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## **How Structural and Contextual Mechanisms Contribute to Organizational Ambidexterity: Examine Middle Managers'™ Role in Knowledge Inflows Management**

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### **Abstract**

Organizations successfully addressing the situation of exploiting existing competencies and exploring new ones are ambidextrous. To examine how firms may reach ambidexterity, majority of literature emphasize either structural or contextual mechanisms in balancing conflicting demands and activities. However, there is little conceptual synthesis of how organizations can use both structural mechanisms (differentiation and integration) and contextual mechanisms (processes of discipline, stretch, trust and support) to reach ambidexterity from knowledge inflows management perspective. I conceptualize knowledge inflows management of a well-known Chinese telecommunication equipment provider company, Huawei, at middle management level, in facing conflicting demands. Findings show that middle managers implement some extent of both structural and contextual mechanisms to manage different patterns of knowledge inflows to achieve ambidexterity, in terms of pro-profit and pro-growth.

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## **ABSTRACT**

Organizations successfully addressing the situation of exploiting existing competencies and exploring new ones are ambidextrous. To examine how firms may reach ambidexterity, majority of literature emphasize either structural or contextual mechanisms in balancing conflicting demands and activities. However, there is little conceptual synthesis of how organizations can use both structural mechanisms (differentiation and integration) and contextual mechanisms (processes of discipline, stretch, trust and support) to reach ambidexterity from knowledge inflows management perspective. I conceptualize knowledge inflows management of a well-known Chinese telecommunication equipment provider company, Huawei, at middle management level, in facing conflicting demands. Findings show that middle managers implement some extent of both structural and contextual mechanisms to manage different patterns of knowledge inflows to achieve ambidexterity, in terms of pro-profit and pro-growth.

Key word: organizational ambidexterity, differentiation and integration, trust and support, discipline and stretch, knowledge inflows, and middle managers.

## INTRODUCTION

Firms often face the situation of exploiting existing competencies and exploring new ones (Vera and Crossan, 2004). Achieving long term success requires firms to satisfy today's business demands and simultaneously being prepared to cope with the future changes and developments (March, 1991). Previous literatures have argued that successful organizations which could address the conflicting demands are ambidextrous (Duncan, 1976): they generate competitive advantages through revolution and evolutionary change (Tushman and O'Reilly, 1996), adaptability and alignment (Gibson and Birkinshaw, 2004), pursuing exploratory and exploitative innovation (Benner and Tushman, 2003; He and Wong, 2004), managing the exploratory and exploitative activities (Levinthal and March, 1993; Mom, van den Bosch and Volberda, 2007).

Although most studies have focused on the benefits of balancing the exploratory and exploitative activities (He and Wong, 2004; Gibson and Birkinshaw, 2004), less studies have been focused on how firms may reach ambidexterity. Majority of literatures emphasize the factors of appropriate structure (Tushman and O'Reilly, 1996; Siggelkow and Levinthal, 2003; Gilbert, 2005) or of contextual mechanisms (Gibson and Birkinshaw, 2004) in balancing the conflicting demands.

Follow the logic of structural ambidexterity, some focus on the differentiation and integration mechanisms (Tushman and O'Reilly, 1996; O'Reilly and Tushman, 2004; Gilbert, 2005; Andriopoulos and Lewis, 2009; Jansen, Tempelaar, van den Bosch and Volberda, 2009), others examine the interplays of static and dynamic view of managing conflicting activities (Lin, Yang and Demirkan, 2007; Luo and Rui, 2009; Cao, Gedajlovic and Zhang, 2009). From the contextual ambidexterity perspective, some scholars study the role of top managers as an important factor to ambidexterity (Lubatkin, Simsek, Ling and Veiga, 2006; O'Reilly and Tushman, 2008; Mom et al., 2007; Mom, van den Bosch and Volberda, 2009), others focus on the effects of individuals (Groysberg and Lee, 2009). However, there is little conceptual synthesis of how organizations use can both structural mechanisms (differentiation and integration) and contextual mechanisms (processes of discipline, stretch, trust and support) to reach organizational ambidexterity from a knowledge perspective.

From knowledge based view of the organizations (Grant, 1996), there have been few attempts to examine how organization members at middle management level acquire knowledge from other party within the same organization, which influence the conflicting demands and activities, and finally contribute to achieving ambidexterity. Follow prior studies of knowledge flow (Mom et al., 2007), I will examine the knowledge acquisition of middle managers in knowledge inflows management, which influences ambidexterity by structural and contextual mechanisms.

Literature indicate that knowledge acquisition is important to manage exploration and exploitation related activities from different perspectives: technological innovation (Tushman and O'Reilly, 1996; Katila and Ahuja, 2002; Rothaermel and Alexandre, 2009; O'Reilly, Tushman and Harreld, 2009), organizational learning (Levinthal and March, 1993; Im and Rai, 2008), and new product development (Ahn, Lee and Lee, 2006; Prieto, Revillaand Rodriguez, 2007 ). Recently, top managers' role in facilitating the vertical knowledge flow (Burgelman, 1983, 1991; Floyd and Lane, 2000) and horizontal knowledge flow (Gupta and Govindarajan, 2000; Schulz, 2003) for exploitative and explorative activities are examined (Mom et al. 2007). Middle managers are taken as an organizational linkage (Taylor and Helfat, 2009). However, the importance of middle managers in facilitating the knowledge inflows diffusion has not been well studied.

Empirically, most studies of knowledge inflows management on ambidexterity rest on data of organizations from developed economies (Tushman and O'Reilly, 1996; He and Wong, 2004; Gibson and Birkinshaw, 2004; Gilbert, 2005). Studies of organizations from developing and emerging economies are underrepresented (Yang and Atuahene-Gima, 2007; Luo and Rui, 2009).

To fill in these gaps, I conceptualize the knowledge inflows management of middle managers in a Chinese high technology company from telecommunication equipment provider industry, Huawei, which gains both pro-profit and pro-growth performance (Han, 2007), when facing conflicting demands and activities. Stick to the differentiation between structural ambidexterity and contextual ambidexterity, I examine the interplays of the factors influencing two different ambidexterity. Through different mechanisms of knowledge inflows management from both integration and diffusion (Jansen et al., 2009; Andriopoulos and Lewis, 2009) and soft (trust and support) as well as hard (discipline and stretch) management (Gibson and Birkinshaw, 2004), I

examine the members' contributions to organization ambidexterity, which benefits the organization ambidexterity performance, both pro-profit and pro-growth performance (Han, 2007). I take a holistic view of both structural mechanisms and contextual processes to illustrate how Huawei middle managers implement these mechanisms to manage knowledge inflows to reach ambidexterity, when facing conflicting demands and activities. This study of middle managers' roles in reaching ambidexterity advances literature of top managers and complements empirical evidence by providing analysis of organizations from emerging economies (Yang and Atuahene-Gima, 2007; Luo and Rui, 2009).

This paper is structured as follows. The next section presents the theoretical background and literature review. I will illustrate the concepts of structural ambidexterity and contextual ambidexterity. Then I present the empirical study of a MNE from China, Huawei, examining how it reaches the ambidexterity by different mechanisms at middle management level. I conclude with a discussion of the implications, limitations and issues for future research.

## **THEORETICAL BACKGROUND**

### **Structural ambidexterity**

Alignment-oriented (exploitative) activities and adaptation-oriented (explorative) activities are always in some degrees of conflict in an organization. The conflicts between exploration and exploitation were reconciled through the creation of structural ambidexterity (March, 1991). The structural ambidexterity relies on dual structures to distribute the contradictory demands. 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 and Levinthal, 2003).

In recent review papers, one important tension of achieving ambidexterity relates to differentiation and integration as alternative or complementary pathways (Tiwana, 2008; Raisch, Birkinshaw, Probst and Tushman, 2009). Structural differentiation and differentiation can help organization to manage multi inconsistent and conflicting demands (Tushman and O'Reilly, 1996; Benner and Tushman, 2003; Jasen et al., 2009).

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 and Lorsch 1967, pp. 3–4). It establishes differences across organizational units in terms of functions, mindsets, time orientations and product/market domains (Lawrence and Lorsch 1967, Golden and Ma, 2003). Structural integration is based on the assumption that certain integration mechanisms are richer and provide a higher information-processing capacity (Jasen et al., 2009). It refers to the means “to coordinate and integrate differentiated activities through pre-established mechanisms and interfaces” (Ghoshal, Korine and Szulanski, 1994).

Previous literatures show that senior managers are important for organizations to reach ambidexterity. Senior management team’s differentiation and integration mechanisms contribute to the firms’ ambidexterity (Lubatkin et al., 2006; Jasen et al., 2009). Others extend the attributes of managers from senior management to lower levels. Middle managers’ role has been discussed as an organizational linkage contributes to surviving technology sourcing when facing ambidextrous challenges (Taylor and Helfat, 2009). Individual’s performance in exploitive and explorative activities contributes to organizational ambidexterity (Groysberg and Lee, 2009). However, the differentiation and integration mechanisms implemented by middle management level have not been well studied.

### **Contextual Ambidexterity**

Recent literatures show that ambidexterity may also emerge through an organizational context (Gibson and Birkinshaw, 2004; Smith and Tushman, 2005; Gupta, Smith and Shalley, 2006;

Jansen, van den Bosch and Volberda, 2006). The creation of contextual ambidexterity enhances the behavioral capacity of employees to demonstrate alignment and adaptability across an entire business unit (Gibson and Birkinshaw, 2004). According to Gibson and Birkinshaw (2004), alignment refers to coherence among all the patterns of activities in the business unit; they are working together 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.

Structural ambidexterity and contextual ambidexterity are different but may be complementary to support organizational performance (Gibson and Birkinshaw, 2004; Raisch and Birkinshaw, 2008). Structural ambidexterity emphasizes creation of dual structures to achieve ambidexterity (Tushman and O'Reilly, 1996). Contextual ambidexterity is achieved by building a set of processes or systems (combination of discipline, stretch, support and trust) that enable and encourage individuals to make their own judgments about how to divide their time between conflicting demands for alignment and adaptability (Gibson and Birkinshaw, 2004).

Beckman (2006) argued that diverse founding teams can be ambidextrous in their use of strategies to improve firm performance. Organizations may develop ambidexterity through inter-organizational context such as function (marketing or R&D), structure (current partner or new partner) and attribute (similar or dissimilar partner) (Lavie and Rosenkopf, 2006). Organizations could also build the intra-organizational ambidexterity by participation of a manager in cross-functional interfaces and the connectedness of a manager to other organization members (Mom et al., 2009).

These studies show that organizations could create dual structures and build processes to facilitate ambidexterity. Informal structures and communication systems could be used to facilitate organizational ambidexterity as an important mechanism, as complementary to formal structures (Gulati and Purnam, 2009). However, the interplays of structural mechanisms and contextual processes to contribute to organizational ambidexterity at middle management levels remain unclear.

## **Knowledge inflows**

Knowledge flows differentiate the recipients and donors. Knowledge outflows are associated with a donor providing a recipient with knowledge, where the knowledge donor is the focal unit of analysis (Gupta and Govindarajan, 2000; Schulz, 2001). Knowledge inflows are associated with a recipient acquiring knowledge from a donor, where the knowledge recipient is the focal unit of analysis (Gupta and Govindarajan, 2000; Schulz, 2003). This study focus on how middle managers manage knowledge acquisition from other party within the same organization, when facing conflicting demands and activities. Therefore, knowledge inflow is more relevant.

I follow the definition of knowledge inflows from Mom et al. (2007) as a combination of skills and technology (Tsai, 2002), the business practices (Szulanski, 1996) and the tacit knowledge (Kogut and Zander, 1993). Knowledge inflow refers to “the ‘aggregate volume’ (Schulz, 2001, p. 662) of tacit and explicit knowledge pertaining to several domains such as technology, products, processes, strategies and markets”, where organization members receive or gather at per unit of time, from other persons and units within the organization (Mom et al., 2007).

As I intent to examine the intra-organization knowledge inflow from members of an organizational level to another, both formal and informal knowledge inflows through different communication channels will be taken into account. Formal knowledge inflows involve the formal meeting, telephone conversation, emails, mails, conferences, video conferences, working reports, evaluation reports and corporate internal documents. Informal knowledge inflows consist of informal chat, instant messages (internet chat), notes and organization parties. I follow the patterns of knowledge inflows from top-down, bottom-up and horizontal knowledge inflows (Mom et al., 2007).

Managers’ exploitation and exploration activities are influenced by different patterns of top-down, bottom-up and horizontal knowledge inflows (Mom et al, 2007). Top-down knowledge inflows is taken as the knowledge inflows from a higher hierarchy to a lower level. In a large multinational firm, top-down knowledge inflows is typically confined to the vertical chains of

this organization (Gupta and Govindarajan, 1991). It is a “narrow” down (Winter and Szulanski, 2001) and unambiguous (Egelhoff, 1991) process. Mom et al. (2007) find that top-down knowledge inflows positively relate to managers implement exploitation activities rather than exploration activities.

Bottom-up knowledge inflows involve knowledge from a lower level of hierarchy in the organization. It constitutes of ad hoc, random, unpredictable and reciprocal format rather than follow a standardized and formalized manner for knowledge receipts (Burgelman, 1983). It benefits members at a higher level by increasing understanding of changes regarding existing technologies, products, processes, and markets (Floyd and Lane, 2000; Brady and Davies, 2004). Bottom-up knowledge inflows positively associate to managers’ exploration activities rather than exploitation ones (Mom et al., 2007).

Horizontal knowledge inflows are associated with knowledge from the members from the same organizational hierarchical level. Cross-function interfaces facilitate the horizontal knowledge flows (Subramaniam and Youndt, 2005). These knowledge inflows are often characterized by rich and dense personal interactions, which are typically ambiguous and complex (Egelhoff, 1991). However, horizontal knowledge inflows let the members at the same hierarchical level broaden their knowledge base by increasing the variety in experience (van den Bosch and Van Wijk, 1999; Katila and Ahuja, 2002) and understanding new knowledge (Jansen, van den Bosch and Volberda, 2005). Horizontal knowledge inflows contribute to the managers’ exploration activities rather than exploitation activities.

As this study aims to examine the mechanisms of managing knowledge inflows at middle hierarchical level, I follow the typology of knowledge inflows of Mom et al. (2007). Middle managers are important linkages when facing technology change (Taylor and Helfat, 2009). As they face all levels of hierarchy within the same organization, they may encounter various information and knowledge, for instance, the strategic decision from top manageress and customer preference change from operational employees. I focus on how middle managers implement the structural mechanisms of differentiation and integration (Raisch et l., 2009; Jasen

et al., 2009) and contextual processes of discipline, stretch, trust and support (Gibson and Birkinshaw, 2004) of managing the knowledge inflows. Empirically, previous literature mainly relies on the data from firms in developed economies. Few studies use the data from emerging economies (Yang and Atuahene-Gima, 2007; Luo and Rui, 2009). This study takes a Chinese multinational firm in telecommunication equipment provider industry, Huawei, to enrich the study of organization ambidexterity.

## **METHOD**

### **Research setting**

The research design of this study is based on an analysis of structural mechanisms and contextual processes in managing knowledge inflows of a Chinese telecommunication equipment provider company, Huawei, when facing conflicting demands. At the time of this study, Huawei was one of the world leading companies of telecommunication equipment provider and prided itself on gaining continuous both profit and growth increase.

I choose Huawei as case company is not merely due to its success. Indeed, I am attracted by some unique aspects of Huawei which are commonly recognized in the industry, namely pro-profit and pro-growth (Han, 2007). Most leading companies in China are state owned or with strong government background. Huawei is one of a few successful private firms. In terms of globalization and internationalization level, Huawei is the only high technology private company.

The aim of this study is to generate insights to depict the development of Huawei's management processes based on structural and contextual mechanisms in response to knowledge inflow management in facing conflicting demands. Empirical evidence came from different sources, including interviewing, on-site observations, documentation (consist of media reports, company document, books and academic reports) and informal dialogues. Nineteen semi-structured interviews were conducted with open questions in Sweden, Hong Kong and China. Huawei Sweden branch is with strategic importance. It locates to headquarter of its main competitor,

Ericsson, in Stockholm. Each year, there are hundreds of engineers from Huawei headquarter in China visiting and being trained in Sweden branch.

The sequence of interviews is snowboard based, starting from Huawei Sweden branch in November 2007 and finishing at Huawei headquarter, China, in April 2008. The questions were designed by myself initially and further tested by academic experts in Royal Institute of Technology, Sweden, for its validity and reliability. A pilot study of these questions were conducted in some employees in Ericsson headquarter and former Huawei employees overseas. All of these people are good at Chinese and English.

As some of Huawei's employees have difficulty in expressing their ideas freely in English, the English questions were translated to Chinese and pretested in the pilot study, followed the back-translation methodology (Li and Atuahene-Gima, 2001). All ambiguous questions were modified. After validating the interview questions, I started to interview the interviewees. After collecting all the interview data, I transcript and sent them back to interviewees for further confirmation. As part of the interview data are in Chinese, I translated them to English. And I emailed these Chinese transcripts and English translation to the Chinese Ericsson employees and former Huawei oversea employees to ensure the consistency. Finally I start to code the transcripts to identify richer concepts and more detailed relations between these concepts to unveil the mechanisms Huawei implement to manage knowledge inflows, leading to organization ambidexterity.

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## **Case example: Huawei Technologies**

Founded in 1988, ten years after China implemented the “reform and opening-up” policy (Nolan, 2004, p6), Huawei Technologies first functioned as sales agent for Hong Kong company producing Private Branch Exchange (PBX) switches. From 1990, it started its own independent research and commercialization and began to produce and sold its own switch products. Telecommunication equipment provider industry is a knowledge intensive arena. Equipment providers have to continuously invest in R&D to update the systems and innovate in product development to attract the fast-paced industry dynamics. Traditionally, a large number of foreign equipment providers operate in the industry and gain excellent operation records (market share and profits) in China. These foreign equipment providers had already established a solid barrier for local companies, which is difficult for Huawei to survive or grow. It is a big challenge for Huawei to meet subscriber’s needs, whose requirements to fast technology update and high proliferation rate.

Since 1995, Huawei Technologies diversified to major provinces of China. However, due to its weak knowledge base and short of technology, Huawei started its internationalization operations for knowledge acquisition and market extension. In 1999, Huawei launched its first overseas research center in Bangalore, India. Up to 2008, Huawei imitated research centers in Bangalore in India, Silicon Valley and Dallas in USA, Stockholm in Sweden and Moscow in Russia, in addition to six domestic research centers in China. It has also founded 28 training centers worldwide to help customers and local people study advanced management, technologies and so on. Six years after Huawei entered international market, in 2005, Huawei’s overseas sales dominated its total sales.

For years, Huawei tried to benchmark the international successful management system, from Japanese companies in 1997 to the typical American companies, IBM after 1997 (Wu and Ji, 2006, p45-50). By the end of IBM system implementation, the final evaluation of Huawei is qualified. However, the rate of sales per person is still considered as low by its management team when compared to the successful international companies like Ericsson and Cisco. After then,

Huawei tried to explore its own management system, which leads to its leading position as "2009 Corporate Award" from IEEE Standards Association.

Like other companies, Huawei took some mergers and acquisitions to grow in its development. It established joint-ventures with 3COM in 2003, joint-ventures with Symantec and with Global Marine in 2007. Growing with mergers and acquisitions in addition to exploring international market, despite its strategic benefits, it is not without its organizational implications. On one hand, increasing globalization and competition in telecommunication equipment provider industry have made the knowledge management and innovation crucial in growth and profits. On the other hand, the integrating business and complexity of management in different cultures, technologies, processes, standards and capabilities challenge this private' capability in managing a global company. The ability of Huawei to speedily update its management and to facilitate knowledge flows is vital for it to compete in telecommunication equipment provider industry worldwide. In 2009, Huawei ranks the fifth most innovative company in the world by Fast Company Achieves a year-on-year decrease of more than 20% in resource consumption by Huawei's main products.

## **FINDINGS AND DISCUSSION**

The following presentation of the findings builds on the theoretical foundations outlined previously, with the focus on two different processes, structural mechanisms of differentiation and integration, and contextual processes of discipline, stretch, support and trust, in knowledge inflows management in Huawei. Investigating Huawei's middle managers in knowledge inflows management, I identified three overarching patterns. First, informants were acutely aware of the conflicting demands and activities when they manage different patterns of top-down, bottom-up and horizontal knowledge inflows. Second, all informants use both structural differentiation and integration mechanisms, and contextual processes of discipline, stretch, support and trust, to address the knowledge inflows management. Third, informants implement different extents of above mentioned two mechanisms to balance the conflicting demands in knowledge inflows management, with respect to different patterns of knowledge inflows. Combination of structural

mechanisms and contextual processes is vital to manage knowledge inflows with conflicting demands.

### **Top-down knowledge inflows management**

Top-down knowledge inflows is typically confined to the vertical chains of this organization (Gupta and Govindarajan, 1991) in large multinational enterprises. It is a narrow down (Winter and Szulanski, 2001) and unambiguous (Egelhoff, 1991) process. Middle managers acquire and supervise the top-down knowledge inflows by integration first and then differentiation. Middle managers assemble all relevant needs from top managers. They receive different requirements of firms' portfolio management and development. Then aggregated different inflows according to their own schedule and needs. For instance, in the project of implementing IBM logistic system, middle managers receive different key-success-factor requirements and targets from directors and vice presidents of different functional departments. They group these targets and identify those aligning to firms' aim of growing in profits and market share with selected products to meet customers' needs.

We are difficult to meet everyone's requirements. What we do is that we always put the requirements from top managers together with forecast demands and execute those aligning to firm's goal first (A former middle manager from R&D).

It is not correct to say that Huawei mainly relies on low cost of manufacturing. Ericsson could also produce low costs products and is doing so now. Huawei uses the global branches to gain both cost advantage and knowledge transfer, where our middle managers play a key role (A Vice President).

After integrating the different requirements, middle managers redistribute tasks, diversify portfolio, allocate resources and arrange products to meet both firm's growth and customer demands. For those conflicting requirements and activities, some managers differentiate them and implement projects in parallel.

According to my experience in Ericsson, they initiate at most five parallelized projects. However, in Huawei, it is not rare that one R&D branch executes seventeen parallelized projects, by taking all conflicting demands into account at the same time. We supervise and ensure the maximum potential of these parallelized projects to balance the conflicts and increase overall demands (A Vice President, R&D).

Middle managers implement a system of discipline, stretch, trust and support to cultivate friendly and efficient systems to guide members' passion and skills. In each product development project, middle managers emphasize the function and position of members. In so doing, middle managers ensure the procedures of each project implemented. Dealing with the limits of time and budget they encourage members to innovate within the framework of disciplines and rules. To promote innovation, middle managers support activities facilitating the skills development of their employees. For instance, marketing department middle manager is encouraged to work overseas for some time.

As an employee from headquarter, I have to work six days per week in China's time zone. As an expatriate, I have to work in work-days of local time as well. Take the time difference between China and here, every week I have only half day off. Even though hard, we could allocate our time and budget according to our own judgments (A sales manager, overseas)

Each year, the middle managers and employees receive the target of cost reduction of 20% from headquarter. However, the wages of Chinese engineers and materials keep increasing. To reduce cost, a possible way is to reduce producing cost by innovative work routines and processes. How the middle managers succeed in this target is one of core competence (An industry expert).

The hierarchical management of Huawei makes its financial system close. Every year, the manufacturing department workers have to finish a quota, which is decreasing 20% of manufacturing cost. It is good for knowledge management like keeping business secrets. But I think it is hard for design department. In this case, if there are urgent accidents or

opportunities, it is hard to be agile from financial perspective. What they can do is to fully rely on their department or branch managers (Am academic expert).

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### **Bottom-up knowledge inflows management**

Bottom-up knowledge inflows constitute of ad hoc, random, unpredictable and reciprocal format rather than follow a standardized and formalized manner for knowledge receipts (Burgelman, 1983). It benefits organizational members at a higher level by increasing understanding of changes regarding existing technologies, products, processes, and markets (Floyd and Lane, 2000; Brady and Davies, 2004).

Middle managers implement both integration and differentiation mechanisms to manage bottom-up knowledge inflows. Middle managers are important to execute the strategic decisions and communicate between different hierarchies. By both integration and differentiation mechanisms, they summarize aggregate achievements and classify match and mismatch of product diversification. Quite often, middle managers find out that the top managers' requirements mismatch the interests and demands from frontline managers and operational staffs. By the end of each previous year, they evaluate the department and unit performance and position their department contribution to the firms' development. In the beginning of each year, possible creative ways of last year are evaluated if they could fit the product portfolio.

I have to submit the performance report during a project. The performance of my unit could not be behind the other units. It is a shame to be behind. Therefore, I rely on the unit members to commit to projects assigned. (A former middle manage, R&D)

One third of employees in this branch are Chinese. They would like to stick to their work styles in headquarter, which is to work overtime. But they waste a lot of time in the evening. I ask them not to focus only the individual performance but group achievements. Firm performance is the king. After implementing new routines, they never work overtime. But by the end of the year, the productivity of our branch doubled with less working time. My experience was acknowledged by headquarter and managers at other divisions started to implement this new way very fast (A Vice President, R&D).

Middle managers are responsible for a department or a project. They decide the process of different projects and allocate employees to different project or different stages of a project based on their experience. Middle managers take integration followed by differentiation mechanisms to manage the knowledge inflows. By selecting the proper team members for any projects, middle managers gather different candidates first into the project. In managing the project portfolio, middle managers break the formalized project teams and pick most needed employees to the coming projects.

They (Chinese engineers) implement 17 parallelized projects and assign a small group of people to different stages of pipeline. Their middle managers balance well the employees' expertise. To my surprise, more than 60% of projects succeed by identifying the most proper members for each project in the pipeline (A Vice President, R&D).

Our competitor says Huawei's success secret is the low cost of production. The manufacturing cost in this industry is not significant. The key factor of success, I think, is the standardized processes of running its projects globally. The middle managers all over the branches take in charge of the smooth processes and manage the employee mobility within the change of products and service (A member at advisory board).

Middle managers present a favorable system for employees to develop with the firm. They evaluate the projects and routines, to ensure the work can meet the firm standards. In addition to disciplines and stretch, middle managers also support employees by showing that the projects

assigned fit, and resource allocated is well organized. Middle managers not only encourage employees to participate in current products but also support new ways of exploring market.

In a project of developing a new switch in early 2000, our team purchased a benchmark product from Cisco. In each stage of development, we compare the performance of our product to Cisco's. We require the members in our department to do better in each technology index with respect to the products of Cisco. Finally we have to reach the predefined standards; same or even better quality but with less cost by our innovative members. Rules are important in the product development but trust among our members are more important (A former middle manager from R&D).

Christmas is not our holiday. A client called us for a server problem. I was in holiday at home at that time. To meet customers' needs as firm states as its aim, I assigned engineers and technicians from Christmas parties to the client. It is common and acceptable to interrupt our holidays in Huawei. Finally, I celebrate Christmas Eve with my colleagues in the process of fixing a server. There is great level of mutual trust between me and our staffs. This is how Huawei people work: agile but with rigorous disciplines to meet customers' demands (A sales manager, oversea).

We have projects running globally. From time to time, I have to stay in oversea branch for a few months assigned by my manager. Thanks to my manager's support, during my stay, I enjoy the support from human resource and facility assistance from local branch managers; in addition to the economic support from headquarter (An engineer, R&D headquarter).

Huawei is very aggressive. Our marketing manager decided to enter Pakistan market by the end of 1999. We face the competition from another Chinese company, who holds 70% of the market share. Our local marketing manager implemented many small projects in three years, to build an optimal business process. Thanks to the trust from local marketing manager, we took new ways of marketing with less constraints of budget. We bought the

most expensive office building in the CBD of capital and major Pakistan capital cities. The local manager provided high incentives and discounts for us and our sales agents. After three years, our orders increase dramatically. But we knew that the local manager commit on this project under many constraints from headquarter in the very beginning (An internship staff, marketing).

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### **Horizontal knowledge inflows management**

Horizontal knowledge inflows are associated with knowledge from the members at the same organizational hierarchical level. These knowledge inflows often characterized by rich and dense personal interactions, which are typically ambiguous and complex (Egelhoff, 1991). However, horizontal knowledge inflows let the members at the same hierarchical level broaden their knowledge base by increasing the variety in experience (van den Bosch and Van Wijk, 1999; Katila and Ahuja, 2002) and understanding new knowledge (Jansen, van den Bosch and Volberda, 2005).

Middle managers manage the horizontal knowledge inflows by differentiation, similar to top managers in managing the horizontal knowledge inflows, to benchmark success cases and identify solutions to challenges. Subject to the rules and regulation, middle managers control the working flows and parallelized projects from selected areas. They are in charge of take their judgments of effective information from internal environment and external world. They also need to function as fireman, dealing with surprising events. Most of cases after dealing with unplanned events, middle managers' experience will be shared all over the company globally as awards rather than lessons.

When that young VP left and founded HARBOR with many employees from Huawei, I was panic as those people knew our technology and products. Some managers in sales department encounter the same challenge. We meet many times and successfully predict the product portfolio strategy of HARBOR to retain the advantages. It is a great experience of working under such pressure. After that event, we automatically meet occasionally to discuss potential challenges (A manager, R&D).

The wage increase for skilled engineers in China warns all our managers to update the value chain, by both cost reduction and new products development. Under such pressure, more communications from different units and branches were implemented. However, most actions taken are not aiming to reduce or control hidden costs but exploring new value added activities and projects (A member at advisory board).

Each year, hundreds of engineers visit us and take a short term stay from China. They select to participate in some local training programs or small projects. But they choose programs based on their skill needs. As they have to match their positions in China. This is a win-win strategy both for visiting employees and for company: gain most relevant knowledge and skills with limited time and procedures (A Vice President, R&D).

Middle managers support and trust members they communicate to extend experience. Often the cross functional projects require middle managers communicate with the project members quite well. This is why normally before the formal team is formed; middle managers already know each other well. In execution of the projects, middle managers build a direct communication channel. They are not merely information filter but more importantly, they become adopted system for the cross-functional projects members to consult with and friends to communication ideas with.

My knowledge of products about customers and markets sides are all from those friends working in different departments. We have working lunches quite often and some unrelated people join us, for instance, administrative supervisors from factories. And we share the experience of what is going on in our departments. The related information

from different departments helps me better manage problems out of plan. This type of communication is more efficient than spending a couple of hours in the office for brainstorming only (Manager, R&D).

I like Huawei's management practice. It creates a learning environment for me from other managers. Therefore, after I launch my own company, I benchmark most of the practices to my company, which help my managers exchange information and learn, as I master much soft skills in different business areas from experienced managers when I worked in Huawei (A former manager, R&D).

One of our Huawei's competitive advantages is that we can always learn the state-of-the-art management practices from international colleagues and implement fast to all levels (A manager, mobile department).

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Insert Figure 3 about here  
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## CONCLUSION

This study illustrates how Huawei's middle managers implement structural differentiation and integration mechanisms and contextual processes of discipline, stretch, trust and support, to manage knowledge inflows of three different patterns, when facing conflicting demands and activities. Analysis of Huawei shows that members could use both structural mechanisms and contextual processes complementary, to manage knowledge inflows, which lead to organizational ambidexterity, pro-growth and pro-profit (Han, 2007).

This study adds to the dialogue on ambidexterity in three important ways. First, this study provides insight into the role of middle managers in addressing knowledge inflows management when facing conflicting demands. It complements the few studies of ambidexterity on senior

management team (Jasen et al., 2008) and individuals (Groysberg and Lee, 2009). Second, this study examines complementarily of factors of both structural mechanisms (Duncan, 1976) and contextual processes (Gibson and Birkinshaw, 2004) to reach ambidextrous performance. To my knowledge, it is one of the first studies examining the complementary effects between the structural ambidexterity factors and contextual ambidexterity attributes at middle management level. Last but not the least, this study provides empirical evidence of an organization from developing-country, which complements to the majority empirical evidence of ambidexterity on organizations from developed nations.

Future study could to examine how different mechanisms evolve over time. Longitudinal study on organizational ambidexterity is still scarce. Studies examine how different management mechanisms between intra-organizational and inter-organizational knowledge inflows are also recommended. It could also be interesting to study the management mechanisms evolution in different environmental conditions, for instance, under the environment of resource munificence and environment of resource scarcity.

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Table 1 Interview details

Interview number	Duration (minutes)	Interviewee Position	Place of Interview	Date of Interview	Remarks
1	35	Engineer, R&D	Stockholm, Sweden	November 17,2007	Taped
2	60	Internship, marketing	Stockholm, Sweden	January 30, 2008	Taped
3	35	Engineer, R&D	Stockholm, Sweden	March 23, 2008	Taped
4	95	Sales manager, oversea branch	Stockholm, Sweden	April 03, 2008	Taped
5	35	Engineer, R&D	Stockholm, Sweden	April 07, 2008	Written notes
6	95	Vice president, R&D	Stockholm, Sweden	April 07, 2008	Taped
7	65	Industrial expert	Hong Kong	April 15, 2008	Taped
8	75	Industrial expert	Hong Kong	April 15, 2008	Taped
9	25	Academic expert, professor	Hong Kong	April 17. 2008	Taped
10	80	Industrial expert	Hong Kong	April 18, 2008	Taped
11	35	Engineer, R&D	Shenzhen, China	April 21, 2008	Written notes
12	95	Manager, P&R department	Shenzhen, China	April 21, 2008	Written notes
13	40	Manager, Mobile department	Shenzhen, China	April 21, 2008	Taped
14	105	Former manager, currently a director of Ericsson China	Shenzhen, China	April 21, 2008	Taped
15	25	Manager, R&D	Shenzhen, China	April 22, 2008	Written notes
16	40	Former manager, R&D	Shenzhen, China	April 23, 2008	Taped
17	90	Manager, R&D	Shenzhen, China	April 24, 2008	Taped
18	105	Expert, Advisory Board	Shenzhen, China	April 24, 2008	Taped
19	120	Vice president	Shenzhen, China	April 26, 2008	Written notes

Figure 1 Data Structure: top-down knowledge inflows management at middle management level

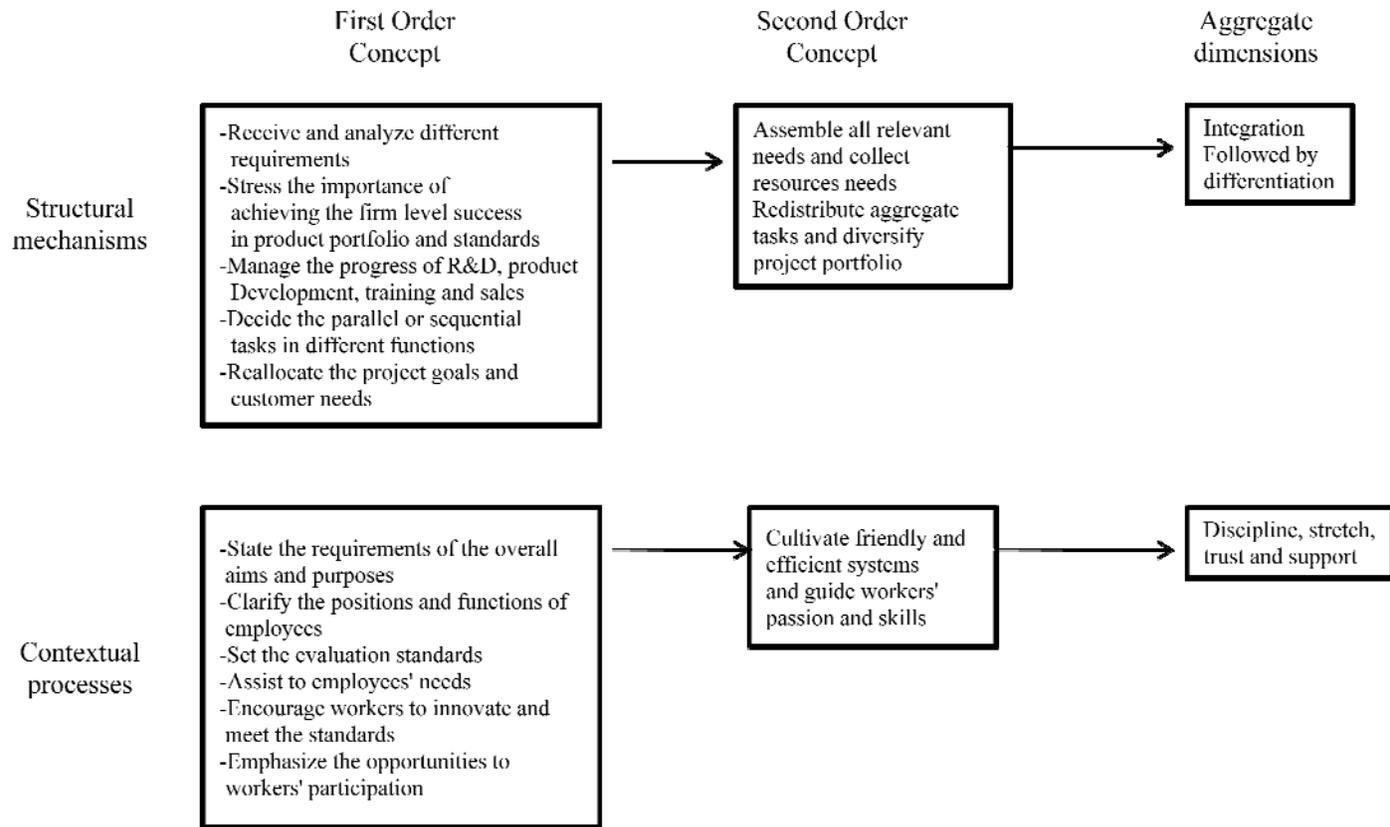


Figure 2 Data Structure: bottom-up knowledge inflows management at middle management level

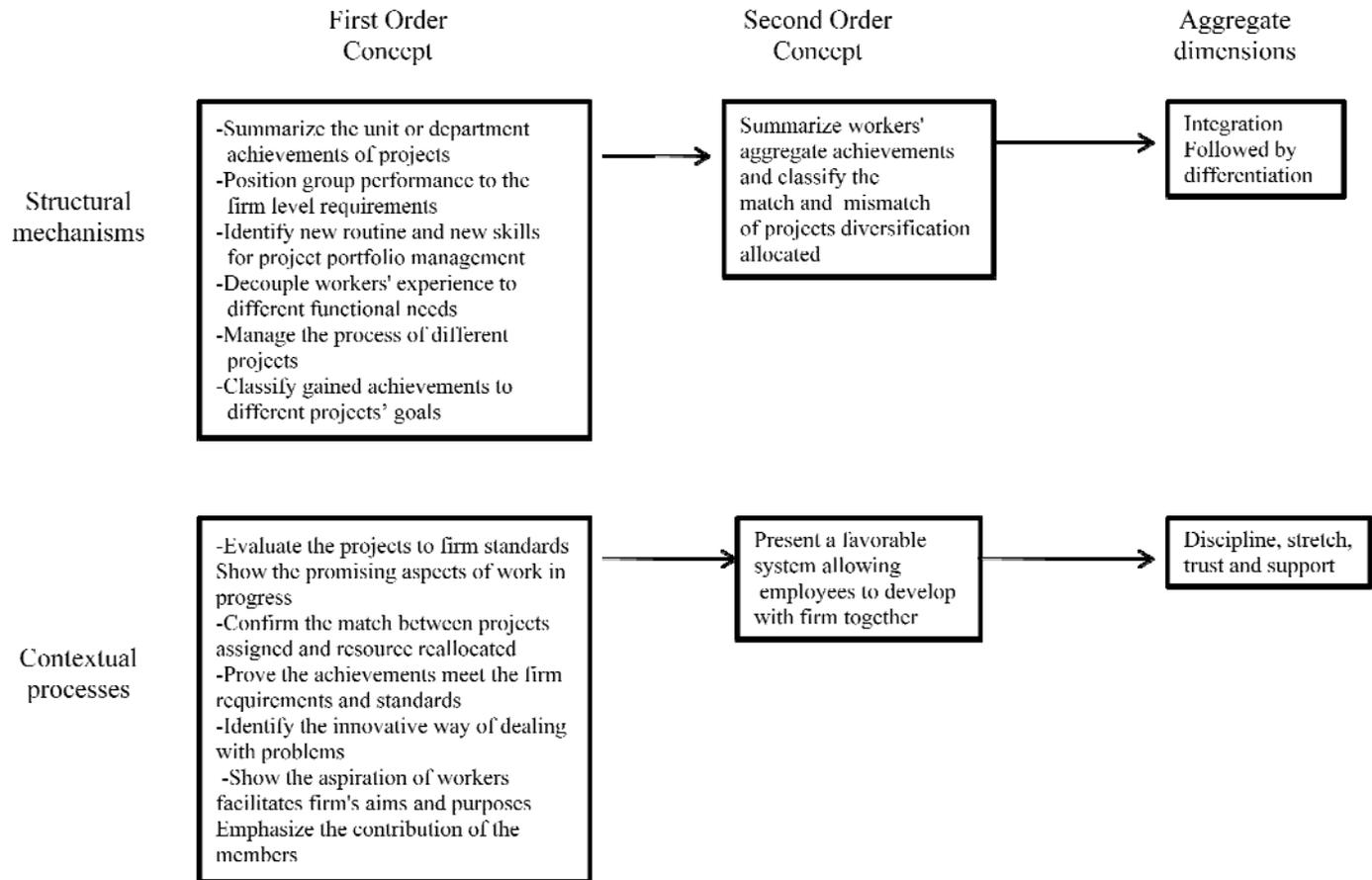


Figure 3 Data Structure: horizontal knowledge inflows management at middle management level

