

Knowledge management and innovation strategy in the Asia Pacific: Toward an institution-based view

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Abstract The emergence of knowledge-intensive society has changed the nature of business competition. Knowledge management becomes an important managerial task and formulating a sound innovation strategy is an integral part of strategic management. Adopting an institution-based view, this article argues that the institutional environment in the Asia Pacific region plays a multi-faceted role behind firms' knowledge management and innovation strategy. Specifically, institutions impose rules for legitimacy, serve as a source of knowledge, and allocate incentives and resources for innovation. We believe that future research drawing on the institution-based view has significant potential to advance our understanding of knowledge management and innovation strategy in Asia Pacific firms.

Keywords Knowledge management · Innovation · Institution-based view · Legitimacy

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Our society is transforming from industry-based to knowledge-intensive (Drucker, 1994; Van de Ven, 2004). The transformation is driven by two forces: the emergence of a global economy and the relentless technological change (Peng, 2006; Santos, Doz, & Williamson, 2004). In particular, the accelerating development of information technology (IT) with the creation of the Internet has connected companies, customers, suppliers, and other stakeholders in a complex web of interactions (Chen, 1997). These developments initiated a change in the nature of competition. Companies are forced to build capabilities based upon specialized knowledge, and such capabilities ensure relentless innovations to achieve a high rate of productivity and to provide better goods and services to customers than their competitors. As a result, a major challenge facing executives today is to create, leverage, and retain knowledge for enhancing the chance for firm survival and growth. The task of knowledge management (KM) thus becomes more important than any other managerial tasks and formulating a viable innovation strategy constitutes an integral part of strategic management (Hitt, Keats, & DeMarie, 1998; Lee & Grewal, 2004; Miller, Fern, & Cardinal, 2007).

While there has been a substantial amount of research on the topic of KM and innovation strategies, research based in the context of the Asia Pacific region is still in a developmental stage (Bruton, Dess, & Janney, 2007; Quer, Claver, & Rienda, 2007). What are the key dimensions of KM and innovation strategies in the region? How do institutional differences, such as formal structures (ownership differences) and informal norms (cultural norms), impact KM and innovation strategies? How do technological capabilities impact firm performance? How do late mover firms catch up? A key objective of this Special Issue is to address these gaps in the literature.

Knowledge management and innovation strategy

Knowledge can be analyzed according to a number of dimensions. For example, knowledge is generally categorized into two basic types: information and know-how. Information refers to facts, concepts, data, statements, or symbols that can be transmitted between different actors. While information concerns “knowing *what* something means” (Kogut & Zander, 1992: 386, original emphasis), know-how refers to “the accumulated practical skill or expertise that allows one to do something smoothly and efficiently” (von Hippel, 1988: 76). Information and know-how play different roles in strategic management. For instance, while the information about a raw material’s stock level alerts managers the need for replenishment, the know-how of procurement and inventory control enables managers to replenish the raw material in a cost-effective manner based upon their experience. The differences in ways that firms acquire and process information and know-how give rise to different decisions and performance outcomes.

Knowledge can also be classified as explicit or tacit (Polanyi, 1966). Explicit knowledge can be codified and easily transferred from one person to another. By contrast, tacit knowledge is difficult to articulate and access because it is usually developed based upon experience, action, feeling, and so on, and thus can only be shared through direct interactions (McFadyen & Cannella, 2004; Tsai, 2001; Tsang, 2002). Tacit knowledge is regarded as more important for innovation. Firms having

exceptional capabilities of absorbing and sharing tacit knowledge are more likely to be innovative through the creation of new knowledge that translates into superior goods and services for customers (Kogut & Zander, 1992).

Firms differ in the possession of not only knowledge but also capabilities of managing knowledge, and these differences have profound effects on their core competencies and performance. Studies of KM and innovations draw substantial attention to how knowledge is created, acquired, shared, and diffused within an organization in strategic decision making and execution (Argyres & Silverman, 2004; Hansen, Mors, & Løvås, 2005; Huff, 2000; McFadyen & Cannella, 2004; Turner & Makhija, 2006).

As Van de Ven and Engleman (2004) noted, four basic issues emerge in studies of KM and innovation. The first is the *human issue* concerning people's focus on making organizations more innovative by exploring new knowledge rather than exploiting existing knowledge. The second is the *process issue* of how to develop a process that manages and implements ideas. The third refers to a *structural problem* of building an infrastructure across organizational boundaries for absorbing and learning knowledge as well as facilitating, supporting, and promoting innovation activities. The final one addresses the *leadership issue* concerning the creation and management of a context that is appropriate for innovation.

Scholars have examined these four issues by investigating internal and external factors that influence KM and innovation strategies. Internal factors include organizational structures, control and coordination mechanisms, communication channels, and organizational cultures. For instance, early studies noted that organic organizations were more effective than bureaucratic or mechanistic organizations in innovation because the former were characterized with flexible structures and informal communication channels, which were important for motivating and nurturing new ideas and for sharing knowledge between different units and individuals (Butler, 1981; Meadows, 1980). Recent studies began to examine KM in complex organizations, such as the multidivisional structure and the multinational corporation (MNC). For example, Argyres and Silverman (2004) found that in a multidivisional structure, managerial centralization facilitated and enhanced R&D activities. Nobel and Birkinshaw (1998) examined the communication system and organizational structure in MNCs and noted that international and local R&D units within an MNC had complex interactions that contributed to their research activities. Miller et al. (2007) noted that one advantage of a multidivisional structure was to facilitate the diffusion of knowledge between divisions and the use of interdivisional knowledge was particularly effective for nurturing and fertilizing innovation activities in other divisions. Hoskisson, Hitt, Johnson, and Grossman (2002) drew attention to the relationship between ownership structure and innovation, and found that the composition of board members, who represented different shareholders, exerted a significant influence on a firm's choice of innovation strategies.

External factors refer to a set of contextual contingencies that have an effect on KM and innovation activities. There have been substantial and extensive publications on this topic. To avoid a lengthy review of the literature, we briefly introduce two main streams of research. The first stream focuses on the governmental role and functions that facilitate technological change and R&D activities. There are a broad range of government measures, including fiscal incentives, direct investments, industrial,

technological and research policies, to stimulate and nurture KM and innovation in both public and private sectors (Nelson, 1995; Tasse, 1997). For example, in 1983, the US government launched the Small Business Innovation Research program, which subsidized small and medium-sized high-tech firms for research (Lerner, 1999). In developing countries, governments play a more active role, such as providing direct investments, building science parks, and promoting venture capital initiatives, in facilitating the creation and diffusion of technological knowledge. Examples can be found in the rapid development of high-tech firms in Israel, Singapore, and Taiwan (see Organization for Economic Cooperation and Development, 1996) as well as China (Li & Atuahene-Gima, 2001).

The other stream of research examines the networks that transmit knowledge across organizations, industries, and national boundaries (Van de Ven, 2004). As technologies become more sophisticated, a firm's innovation requires the collaboration with others and becomes a collective effort (Su, Tsang & Peng, 2008; Zhang & Li, 2008). Moreover, as stated above, since tacit knowledge is transferable only through intensive interpersonal interactions, direct ties between organizational members through inter-organizational connections are crucial for effective learning. Relational arrangements between organizations, such as partnerships, joint ventures, strategic alliances, and networks, have been found to be conducive to knowledge transfer and imitation (Inkpen & Tsang, 2005; McFadyen & Cannella, 2004; Tsai, 2001).

How do Asian firms fare?

In this emerging global knowledge-intensive competition, what is the position of firms operating in the Asia Pacific region? As Asian countries (except Japan) were latecomers in industrialization,¹ Asian firms used to imitate their counterparts from advanced economies in Europe and the United States (Hobday, 1995). They often employed strategic alliances—joint ventures (JVs), original equipment manufacturing (OEM), or specific supply contracts—as a means of quickly acquiring critical knowledge and technologies (Carney, 2003). Such catch-up strategies seemed to be effective and a handful of Asian firms achieved rapid growth during the last 30 years and emerged as major players in their industries.

As a leading academic journal in management studies, the *Asia Pacific Journal of Management* has published a number of papers related to KM and innovation in the Asian Pacific region. Some distinct features were identified. First, national and local governments in Asia played a more significant and direct role than their counterparts in Western countries in promoting knowledge transfer and innovation through government-corporation collaborations. For example, Sigurdson (2000) documented many cases that illustrate how governments provided fundamental services to corporate innovation and promoted the collaboration between national and corporate innovation systems.

Second, national culture and administrative heritage embedded in Asia Pacific histories have significant implications for knowledge transfer and innovation

¹ Of course, relative to Western European and North American countries, Japan was a latecomer in industrialization, which started after the 1860s.

activities. Flynn (1985), through a comparison of innovations between the United States and Japan, noted that owing to the uniqueness of Japanese culture and management styles, which emphasized consensus building, Japanese companies were more successful in the modification, improvement, and application of technologies but were “not as successful in the invention or discovery of revolutionary new technologies” (Flynn, 1985: 159). Similarly, Carney (2003) noted that Asian family business groups were in favor of acquiring mature technologies due to institutional and organizational constraints, such as a simple structure with little task complexity, a strategic focus on cost-price competition, as well as the disadvantageous position of being latecomers. Thus, although Asian entrepreneurs made efforts to cultivate close interpersonal relations and social networks, innovation activities in family business groups seemed to concentrate on imitation rather than development of original proprietary technologies (Carney, 2008).

Third, knowledge transfer to Asian employees encountered resistance arising from some superstitious attitudes imprinted in local cultures (Ahlstrom & Nair, 2000). This implies that knowledge transfer and development was not context free but was affected by employees’ taken-for-granted values (Tsang, 2004). To overcome this barrier in people’s perception and cognition, Ahlstrom and Nair (2000) suggested that educating employees on know-why would be as important as teaching them know-how.

These studies have significantly advanced our understanding of KM and innovation in the Asia Pacific region. However, the overall progress of research is less than satisfactory and does not match with the rapid growth of the Asia Pacific economies. Following the strong economic growth in Japan and the Four Little Dragons (Hong Kong, Singapore, South Korea, and Taiwan) from the 1960s to 1980s, China and India have commanded substantial international attention to their high GDP growth rates over the last 20 years. Associated with the emergence of the Asia Pacific economies is the rise of their companies, such as Acer, Haier, Huawei, Hutchison Whampoa, Hyundai, Lenovo, and Samsung, which have become global players. It would be interesting to study how knowledge and innovations of Asian companies are converted into competitive advantages, and how the success of these companies contributes to the management practices of companies in other parts of the world.

We believe that studies of Asia Pacific management will have a profound contribution to management theory development. As Li and Peng (2008) point out, researchers in the Asia Pacific region should carefully select their research models and methods by balancing the demand of mainstream (and often Western) management theories with local context-specific factors. They recommend an integrated approach deriving from Asia’s institutional characteristics. In this introductory essay, we propose an institution-based view of KM and innovation strategies.

An institution-based view

Although Asian countries differ in industrialization stages, economic growth rates, cultures, and political economic institutions, what is common to a majority of these countries is the institutionalization pressures from strong state control over economic exchange, well-established traditions, social practices, and cultural heritages. Under

such strong institutionalization pressures, business systems and organizations are expected to conform to the requirements of institutional environments (Hamilton & Feenstra, 1995; Peng & Delios, 2006; Whitley, 1990). For instance, large Asian firms, unlike their counterparts in the United States, are usually organized in business groups rather than multidivisional firms (Carney, 2008; Chang, 2006; Kedia, Mukherjee, & Lahiri, 2006; Keister, 1998; Khanna & Rivkin, 2001; Li, Ramaswamy, & Pettit, 2006; Lu & Yao, 2006; Yiu, Bruton, & Lu, 2005; Yiu, Lu, Bruton, & Hoskisson, 2007).

To date, institutional theory has been relatively neglected in the study of KM and innovation in the Asia Pacific region. Although there have been extensive discussions about government policies in R&D activities, institutional influences arise from not only the government but also a broad range of social norms related to knowledge creation, transmission, imitation, and relocation. A technical project or a transfer of technological knowledge could be denied if it is perceived to be in contradiction with existing social norms or to raise a challenge to current institutional rules.

Consider an example in Chinese history that illustrates how the meaning of knowledge and innovation could be institutionally reconstructed. During the early 1870s, a few proposals were submitted to China's Qing Dynasty government for building railways but all these proposals were rejected. A number of government officials, royal family members, and influential intellectuals believed that the noise caused by trains would disturb and upset ancestors who were buried underground. Moreover, railways would ruin *feng shui*, which is an ancient Chinese superstitious practice of creating harmony between inhabitants and their environment (see Tsang [2004] for a discussion of the effect of superstition on Chinese business decision making), and would bring bad luck to the country. As a result, the construction of railways had not started until 1889 after substantial efforts were invested in lobbying Empress Dowager Cixi.²

An institutional environment plays at least three roles in KM and innovation processes. First, knowledge must be perceived as legitimate and has to fit institutional requirements. Legitimacy, according to Suchman (1995: 574), is defined as "a generalized perception or assumption that the actions of an entity are desirable, proper, or appropriate within some socially constructed system of norms, values, beliefs, and definitions." According to institutional theory, organizational outputs, goals, and actions must conform to institutional rules, including norms, beliefs, cultures, and expectations, imposed by institutional environments, which define what can be done and what should not be done. Organizations need to seek legitimacy, particularly from actors in a broad institutional environment, and these actors are usually called "institutional constituents," who control and coordinate resources critical to organizational operations. KM and innovation strategies, as part of organizational structures and processes, have to be congruent with wider social and normative practices embedded in the institutional environment. An institutional

² In 1888, Prime Minister Li Hong Zhang built a 1500 meter long railway inside the Forbidden City (the royal palace) as a pilot project to entertain Empress Dowager Cixi. To prevent the locomotive from making noise, a few eunuchs pulled the train to move. The Empress eventually approved the railway construction plan.

constituent would assess the knowledge that is created and transferred across organizations and judge whether it is appropriate for its endorsement.

Legitimacy is granted by three systems—namely, (1) regulatory, (2) normative, and (3) cognitive. Ruef and Scott (1998) noted that legitimacy assessments by the three systems are not of equal importance but vary across industries, populations, times, and places. For instance, compared to the United States where concepts of environmental protection are widely accepted and environmental measures are introduced as an important benchmark in assessing corporate performance, in China, environmental awareness is still rudimentary and environmental issues are regarded as “technical” and “social responsibilities” (Child, Lu, & Tsai, 2007). When a legitimization process involves a range of institutional constituents that have diverse or even conflicting interests, it becomes complex and subject to political negotiation.

Second, knowledge itself is, to a certain extent, institution-dependent. In other words, it is difficult to separate knowledge from the institutional environment because knowledge often reflects an understanding of how an institutional system (such as the state, regulatory authorities, traditional beliefs, and communities) operates, how rewards, taboos, and penalties are defined by institutional rules, and why such rules are imposed. Thus, Peng (2002, 2006) argued for an *institution-based* view of business strategy. Since institutional environments vary across societies, nations, and cultures, the competitive advantage enjoyed by a firm in one country because of its possession of certain knowledge may not be valid in another country. This implies that a firm has to invest substantial attention and resources in building, developing, and retaining institution-based knowledge in a given country (Yang & Jiang, 2007). As Peng, Wang, and Jiang (2008) noted, institution-based knowledge is a key resource that firms need for building differentiated competitive advantages in international business. If the institutional norms of a firm’s home country are very different from those of the host country, the firm would need to take more time to transfer institution-based knowledge from its home country to the host country.

Third, the effectiveness and efficiency of knowledge creation, transmission, and relocation is partly determined by the institutional infrastructure. For example, an innovator’s intellectual property right (IPR) for collecting income generated from an innovation must be protected by appropriate institutional systems, such as patent laws and copyright laws. Underdeveloped or improper institutional infrastructures may discourage or even stifle innovation. A main reason that piracy of intellectual products is rampant in Asia is because of the lack of enactment and/or enforcement of strong laws protecting IPR (Hill, 2007). As a result, substantial entrepreneurial energy is channeled toward making pirated and counterfeit products as opposed to toward legitimate entrepreneurship and innovation.

Conversely, when institutions support IPR, they will fuel more innovation, entrepreneurship, and thus economic growth. Spontaneous innovation has existed throughout history—China, for example, is famous for its “four Big Inventions” consisting of paper, compass, gun powder, and printing technology. However, why has the pace of innovation slowed down in China (and in Asia) in the last several centuries while the pace of innovation has accelerated significantly in the West since the Industrial Revolution since the 1700s? An answer that Chinese (or Asians) somehow become dumber and Westerners become smarter evidently does not hold

much water. An institution-based answer is that the four Big Inventions were invented by hobbyists who had not financially benefited from such inventions—they probably did not care about financial rewards. The lack of rewards provided by an institutional framework valuing innovations, thus, failed to motivate others to follow up on these original inventions in China (and in Asia).

On the other hand, the answer behind the acceleration of Western innovations may lie in the Statute of Monopolies enacted in Great Britain in 1624, which was the world's first patent law to formally protect the IPR of inventors and make innovation financially lucrative (North, 1981: 164). This law has been imitated around the world. Its impact is still felt today, as we now expect *continuous* innovation to be the norm. This would not have happened had there not been a strong system of IPR protection. In other words, why do we now routinely expect IT products to double their computing capacity roughly every 10 years? The answer is certainly not because humans (or even IT geniuses) are two times smarter every 10 years—the key is institutions affording better and stronger IPR protection that fuels such relentless (and routine!) innovation.

To sum up, the institutional environment influences KM and innovation strategies in three ways: (1) imposing rules for legitimacy, (2) serving as a source of knowledge, and (3) allocating incentives and resources for innovation. As a majority of Asia Pacific countries are emerging economies in which institutional environments are rapidly changing, these countries provide an interesting context for studying institution-based KM and innovation strategies—as shown by the papers in our Special Issue.

Papers in this Special Issue

For this Special Issue, we received a total of 38 submissions as of November 2006. After the first round of anonymous reviews, authors of 13 articles were invited to present their work at the Special Issue Conference in Xi'an, China on July 7–9, 2007 and then to revise and resubmit. Approximately 50 individuals, including editors, authors, (some) reviewers, keynote speakers, and other interested scholars and graduate students, participated in the Conference generously hosted by Xi'an Jiaotong University—a leading Chinese school in management research and the first mainland Chinese school to have hosted an *APJM* Special Issue Conference. Papers were then revised, resubmitted, and reviewed in late 2007. While some papers were accepted in the second round, other papers were revised multiple times. Eventually, six papers presented at the Xi'an conference survived our rigorous review process and are included in this Special Issue as regular papers.³

³ Of the 13 papers invited to present in Xi'an, one (Zhang & Li, 2008) was accepted by a regular issue (due to its lack of fit with our Special issue theme) and another is still in the review process (as of March 2008) to be considered for a possible regular issue because the lead author was sick and unable to revise in time for our Special Issue.

Overall, this Special Issue is a feast of 10 high-quality pieces in addition to this Editorial. In the Perspectives section, Asakawa and Som (2008)⁴ compare the differences in the national policies of China and India on foreign direct investment and their effects on R&D activities in MNCs. They suggest that MNCs encounter similar problems in these two countries where governments exert a wide range of substantial influences on innovation activities within MNCs.

The Regular Papers section has eight papers, and the first six were presented in Xi'an (as noted above). As a (happy) coincidence, as we were putting together this Special Issue, two additional papers dealing with our innovation theme (Wang, 2008; Wongtada & Rice, 2008) that were not submitted to the Special Issue had gone through a review process managed by other Senior Editors. Therefore, upon consultation with the authors, we have included them to enhance the critical mass of this body of research.

Gao, Xu, and Yang (2008) discuss the importance of managerial ties in R&D activities in China. They distinguish between two different types of managerial ties: (1) ties between business partners and (2) ties between companies and universities. They examine the effects of these ties on corporate innovation activities. Based on a survey of firms, they note that these two types of ties have significantly different contributions to firm performance.

Isobe, Makino, and Montgomery (2008) leverage the concept of knowledge exploitation versus exploration, and study their relationships with firm performance in small and medium-sized Japanese enterprises. They find that firms having capabilities of knowledge exploitation achieve better operational efficiency while those with exploration capabilities accomplish better strategic performance.

Li and Kozhikode (2008) study the mobile phone industry in China. Although local companies were latecomers in innovation activities, they could catch up their MNC counterparts if they focus on learning as strategic intent. This study seriously challenges the conventional wisdom that latecomers have few advantages over early movers in innovation.

Huang, Davison, and Gu (2008) approach the topic of knowledge management from a cultural perspective and examine how personal relations (*guanxi*) and face, two important components of Chinese culture, influence interpersonal knowledge sharing. Through a survey and follow-up interviews, they find that these cultural influences are powerful.

Xu and Zhang (2008) investigate innovation strategies in publicly traded corporations from five industries in China. Their findings show that corporations with a majority of state ownership tend to invest more in process innovation than product innovation, because the former would increase the overall asset value although it might not contribute to a firm's competitiveness in the market.

Lin et al. (2008) study the configuration of KM, IT, and firm performance in Chinese firms. They report that KM mediates the relationship between IT and firm performance. Their results suggest that firms should place an emphasis on building KM capabilities in addition to investing in IT for developing firm infrastructures.

⁴ The Perspectives paper by Asakawa and Som (2008) had been invited by the Editor-in-Chief before the idea for our Special Issue was conceived.

Wang (2008) uses a case study method to investigate the longitudinal evolution of a newly established automobile company, Geely, in China. Although the company is a latecomer with little knowledge about car production prior to its entry into the automobile industry, it has successfully transformed product architecture through copying, reverse engineering, and the mixing-and-matching of components at the industry level.

Wongtada and Rice (2008) deploy a multidimensional latent regression method to study individual employee creativity in Thailand and Egypt. Based upon a large survey data set, they report that employee creativity may not be translated immediately into workplace innovation activities, with an implication that workplace processes are needed to transform individual creativity into organizational capabilities. Given the difficulty and hence rarity of comparative studies (none of the other papers above is a comparative study and all use single-country data), we applaud the authors for having conducted one of the first comparative studies comparing an Asian country with an African country—the majority of the small number of comparative studies compare an Asian country with the United States.

Finally, in the Commentaries section, Yuan Li, Dean of the School of Management at Xi'an Jiaotong University, and Mike W. Peng, Editor-in-Chief of *APJM*, offer their thoughts on how to develop theory from strategic management research in China. Taking advantage of China's transition economy and evolving business systems, Li and Peng (2008) identify the profound institutional pressures, derived from organizational, industrial, national, and international contexts, as the fundamental forces that determine firm strategic management processes and performance—essentially an institution-based view as noted earlier.

In conclusion, the papers included in this Special Issue throw significant light on the distinct features of KM and innovation strategies in Asia Pacific firms. While we are confident that these papers represent important milestones for this literature, we believe that we have only touched the tip of an iceberg. More research in this important domain is surely needed. The institution-based view, outlined earlier, seems capable of propelling the next generation of research on KM and innovation strategy to new heights. Similar to the management phenomena we study, the key for the next generation of research is *innovation*.

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