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Abstract

Organisational ambidexterity (i.e. the ability to balance exploration and exploitation) is crucial to organisations' survival and development. It can be achieved at multiple levels, but the connection between different levels, especially from the individual to the firm level, has received scant attention in the literature. Utilising micro-foundations theory, this paper aims to study how leadership factors (i.e. top team management [TMT] behavioural integration, a chief executive officer's [CEO] characteristics and ambidextrous behaviours, and senior managers' ambidextrous behaviours) complete a mechanism to transform individual ambidexterity (IA) to organisational ambidexterity (OA), filling the gap in the IA–OA process. Our study provides a configurational perspective on finding the sufficient combined effort among different leadership factors to complete the IA–OA process.

Keywords: Organisational Ambidexterity, Individual Ambidexterity, Multiple Levels, Micro-foundations Theory, Leadership, Configurational Perspective, fsQCA

Introduction

The idea that organisations always encounter a conflict tension between exploitation and exploration was first introduced by Duncan (1976). Exploitation represents the approaches to utilise an organisation's existing assets, resources and capabilities to refine its products, services, and processes efficiently; while exploration represents the approaches to identify and utilise new technologies and ideas to generate new products, services, and procedures in an effort to take advantage of new opportunities (March, 1991). Organisational ambidexterity (hereafter, OA)[1] is the balance achieved when an organisation can be exploitative and explorative at the same time (Tushman and O'Reilly, 1996; Gibson and Birkinshaw, 2004; Simsek *et al.*, 2009). In the innovation theme, organisations must encourage innovation by balance exploration and exploitation with high efficiency to remain a successful organisation over the long term (Tushman and O'Reilly, 1996; Lukoschek *et al.*, 2018). If the organisation focuses solely on exploitation, which overemphasises short-term success but neglects long-term profits, it tends to fall into a 'success trap'. Conversely, an overemphasis on exploration will let the organisation fall into 'failure trap' because the existing market will be neglected (March, 1991; Levinthal and March, 1993). This shows the importance of achieving OA.

The achievement of OA has been studied separately at the individual (e.g. Ou et al. 2018), team (e.g. García-Granero et al. 2018), business unit (e.g. Hill and Birkinshaw 2014), and firm levels (e.g. Wang and Rafiq 2014). However, there is an absence of research on how an organisation can achieve ambidexterity at multiple levels at the same time, and as a contributor to the achievement of OA. It has been proposed that an organisation will meet different degrees and types of challenges to balance exploration and exploitation at multiple levels (Jansen *et al.*, 2009; Kozlowski and Chao, 2012; Junni *et al.*, 2015). Hence, if members of an organisation achieve IA, it does not mean that OA (firm-level ambidexterity) is achieved. The process to transform IA to OA needs to be examined. We refer to the research gap of how an organisation transforms IA to OA as the *IA–OA process*.

Utilising the key theory of *micro-foundations* of firm, the IA–OA process has two main manifestations to be completed according to existing evidence. First, this process is an aggregation process in line with the micro-foundations theory. According to Foss (2010), 'Micro-foundations are foundations of something, namely aggregate concepts and/or relations between aggregate variables' (p. 12). Individuals constitute the micro-level origins of firm capabilities, which implicates there is a process that aggregates individual behaviours into firm-level behaviours (Foss, 2011; Felin *et al.*, 2012). Wright and Ulrich (2017) suggested that organisational factors affect firm performance by influencing individual behaviours, which implies the possibility of achieving firm-level ambidexterity through ambidextrous individuals. Raisch et al. (2009) suggested that an organisation's ambidexterity is rooted in individuals' ability for exploration and exploitation, which constitute IA; from this perspective, IA could be seen as the foundation of OA. Second, the IA–OA process is a contingent one. The aggregation process needs to be completed by a mechanism to integrate differentiation (Felin *et al.*, 2012), so factors contingent on the process are worthy to be explored. Mom et al. (2019) was the first paper to explore a process to transfer IA (which is operational managers' ambidexterity) to OA through opportunity-enhancing HR practices, emphasising the contingent feature and showing the possibility to complete the IA–OA process. Therefore, to fill the research gap, we narrowed our research question to what mechanism can transform IA to OA.

The relationship between leadership factors and IA has been studied since 2004 (Gibson and Birkinshaw, 2004). Leadership behaviours facilitate contextual ambidexterity (i.e. simultaneous achievement of exploration and exploitation in one unit) at the unit level by building an organisational context that achieves a combination of stretch, discipline, support, and trust (Gibson and Birkinshaw, 2004). Existing papers have demonstrated that leadership factors (i.e. top management team (TMT) behavioural integration, chief executive officer (CEO) characteristics and ambidextrous leadership, and senior managers' ambidextrous leadership) can facilitate ambidexterity at both individual (e.g. Rogan and Mors 2014, Rosing and Zacher 2017) and firm levels (e..g Kammerlander et al. 2015, Zimmermann et al. 2018). Except for the relationship between leadership factors and ambidexterity, we also find that leadership meets the requirement of the mechanism which can complete an

[1] Throughout this research, 'organisational ambidexterity' (OA) is used to refer the phenomenon of firms performing exploration and exploitation simultaneously (cf. Benner and Tushman, 2003).

aggregation process from the individual level to the firm level. Different senior leaders can complete an underlying mechanism to aggregate individual attributes to a firm-level capability, in line with the micro-foundations theory.

This research aims to reframe these leadership factors by developing a configurational perspective. A configuration in a firm is a model that covers a combination of relationships embedded with various factors in the relevant domain (Dess, Newport and Rasheed, 1993; Hughes *et al.*, 2018). The configuration perspective has been applied to ambidexterity studies. For example, Lin *et al.* (2013) defined learning capability as the combination of three practices (i.e. intra-organisational learning, partnering with other organisations, and an open organisational culture). They demonstrated that the combined effort of these practices has a greater impact on ambidexterity than any single practice. Similarly, the studies on knowledge assets (aligning human capital, social capital, and organisational capital) found that managers who combine knowledge assets and align supportive knowledge assets with dominant knowledge assets playing a significantly more positive relationship with OA compared with managers' focus on single-knowledge assets. To fill the gap of the IA–OA process with leadership factors identified in the literature review that have a significant relationship with the achievement of ambidexterity, the research question is listed as follows*: What configurations of leadership factors transform IA to OA?*

Leadership Factors and the IA–OA Process

Responsible for the strategic orientation of the organisation, senior leaders need to play multiple roles in facilitating exploration and exploitation, presenting the potential to complete a mechanism to aggregate IA to OA. The roles of senior leaders, who have the authority to manage the firm, are divided into TMT, CEO, and senior managers. Leadership is a crucial determinant on innovation activity. For example, leader behaviours that practice exploration and exploitation on balance can meet the requirement of the innovation process (Rosing, Frese and Bausch, 2011). Lukoschek *et al.* (2018) argued that senior managers' dual innovation leadership (i.e. fostering idea generation and realisation) can drive the innovation context.

TMT Behavioural Integration

A TMT is composed of senior executives who play critical strategic roles and control the basic orientation of the firm. The senior executives include the CEO and other senior managers who are presidents of the firm, such as the chief financial officer (CFO), the chief technology officer (CTO) and chief operational officer (COO) (Carmeli and Halevi, 2009; Halevi, Carmeli and Brueller, 2015). A growing body of research supports the statement that the TMT's behaviours have more significant effects on organisational behaviour than top individuals' behaviours within the firm (Hambrick and Mason, 1984; Carmeli and Halevi, 2009; Cao, Simsek and Zhang, 2010). The relationships between TMT and OA is generally studied by examining the TMT process, the emphasis of which is behavioural integration (Lin and McDonough, 2011).

The TMT process is the way that team members interact with each other to settle crucial issues, which is essential for linking individual attributes to organisational functioning in line with upper echelon studies (Lawrence, 1997; Halevi, Carmeli and Brueller, 2015). It is suggested that TMTs, as distinct from other teams such as project teams, have the responsibility of making decisions among differentiated individual attributes and collecting them. TMT behavioural integration is the crucial process of fulfilling this responsibility (Hambrick and Mason, 1984; Hambrick, 1994), which denotes 'the degree to which the group engages in mutual and collective interaction' (Hambrick 1994, p.188)—in other words, the degree of *team-ness* (Hambrick, 1998).

The manifestations of behavioural integration for TMTs are visible in the team's social process (i.e. the level of collaborative behaviour) and through their participation in two-task processes (i.e. information interaction and the emphasis on joint decision-making) (Hambrick, 1994; Simsek *et al.*, 2005; Lubatkin *et al.*, 2006; Luo *et al.*, 2018). Hambrick (1998) noted that TMTs are responsible for making strategic decisions, so TMT behavioural integration plays a crucial role in the joint decision-making process (Halevi, Carmeli and Brueller, 2015). Collaborative behaviour and high-quality exchange of information can promote TMTs to be able to manage the diverse insights of individual members and spur TMTs to contact new knowledge to find new opportunities, completing a bottom-up process for exploration. At the same time, TMT members will exploit existing knowledge

based on the shared knowledge of the TMT, which is a top-down process for exploitative learning (Lubatkin *et al.*, 2006).

The simultaneously top-down exploitative learning and bottom-up explorative learning means a behavioural integrated TMT could integrate the contradictory processes of exploration and exploitation to promote ambidexterity. Furthermore, the frequent interaction among team members is key to balancing exploration and exploitation because the TMT internal dynamic process enables better information processing, which also could help manage the paradoxical cognition process (Smith and Tushman, 2005, 2010). The frequent information interaction of team members also means a significant degree of the senior team shared vision, which is one of the senior team attributes to describe the selective views and objectives of the senior team (Larwood *et al.*, 1995; Tsai and Ghoshal, 1998). Through a shared vision, the team collaborate with the team in a common strategic direction, then achieve firm-level ambidexterity that enables to navigation of fragmented structures, conflicts and challenges (Jansen *et al.*, 2008). Hence, TMT behavioural integration can promote individual team members to 'openly and freely exchange contradictory knowledge, resolve conflicts, and create a set of shared perceptions that can be integrated and acted upon' (Lubatkin et al. 2006, p.652) to further the firm's development.

Based on the manifestations of TMT behavioural integration, a behaviourally integrated TMT has the freedom to let its senior executives accept contradictory information and incorporate elements of this knowledge towards an ambidextrous orientation (Carmeli and Halevi, 2009; Halevi, Carmeli and Brueller, 2015). Hence, through TMT behavioural integration, leadership figures can pull individual behaviours into higher hierarchical-level phenomena. The integrative role of TMT also has been highlighted by researchers who study ambidexterity as an outcome (Gibson and Birkinshaw, 2004; Smith and Tushman, 2005; Lubatkin *et al.*, 2006). Various empirical studies have demonstrated that the higher the level of behavioural integration a TMT has, the higher the level of organisational OA can be achieved, which in turn enhances the organisational performance (e.g. Halevi et al. 2015, Jansen et al. 2008, Justin J. P. Jansen et al. 2009, Ou et al. 2018). This upper echelon process proposes the possible that TMT behavioural integration can achieve a hierarchical integration process to transform IA to OA.

However, defined as an organisational mechanism (Halevi, Carmeli and Brueller, 2015), a behaviourally integrated TMT frequently encounters the *differentiation-integration* challenge (Jansen *et al.*, 2009), through which they must balance exploration and exploitation among fragmented and paradoxical challenges. The differentiation–integration challenge requires the team to complete two cognitive processes: one is to recognise and clarify distinctions among individuals, and the other is to combine potential linkages with multiple level analysis (Halevi, Carmeli and Brueller, 2015). Once the TMT overcomes the challenge to manage two cognitive processes simultaneously, the positive relationship between TMT process and ambidexterity will be achieved. According to existing papers about the differentiated cognitive process, Koryak et al. (2018) studied TMT heterogeneity and team size as factors that promote a differentiating process and demonstrated these factors' positive relationship with exploration. During the integration process, the cooperation of TMT members can complete the integration challenge without missing differentiation (Carmeli and Halevi, 2009), highlighting the necessity of discussing the roles of CEO and senior managers.

CEOs and Senior Managers

As a unique member in the TMT, the CEO, who has great freedom to access information and choose strategy, is the first gatekeepers for avoiding one-sided managerial attention to either exploration or exploitation (Hambrick and Mason, 1984; Smith and Tushman, 2005; Jansen *et al.*, 2008). The CEO's leadership behaviours (including characteristics and ambidextrous behaviours) can affect the firm's daily activities and achieve OA directly (Kammerlander *et al.*, 2015). Furthermore, the CEO has a responsibility to select, evaluate, reward, motivate and coach TMT members (Hambrick and Mason, 1984; Haleblian and Finkelstein, 1993), attributing a direct impact to senior managers (TMT members) and the TMT. Hence, the CEO possesses more opportunities to inject exploration and exploitation into the firm from the top-down and wield impact on ambidextrous orientation (Cao, Gedajlovic and Zhang, 2009).

A stable perspective of the leadership behaviours in which CEOs affect OA is represented by the *CEO's characteristics* (Mom, van den Bosch and Volberda, 2009). Kammerlander et al. (2015) argued that the CEO's personality affects the firm's investment in exploration and exploitation. They studied CEOs' chronic regulatory focus in particular and identified a positive relationship between a CEO's promotion focus and the exploration-exploitation balance. On the other hand, a CEO's prevention focus negatively influences firms' achievement in terms of exploration. Ou et al. (2018) proposed a positive relationship model among CEO humility, TMT behaviour integration, and firm performance, in which a CEO's humility is a positive antecedent to TMT behavioural integration. In a dynamic external environment, the CEO needs to present exploitation and/or exploration orientation's characteristics, which will provide an ambidextrous direction for the organisation at target levels (Ou, Waldman and Peterson, 2018).

Similarly, senior managers' decision-making authority is positively related to individual ambidexterity with a structural mechanism that operates exploration and exploitation separately (Mom, van den Bosch and Volberda, 2009). The decision-making authority is further integrated by TMT behavioural integration into joint decision-making authority, which is one manifestation of TMT behavioural integration (Halevi, Carmeli and Brueller, 2015). Organisational tenure (i.e. organisational-related work experience) and functional tenure (i.e. functional-related work experience) are the underpinnings of senior managers' leadership behaviours that have a significant relationship with managers' ambidexterity (Sturman, 2003; Mom, Fourné and Jansen, 2015). The duration of a manager's organisational tenure has a positive relationship with the manager's ambidexterity because organisational tenure increases the manager's ability to address paradoxical tensions and to recognise and utilise internal and external knowledge (Mom, Fourné and Jansen, 2015). In sum, both CEOs' and senior managers' leadership behaviours have an inseparable relationship with ambidexterity.

Ambidextrous Leadership Behaviours

Individual leader's (CEOs and senior managers) behaviours affect ambidexterity through different behavioural actions. Existing studies have discussed the type of behavioural actions including transformational leadership (Jansen *et al.*, 2008; Nemanich and Vera, 2009; Li, 2016; Ojha, Acharya and Cooper, 2018) and transactional leadership styles (Rao-Nicholson *et al.*, 2016), that can form *ambidextrous leadership behaviours* to facilitate ambidexterity at the individual level, the team level, and the firm level separately. Ambidextrous leadership behaviours refer to the manager's behavioural orientation to integrate explorative and exploitative actions (Mom, van den Bosch and Volberda, 2009; Luo *et al.*, 2018). Ambidextrous leadership behaviour can settle two cognitive processes of TMT behavioural integration to achieve OA (Li, 2016; Luo *et al.*, 2018).

Ambidextrous leadership behaviour can be defined as the integration of *transformational* and *transactional leadership* (Vera and Crossan, 2004; Rosing, Frese and Bausch, 2011). Transformational leadership is a type of leadership behaviour which is "charismatic, inspirational, intellectually stimulating and individually considerate" (Nemanich and Vera, 2009). It can spread commitment and trust in the firm, encouraging individuals to be passionate and to work efficiently (Bass, 1985). The specific processes through which transformational leadership promotes firm development, are personal identification (including individual consideration and intellectual stimulation) and social identification (including idealised influence and inspirational motivation). Personal identification can densely link employees and leaders while social identification can establish a shared vision and motivate individuals at the team or unit level (Lord and Brown, 2001; Kark and Sharmir, 2011).

With an emphasis on encouraging transformation and a powerful vision for the future (Nemanich and Vera, 2009), transformational leadership can positively affect exploration; this has been studied in the R&D industry, in which companies need a relatively high value for exploration to survive and develop (Shin and Zhou, 2003; Keller, 2006). According to Vera and Crossan (2004), transformational leadership is able to help employees to see opportunities in a dynamic environment and to be creative. Therefore, the more exploration-oriented an organisation is, the more positive effect the transformational leadership can play on the firm development. Similarly, in acquisition integration, which denotes a high dynamic environment and requires a large degree of exploration for the balance

status of ambidexterity, there is a positive leadership between transformational leadership and ambidexterity at the team level (Waldman *et al.*, 2001; Nemanich and Vera, 2009).

Some researchers have examined the combined effects pf transformational leadership behaviour and other internal factors on a firm's achievement of OA. In the vein of *senior team attributes* (i.e. senior team shared vision, social integration and contingency rewards), Jansen et al. (2008) studied transformational leadership as a positive moderator between senior team social integration (which is the interaction among team members) and OA. Because transformational leadership encourages asymmetric information sharing among conflict information of the social integration process, the decision-making process, a manifestation of TMT behavioural integration, will be able to manage ambidextrous strategy (Vera and Crossan, 2004; Jansen *et al.*, 2008). Similarly, Li (2016) argued that a CEO's transformational leadership behaviours will facilitate the TMT's ambidexterity through the team's cognitive process. Conversely, transformational leadership behaviour is a negative moderator between senior team contingency rewards (i.e. individual team members' benefits that rely on team outcomes) and OA. This is because transformational leadership behaviours may encourage team members to pay more attention to individual rewards rather than the team's shared awards. This could be remedied through transactional leadership, which manages individual incentives using exchange agreements (Goodwin, Wofford and Whittington, 2001).

Transactional leadership behaviours influence individuals through goal setting and contingent rewards (Sosik and Dinger, 2007). In contrast to transformational leadership which focuses on intrinsic need, transactional leadership relies on extrinsic rewards in exchange agreements to formulate common goals (Rao-Nicholson *et al.*, 2016). Hence, transactional leadership can positively moderate the relationship between senior team contingency rewards and ambidexterity (Bass, 1998). According to Bass (1999), transformational leadership is an extension of transactional leadership, which means individual leaders can manifest both leadership behaviours at the same time. Unlike transformational leadership, transactional leadership tends to be more associated with exploitative behaviour (Jansen, Vera and Crossan, 2009). Hence, individual leaders who manage both leadership behaviours, manifesting ambidextrous leadership, are able to deal with differentiated pressures to achieve ambidexterity in their organisations. This implies that ambidextrous leadership can help TMT to settle the challenge of differentiation-integration, which is examined by Luo et al. (2018) who argued that a CEO's ambidextrous leadership can promote TMT behavioural integration to foster team-level ambidexterity. Therefore, both ambidextrous leadership behaviour and TMT behavioural integration are crucial leadership elements for the IA–OA process.

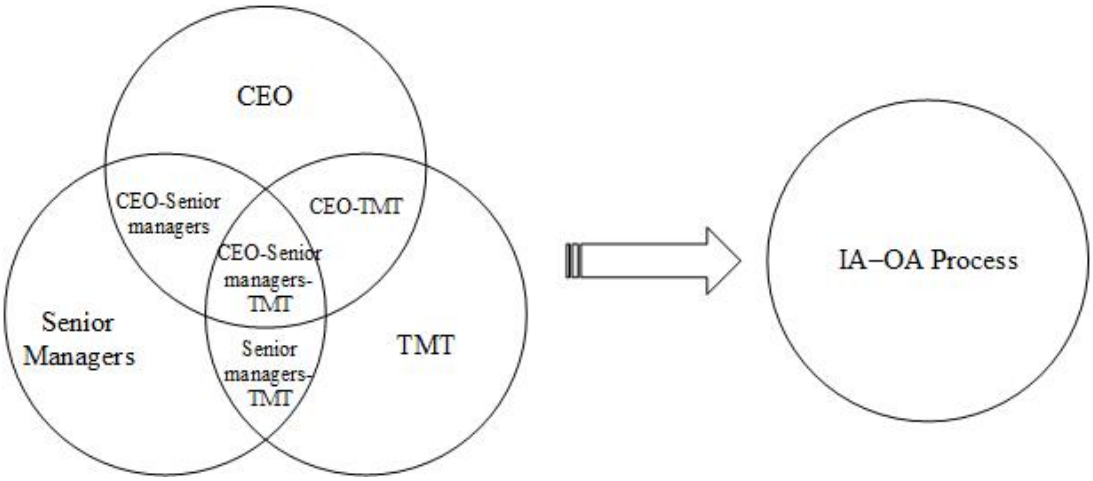
Linking the whole upon echelon process, the common thread through the research on this subject could be the process of leadership facilitating OA. At the individual level, the CEO, a the pivotal role in a TMT, impacts the TMT's behaviours (Luo *et al.*, 2018; Ou, Waldman and Peterson, 2018) and firm-level ambidexterity simultaneously (Kammerlander *et al.*, 2015). Luo et al. (2018) suggested that individual ambidexterity, in the form of the CEO's ambidextrous leadership, can promote the achievement of team-level ambidexterity through the TMT behavioural integration process. Similarly, at the team level, the TMT's behaviours affect the process to achieve ambidexterity. A higher level of TMT behavioural integrations allows a TMT to make more ambidextrous decisions that help their organisation pursue ambidexterity (Lubatkin *et al.*, 2006; Carmeli and Halevi, 2009; Halevi, Carmeli and Brueller, 2015).

Research has also suggested that the interaction between a CEO and a TMT has been suggested to influence OA (Lubatkin *et al.*, 2006; Cao, Simsek and Zhang, 2010) because these two entities play similar roles in accessing information and pursuing ambidexterity (Tushman and O'Reilly III, 1997). At the same time, CEOs affect TMT members' individual-level contribution to OA (Cao, Simsek and Zhang, 2010; Li, 2016; Luo *et al.*, 2018). Cao et al. (2010) created the phrase 'CEO-TMT', denoting the common effects of the CEO and the TMT, to study the relationships within the CEO-TMT network and their effects on OA. A senior team's shared vision is also associated with a firm's ability to balance exploration and exploitation (Jansen *et al.*, 2008). The relationship among a CEO, senior managers, and a TMTs can be shown in Figure 1.

This research proposes that it is possible to achieve IA–OA process across multiple levels through leadership factors because leadership factors can affect each other and direct behaviour in and

across hierarchical levels (Kassotaki, Paroutis and Morrell, 2018). The multiple levels of CEO–TMT–OA has been established as a completed process. The ambidexterity could be individual level or firm level, which are employee's ambidexterity and firm's ambidexterity, which means leadership affects firms from two levels and directions. Leadership behaviours and characteristics are inserted as internal attributes of different leaders. Therefore, proposition 1 is put forward (in line with Figure 1).

Figure 1 The model of the relationship between leadership factors and the IA–OA process



Proposition: In the leadership theme, the configurations of TMT behavioural integration, senior manager's ambidextrous behaviours, and CEO's leadership behaviours (i.e. ambidextrous behaviours and characteristics) elements can transform IA into OA.

Research Plan

The study will follow a quantitative method embedded in descriptive research design. We will collect data using a questionnaire. The purpose of the research design is to complete *evaluative research* to find out how well the variables work (Saunders, Lewis and Adrian, 2009). A survey will form the main research strategy to collect quantitative data because a survey strategy will give researchers more control over the research process and enhance their ability to generate accurate findings (Saunders, Lewis and Adrian, 2009). A further reason is the inability to measure the proposed construct through means of a proxy or invasive experiments.

This research will use a cross-sectional time horizon with primary data collected at least two-time points every six months, focusing on firms in China. To select significant samples, the research will focus on firms locating in the Yangtze River Delta region, including Shanghai, which is the most economically developed region in China. To eliminate firm-specific differences, the research will be conducted within the manufacturing companies. In addition to the location and industry, the third criteria is that the firms need to have at least three hierarchical levels, including employees, middle managers, and senior managers. To cover the aggregation process from IA to OA, the survey will collect respondents from multiple levels. Hence, some small-sized firms that only have two hierarchical levels of respondents, such as employees and managers, will be excluded. In addition, the firms will need to be willing to offer full access to the researchers. The survey requires the leaders' agreement to provide the company with information such as performance. It is also crucial to obtain the firm's employees, middle managers, and senior managers' consent to fill out questionnaires.

Because this research aims to collect multi-level data, the number of firms is less crucial than the number of employees and the levels of data collection. These individuals, including employees, middle managers, and senior managers in the TMTs, are essential to access resources and form individual ambidexterity (Raisch and Birkinshaw, 2008). They are also carriers of factors to be evaluated to transform IA to OA. The research will collect primary data using questionnaires in which each person will be asked to respond to the same questions in a predetermined order (Vaus, 2013). Hard copy questionnaires will be distributed to respondents in person and collected once the respondents finish them to ensure a high response rate. Hence, the data collection process will be designed to ensure a high response rate.

After developing propositions and models, ensuring the measurements and collecting data, fuzzy-set qualitative comparative analysis (fsQCA) will be applied as a data analysis tool. The fsQCA is "a normative model of set-theoretic connections and is applied as an analytical tool in social science" (Hughes et al. 2018, p. 603). The IA–OA process is affected by various factors, and fsQCA is appropriate for studying complicated relationships such as factors configured into sets (Ragin, 1987). Compared with traditional linear analytical methods, the fsQCA connects casual factors logically with the outcome. The result will present a set of configurations' sufficiency between all possible configurations of the factors and the outcome (Mendel and Korjani, 2012).

Anticipated Research Contribution

Three contributions to the theory are likely to be made if the objectives are completed. First, only a few papers study ambidexterity at multiple levels. This research will study the process to transform ambidexterity from the individual level to the firm level to fill the gap, providing among the first in-depth analyses of how IA may manifest OA. Second, a configuration perspective of factors affecting the IA–OA process can help researchers and readers understand the process exactly. Third, during the survey, we can observe and identify whether OA is preceded by ambidexterity or exploration or exploitation at different functional levels (Birkinshaw and Gupta, 2013), which can benefit the understanding of the type of OA. To managers, the research can help leaders to make wise decisions on the mechanisms to achieve ambidextrous organisations.

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