

A COEVOLUTIONARY JOURNEY OF STRATEGIC KNOWLEDGE MANAGEMENT ALIGNMENT: A CHINESE CASE

Completed Research Paper

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Abstract

Although knowledge has emerged as the strategic resource of the firm in the increasingly turbulent and dynamic environment, it is underestimated how knowledge management (KM) contributes to sustained competitive advantage of the firm over time. Drawing upon a coevolutionary view of alignment, this study examines a strategic KM coevolutionary mechanism in which KM strategy, processes, and infrastructure dynamically align with the changing competitive strategy; in turn, the KM derived competitive advantage drives the firm to pursue a more superior position in its niche. To trace the coevolutionary mechanism, we conducted a case study in Li-Ning Company, which experiences 20 years' development and has become a leading sports goods company in China. Two strategic transitions result in the corresponding changes of its KM strategy, KM processes and infrastructure. The cumulated knowledge helps the firm upgrade from an imitator to a prospector with balanced performance portfolio. Theoretical and managerial implications are discussed.

Keywords: Coevolution/Micro-coevolution, knowledge management alignment, competitive strategy, dynamics, China

Introduction

As contemporary firms face intense rivalry, dynamics and turbulence, which are characteristics of a dancing rugged landscape (Tanriverdi et al. 2010), knowledge has been prioritized as the strategic resources (Grant 1996), and thus the knowledge management (KM) capability of creation, integration and leverage of knowledge is seen vital for attaining sustainable competitive advantage (Alavi and Leidner 2001; Eisenhardt and Santos 2002; Kogut and Zander 1992). The appropriate KM capability is the capability of a firm that can align KM with the competitive strategy to adapt to the rugged environment. With regard to the “dancing” environment, the dynamic alignment becomes imperative for the sustainability of competitive advantage over time (Sabherwal et al. 2001).

Alignment represents the degree to which one component is consistent with another component regarding the needs, demands, goals, objectives, and/or structure (Nadler and Tushman 1980). Alignment between various organizational components is critical to business success. Prior research has denoted intensive attention to the alignment between the environment and the firm as a whole (Lewin and Volberda 1999; Volberda and Lewin 2003); the alignment between business strategy and management processes (Beer et al. 2005) and the strategic and structural alignment between business and information systems (IS) components (Henderson and Venkatraman 1993; Ravishankar et al. 2011; Sabherwal and Chan 2001; Tallon 2007).

Despite the recognized importance of KM, seldom has research investigated the strategic KM alignment and the dynamic nature of alignment. In a particular phase and circumstance, the strategic KM alignment includes the alignment between competitive strategy and KM strategy at the strategic level, as well as the alignment between KM strategy and the supporting KM processes and infrastructure at the operational level which essentially put the building blocks to KM capability of a firm (Tanriverdi 2005; Tanriverdi et al. 2010).

Acknowledging the dancing rugged competitive environment which becomes universal across different economic regions, a coevolutionary lens of strategic alignment is increasingly favored (Merali and McKelvey 2006; Peppard and Breu 2003; Tanriverdi et al. 2010; Volberda and Lewin 2003). Alignment is not an event but a dynamic process (Henderson and Venkatraman 1993). Tanriverdi et al. (2010) also purport “from alignment to coevolution” to address the often questioned misalignment of IS with business. The static, phase-ended alignment is a challenge for the alignment of any components in-between and the KM alignment with competitive strategy in particular. The knowledge related to customer, product, or production process must be continuously updated, thus leading the firm to a higher level of learning ability and better performance rather than organizational rigidity and inertia (Ofek and Sarvary 2001; Van den Bosch et al. 1999). A coevolutionary alignment shapes the fact that the firm learns over time and through experience as it launches a series of competitive strategies and develops suited KM capability.

The coevolutionary alignment between competitive strategy and KM strategy, processes and infrastructure is particularly demanded for Chinese firms, as the Chinese economy is turbulent and dynamic (Peng 2003; Tsui et al. 2004) while the Chinese firms are lack of a solid knowledge base for the globalized competition. The first nationwide transition began with the reform and opening-up policy in 1978 (Child 1996; Tan and Tan 2005; Tan and Litschert 1994). It was a transition from a state central planned economy to a market-based economy (Tan and Litschert 1994). The second critical transition germinated in the early 1990s. From that time onward, many private Chinese firms commenced their pioneering and business venturing courses. Some research has shown that Chinese firms founded since 1990 demonstrate more entrepreneurship and proactiveness than firms that had existed in the previous stage (Tan and Tan 2005). With the movement into the new century, especially after the financial crisis in 2008, the Chinese economy is appealing for strategic and industrial upgrading, which points to a new transformation of the industrial structures from labor-intensiveness to knowledge-intensiveness. Thus, Chinese firms are experiencing the shift of competitive strategy from cost-leadership to differentiation, from initially simple imitation and technological importation to self-branding and independent innovation.

At the macro-level, a coevolutionary journey is observed, in which Chinese firms strategically adapted to the changing environment where knowledge plays an increasingly pivotal role for competition (Tan and Tan 2005). However, how the micro states of a firm coevolve over time for the sustainability is still a

black-box. In particular, little research has been devoted into the coevolutionary alignment between the competitive strategy and KM strategy plus the sequent KM capability building among Chinese firms. Compared with Western firms, the development of KM in Chinese firms has lagged behind over 20 years (Davison et al. 2008). Therefore, our research aims to address this gap by examining how the KM strategy incorporating the suited processes and infrastructure dynamically align with the changing competitive strategy (from imitation to differentiation) over time for competitive advantage. By conducting an in-depth case study in a private firm (i.e., Li-Ning Company), we attempt to reveal the dynamics of its strategic KM alignment from the firm's startup in 1990 to present when it has been a leading firm in its niche in China and is pursuing further excellence in the world. The investigation of such a micro-level coevolutionary journey would provide important insights to firms operating in China as well as firms in other economic regions.

The paper proceeds as follows. In the section of theoretical foundations, we review the relevant theories and literatures on coevolution and alignment and derive our research framework for the coevolutionary strategic KM alignment within a firm. In the methodological section, we describe our case study in Li-Ning Company that has three phases of strategic transition. Next, we discuss the findings from the case. Finally, we conclude this paper with implications.

Theoretical Foundation

Evolution and Coevolution

Conventional wisdom of organizational evolution (Aldrich 1979; McKelvey 1982), organizational ecology (Hannan and Freeman 1977; Hannan and Freeman 1989), and IS evolution/alignment (Ein-Dor and Segev 1982; Henderson and Venkatraman 1993; Sabherwal et al. 2001) is rooted in Darwinian selectionist in biology. The selectionist postulates that the selection process drives out the less fit firms, leaving "order" as the consequence of the survival of the more fit firms. However, Kauffman (1993) astutely pointed out that all 'evolution' is really coevolution (Kauffman 1993). Drawing upon complexity science, Kauffman (1993) proposed the coevolutionary complexity model in which "organisms do not merely evolve, they coevolve both with other organisms and with a changing abiotic environment" (Kauffman 1993 p.237).

McKelvey (1997; 1999) proposed the quasi-natural organization science by applying Kauffman's coevolutionary complexity model to the coevolution and competitive behavior of firms. Coevolution represents mutual causal changes between a firm and competitors, or other elements of its niches, which may have adaptive significance (McKelvey 1999 p.299). Further, coevolution is a multilevel phenomenon (Lewin and Volberda 1999; McKelvey 1997; McKelvey 1999; Peppard and Breu 2003). The macro-coevolution takes place between firms and their niches, while the micro-coevolution is between parts within the firms. By conducting case studies in publishing industry, Van den Bosch et al. (1999) showed the building blocks within the firms that continuously update the knowledge base and combinative capability (micro-coevolution), as well as the coevolutionary path between the firm and its turbulent knowledge environment that has changed from the traditional publishing simplicity into the multimedia industrial complex (macro-coevolution).

Acknowledging the turbulence and dynamics of the environment, IS researchers have also recognized the local adaption by IT-enabled dynamic and improvisational capabilities (El Sawy and Pavlou 2008), and IT-enabled agility (Sambamurthy et al. 2003). The IT-business alignment (Earl 1989; Ein-Dor and Segev 1982; Henderson and Venkatraman 1993) are necessary but insufficient for firms to remain fit, survive and thrive in a complex adaptive business system which is a dancing, rugged competitive landscape (Tanriverdi et al. 2010). Rather, firms must co-evolve with the changing topography. This quest is about macro-coevolution between firms and their environment, while internal coevolution among the micro parts in individual firms, such as the competitive strategy and KM strategy, infrastructure, and processes, has been underestimated.

Strategic IS Alignment

Before we discuss the strategic KM alignment, we review the literature of strategic IS alignment that has cumulated a substantial body of work since the late 1970s. The early research in this domain concerns about aligning IS strategy with business strategy (Earl 1989; King 1978) and aligning IT structure with business structure (Ein-Dor and Segev 1982) by a deterministic top-down planning. Such alignment is static and cross-sectional, viewing alignment as a one-hammer event.

Recognizing that alignment is an adaptation process, Henderson and Venkatraman (1993) proposed a strategy alignment model which is perhaps the most influential IS alignment model. They argue that alignment can be involved in four related domains of strategic choices: business strategy, organizational infrastructure and processes, IT strategy, and IT infrastructure and processes. Alignment can take place at the same dimension, e.g., the strategic alignment (between business strategy and IT strategy) and the structural alignment (between organizational infrastructure and processes and IT infrastructure and processes). Alignment can also occur across dimensions, e.g., the alignment between business strategy and IT infrastructure and processes. Consistently, Baets (1992) developed a similar alignment model in the aforementioned four domains (Baets 1992). These models offer a comprehensive profile for assessing the business-IT alignment, however, they are still fundamentally in the line of strategic IS planning literature (Chan and Reich 2007). Thus, they shed little light on how the continuous and dynamic alignment co-evolves over time in a dancing rugged competitive environment.

Acknowledging the changing environment, Sabherwal and the co-authors (2001) are the pioneers to explicitly highlight the dynamics of alignment for the strategic IT management. They applied the punctuated equilibrium model into the IS field and examined how the alignment between IS and the organization as a whole evolve over time. Their analysis distinguishes the slow, stable evolutionary periods during which the deep structures undergo little change with the revolutionary periods during which the deep structures are completely transformed to accommodate the environmental changes (Sabherwal et al. 2001)

More recently, Merali and McKelvey (2006) have created a special issue of using complexity science, also a science of coevolution, to effect a paradigm shift in IS for the 21st century. Benbya and McKelvey (2006) view the coevolutionary IS alignment as a series of adjustment at multiple levels including individual, operational and strategic levels (Benbya and McKelvey 2006). Tanriverdi et al. (2010) further call for the quest to reframe the IS strategy from alignment to coevolution with regard to the complex adaptive business system. This advocated paradigm shift provides an underpinning of our pioneering research on KM from a coevolutionary lens.

A Coevolutionary Lens for Strategic KM Alignment

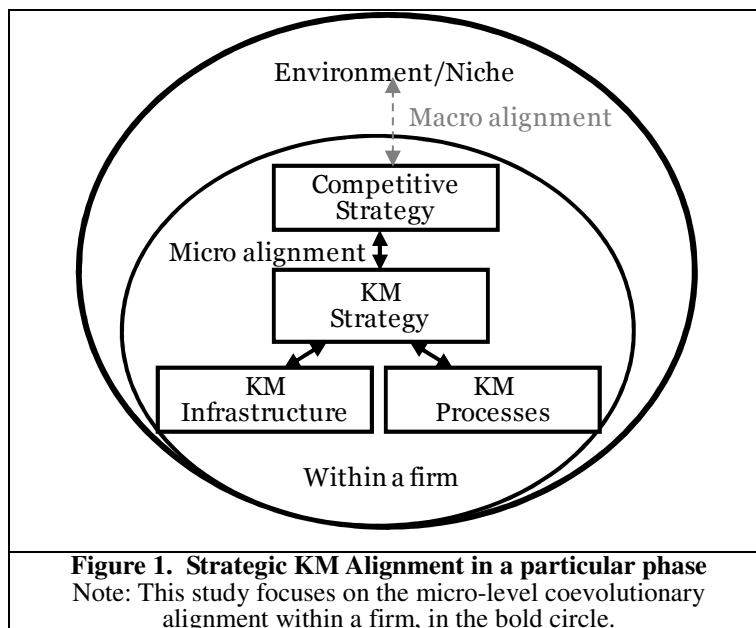
As McKelvey (1997; 1999) observed, coevolutionary effects take place at multiple levels. First, firms continuously seek to reposition themselves to emerging profitable positions in the turbulent complex environment by adjusting their competitive strategy. Thus, the macro-level coevolutionary alignment lies between the competitive strategy of a firm and its surrounding environment. Second, an organization prospect to coevolve with its environment requires the functional fitness within the firm, especially how the key resources or capabilities dynamically align with the firm's competitive strategy. Thus, the micro-level coevolutionary alignment lies between the competitive strategy and the key capabilities within the firm. For example, Sabherwal et al. (2001) have shown the continuous dynamic alignment between IS strategy and business strategy as well as between IS structure and business structure in three companies from US and Australia. Van den Bosch et al.'s case study (1999) demonstrates how the enhanced absorptive capacity together with the supporting organization forms and combinative capability help the publishing firms evolve with the changed knowledge environment.

Chan et al. (1997) purport that strategic IS alignment occurs when IS functions are amalgamated with the most fundamental strategies and core competencies of the firm. Following a similar rationale, we define the strategic KM alignment in a particular phase as the alignment between KM strategy supported by suited KM infrastructure and processes and the fundamental competitive strategy of the firm. According to Hirschheim and Sabherwal (2001), the strategic alignment succeeds when the firm's competitive advantage is associated with its attaining the appropriate capabilities to execute its strategic decisions

(Hirschheim and Sabherwal 2001). Thus, in order to build up the KM capability, the firm must formulate appropriate KM strategy to cater to the fundamental competitive strategy as well as develop appropriate KM infrastructure and processes to carry the strategic orientations to the ultimate competitive edges.

Further, the alignment between the competitive strategy and KM strategy, infrastructure, and processes over time is a coevolutionary journey by which the competitive edges are sustained. In a dancing, rugged competitive landscape, the continuous KM capability building is crucial because KM capability can help the firm import energy, i.e., knowledge, to create and maintain a dissipative dynamic structure (McKelvey 1997; Nicolis and Prigogine 1989), in which a firm's KM strategy, infrastructure, and processes are interdependent and they together coevolve with the firm's competitive strategy over time. Based on the knowledge-based view of firms (Kogut and Zander 1992), knowledge has become a strategic resource and thus a firm's KM capability, including the strategy formulation, and the supporting KM infrastructure and processes development (Gold et al. 2001), directly provides the firm competitive advantage (Grant 1996; Spender and Grant 1996; Tanriverdi 2006).

Competitive strategy, KM strategy, together with suited KM infrastructure and processes, are microstates of a firm. Their dynamic adaptations in different phase transitions constitute the micro-level coevolutionary alignment within the firm. Their alignment in a particular phase is shown in Figure 1.



Competitive Strategy

A firm's business strategy can be divided into (1) corporate strategy, which determines the choice of product markets; and (2) competitive strategy, which determines how the firm gains the advantage over its niche within the product-market position it has chosen (Tanriverdi et al. 2010). Corporate strategy provides a generic vision for the firm to position or reposition itself in its niche, while competitive strategy addresses the question of how to compete in its niche. Porter (1980) proposes a competitive strategy topology including cost-leadership, differentiation and focus strategies. The cost leadership and differentiation strategies seek competitive advantage in a broad range of the industry, while the focus strategy is used with either the cost leadership strategy (cost focus) or differentiation strategy (differentiation focus) in a narrow segment of the industry. Zhou (2006) specifically investigated the imitation versus innovation strategies on new product performance in Chinese market conditions. The imitation strategy is based on but more than cost-leadership, as Chinese firms often imitate leading global firms while simultaneously tightly control the cost at the startup phase. For Chinese firms, they may experience the strategic transition from imitation (imitate leading global firms while take advantage of low labor cost), to focus (the niche market is focused from a broad range to a narrow range), and then to differentiation (explore self-branding and independent innovation), in respect to the macro transitions in China.

KM Strategy

Knowledge management strategy represents the strategic choices that direct and shape KM processes and infrastructure, and thus determine the most strategic knowledge resources. Three types of knowledge have been identified as the strategic knowledge resources of firms: (1) product knowledge, which refers to research and development (R&D) and operations knowledge by which the firm develops and produces its products and services; (2) customer knowledge, which refers to the needs, preference, and buying behaviors of customers and markets of the firm; and (3) managerial knowledge, which refers to the knowledge required for governing multi units of the firm (Tanriverdi 2006; Tanriverdi and Venkatraman 2005).

KM strategy of a firm could have different foci depending on which knowledge resource plays the most strategic role in the particular phase or circumstance. Accordingly, we propose a KM strategy topology encompassed by product knowledge focused KM strategy, customer knowledge focused KM strategy, and managerial knowledge focused KM strategy. In respect to the complementarity of these knowledge resources (Tanriverdi and Venkatraman 2005), the three KM strategies with different foci can be concurrent for competition.

KM Processes

To develop the KM capability, the firm must institute a set of organizational processes to create, exploit, and renew the strategic knowledge resources. Research of KM processes has been much documented. They identify several key KM processes, e.g., acquire, collaborate, integrate, experiment knowledge (Leonard 1995); create, transfer, assemble, integrate, exploit knowledge (Teece 1998); create, transfer, use knowledge (Skyrme and Amidon 1993; Spender and Grant 1996); acquire, convert, apply, protect knowledge (Gold et al. 2001); create, store/retrieve, transfer, integrate, apply knowledge (Alavi and Leidner 2001); and create, transfer, integrate, leverage knowledge (Tanriverdi 2005; Tanriverdi and Venkatraman 2005). Despite the slight terminological difference, four significantly KM processes converge, i.e., acquisition/creation, transfer, integration, and application. It is noteworthy that KM is anchored in both exploiting existing knowledge resources and in exploring new knowledge (March 1991), and that the knowledge sources can be internal and/or external. Thus, the included KM processes for achieving particular organizational goals may vary in different phases and circumstance.

Knowledge acquisition emphasizes the sake of new knowledge from external sources (Gold et al. 2001), while knowledge creation emphasizes the new knowledge created by internal employees (Nonaka 1994). Knowledge acquisition and creation play a vital role in renewing knowledge base of a firm, providing the external and internal opportunities for formulating or revisiting the knowledge and competitive strategy. Knowledge transfer is to share and transfer new knowledge across individuals, groups, and business units in the firm, extending the range of applicability of the firm's knowledge resources (Sambamurthy et al. 2003). Knowledge integration is about the synthesis of disparate knowledge into systemic knowledge, the synthesis of the new knowledge and the existing knowledge (Alavi and Tiwana 2002; Grant 1996). Knowledge application is the actual use of knowledge, converting the knowledge resources into actual performance results. The knowledge application can be exploitation oriented and exploration oriented (March 1991). The essence of exploitation is refinement and extension of existing knowledge for efficiency benefits, whereas the essence of exploration is in pursuit for the new opportunity.

KM Infrastructure

The other key to build up KM capability is related to the suited infrastructure (Gold et al. 2001). KM Infrastructure is composed by technological, structural, and cultural infrastructure supporting KM processes and practices (Gold et al. 2001). Technical KM infrastructure determines how knowledge travels throughout a firm and how knowledge is accessed (Leonard 1995). The technical infrastructure is usually related to the information systems that a firm has implemented to facilitate its critical knowledge activities (Grant 1996; Leonard 1995). The technical KM infrastructure refers to a class of information systems applied to managing organizational knowledge. That is, it includes IT-based systems developed to support and enhance the organizational processes of knowledge acquisition, creation, transfer, integration and application. We do not tend to equal the technological side of KM infrastructure to specific knowledge

management systems because the technical KM infrastructure is over and beyond knowledge management systems. It may include other function-based information systems that can be used to manage knowledge from various sources, e.g., enterprise resource planning for managing operational knowledge, customer relationship management system for managing customer knowledge, and so on (Khalifa et al. 2008). Structural KM infrastructure is associated with the formal organizational structures and incentive systems for knowledge creation and sharing activities (Leonard 1995). The flexible structure is vital to smoothen knowledge sharing and transfer. Cultural KM infrastructure is about the generic supporting organizational culture for KM. Whether a firm values the strategic role of knowledge resource for achieving organizational goals, emphasizes knowledge sharing among employees, whether top management support KM initiatives and to which extent, largely determine the KM effectiveness in the firm (Nonaka and Konno 1998; Nonaka and Takeuchi 1995).

Research Methodology

We adopt the case study in this paper for two reasons. Firstly, it is suitable for exploring 'how' research questions through case studies (Walsham 1995). Secondly, it is appropriate to study coevolutionary strategic KM alignment which is inextricably linked to the organizational context by case studies (Klein and Myers 1999). We use a single case study design, because there is lack of prior research and a single revelatory and typical case study is appropriate for exploring untouched areas or longitudinal phenomena (Yin 2003).

We selected Li-Ning Company, a leading sports goods company in China, for fulfilling our research purposes. On one hand, this company has intensive KM practice in the past 20 years. On the other hand, as our focus is on the dynamic alignment between KM with its competitive strategy, the developed KM capability has been effectively leveraged for creating sustainable competitive advantage.

Case Access and Data Collection

Research access was negotiated and granted in April, 2010. The Knowledge Collaboration Center (KCC) manager of Li-Ning provided us the entry and the widespread access. Given that we had no personal stake, the KCC manager showed a keen interest in getting our understanding of KM development in this company. We use two data sources: (1) 15 in-depth interviews with managers ranging from middle to top levels from KCC, IT, Learning and Development Center (LDC), Human Resources (HR) and strategy, as well as KCC members who participated in various KM projects; (2) archival data, including organizational documents, internal publications, and information from websites, as well as the public authorized information about Li-Ning (e.g., books).

In general, all interviews lasted around 1.5 to 2 hours. They were digitally recorded and transcribed for data analysis. Interview questions were prepared in advance, designed to be open-ended in nature and tailored to the roles of the informants. All interviews were conducted by multiple researchers. Data triangulation has been achieved through iterative data validation and consolidation from the multiple researchers until a congruent and coherent theme emerged (Yin 2003).

Data Analysis

With regard to data analysis, we adopted the 'soft positivism' approach (Kirsch 2004; Madill et al. 2000), which has been used in IS research by Ravishankar et al. (2011). This approach allowed us to conduct the data analysis with certain expectations based on prior theory, while also allowing some unexpected findings and explanations to emerge from the data. Based on the literature review, we identified an initial set of themes that formed the basis of our theoretical lens, which served as a "sensitizing device" (see Klein and Myers 1999, p.75) to guide data collection. Data was coded, arranged into the identified set of themes and the theoretical lens was modified incrementally whenever new evidence that challenged the existing schema emerged (Walsham 1995).

Data analysis was carried by recursively iterating between the empirical data, the theoretical lens, relevant literature and the emerging process model (Eisenhardt 1989). We used narratives and visual diagrams to condense the large amount of empirical data into a more manageable size (Langley 1999). The diagrams

capturing the emergent models were presented to the relevant stakeholders in Li-Ning to validate our interpretation. From the emergent data, we identified three distinct phases of KM capability building represented by two strategic realignments. Accordingly, the events, activities and decisions in Li-Ning were divided into three distinct phases to facilitate the examination of how KM strategy incorporated KM infrastructure and processes dynamically aligned with the competitive strategy in this company. The data collection ceased until ‘theoretical saturation’ was reached (Eisenhardt 1989).

Case description

Company Background

Li-Ning Company, founded and named after a famous Chinese gymnast in 1990, has become a leading Chinese sports goods company. It has ranked Top1 among local Chinese sports goods brands since 1996. In the huge Chinese market, its sales income in 2010, 9.479 billion RMB, exceeded that of Adidas and just fell behind that of Nike. The company now employs about 2,000 staff and has over 8,000 retailing stores. With 20 years of learning and development, it has established multiple self-owned brands including Li-Ning, LNG, Z-Do and so on.

Coevolutionary Strategic KM Alignment in Li-Ning

Inspired by our review of the literature on coevolution and strategic KM alignment, we focus our inquiry on four pertinent themes: (1) the transition of organizational vision and competitive strategy, (2) the dynamically aligned KM strategy, (3) the corresponding supporting KM processes and infrastructure, and (4) the ultimately obtained competitive advantages. Accordingly, we first depict an overall coevolutionary roadmap of the strategic KM alignment in Li-Ning. Next, we use narratives to describe the aforementioned themes across three distinct phases.

Li-Ning Company has experienced two competitive strategic transitions in the past 20 years. During the startup, the firm adopted imitation strategy, imitating the production and managerial process of the leading global companies in the sports goods industry and meanwhile taking advantage of extremely low labor cost in China in 1990s. The KM activities and processes focus on acquiring managerial knowledge from external sources and exploiting the transferred knowledge, pursuing efficiency with standardized management. The company also implemented simple IT systems (by IT department) to support the auto production of a variety of products. These actually lead the company to the achievement of operational excellence, comparing with the local competitors. The phase of growth is indeed in line with the given name of the whole nation of China—“a world of manufacturing”.

As Li-Ning Company grew, the top management team (TMT) recognized that mere operational excellence with cost-leadership was not sufficient for the sustainability in a long run, as the competition became globalized and more hostile. The company should position itself in a narrower range of market niche and emphasize the brand image of focused products, but not produce a board range of products. Thus, the competitive strategy of Li-Ning began to transform from imitation to product focus. The company stressed the internal creativity, and therefore the KM processes slightly changed the foci from the external knowledge acquisition and exploitation to the internal knowledge creation, transfer, and exploration. The company set up a learning and development center (LDC) and a knowledge collaboration center (KCC) to support the internal knowledge management. Meanwhile, the company reconfigured their IT systems to optimize the knowledge flow within the firm. However, the departments were weakly interconnected, limiting the effect of knowledge synergy.

After 18 years of growth, Li-Ning Company has achieved a great success in China. Meanwhile, it still keeps a keen awareness of the universal dancing rugged competitive environment. The top management initiated a new strategic transition from product focus to differentiation, stressing the customer intimacy. This transition might be triggered by the 2008 Beijing Olympic Game in which Li-Ning Company achieved superior performance in marketing. Compared with the global companies that also target the big market in China, the local companies may know more about the deep demands of Chinese consumers (Zhou 2005). The customer knowledge focused KM strategy was formulated to keep pace with the

transformation of competitive strategy. Now the company emphasizes both knowledge acquisition from customers and internal knowledge creation, transfer, integration, and application in order to realize a mature KM processes. The IT, LDC, KDC coordinate more tightly to smoothen the knowledge flow from external to internal, and attempt to achieve knowledge synergy which is essential for gaining competitive advantage in nowadays competitive environment.

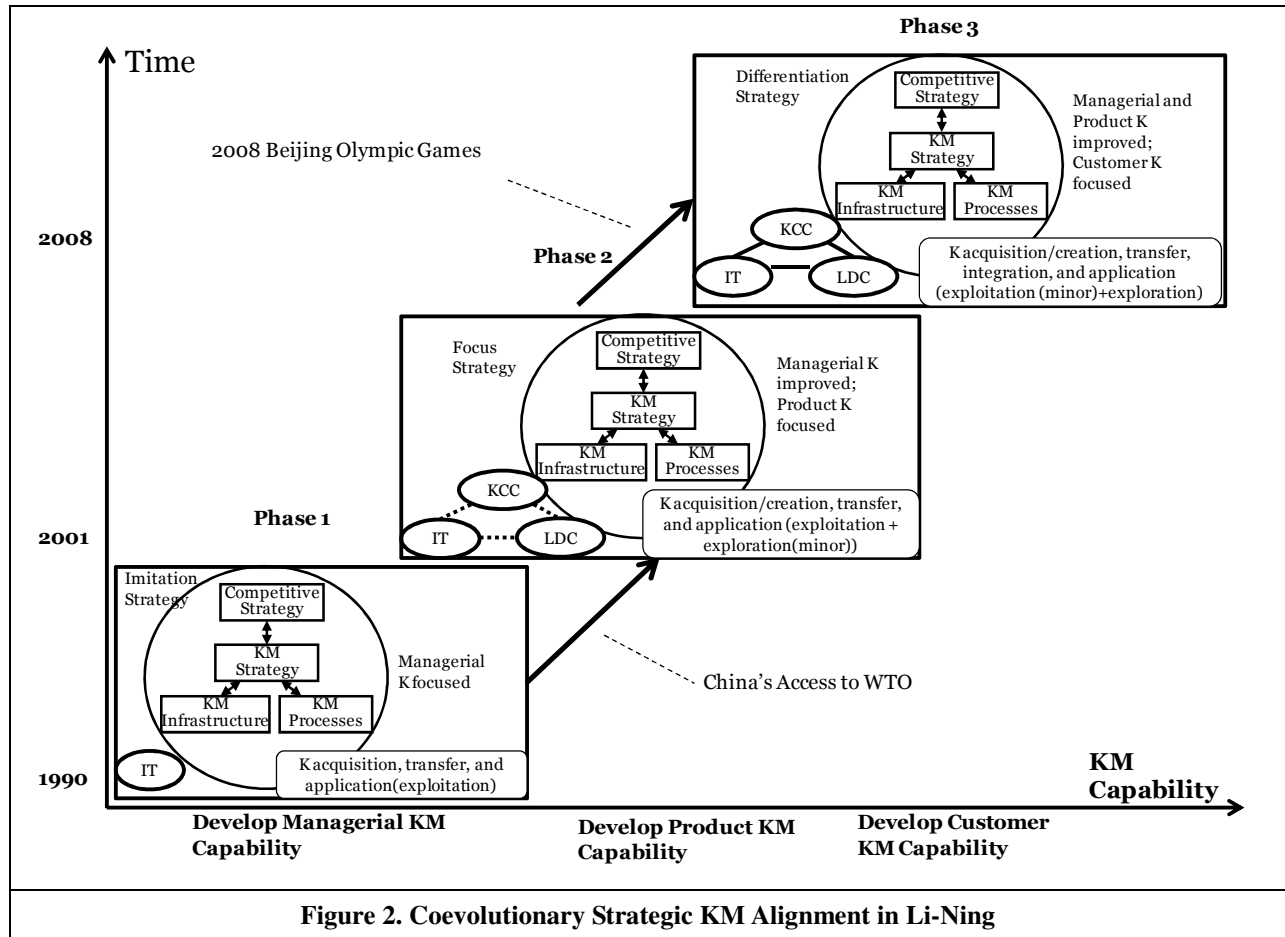


Figure 2. Coevolutionary Strategic KM Alignment in Li-Ning

Phase1 Develop Managerial KM Capability (1990-2001)

Vision. In 1990, Li-Ning Company was founded in Sanshui City, Guangdong Province by the famous Chinese gymnast, Ning Li, with his noble dream. Li-Ning’s vision was to become No.1 among Chinese sports goods brands.

Competitive Strategy. In the 1990’s, Li-Ning used its initial strategy, imitation strategy, to survive and thrive. It imitated excellent global sports goods brands which entered the promising Chinese market in 1980’s while it also took advantage of low cost to stand out. The VP strategy, Shaowen Chen, mentioned as below,

“There was no concept of strategy management in Li-Ning prior to 2002, when anything produced here could be sold out, even jackets and wallets. We were just seeking to imitate what other outstanding companies were doing.”

KM Strategy. The idea of KM has not sprung up in the Chinese companies in 1990’s, including Li-Ning. People in Li-Ning, especially the TMT, were not aware of the importance of knowledge. However, what this company did was continuously acquiring advanced production and managerial knowledge from external sources. We called the KM strategy in this period “Managerial Knowledge focused” afterwards.

KM Processes. As we mentioned, there is not a linear sequence among different knowledge processes. We observed different strategic foci in different combinations of KM processes in the three phases. In this phase, KM processes focused on acquiring knowledge from leading competitors and strategic alliance partners, transferring across different business units and exploiting the acquired and transferred knowledge for operational use.

For example, Li-Ning established the self-distribution networks in the country instead of using the traditional state-owned department stores, by learning from the advanced operation models adopted by other famous sports goods companies. Later this activity became one of the most important sources of Li-Ning's competitive advantage. The original logo of Li-Ning looked much like that of Nike while the famous slogan of Li-Ning, "*Anything is Possible*", sounded like that of Adidas, "*Nothing is Impossible*". Besides, the Pyramid Marketing model and Adjacent Business development model adopted by Li-Ning were acquired from Nike. For example, Nike once planned to open up the adjacent market through developing the Golf products and later a Golf division was set up in Li-Ning.

KM Infrastructure. To deal with the dramatically increase of annual sales income from 1993 to 1996 and huge expansion of business, two information systems were adopted in Li-Ning to replace the traditional manual operation, i.e., a Sales and Inventory system and a Financial system. But the two legacy systems were separate from each other, which caused information inconsistency and operational delay. In order to reduce cost and risk, and improve efficiency, SAP ERP was introduced following global competitors' practice in 1999. Thus Li-Ning became the first Chinese sports goods company that implemented ERP software. IT manager, Shuang Sha, mentioned as below,

"We are willing to learn advanced operational experience from global brands, and use their best practice for reference, especially in managerial capability and internal operations. Although SAP was regarded as an expensive system at that time, the TMT insisted it was a good chance to master advanced management ideas and models through implementing this system."

Competitive Advantage. After overcoming the initial difficulties in the first five years, Li-Ning accumulated indispensable managerial knowledge rapidly and became the Top 1 in the Chinese market since 1996. The annual sales income increased by a rate of above 100% during 1993 to 1996, and finally reached to 734 million RMB in 2001 (Internal memo in Li-Ning Company). Compared with both the global and local sports goods brands, widespread retail channels, efficiency supply chain and low production cost brought Li-Ning operational excellence and thus led to its competitive advantage in the Chinese market.

Phase2 Develop Product KM Capability (2002-2008)

Vision. "No China Nike, do world Li-Ning", proposed by the founder. This slogan reflects not only the imitation strategy of Li-Ning in the past years but also its globalization vision in the next years. Since 2002, Li-Ning recognized the importance of producing its unique products to compete with other global brands and to sustain its fast growth in the local market of China.

Competitive Strategy. As China entered WTO in 2001, tariff reduction and market access for foreign companies brought significant threatens for local Chinese firms. Meanwhile, a series of Jinjiang Grassroots sports goods companies were emerging and had the dream of beating Li-Ning in the next ten years. Driven by fierce external competition, Li-Ning made the first strategic transition, from imitation to focus, with the help from consulting firms since October 2002. The TMT realized that ambiguous imitation cannot sustain its fast growth and that they should narrow down their product lines and adopt the focus strategy. The VP Strategy, Shaowen Chen, mentioned as below,

"In 2002, we have made a significant strategic realignment and we began to adopt the focus strategy. As a sports goods brand, we cannot produce everything. We have to focus on the sports goods, among which we should pay more attention to footwear, because the footwear can best reflect the technological contents of our unique products and bring our competitiveness."

KM Strategy. Apart from continually acquiring and exploiting its managerial knowledge to sustain operational efficiency, Li-Ning began to make great efforts to create its unique product and R&D knowledge. We called the KM strategy in this phase as "Product Knowledge focused".

KM Processes. To improve its managerial knowledge and develop its unique product knowledge, Li-Ning continued to acquire knowledge from competitors, brand companies, and R&D companies. For example, it established strategic cooperation relationships with Dupont, Swarovski, and Michelin, and some famous designers in Italy, France, and R&D companies in U.S. to focus on R&D in footwear technology. It also employed a number of professional specialists from other brand companies, including designers, strategy managers, and HR managers.

To encourage knowledge creation and exploring new knowledge, Li-Ning set up its own design and R&D centers in Hong Kong and the U.S. Moreover, in-house course systems, training and development systems, and instructor systems were created in Li-Ning and aimed at providing comprehensive talent development service. Meanwhile, an e-Learning system was online in 2007 to help distribute online knowledge to employees. LDC manager, Chenggong Ma, mentioned as below,

“Our talent development systems were acquired from global HR service companies DDI, and tailored to Li-Ning’s characteristics, One was the Leadership Development System based on the HR resource promotion system. The other was professional competence development system based on positions of business systems.”

Moreover, although Li-Ning did not acquire the qualification of becoming the 2008 Beijing Olympics sponsor in 2007, it indeed performed an excellent marketing show in the great event. Li-Ning launched various creative marketing programs to distribute brand and product knowledge.

KM Infrastructure. The IT department continuously reconfigured information systems as the demand changed, which provided an indispensable infrastructure for both managerial and product KM capability building. Online payment system, EPOS I, Sales planning system, ordering system, and Product Requirement Management system were used.

More importantly, two departments were set up in this phase. One was LDC in 2004, a subdivision in the HR system. The other was KCC, initiated in 2003 and officially founded in 2007, a subdivision in the Strategy system. The current HR manager, Qian Dai, mentioned the origin of LDC, as below,

“After rapid acquisition of personnel from external sources from 2001 to 2004, we realized that acquisition from external sources could only solve the burning issues and that quickly training in-house talents was the key to dealing with lack of professional management personnel.”

The first KCC manager, Xin Tian, mentioned the origin of KCC, as below,

“To launch the Initial Public Offering (IPO), Hong Kong Stock Exchange required us to prepare a number of files and materials in 2003. But the historical documents were distributed in different sections and therefore incomplete. What’s worse, some documents were not successfully retained in the company because of personnel movement. It was said that the TMT were very angry. Later, a temporary centralized document system was set up to deal with the IPO issue. This project automatically ended after the IPO was over. The trouble happened again when the company began to prepare for bidding for the Olympic Partner in 2004. From then, I began to lead a team to initiate KM activities following the direction of our current CEO. He once promised to Ning Li that he would help this company transform the individual capabilities into the organizational capabilities and train a competent successor team.”

Once it was set up, the KCC staff began a huge project targeted at centralizing the decentralized documents. They organized the explicit knowledge owned by individuals or departments and put together in an online document management system.

However, although the TMT realized the importance of KM, there were no supportive incentive systems to encourage knowledge sharing and creation among employees. KM activities were top-down driven by corporate strategies. Meanwhile, the organizational triangle, IT, LDC, and KCC, were promoting KM activities based on departmental interests and performed a relatively weak collaborative relationship. IT focused on the introduction, implementation and maintenance of various information systems. LDC was aiming at distributing knowledge to employees and helping employees learn and develop leadership and professional capabilities. KCC was targeted at integrating knowledge distributed in the company to support the strategy implementation. We did not observe a smooth knowledge flow in the current phase.

Competitive Advantage. In 2002, the sales income of Li-Ning has finally exceeded 1 billion RMB. The compound annual growth average was over 30% from 2002 to 2008 (Internal memo in Li-Ning Company). Although the market position of Li-Ning was threatened by the other two global brands, Nike and Adidas, we could observe a quick catch up between Li-Ning and the other two global brands. According to an official brand survey after the 2008 Beijing Olympic Games, it was reported that the brand awareness of Li-Ning was significantly improved and the brand image of professional sports brand for Li-Ning was greatly enhanced. The developed product leadership plus the maintained operational excellence brought Li-Ning competitive advantage to seek better performance.

Phase3 Develop Customer KM Capability (2009-Present)

Vision. In 2008, the company formulated its vision in the future ten years. That is to become top 5 in global sports goods industry in 2018.

Competitive Strategy. Learning from benefits from the event marketing in 2008 Beijing Olympic Games and homogenization of increasingly intense competition for local brands, Li-Ning further realized that differentiating brand image, communicating brand meanings with consumers and thus building customer intimacy would help this company stand out and sustain its fast-growth in a long run. Thus the company made the second strategic transition, from product focus to differentiation, in 2009. The VP Strategy, Shaowen Chen, mentioned as below,

“In the past, our advantages, compared with global sports goods brands lay in our localized channel, and efficiency supply chain. However, as the competition becomes more intense, the differences again return to the brand position and understanding of customers’ inner needs.”

KM Strategy. Based on accumulated managerial and product knowledge in the prior 18 years, the company has begun to pay more attention to customer knowledge acquiring and creation, communicating brand image and thus establishing customer intimacy. We called the KM strategy in this phase “Customer Knowledge focused”.

KM Processes. After acquiring a large amount of knowledge from external sources and attempting to create its unique knowledge, the company has accumulated much managerial and product knowledge. Thus this company has begun to further integrate and apply existing knowledge into exploring new knowledge, stressing exploration more than exploitation. IT manager, Yan Xiao, discussed as below,

“After we have a full coverage of EPOS in 8,000 retail stores in China, we are going to control the quality of transported data and make better use of it to support decision making and know more about consumers’ purchasing habits.”

Besides, as the in-house training system develops, it has accumulated plenty of courses and they needed to be updated and optimized to fit the needs of the firm’s development. The recently appointed LDC manager, Christine, mentioned as below,

“We have just finished a knowledge audit project to check the current status of our courses systems. Now we have 50 courses regarding professional competence and 45 courses regarding to leadership competence. We will then begin to optimize our talent development systems and courses systems. We intend to find out what the current courses were talking about, or how those courses supported corporate strategy and whether those courses were needed to be optimized or just eliminated. Then the courses will be integrated to better support the learning and development of our company.”

Furthermore, the company has attempted to explore new knowledge based on its own direct experience and is trying to developing its unique connection with consumers. Rebranding was launched when Li-Ning was 20 years old in 2010. The new company logo and slogan were delivered to consumers. “Make the Change” replaced the former slogan “Anything is possible”. The HR manager, Qian Dai, discussed the new corporate value as below,

“We are always seeking to differentiate ourselves from competitors. Now we discover the distinguished feature of our company is that Li-Ning was created by an outstanding athlete. We

are inherent with sportsmanship. We can start over no matter we win or lose. This is the DNA of our company which has been incorporated into our new value, namely Winning for the Dream."

KM Infrastructure. Many information systems have been updated and are being integrated together to support better operation management and product design. For example, the EPOS I system has been updated to EPOS II and the sales planning system to Customer Relationship Management (CRM) in 2009. By 2010, the POS systems achieved a full physical coverage of 8,000 retail stores in China. A big supply chain management (SCM) system, sales system, and product system are planned to be built and will integrate all the separate small systems across this company.

Moreover, the company has paid more attention to building its KM infrastructure to build intimacy with customers. The VP Strategy, Shaowen Chen, discussed the connection with consumers as below,

"We collect consumers' needs and purchasing habits from several channels. We have a blog to interact with consumers. Running-lovers have joined the Li-Ning IRUN club online to communicate. And also the CRM provides us a good channel to learn from customers. Meanwhile, the sales system will pay more attention to sell-through than sell-in. That is, we will concern more whether the products have been sold to the end-users, i.e., consumers, rather than retailers. And the integrated sales system will provide more information about consumers' purchasing habit and preferences through data mining and business intelligence."

Besides, KCC initiated and finished a number of projects that were aiming at transforming tacit knowledge among employees into explicit knowledge, including organizing knowledge for influential projects and several departments, such as Finance, Management, Sports Resource Products and Footwear Products departments. For example, in the Olympic Marketing KM project, 15 interviews and 1 workshop were organized to collect facts and transform the tacit knowledge from the project members into explicit knowledge. Then the KCC staff began to write cases, guidelines, and handbooks to arrange the explicit knowledge. Those outcomes were stored in online platforms and made available to certain people with restricted backgrounds. LDC would make courses based on those outcomes and train the marketing staff who will prepare for the 2012 London Olympic marketing project. During this phase, the organizational triangle, IT, KCC, and LDC, have begun to show a strong collaborative relationship.

Incentive systems for encouraging knowledge sharing and knowledge creation have been planned and will be implemented. For example, the Key Development Index (KDI) has been added to the Key Performance Index (KPI) for employees. The company motivates employees to help others develop and encourage them to share knowledge and create knowledge. Employees will be required to share with others for six hours monthly. Moreover, the new corporate values, "We culture", and "New play", emphasize innovation and teamwork spirits.

Competitive Advantage. In 2009, the sales income reached to 8.387 billion RMB and it was in this year that Li-Ning exceeded Adidas in the Chinese market again (Internal memo in Li-Ning Company). The gap between Li-Ning and Nike has also been narrowed down based on the market share data. However, the local brands, especially those Fujian Jinjiang Grassroots, are catching up with Li-Ning. There will be a sustainable competition in the dancing rugged Chinese sports goods market. And the efforts Li-Ning has made to differentiate itself need more time to tell us the final outcomes.

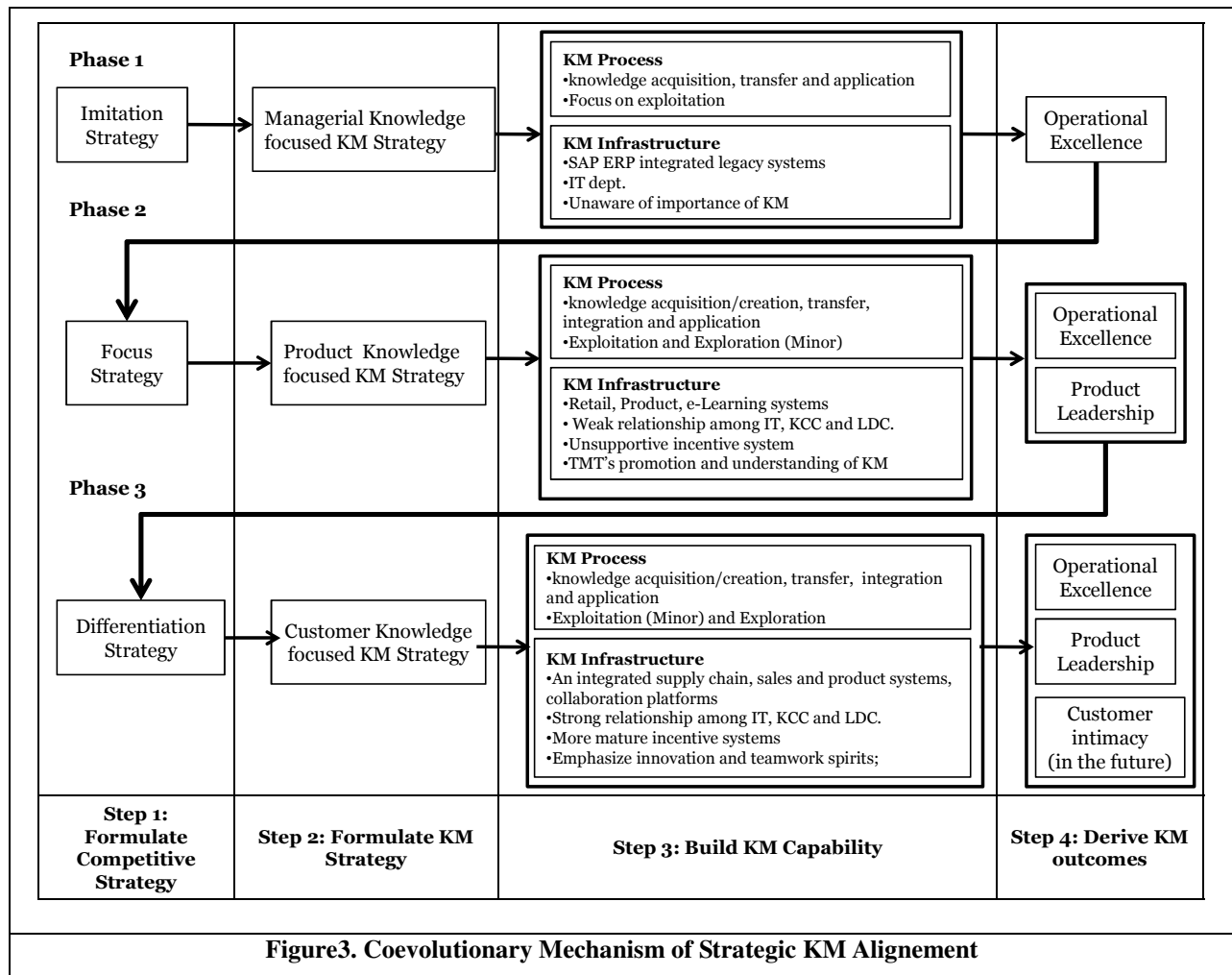
Discussion

The 3-phase evolution in Li-Ning Company confirms Kauffman's (1993) notion of "all evolution is really coevolution". Although the interaction between the environment and the firm as a whole is not the research foci of this paper, our study partially indicates the macro-coevolution of Li-Ning with the development of national economy in China. More importantly, this macro-coevolution provides impetus for the micro-coevolution within the firm. In particular, the chronologic evolution really shapes the coevolutionary journey of the dynamic strategic KM alignment with competitive strategy in Li-Ning Company.

From the Li-Ning case, we find that the strategic KM alignment in each phase is achieved by a looped process model (see Figure 3): (1) business strategy including corporate vision and competitive strategy is formulated to adapt to the environment; (2) corresponding KM strategy is formulated to determine the

priority of different knowledge for competition; (3) suited KM processes and infrastructure are launched to align with the strategy; and (4) the derived competitive advantage propels the firm to achieve more superior performance as well as serves as a base for the strategic transition in the next phase for sustainability.

Figure 3 also indicates the coevolutionary mechanism of the strategic KM alignment across multiple phases. There is no good or bad strategy, but the right or wrong strategy does matter to the continuous development of a firm. For the firms operating in China where the transition is on-going, adopting imitation strategy at the startup stage is a wise choice, especially when the firms have limited resources and are lack of knowledge of production and management. Knowledge acquisition from external sources by imitation and transferring for internal exploitation may bring the firms with operational excellence. Implementation of the information systems such as ERP, sales and inventory systems is useful for the management of operational knowledge and enhances the managerial efficiency.



The achievement of operational performance helps the firm find a foothold in the niche. It also functions as the impetus to push the firm forwards for self-branding and innovation that were deficiencies among Chinese firms in the previous several years. The product focus and differentiation strategies essentially emphasize product innovation, thus the salience of managing product and customer knowledge is increasingly recognized by the firms. On the one side, the firm improves the internal KM processes, stressing internal knowledge creation, transfer, and exploration for product innovation; on the other side, the firm proceeds the external KM, highlighting the customer knowledge acquisition, transfer, integration and exploitation for customer intimacy. KM is no longer a business of one department (e.g., KCC) while a business of coordination of multiple departments (e.g., the tight relationships of IT, KCC, LDC) which leads to smoothed and mature knowledge management in the firm.

For any firm, operational excellence is a baseline for holding a position for competition whereas product leadership and customer intimacy are for sustaining the leading position in the niche. Considering that the competition is more turbulent and dynamic, the firm must continuously adjust itself with appropriate KM strategy, processes and infrastructure and thus can ultimately establish a decent portfolio to balance operational excellence as well as product leadership and customer intimacy. This cannot be achieved in a short term. Instead, it is shaped by the coevolutionary alignment of micro states within the firm.

Implications and Conclusion

Our research presents contributions to the existing literature and the organizational practices as well. Firstly, this research contributes to the alignment literature by examining the dynamics of KM alignment with competitive strategy of firms from a coevolutionary lens. While the IS alignment has been much documented, the alignment of KM with competitive strategy and the alignment among the KM strategy, processes, and infrastructure are rarely studied. The research on the coevolution of strategic KM alignment is almost blank (Chan and Reich 2007; Swain and Ekionea 2008). Although knowledge has been viewed as a strategic resource for competitiveness, different types of knowledge would be prioritized depending on the strategic focus in different development phases of firms. To adapt to the dancing rugged competitive environment, the firm continuously adjusts its position in its niche and competitive strategy, thus resulting in the inevitable changes in KM strategy formulating, KM processes, and KM infrastructure construction. The inter-connected changes are not messy. Instead, our case study in Li-Ning shows that the continuous KM alignment with competitive strategy constitutes the chronic KM capability building; in return, the gradually developed KM capability leads the firm to upgrade its strategic position in the niche market. The iterative alignment from one phase to the next phase embodies the coevolutionary journey of strategic KM alignment over time.

Secondly, this research contributes to the board KM literature. Prior KM research has focused on knowledge resources and/or knowledge processes of the firm as sources of firm performance (Tanriverdi 2005; Tanriverdi and Venkatraman 2005). Although the “relatedness” of knowledge resources has been noticed, the necessity of changing the focus of KM strategy to align with competitive strategy is not well recognized. We hold a dynamic developmental perspective on KM capability building and answer the question of how KM derives competitive advantage over time. As the firm develops, it transforms the competitive strategy from cost-leadership to differentiation. As a consequence, the KM strategy transforms the emphasis from managerial knowledge to product and customer knowledge, and KM processes and infrastructure implemented in the firm shape these changing orientations and become mature. Thus, the KM capability of a firm is not only a long-time developmental process in which knowledge is cumulated but also a dynamic process which results in the difference of the KM foci, processes, and infrastructure in each snapshot.

Thirdly, our research concerns about the uniqueness of the Chinese context which is different from US and European contexts. (1) The notion of KM was proposed under different conditions. KM was initiated in late 1980s among Western firms when they faced overload of information and data due to adoption of various information systems since 1960s (Grover and Davenport 2001). Knowledge in Western companies was well cumulated and documented, although deluged. However, in Chinese companies such as Li-Ning, KM was introduced in 1990s, which was almost in a parallel snapshot when various information systems were implemented in the companies. In the early stage of KM capability development, there is a lack of knowledge base and decent IT infrastructures. Therefore, the implementation of IT applications such as ERP served as an important channel for Chinese firms to acquire advanced knowledge of organizational processes and operations. IT was an enabler of KM capability development in Chinese firms. (2) The development and evolution of KM processes are different. As revealed in the case study of Li-Ning Company, most Chinese companies tended to emphasize the acquisition, assimilation, exploitation of knowledge from external sources at the initial stage because of the lack of knowledge bases. Then they recognized the value of internal knowledge and tended to emphasize the knowledge creation, sharing and exploration when the whole company has become mature and competitive. However, in Western companies, the internal knowledge creation and sharing was often appreciated. For instance, in Nike, the learning and creativity were strategically emphasized since Nike was founded in 1970s (Stonehouse and Minocha 2008). Rezgui et al. (2010) summarized three generations of KM in the industry of architecture, engineering and construction in Europe: the KM processes evolved from knowledge sharing, to knowledge

nurturing, and finally to the creation of sustained organizational and societal values (Rezgui et al. 2010). (3) The different evolution paths of KM infrastructure, processes and capability building in Chinese and Western contexts must lead to the resultant different coevolutionary journeys of competitive strategy and KM strategy and capability development between the two different contexts. The gradual shift of competitive strategy in Chinese firms from imitation to differentiation results in the shift of KM capability development from external knowledge focused to internal knowledge focused. In return, the enhanced KM capability supports Chinese firms to adopt more innovative and entrepreneurship orientated strategies for competition. However, the Western companies may or may not experience the similar developmental and transitional path that Chinese companies have competed in the past short twenty years.

Thus, our research adds value to the branch of “China” characterized literature. We acknowledge the dynamics and turbulence of the big emerging economy of China and depict a coevolution among micro states within a private firm that grows as the reform deepens. Previous studies have stressed the macro environment and offer some insights on the strategic choices (Peng 2003; Peng and Heath 1996; Tan and Tan 2005; Zhou 2006). Our research adds additive value to this particular research field by revealing the micro-level practices in a private Chinese firm, i.e., how KM coevolve with the firm’s competitive strategy through adjusting KM strategy with suited KM processes and infrastructure.

Our research also entails important managerial implications for the firms operating in China. In the dancing rugged landscape, the continuous learning willingness and ability of the firms may determine their survival and prosperity in a long-run. The achieved success of Li-Ning Company should be attributed to the fact: it knows well where the knowledge gap is between the leading competitors and itself, what it should learn in each developmental phase, and where it should go after each strategic transition; therefore it can dynamically adjust its KM processes and infrastructure to fulfill the strategic demands. During the short two decades upgrowth, the firm learns fast to fill up the knowledge gap and continuously adjusts the competitive strategy caused by the dynamic environment as well as the top management’s great dreams. As the macro economy in China grows fast and reaches notable achievement, some Chinese firms, especially the private firms, bend themselves to develop self owned brands and pursue the excellence in the world. The coevolutionary journey that Li-Ning Company has experienced is the epitome of what has occurred in the whole country. The heightened dynamic alignment among the knowledge intensive components derived from the case study in Li-Ning enlightens the KM practices for other Chinese firms and the firms in other regions also facing the environmental turbulence and dynamism.

In conclusion, our research reveals the coevolutionary alignment of KM practices with competitive strategy over time for sustainable competitive advantage of a firm, showing that KM alignment for superior performance is a developmental learning process. KM strategy, processes, and infrastructure development is determined by competitive strategy to cope with a specific environment in a particular phase, in turn, the cumulated knowledge and the derived competitive advantage enable the firm to upgrade its competitive strategy (e.g., from imitation to differentiation) to survive and thrive in the dynamic environment. We are also aware of the limitation of this research. The single case study may be biased, thus limiting the generalizability of our findings. Multiple cases will be studied and compared in the next step to examine the micro-coevolutionary KM alignment mechanism within the firms.

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