How Middle Managers Manage Intra-Organizational Inflows for Ambidexterity

ABSTRACT

We propose a conceptual framework to explain how middle managers conduct knowledge inflows management to facilitate organizational ambidexterity. The framework is composed of two dimensions, knowledge acquisition orientation (which refers to knowledge acquisition being internal or external to a business unit) and knowledge acquisition activities (which include structural mechanisms and contextual mechanisms in receiving knowledge inflows). Based on three hypermarket retailers in China, we interviewed 64 informants. Our findings suggest that middle managers manage the vertical knowledge inflows (top-down and bottom-up) and horizontal knowledge flows by utilizing the structural mechanism and contextual mechanism. The two mechanisms conducted by middle managers are important to achieve ambidexterity at the business unit level, which facilitates the organizational ambidexterity.

Key words: middle managers, knowledge inflows, and ambidexterity.

INTRODUCTION

Ambidexterity is at the heart of strategic renewal and survival of incumbent firms when the firms face the tension of exploiting existing competencies and exploring new ones (Vera & Crossan, 2004). Firms that are capable of pursuing ambidexterity are more likely to succeed in severe competition (Tushman & O'Reilly, 1996). Scholars have discussed various forms of ambidexterity, such as revolution and evolution (O'Reilly & Tushman, 2008), adaptability and alignment (Gibson & Birkinshaw, 2004), and exploratory and exploitative innovation (Benner & Tushman, 2003).

Knowledge acquisition is important for firms to achieve ambidexterity in various domains, such as technological innovation (O'Reilly, Harreld, & Tushman, 2009; Rothaermel & Alexandre, 2009) and organizational learning (Levinthal & March, 1993). Recently, studies emerged on individual knowledge acquisition in achieving ambidexterity (Groysberg & Lee, 2009). Focusing mainly on top management teams (TMTs), researchers discussed the impact of TMTs' characteristics (Simsek, 2009), cognitive frames (Smith & Tushman, 2005), behavior integration (Lubatkin, Simsek, Ling, & Veiga, 2006), and leadership behavior (Jansen, George, Van den Bosch, & Volberda, 2008) on ambidexterity.

Our understanding of knowledge acquisition at the middle management level is limited. Studies focused at individual level's (such as middle managers') ambidexterity is scarce with only a few exceptions (Jasmand, Blazevic, and Buyter, 2012; Mom, Van den Bosch and Volberda, 2007; 2009). Middle management is important to firms' ambidexterity because how middle managers administrate ambidexterity at business units positively link to organizational ambidexterity (Wooldridge et al., 2008). The concept of middle managers covers the managers located above the front-line workforce and below the top-level executives in an organizational hierarchical chart (Dutton and Ashford, 1993). Middle management plays an important role in creating and maintaining linkages because they occupy positions between the strategic apex and the operating core of an organization (Taylor & Helfat, 2009). Although studies on knowledge acquisition are not scarce, such as those that address knowledge acquisition in inter-organizational activities (Rothaermel & Deeds, 2004) and intra-organizational activities (Benner & Tushman, 2003), studies that focus on knowledge acquisition at the middle management level to reach ambidexterity are rare.

We aim to address two questions in this paper: 1) How do middle managers manage knowledge inflows? 2) How is knowledge acquisition at the middle management level linked to ambidexterity? Answers to the questions can enhance the understanding of the strategic role of middle managers in firms' ambidexterity approaches (Wooldridge et al., 2008). From attention-based view, middle managers face tensions in firms (Ren and Guo, 2010). On the one hand, they play the champions' role in pursuing new opportunities and innovation. On the other hand, they have the constraints of limited attention capacities. Middle managers may not have capability to attend to or to evaluate every available opportunity and new knowledge. As a result, firms may miss the chance of exploring a new opportunity or gaining new knowledge (March, 1991). Therefore, middle managers' capabilities to obtain knowledge and to seize opportunities are vital to ambidextrous firms (Taylor and Helfat, 2009).

To address the two questions, we examine the process of knowledge inflows that occur within (top-down and bottom-up knowledge inflows) and across (horizontal knowledge inflows) business units of firms. We frame middle managers' knowledge acquisition using two dimensions, knowledge acquisition orientation, which includes knowledge acquisition that both internal (within) and external (across) to business units, and knowledge acquisition activities, including structural mechanisms and contextual mechanisms. We then use structural mechanism (differentiation and integration) and contextual mechanism (combines stretch, discipline, support, and trust) to explain how middle managers achieve ambidexterity in firms' knowledge inflows.

THEORY

Knowledge inflows at middle management level

Our study focuses on how middle managers as knowledge recipients manage knowledge flows within and across business units of the firm (Gupta & Govindarajan, 2000). Knowledge inflow refers to 'the "aggregate volume" of tacit and explicit knowledge pertaining to several domains such as technology, products, processes, strategies and markets' (Schulz, 2001), where organization members receive or gather through activities, from other persons within the organization (Mom et al., 2007). Knowledge inflows consist of a combination of skills and technology, business practices, and tacit knowledge. According to Mom et al. (2007), intra-organizational knowledge inflows can be formal or informal. Formal knowledge inflows involve the formal meeting, telephone conservation, emails, mails, conferences, video conferences,

working reports, evaluation reports, and corporate internal documents. Informal knowledge inflows consist of informal chat, instant messages (including internet chat), notes, and organization parties.

Middle managers are important linkages between top managers and employee when firms face technology change (Taylor & Helfat, 2009). They encounter various information and knowledge, such as the strategic decision from top manageress, new ideas emerging from front-line managers, and customer preference change from operational employees. Middle managers not only attend and evaluate new opportunities but also are involved in strategic activities in firms (Wooldridge et al., 2008). In large and established firms, middle managers face the question of how they can manage the conflicts between the new and the old (Dess et al., 2003).

Due to limited attention capacities of the efficacy of middle managers' championing efforts, middle managers have to be selective in pursuing new opportunities and knowledge (Wooldridge et al., 2008). How middle managers response to various opportunities and knowledge inflows determines business unit performance (Ren and Guo, 2010). Middle managers, who have information about various needs of top managers and employees, of firm strategies and product market, and of internal and external environments of business units, are capable in signaling changes that are necessary to firms' reorientation of innovation strategies (Wooldridge et al., 2008).

Knowledge inflows may be obtained from both internal and external contexts of the business units. Organizations search for knowledge inflows with different means to strengthen the knowledge depth for exploitative activities and to broaden the knowledge width for explorative activities (Katila & Ahuja, 2002). In internal context, middle managers conduct vertical (top-down & bottom-up) knowledge inflows within the business units. Top-down knowledge inflows are beneficial for organization's exploitative activities, while bottom-up knowledge inflows are favorable to organization's explorative activities (Mom et al., 2007). Meanwhile, middle managers are innovation providers, administrating bottom-up knowledge inflows (Ren and Guo, 2011). Middle managers are embedded in the organization's relationships and management (Floyd & Wooldridge, 1999), which are trust, support, discipline and stretch. In this case, activities of managing vertical knowledge inflows at middle management level can be realized by contextual processes.

Middle managers also have access to knowledge inflows beyond their scope of business unities (Floyd & Wooldridge, 1997). Cross functional projects are widely considered as a major source of innovative initiatives (Mom et al., 2007). Beyond the direct access to trainings organized by top management team or to reporting system from bottom subordinates, middle managers obtain knowledge inflows based on the capabilities of judging and utilizing knowledge inflows (Wooldridge et al., 2008). Cross functional projects and collaborations mainly bring middle managers the knowledge beyond the boundary of their business units (Floyd and Lane, 2000). Due to the newness and complexity of such knowledge inflows, middle managers will have to identify the relatedness and usefulness followed by efficient means to assimilate. Typically, middle managers analyze the relatedness of external knowledge inflows by differentiation, as the information noises and knowledge needed are sticky (von Hippel, 1998). Additionally, cross functional tasks create an interface of cross-disciplines or multi-sources. Middle managers also have to synchronize the fragmented knowledge from different time frames or origins to match the needs of their own business units (Floyd & Lane, 2000). Therefore, middle managers can rely on differentiation and integration to conduct horizontal knowledge inflows from external environments beyond the boundary of the business units.

Mechanisms to reach ambidexterity at middle management level

Firms often face the situation of exploiting existing competencies and exploring new ones (Vera & Crossan, 2004). Previous literatures have argued that successful organizations which could address the conflicting demands are ambidextrous.

Structural mechanisms for ambidexterity

Alignment-oriented (exploitative) activities and adaptation-oriented (explorative) activities are always in some degrees of confliction. The conflicts between exploration and exploitation were reconciled through the creation of structural ambidexterity. The structural ambidexterity replies on dual structures to distribute the contradictory demands (Tushman & O'Reilly, 1996). The manipulation of different structures, for instance, the project teams cross functions within the same organization, provides the benefits of differentiation and eases the conflicting demands. Another example of implementing structural mechanisms, when the interactions among a firm's activities are conflicted, is to implement the temporary decentralization to yield the highest long-term performance structure (Siggelkow & Levinthal,

2003). Majority of literatures emphasize the factors of appropriate structure in balancing the conflicting demands. Following the logic of structural ambidexterity, some focus on the differentiation and integration mechanisms (Andriopoulos & Lewis, 2009). Others examine the interplays of static and dynamic view of managing conflicting activities (Cao, Gedajlovic, & Zhang, 2009).

Recently, one important tension of achieving ambidexterity relates to differentiation and integration as alternative or complementary pathways (Raisch et al., 2009; Taylor, & Helfat, 2009). Structural differentiation and integration can help organization to manage multi-inconsistent and multi-conflicting demands. Structural differentiation is defined as 'the state of segmentation of the organizational system into subsystems, each of which tends to develop particular attributes in relation to the requirements posed by its relevant external environment' (Lawrence & Lorsch, 1967). It establishes differences across organizational units in terms of functions, mindsets, time orientations and product/market domains (Golden & Ma, 2003). Structural integration is based on the assumption that certain integration mechanisms are richer and provide a higher information-processing capacity. It refers to the means 'to coordinate and integrate differentiated activities through pre-established mechanisms and interfaces' (Ghoshal, Korine, & Szulanski, 1994).

Contextual mechanism for ambidexterity

Recent literatures show that ambidexterity may also emerge through an organizational context (Gibson & Birkinshaw, 2004;Jansen, Van den Bosch, & Volberda, 2006). Contextual ambidexterity suggests that exploratory and exploitative activities are maintained simultaneously at any given organizational level. Contextual ambidexterity thus empowers organizational members to meet performance standards guided by shared ambitions and a collective identity (Ghoshal & Bartlett, 1994). Organizations can effectively balance exploration and exploitation by nurturing an appropriate organizational context that combines stretch, discipline, support, and trust, enabling simultaneous alignment and adaptability (Gibson & Birkinshaw, 2004). This organizational ability may be rooted in the ability of its employees at all organizational levels to engage in problem solving. The notion of contextual ambidexterity enhances the behavioral capacity of employees to demonstrate alignment and adaptability across an entire business unit. According to Gibson and Birkinshaw (2004), alignment refers to coherence among all the

patterns of activities in the business unit that are working toward the same goals. Adaptability refers to the capacity to reconfigure activities in the business unit quickly to meet changing demands in the task environment. Individuals need to maintain a balance between creativity, attention to detail, and quality in stable patterns of interaction throughout the organization.

In contextual ambidexterity, exploration and exploitation are maintained simultaneously at a given organizational level (Gibson & Birkinshaw, 2004). At the individual and team levels, goal conflict and bounded rationality can lead to sequential allocation of attention to exploration and exploitation. A particular task environment may draw attention to exploration at a given time and exploitation at another time. We thus need another mechanism, structural mechanism, to complement contextual ambidexterity.

Contextual mechanism and structural mechanism are different but may be complementary to support organizational performance (Raisch, Birkinshaw, Probst, & Tushman, 2009). Structural mechanism emphasizes creation of dual structures to achieve ambidexterity (Tushman & O'Reilly, 1996). Contextual mechanism is achieved by building a set of processes or systems that enable and encourage individuals to make their own judgments about how to divide their time between conflicting demands for alignment and adaptability (Gibson & Birkinshaw, 2004).

However, we know little about how managers implement the two mechanisms to manage knowledge inflows, which facilitates the organizational ambidexterity. Previous research examine the importance of top managers to act ambidextrously by integrating exploitative and explorative activities (e.g., Smith and Tushman 2005). Mom et al. (2007) further examine the influence of vertical and horizontal knowledge inflows on top managers' explorative and exploitative activities. Wooldridge et al. (2008) reviewed 25 years research on middle management and calls research for how middle management research may illuminate the critical balancing acts underlying ambidexterity at the group or subunit levels.

To fill in these gaps, we conduct a comparable case study to examine the middle managers' knowledge inflows management. To be specific, we study how middle managers implement the different mechanisms to manage the divergent knowledge inflows. We consider two types of knowledge inflows, vertical (within the business units) and horizontal (across the business units) within the scope of organizations. To meet our requirements, we choose three

hypermarket retailers in China in order to understand the mechanisms middle managers undertake to govern the divergent intra-organizational knowledge inflows. Next, we examine the knowledge acquisition of middle managers in the process of knowledge inflows (both vertical and horizontal) at their business units, using structural mechanisms (differentiation and integration) and contextual mechanisms (processes of discipline, stretch, trust and support).

METHODOLOGY

Research Context

Our study on middle management of grocery retailers on knowledge inflows management in an emerging economy is different from previous comparisons studies at top management level (Mom et al., 2007). We focus on the middle managers who manage the knowledge inflows and the influences on organization and business units performance. Our study of middle managers of three hypermarket retailers is also different from previous studies on previous middle management research focusing on strategy implementation (Wooldridge, Schmid and Floyd, 2008). We take comparable case studies methods to develop our arguments (Yin, 2003) to complement the existing theory of knowledge inflows management. Our aim is to unveil the methods of middle managers who manage the divergent patterns of knowledge inflows. Therefore, we set our research design as a finer-grained observation of the phenomenon.

We require the selected firms to have a clear pattern of different directional knowledge inflows which may require divergent activities and attentions. Therefore, we choose the middle managers, which provides us an ideal context to examine the knowledge inflows coming from top managers, operating managers within the business units and other middle managers beyond the scope of the middle managers in the business units. As firms may have different level of expertise and knowledge base (March, 1991), we carefully choose the comparable cases with divergent knowledge backgrounds. Therefore, we separate the domestic firms from the foreign entrants in the emerging country. To meet those requirements, we choose three hypermarket retailers, Carrefour China, Walmart China and RT-Mart China.

Data Sources

We draw our studies on archival data, field observations and semi-structured interviews. We select retailers based on our requirements of research design and research questions. We took a

historical perspective to control the ownership change, country origin, and policy interventions among the retailers.

Archival materials also gave some clues of how middle managers conduct knowledge inflows. We sought to identify three types of knowledge inflows: top-down, bottom-up and horizontal knowledge inflows. We group top-down and bottom-up knowledge inflows as vertical knowledge inflows within the business units, while keep horizontal knowledge inflows as those beyond the scope of business units. We interviewed the middle managers of retailers (such as store manager, purchasing manager, site research managers, business development manager, section manager, and department manager); managers of key suppliers who interact with the corresponding middle managers of retailers (for instance global and national suppliers); and industry experts who have extensive understanding the corresponding middle managers of retailers (that is managers in consulting firms and investing banks focusing hypermarkets, journalists of retailing magazine and independent researchers). We specifically sought to interview people who know knowledge inflows management at middle management level of our selected retailers. We use a "snowball technique" (Lincoln and Guba, 1985) to identify key informants. We also asked interviewees whom else we should interview, stopping when no more strong evidence of new evidence of knowledge inflows emerges.

Archival data includes secondary literature on retailers and retailing industry in China, company reports and country reports. We also field observed hypermarkets of selected retailers in Xiamen, Hong Kong, Shenzhen, Guangzhou, Dongguan, Foshan, Wuhan, Enshi, and Shanghai. We conducted 64 semi-structured interviews in total. All interviews were taped.

The number of countries where our selected companies operate varies in 28 (Carrefour), 9 (Wal-Mart) and 2 (RT-Mart). As a result of the interview process, 64 semi-structured interviews were conducted from July 2011 to April 2012. We interviewed 20 middle managers of the selected retailers, 25 middle managers of the common competitors, 7 managers of the common suppliers who interact with the middle managers of our selected retailers, and 12 industry experts who serves all of our selected retailers (mainly our middle managers of cases). Some managers were interviewed several times; the total interview time is 4,655 minutes; on average, the interview time for each interview is about 73 minutes.

Analysis

We identify two major mechanisms as *structural mechanisms* and *contextual mechanisms* implemented by middle managers in dealing with the vertical (*top-down and bottom-up) and horizontal* knowledge inflows. After gaining three major patterns of knowledge inflows, the next stage aimed at understanding the details of mechanisms by which middle managers manage knowledge inflows at middle management level in our selected cases. This was achieved through 'theoretical sampling' research (Glaser and Strauss, 1967: 45-77), because the choice of cases was directed by the emerging theoretical categories.

These requirements were met in the following ways. Three retailers with divergent background in Chinese hypermarket industry, who have different organizational control systems and corporate culture, were selected for intensive study. Thus, it was possible to compare the behaviors of the middle managers with different characteristics of the retailers. In addition, government policies treat the Carrefour, Walmart and RT-Mart with preferential policies (Planet Retail, 2010). This allows us to observe the behaviors of middle managers under the different corporate culture which is strongly influenced by the government policies.

We aggregated data in a series of charts, summarizing the behaviors of middle managers in knowledge inflows management with respect to each chosen retailer. We coded each interview on the basis of phrases and terms used by the informants, based on the categorization and theme analysis techniques (Miles and Huberman, 1984). After we finished the interview of coding, then we detect the theoretical patterns of different directions of knowledge inflows to the middle management level of our three selected cases. We continued to code the interviews to understand what mechanisms of middle managers conduct to manage the top-down, bottom-up and horizontal knowledge inflows within each retailer and across retailers. We finished the coding processes until we could not find any further theoretical categories emerged. We aggregated the coding data to reach the theoretical dimensions.

FINDINGS

Our analysis indicates that middle managers of hypermarket retailers face paradox. The major conflicts result from the two parallel major business functions of retailing, operation and purchasing. Such paradox extends to the confliction between retailer internal demands (mainly related to operation) and external demands (mainly related to purchasing). Under such paradox, middle managers implement different mechanisms to address the internal and external demands,

when they manage the different directional knowledge inflows in these two major business areas. Middle managers, due to their unique positions in the organizations, paly as a linkage between the operating managers and top managers (Floyd & Wooldridge, 1997). They face the knowledge inflows generated from the top managers as well as operating managers within their business units and middle managers from other business units. The three types of knowledge inflows, which normally require different and conflicted demands from middle managers, require middle managers to address the divergent knowledge inflows ambidextrously. We also found that middle managers implemented and combined two different mechanisms (structural and contextual mechanisms) to acquire different patterns of knowledge inflows.

Top-down knowledge inflows

As the first foreign hypermarket retailer entered China, Carrefour opened its first hypermarket store in Beijing in 1995 (Planet Retail, 2010). Holding extensive international experience of operation, Carrefour is considered as a retailer who not only invented the concept of hypermarket but also achieved excellent international performance (Li and Wang, 2006:103-105). Comparing with emerging countries retailers lack of such a business, Carrefour holds both rich firm specific advantages and comparable assets (Chuang, Donegan, Ganon and Wei, 2011). The middle managers, who received a big extent of authority, addressed the daily workflows and routines by decoupling them to detailed operation guides. A former store manager in Carrefour recalled what he did when they face the strategic decisions from the top managers, says:

> A department head of each department has to decide its own profits and sales. What you sell can not be a mess. You have to meet the rules of Carrefour, such as the strategic goals. […] You have to figure out what drinks to sell in your department. You have to make decisions and take your own choices. In your department, you decide who is in charge of which new products to sell in this department and which products could help your sales. This is what Carrefour trained you.

As the second foreign entrant who ran hypermarkets in China, Walmart opened its first store in Shenzhen in 1996 (Planet Retail, 2010). Similar to Carrefour, this world leading hypermarket retailer achieved great success in its home market and worldwide (Li and Wang, 2006:103-105). It is remarked as a successful retailer with efficient supply chain system and high operational standards of all stores (Chuang et al., 2011). All subsidiaries and oversea branches aligned to its headquarter strategy and processes. A former product manager of Walmart mentioned how he addressed the top down knowledge inflows as:

Our management is modularized and systematic. For instance, buyer of apparel is only responsible for the apparel. We have detailed and strict operation standards at the corporate level. Top managers require us to follow and obey the rules preset. These requirements turn people to machines. Due to such a system, managers of purchasing and managers of operation come to us if they find anything wrong. In addition, we provide dedicated rotation based trainings to managers to meet our global standards.

Different from the leading hypermarket retailers, new hypermarket retailers such as RT-Mart has limited experience (Planet Retail, 2010) in operating the hypermarket business. RT-Mart, a Taiwan hypermarket retailer opened its first hypermarket in 1997, China. As this retailer did not have any oversea stores (operates hypermarkets in Taiwan and China mainland), it mainly obtained knowledge and skills from other retailers, such as the experienced foreign entrants. Their top managers, time to time, bring new practices and ideas inspired by their leading foreign competitors. As their subordinated managers, middle managers breakdown the skills and knowledge obtained. A section manager of RT-Mart mentioned how they took action as differentiation, says:

> Our boss claimed that we should put all of our efforts to learn Carrefour. Since 2002, we did our best to benchmark the practices and strategy of Carrefour. For example, we followed Carrefour's free shuttle bus service for potential customers. We carefully looked at the number of buses, frequency of buses, and the route of buses taken by Carrefour, in order to provide our own buses. We assigned different employees to examine the behaviors of Carrefour to adjust our actions.

Bottom-up knowledge inflows

As the operating managers are closer to the market, middle managers handle the knowledge inflows from operating managers different from those from top managers. Correspondingly, middle managers undertook different ways to manage daily business and to address paradox when managing the bottom-up knowledge inflows. Meanwhile, due to the informal communication of operating managers and front-line employees with the competitors, middle managers can obtain the knowledge inflows of competitors more often at the operating level. Different from the previous mentioned top-down knowledge inflows, middle managers are more likely to aggregate demands and resources raised by the operating managers. A former store manager of Carrefour, who mentions how he aggregates the knowledge inflows from the operating managers, says:

In product management, we use products organizing forms to show products assortment, big assortment, milled assortment and small assortment. We issue product outcome forms for discussion monthly. I call all department heads and section managers to attend the meeting. We discuss the expected outcomes for next month, based on the total volume reported by each department and section manager. Then all of us have to follow the expected number.

Although holding extensive experience of operating abroad, Walmart also invested many efforts to cooperate with local suppliers in China. Meanwhile, Walmart focused on organic growth and merger & acquisition to reach the economy of scale. The integration process helped Walmart to access to the core knowledge and operation processes of a totally different way of doing business in China. Middle managers of Walmart analyzed the competence of its competitors and synchronized the knowledge for the company. Most of the time, middle managers of Walmart observed practices of operating managers and front-line employees of the acquired retailer in order to consolidate their own knowledge base. A former purchasing manager of Walmart mentions:

After we acquired Trust-Mart, we compared the purchasing contracts of ours and those of Trust-Mart article by article. Finally, we found that our annual purchasing costs are 5 million Euros higher than costs of Trust-Mart. As we decided to optimize our process and save costs, we asked our buyers to turn to our suppliers. We gathered all suppliers who would like to help us to reduce purchasing costs. As a return, we helped them to improve their capabilities of manufacturing and offered more promotion activities in our stores.

RT-Mart carefully learned the mistakes made by other retailers and executed its strategy with caution. Operating managers closely follow the practices and actions of their competitors. As a consequence, middle managers get to understand and learn the promotion skills of their competitors through the media of operating managers. Sometime, middle managers are the driver of new practices or innovation, as they can aggregate various knowledge from their operating managers, who are closer to both competitors and the market. A purchasing manager of RT-Mart, who mentions how they aggregate different sources of knowledge, says:

If we find some problems of product quality from suppliers, we will look for a group of specialists, who are consisted of experienced middle managers. In individual stores, if someone has a good idea, he or she will communicate with specialists. Based on our competitors' practice they see and understand, our specialists will summarize all of those ideas and issue a formal written document.

Horizontal knowledge inflows

In the daily activities, middle managers interact a lot with their operating managers and time to time with their top managers. However, for some activities, middle managers interact with middle managers from other departments or business units. In particular, in cross-functional department projects, middle managers or project manager will communicate with other middle managers to implement such projects. In this case, knowledge inflows may be horizontal beyond the scope of business units. Middle managers may acquire knowledge from their counterparts (i.e. other middle managers) at the same organizational level more informally than formally.

Carrefour follows their strategy of localization and autonomy to their middle managers (Planet Retail, 2010), such as regional manager, store manager and department managers. As for purchasing, middle managers involve less in the cross-functional department projects. Purchasing managers and buyers are trained to focus on a very few selected items or specific areas. However, for product department, the department managers involve more in cross-functional projects and communications. A former store manager of Carrefour, who shows how they manage the knowledge inflows from other store managers, says:

> We have to attend the yearly meeting, monthly meeting, weekly meeting and some urgent meeting with other store managers located in different provinces. Normally, we report what we have done so far, what we are going to do and what we need. Some requirements may go to the same director, therefore we collect all similar requirements, such as financial resources. Once the requirement has been approved, we breakdown the resources to different stores.

Walmart did not restrict their middle managers to communicate with other middle managers. In contrast, Walmart encourage the communication of middle managers with other middle managers. Meanwhile, store managers can recommend some potential suppliers to be promoted from regional supplier to national supplier. Some other departments, such as IT department interact with other departments more frequently. A store manager of Walmart mentioned how they manage the knowledge inflows from other departments, says:

> If there is any confliction or problem between the purchasing department and operating department, we will coordinate and solve. Sometimes these people may say that a specific problem belongs to our system. We are patient to collect all problems reported to our system. Then we analyze those reported problems and use the IT tools to integrate the our supply chain. As for each individual department, we also adjust our overall solution to their specific department.

RT-Mart encourages the cross-functional meetings and communications. The specialist group of middle managers is consisted of experienced managers with different background. This group of middle managers, such as development department manager, focus more on development. In retailing industry, most of development department is in charge of the new store opening. They normally prepare 12 to 24 months in advance before the new store to be opened becomes ready. A section manager, who is also a core member of the development department, describes how they work, says:

> Year after year, we are assigned tasks to look for new location to open our new stores. Before we go to the location, we communicate with the relevant departments, such as purchasing managers and product managers, to get necessary information. Then we go to the potential location to gain first hand understanding, including the number of current competitor, the number of traffic, the living standards, and the expected break-even. Afterwards, we combine the first-hand information and those information obtained from other departments to issue a report.

DISCUSSION

Middle Managers and Top-down Knowledge Inflows

At the business unit level, middle managers face vertical (top-down and bottom-up) and horizontal knowledge inflows (Mom et al., 2007). Top-down knowledge inflows occur when knowledge flows from a higher hierarchy to a lower level. It is a narrowed-down and unambiguous process, such as tasks and initiatives originated from global headquarter to individual subsidiaries. For instance, in a large multinational firm, top-down knowledge inflows is typically confined to the vertical chains of this organization (Gupta & Govindarajan, 1991). Middle managers contribute to top-down knowledge inflows via strategic decisions that facilitate information flows between top-managers and front-line managers (Floyd & Wooldridge, 1992). Middle managers endorse perspectives coming from top-level executives and communicate their value creating potential to first-level managers and their direct reporters (Kuratko, Ireland, Covin, & Hornsby, 2005).

Middle managers acquire and supervise the top-down knowledge inflows by differentiation. Top-down knowledge inflows increase the receipts' knowledge depth rather than their knowledge width. Middle managers can regularly update the knowledge base as they face passive learning activities. Therefore, knowledge inflows from top managers could refine the middle managers' expertise in specialized functions or certain areas. However, since middle

managers are important in facilitating knowledge inflows to lower levels, they are required to specify the tasks for their subordinates. This requires middle managers to help lower level employees in their problem solving activities.

To process top-down knowledge inflows in their business units, middle managers increase the knowledge base of various specialized knowledge and understanding of function areas (Katila & Ahuja, 2002). They decompose the knowledge to lower levels and ensure the information be unambiguous (Egelhoff, 1991): the clear causal relationships have to be specified. Therefore, middle managers redistribute tasks, diversify portfolio, allocate resources and arrange products to meet both firm's growth and customer demands considering the scope of existing business activities. For those conflicting requirements and activities, some managers differentiate them and implement projects in parallel to improve the efficiency and effectiveness of existing projects and activities (Daft & Lengel, 1986).

Proposition 1a. Within the business units, middle managers tend to use differentiation to administrate top-down knowledge inflows.

Middle managers generally decide the process of different projects and allocate employees to different projects based on their experience (Floyd & Wooldridge, 1992). They face directly front-line managers and confront with new technological developments, unexpected problems, changing market conditions, and various customer demands (Sheremata, 2000). Within the business unit, middle managers implement systems of discipline and stretch to cultivate efficient systems to guide subordinate managers' passion and skills. In this environment, middle managers make their own judgment and allocate their time to manage conflicting demands and activities (Gibson & Birkinshaw, 2004). Dealing with limited time and resources, middle managers encourage team members to innovate within the scope of disciplines and rules.

To promote innovation, middle managers organize activities to facilitate skill development of employees, and offer them flexibility in distributing their time and energy to perform well (Floyd & Wooldridge, 1992). Discipline and stretch is important in this process. Without strong discipline or stretch, middle managers will face difficulty to supervise subordinate managers' work in progress. Middle managers need to ensure that subordinate managers and frontline managers execute their assignments with strategic intention required by the organization. To summarize,

16

Proposition 1b. Within the business units, middle managers tend to use discipline and stretch to administrate top-down knowledge inflows.

Middle Managers and Bottom-up Knowledge Inflows

Bottom-up knowledge inflows occur when knowledge flows from a lower hierarchy to a higher level of the firm. It constitutes of ad hoc, random, unpredictable, and reciprocal format rather than following a standardized and formalized manner for knowledge receipts (Mom et al., 2007). It benefits members at a higher level, such as middle managers, by increasing the understanding of changes regarding existing technologies, products, processes, and markets (Brady & Davies, 2004). Bottom-up knowledge inflows are positively associated with managers' exploration activities rather than exploitation ones.

Within the business units, middle managers implement integration mechanisms to manage bottom-up knowledge inflows from front-line managers. Middle managers contribute to corporate strategy formation by their roles in autonomous strategic activities (Floyd & Wooldridge, 1997). While front-line managers and operational employees engage actively in the process of defining new businesses and new knowledge, middle managers are deeply involved in managing the business activities and knowledge to gain enough support from the organization. Middle managers evaluate and sponsor strategic initiatives championed by frontline-managers and operational employees. Middle managers select the promising initiatives from champions and report them to top management through strategic building (Dutton & Ashford, 1993).

Middle managers are important to execute the strategic decisions and communicate between different hierarchies. Specifically, middle managers prescreen (exploratory and exploitative) entrepreneurial opportunities at lower organizational levels before attending primarily to those that align with the strategic orientations of the firm. Bottom-up knowledge inflows from front-line managers and operational employees do not follow standardized and formalized paths (Mom et al., 2007). Efforts of middle managers to promote these initiatives to top management rely on leveraging irregularities in firms, exploiting existing attention structures, or, in certain cases, dismantling the attention structures.

Managing bottom-up knowledge inflows requires middle managers to see a broad picture of various knowledge sources for decision making. Middle managers play as champions of strategic alternatives and sponsors for new opportunities at lower organizational levels. In so

doing, they reshape the strategic thinking of top management and alter the firm's strategic course (Floyd & Wooldridge, 1997). Administrating bottom-up knowledge inflows relies on middle managers' width of knowledge rather than their depth of knowledge. Middle managers summarize the aggregated achievements and classify matches of new opportunities and knowledge inflows. Therefore, we propose:

Proposition 2a. Within business units, middle managers tend to use integration to administrate bottom-up knowledge inflows.

Middle managers assemble bottom-up knowledge inflows to ensure the variance of different inflows from lower levels of business units. This process requires middle managers to trust and support knowledge inflows from front-line managers and employees (Sheremata, 2000). The process also requires middle managers to provide unambiguous information and knowledge to top managers. The accuracy of information in bottom-up knowledge inflows is important because it affects decisions on firms' strategies made by top managers (Floyd & Lane, 2000). Middle managers thus need to enhance their understanding of changes regarding existing technologies, products, processes, and markets (Brady & Davies, 2004).

Proposition 2b. Within business units, middle managers tend to use trust and support to administrate bottom-up knowledge inflows.

Middle Managers and Horizontal Knowledge Inflows

Horizontal knowledge inflows occur when knowledge flows across business units at the same organizational level. These knowledge inflows are characterized by rich and dense personal interactions (Subramaniam & Youndt, 2005), which are typically ambiguous and complex. Horizontal knowledge inflows allow members at the same hierarchical level to broaden their knowledge base by increasing varieties of experience (Katila & Ahuja, 2002) and understanding of new knowledge (Jansen, Van den Bosch, & Volberda, 2005).

Horizontal knowledge inflows from other business units are generally ambiguous, complex, and tacit. These features of horizontal knowledge inflows affect the accuracy of judgment that middle managers make. Some argue that this type of knowledge acquisition is not effective in dealing with unequivocal tasks (Egelhoff, 1991). As middle managers implement and control working flows and parallel projects in multiple areas, they select effective information

from the environment that is within the firm's boundary and outside their own business units. Horizontal knowledge inflows thus contribute to middle manager's ability to interpret ambiguous and complex issues and to build the understanding of newly acquired knowledge (Jansen et al., 2005). These knowledge inflows also require middle managers to be able to decouple received knowledge inflows and to ignore irrelevant or unfeasible information (Kuratko et al., 2005).

Middle managers may need to deal with events that fall outside of the organizational agenda, such as shrink of market or shift of customer preference (Brady & Davies, 2004). Middle managers among themselves share experience of handling unexpected events. A middle manager analyzes such kind of experience and selects the part that fits his or her strategic intention and plan. Horizontal knowledge inflows are condense and complex for middle managers. This requires middle managers to identify the useful information and ignore the infeasible new knowledge or new opportunity. It is important for middle managers to learn from seemingly irrelevant experience and to absorb useful knowledge to evaluate new opportunities. For instance, scholars find that middle managers tend to enhance the ability of bouncing the idea off others to verify and assess the feasibility of new opportunity and new knowledge (Shi, Markoczy, & Dess, 2009). Therefore, horizontal cross-fertilization and combination of different kinds of knowledge is beneficial for middle managers to enhance innovation and the creation of new knowledge.

> *Proposition 3a*. Across business units, middle managers tend to use differentiation and integration to administrate horizontal knowledge inflows.

Middle managers support and trust their colleagues they communicate with. Horizontal knowledge inflows cross functional, disciplinary, and technological areas (Thompson, 1967). In this case, middle manager could gain boundary-spanning experience and connections to both intra-organization and outside of the organization (Floyd and Wooldridge, 1997). Field data show that early operational experience largely determines whether middle managers will provide impetus to new initiatives (Burgelman and Sayles, 1986). As the knowledge inflows that operational employees and front-line managers receive are "narrow" down (Winter and Szulanski, 2001) and unambiguous (Egelhoff, 1991), the past experience of middle managers gaining from operational results may only be helpful for specialized functions. Thus, middle managers need to broaden their knowledge scope (Winter and Szulanski, 2001) and pick up

related specialized knowledge inflows to fit their knowledge breadth (Katila and Ahujia, 2002). In the process of broadening their knowledge base, middle managers need more trust and supports to process horizontal knowledge inflows, as the horizontal flows do not constraints to the organizations administrative structures.

To make accurate judgments of the seemingly unrelated horizontal knowledge inflows, middle managers often learn from the cross functional projects, which requires middle managers communicate with the members quite well. As the horizontal knowledge inflows from other parties of the same organization are normally ambiguous, complex and tacit (Daft and Lengel, 1986; Egelhoff, 1991), transferring tacit knowledge normally requires close collaboration between members, trust and support between middle managers and the receipts of the tacit knowledge are very important. Middle managers are not merely information filter (Taylor and Helfat, 2009) but more importantly, they become adopted system for the cross-functional projects members to consult with and friends to communication ideas with (Wooldridge et al., 2008). In such a process, middle managers develop the trust and support with those far beyond their expertise colleagues from other functional areas. This argument could be summarized to the following proposition.

Proposition 3b. Across business units, middle managers tend to use trust and support to administrate horizontal knowledge inflows.

CONCLUSION

Middle managers are important organizational linkage between the strategic apex and the operating core of an organization (Floyd and Lane, 2000; Taylor & Helfat, 2009; Wooldridge et al., 2008). To enhance the understanding of knowledge acquisition at the middle management level, we addressed two questions in the field, 1) How do middle managers manage knowledge inflows? and 2) How is knowledge acquisition at the middle management level linked to ambidexterity. We used knowledge acquisition orientation (within and beyond the business units) and knowledge acquisition activities (structural mechanisms and contextual mechanisms) to frame the process theoretically.

Based on the studies of three hypermarket retailers in China, Carrefour, Walmart and RT-Mart, we examine how middle managers of the three selected retailers to govern the knowledge inflows. To be specific, we adopted the model of top-down, bottom-up, and horizontal

20

knowledge flows, as well as contextual mechanism and structural mechanism, to explain the role of middle managers in knowledge acquisition within and across business units in firms. Our findings show that middle managers understand the difference of divergent directional knowledge inflows. They implement the structural mechanism (differentiation and integration) and contextual mechanism (discipline, stretch, support and trust) to manage the vertical (top-down and bottom-up) knowledge flows.

This study contributes to the literature in a number of ways. First, this study sheds light onto the literature on management team by framing the role of middle managers in managing knowledge inflows to achieve ambidexterity when facing conflicting demands. It is different from the existing research that focuses on ambidexterity at the top management level (i.e. Mom et al., 2007; Jansen et al., 2008). The current study suggests the important and complex role of middle managers in firms' ambidexterity (Wooldridge et al., 2008). Second, the theoretical framework in this study contributes to the literature on ambidexterity by showing a combination of structural mechanism and contextual mechanism in firms' approaches for ambidexterity at the middle management level (Raisch et al., 2009). Middle managers link what beyond the middle management level to what below it. This special role of middle managers may require more than one mechanism to realize ambidextrous strategic goals. Third, this study describes two mechanisms, structural mechanism and contextual mechanism, which may facilitate middle managers' knowledge acquisition within and across the business units. In particular, we suggested integration and differentiation (Andriopoulos & Lewis, 2009) and the management processes of trust, support, discipline, and stretch (Gibson & Birkinshaw, 2004) in knowledge acquisition (managing the knowledge inflows) at the middle management level.

This study has a few implications for managerial practices. On the one hand, this study points out different patterns of knowledge inflows that middle managers face. Middle managers may need to identify the difference of the top-down, bottom-up and horizontal knowledge inflows. By so doing, middle managers can understand the knowledge inflows per se and how to utilize the different knowledge inflows. On the other hand, this study provides the recipes for middle managers to handle knowledge inflows, which is important for firms' managing the conflicted demands and balancing exploitation and exploration activities (Mom et al., 2007). Middle managers can dedicate the specific combination of the structural mechanisms (integration

and differentiation) and contextual mechanisms (discipline, stretch, support and trust) to manage the different patterns of knowledge inflows. As a results, managing well the knowledge inflows help the business units to reach the ambidexterity. As business unit ambidexterity contributes directly to firm level ambidexterity (Jansen, 2005), middle managers' knowledge inflows management through structural mechanisms and contextual mechanisms benefit the organizational ambidexterity.

Future research

Future research can examine how different mechanisms evolve over time. Raisch et al. (2009) point out that some organizations manage the paradox of exploitation and exploration either in sequential or in parallel to reach ambidexterity. At middle management level, it is also interesting to look at the temporal effects. For instance, the promotion path of middle managers and their contribution to ambidexterity is worth of studying. Moreover, longitudinal studies on organizational ambidexterity are rare (Raisch et al., 2009). So are cross-level studies on the interaction between intra-organizational and inter-organizational knowledge inflows. For example, the influence of middle managers' social network on managers' ability to balance exploitation and exploration activities can be a promising topic. In addition, environmental conditions are another topic that future research may find fruitful. For instance, in different markets (liberalized market and non-liberalized market), how middle managers may change their ways of managing the knowledge inflows?

Due to different levels of difficulty involved in the types of knowledge acquisition, the model we developed in this study may be a process model with each type of knowledge acquisition as a stage of the process of knowledge acquisition. Therefore, instead of examining a static type-based knowledge acquisition model, future research can develop a dynamic stage-based process model at the middle management level. Middle managers may show different strategies in acquiring knowledge and managing knowledge flows at different stages of business unit development because of various levels of difficulty involved in the stages. The difficulty may affect the performance of business units after knowledge acquisition.

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