During our review, we identified other specific issues of interest on this theme. These issues are yet to be addressed and may be focused by future researchers interested to work on this theme. They are listed below.

- How is the need for ambidexterity recognized by the founders?
- Do the nature of dilemma change over the growth phase of a new firm?
- How do environmental factors and different stakeholders influence the process?
- How do the mechanisms of balancing exploration and exploitation vary in the case of start-up firms from how they are managed in the established start-ups?
- Are there any significant differences in the way ambidexterity is managed in hi-tech versus other industries and in emerging economies versus developed economies?
- How do and what specific founder characteristics influence the process of managing ambidexterity in start-up firms; how and what TMT characteristics, actions and behaviours influence the process of managing ambidexterity?

CONCLUSION

The concept of balancing exploration and exploitation has received attention from researchers from multiple domains, but the phenomenon of ambidexterity is yet to be studied in the context of start-up firms, especially, in their growth phases. Studies conducted on this specific context would enrich the discussions on the ambidexterity theme. Also, it would add an interesting lens to view start-up firms’ growth phenomenon. The findings of such studies would also be beneficial to start-up firm managers and could provide some guidance on managing the dual challenges of survival and growth aspirations.
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