

Building customer capital through knowledge management processes in the health care context

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Background: Customer capital is a value generated and an asset developed from customer relationships. Successfully managing these relationships is enhanced by knowledge management (KM) infrastructure that captures and transfers customer-related knowledge. The execution of such a system relies on the vision and determination of the top management team (TMT). The health care industry in today's knowledge economy encounters similar challenges of consumerism as its business sector. Developing customer capital is critical for hospitals to remain competitive in the market.

Purposes: This study aims to provide taxonomy for cultivating market-based organizational learning that leads to building of customer capital and attaining desirable financial performance in health care. With the advancement of technology, the KM system plays an important moderating role in the entire process.

Methodology/Approach: The customer capital issue has not been fully explored either in the business or the health care industry. The exploratory nature of such a pursuit calls for a qualitative approach. This study examines the proposed taxonomy with the case hospital. The lessons learned also are reflected with three US-based health networks.

Findings: The TMT incorporated the knowledge process of conceptualization and transformation in their organizational mission. The market-oriented learning approach promoted by TMT helps with the accumulation and sharing of knowledge that prepares the hospital for the dynamics in the marketplace. Their key knowledge advancement relies on both the professional arena and the feedback of customers. The institutionalization of the KM system and organizational culture expands the hospital's customer capital.

Practice Implications: The implication is twofold: (1) the TMT is imperative for the success of building customer capital through KM process; and (2) the team effort should be enhanced with a learning culture and sharing spirit, in particular, active nurse participation in decision making and frontline staff's role in providing a delightfully surprising patient experience.

Customer capital is the value of the customer relationship with the organization or is a conceptualized asset developed and maintained with the organization's customers. As an important component of intellectual capital, it is considered to be a major source of competitive advantage in the knowledge economy (Bontis, 1999; Edvinsson & Malone, 1997) and plays a major role in driving strategic and financial performance in a transitional market (Luo, Griffith, Liu, & Shi, 2004). The customer relationship management (CRM) process involves the creation, capture, and transfer of the knowledge-based resources through customer interaction and the integrated channel management. The interactions between customers and the organization reflect an ongoing knowledge exchange process (Day, 2000); and the positive relationship with the customers is a key approach to gain knowledge about customer preferences and needs (Dyer & Singh, 1998).

As a result, in today's health care sector, patients are becoming well-informed through multiple channels of communication, such as the Internet (electronic), help line (voice), and personal channels (Morath, 2003; Scott, 2003). Many patients capitalize on the available knowledge and are transformed

from passive care receivers to consumers who take an active role in their care. Scholars posit that customer orientation in the health care industry results in an increase of demand for productivity and innovation which can pose major challenges to health care providers (Herzlinger, 2002). Hence, there is a call for a better understanding from the customers' perspective in order to strategize for success (Gershon & Jackson, 2003). The efforts in meeting the customer needs require collaborations among crossfunctional units. The key is how organizations can break the boundaries and generate cross-functional learning that is market-oriented; currently, most companies invest in a knowledge management (KM) infrastructure to facilitate such activities. However, a precursor of successful KM is the support and determination of the top management team (TMT; Zablah, Bellenger, & Johnston, 2004). On the basis of the voluminous discussions in the business literature, the authors attempt to propose a taxonomy that depicts how the TMT may facilitate organizational learning through their KM infrastructure and, in turn, build the customer capital that impacts on the organization's overall financial performance. The case study further illustrates the process in the context of health care.

Literature Review

The intangible capital of an organization has been reported to be three to four times over its book value (Edvinsson & Malone, 1997). Scholars (Nahapiet & Ghoshal, 1998) advocate that the intellectual capital encompasses nonfinancial assets of human, structural, and social capital; and it captures the explicit and tacit knowledge that is embedded in the forms of social and institutional practices, accessible and sustainable through the interaction of the individual actors. A health care organization is staffed primarily by a workforce of knowledge workers, and its intellectual capital is created through a process of exchanged knowledge between parties (Sorrells-Jones & Weaver, 1999). Hence, the health care industry provides a valuable platform whereby the significance of intellectual capital can be thoroughly examined. This study focuses mainly on the aspects of the "top management team," "knowledge management processes," "market-based organizational learning," and "customer capital" for human, structural, and social capital, respectively.

Top Management Team

Knowledge, as the most important competitive asset possessed by firms (Grant, 1996), resides mainly in human resources; and human capital plays a key role when firms try to generate returns through the integration of resources like stakeholder relationships, knowledge processes, and infrastructure (Carlucci, Marr, & Schiuma, 2004). Most of the discussions of human capital focus on the Top Management Team, as this specific segment is more involved in the decision-making process (Hambrick & Mason, 1984). These teams are typically closely networked with both the internal and external stakeholders of an organization. Variant levels of willingness to take risk depend on the age, tenure, education, working experience, and personality of the constituencies of the TMT. These attributes of the TMT also influence the team's tolerance for ambiguity during various organizational stages. Furthermore, the teams functional experiences in, for example, research and development or marketing affect their problem-solving styles, which in turn impact directly the organizational performance (Govindarajan, 1989).

In addition to their strategic emphasis, the members' personal ties shape their decision making, and relational embeddedness plays an important role in linking the interfirm networks that facilitate overall learning in the organization (Hitt & Tyler, 1991; Uzzi, 1997). As such, embeddedness and involvement are considered as organizational resources due to their contribution to interfirm collaboration, networks, and knowledge building knowledge (Hamel 1991).

Market-Based Organizational Learning

In the knowledge economy, organizations function as organisms that dynamically evolve and adapt themselves to the changing environment through continuous learning. They may begin with

incremental and sequential processes that are confined to the traditional scope of business activities. This adaptive learning is sufficient to motivate changes in operations or production. Some more innovative organizations, compelled by keen competition and/or the vibrant market force, may challenge their own long-held assumptions about their mission, customers, capabilities, or strategy and engage in generative learning essential for strategic shifts (Huber, 1991). Either type of the learning process requires the participants to have a market orientation in order to strategize for the creation of wealth for the firm.

Organizations with market orientation strategize within the consideration of their target customers' demands and the strategies of their current and potential competitors in the market. The market intelligence is then to be collected and disseminated through an organizationalwide mechanism. This process of market-oriented learning facilitates knowledge-generation and the consequential responses of the organization (Sinkula, 1994). When focusing on market-oriented knowledge producing behaviors, the format is primarily that of the adaptive learning. Adaptive learning enables organizations to constantly develop new offerings for the market by breaking away from outdated or recent frames and norms (Baker & Sinkula, 1999). In this scenario, the constant change most likely requires resources and the TMT's strategic direction. We therefore propose that:

Proposition 1: The TMT influences the cultivation of market-based organizational learning.

Knowledge Management Processes

Structural capital encompasses any structural element of an organization that facilitates the employees' ability to create wealth for the firm and its stakeholders. Hence, this construct includes efficiency, transaction times, procedural innovativeness, and access to information for knowledge codification (Bontis, 1999). These divisions can be further grouped into two subdomains, namely, innovation capital and process capital (Edvinsson & Malone, 1997). Process capital is of particular interest to this research as it involves the internal procedures that allow for knowledge integration and capability sharing, which results in wealth creation for the organization. The KM processes contribute to the effectiveness of an organization's market-related activities, such as customer generation, CRM, and seller-customer interaction management (Zablah et al., 2004). The KM system, including both process and infrastructure, is usually developed with the organization's human resources, computer systems, network capabilities, or data capabilities. This system facilitates the customer contact activities, such as pricing, reporting, technical support, internal and external communications, and the overall support platform.

Interactivities among individuals serve as an essential element for organizational knowledge processing through socialization, combination, externalization, and internalization of the tacit and explicit knowledge held by individuals, organizations, and societies (Nonaka, 1994). The resulting organizational knowledge may encompass organizational and managerial practices, such as benchmarking, knowledge audits, best practice transfer, and employee development (Grant, 1996). The TMT's involvement in the establishment and, furthermore, the facilitation of such organizational knowledge and intangible assets lead to the following proposition:

Proposition 2: The TMT determines institutionalization of KM processes.

Owing to the changing landscape of service encounters, both the employee and the customer are able to contribute to increasing customer satisfaction with the use of technology (Bitner & Meuter, 2000). The TMT's advocacy of adopting a KM system drives the employees' positive attitude and behavior in learning to adopt these technologies. With the compilation and analyses of the customer database, the service providers are able to acquire a better understanding of the needs of individual patients and in turn provide customized services and effective service recovery to generate customer delight.

Henceforth, the proposition is:

Proposition 3: KM processes enhance the TMT's influence on market-based organizational learning.

Customer Capital

Customer capital, as an essential part of intellectual capital, is the value embedded in the marketing channels and the customer relationship within the organization (Luo et al., 2004; Nahapiet & Ghoshal, 1998). Its indices include marketing capabilities for constructing and utilizing the customer database, providing customer-based services, and discerning customers' perspectives and preferences; decision-making processes for market intensity; and customer loyalty (Liu, Luo, & Shi, 2002). Effectively managing the customer relationship involves creating, capturing, and transferring the knowledge-based resources through customer interaction and integrated channel management and with the use of analytical tools (Day, 2000). Hence, we propose that having a KM infrastructure facilitates the resource building and exchange:

Proposition 4: KM processes enhance the influence of market-based organizational learning on customer capital building.

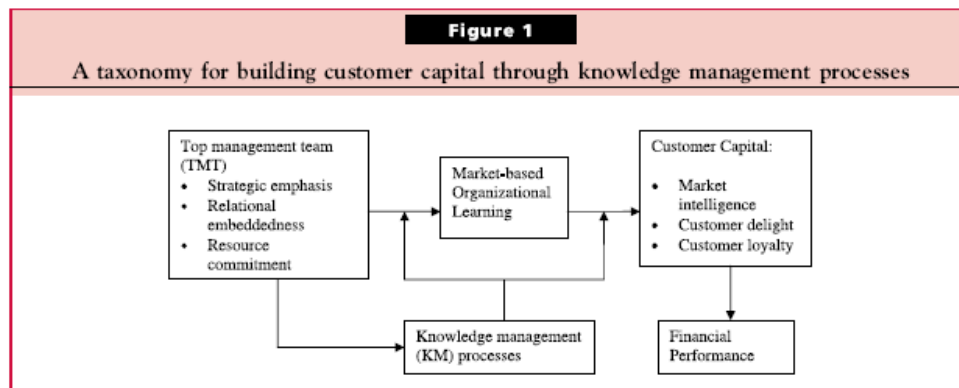
Buyer–seller interactions reflect an ongoing knowledge exchange process beyond merely discrete transactions. For example, many companies have privileged customer account that the buyers are able to log on and have access to customized intelligence as well as order tracking mechanism. This process allows an organization to build a customer database, to generate knowledge by analyzing the data, and to disseminate information to the decision-makers and those who interface with the customers. To attain effective customer capital accumulation, there has to be an organization-wide generation of market intelligence pertaining to the current and future needs of customers. The dissemination of this intelligence must be actuated horizontally and vertically so that responsiveness to market changes can be developed fully to facilitate customer satisfaction and promote customer loyalty. We therefore offer the following proposition for the building of customer capital:

Proposition 5: Market-based organizational learning facilitates building of customer capital.

Yet, customer satisfaction is not enough; customer capital derives primarily from customer delight. According to Willis (1996), customer delight encompasses the high values of perfect quality, lowest cost, and regal customer service. Snell (1999) comments that a better understanding of what customers want in a product or a service is what makes one a business leader as opposed to a follower. At the end of the accumulation process, customer capital should lead to better financial performance. Hence, we propose:

Proposition 6: A higher degree of customer capital leads to better financial performance.

Figure 1 depicts the proposed relationships among TMT human capital, KM processes, market-based organizational learning, customer capital, and financial performance based on the abovementioned literature review. As there has been no systematic exploration of these relationships reported in the health care context, the authors have adopted the ethnographic approach to attain insight into the constructs and relationships that are proposed in the taxonomy.



Case Study And Proposition Discussion

Methodological Considerations

Health care globally is undergoing structural and philosophical reforms owing to market influences of consumerism and the contraction of resources. To attain an in-depth understanding of the practices and, in turn, to delineate the proposed structural constructs, the case study method described by Kohli et al. (1993) has been adopted. However, the case hospital was approached not only from third-party observation (Kohli et al., 1993) but also from the ethnographic perspective due to the second author's personal experience with the same. Hospital systems and operations in Taiwan model those of the United States because of the close exchanges in health care education and practices existing within the two for more than 50 years. The insights gained from the case hospital may well reflect the challenges and lessons that are encountered by its US counterparts.

This study adopted "triangulation" to establish both internal and external validity through personal experience, multiple face-to-face interviews, and secondary data from hospital archive, books, and media reports. The historical background of the case hospital was also examined to learn the evolution of its operations. Internal validity is more of a self-reflection on the degree to which the constructs of the proposed taxonomy are supposed to measure (Sommer & Sommer, 1986). External validity can be understood in terms of generalizability (Campbell & Stanley, 1963; Schmitt & Klimoski, 1991), as accomplished by an evaluation of three Midwest-based US health care networks with which the first author has been working, including one heart hospital that is similar to the case hospital and two health systems that are beyond the surgical unit.

The objective of studying a case is to discern a success model from its experience. Hence, the case hospital has been identified as our target for the pilot study because of its recent outstanding performance in heart surgery and its strong leadership style (Hsieh, 2005; Huang, 2005). As a patient of the selected heart surgery team, the second author has been able to do day/night field observations and interviews during her 2-week hospitalization period. A required clinic visit every 3 months for prescriptions for life has enabled the second author to continuously examine the progress of this case hospital.

Additional correspondence with the interviewees was employed to verify some issues identified from data analyses. In addition, a series of semistructured interviews were conducted, spanning from early 2004 to early 2005. Guided questions include inquiries regarding: (1) the characteristics of the TMT, processes of establishing the infrastructure for creating/sharing/storing of advanced surgery technology and knowledge in general; (2) the internal learning climate; and (3) customer behaviors. A total of seven interviews were conducted at the case hospital, including those of the Hospital Director,

Surgery Department Chief, Nurse Specialist, Chief Nurse, Ward Nurse, Director of Human Resource Department, and Director of Pharmacy Department. Every interview was tape-recorded and transcribed for data analyses.

Findings And Proposition Discussion

The case hospital was established in 1981 with a mission of serving all the residents in its neighboring six cities in the northern part of Taiwan. About 20 years after its inception, the case hospital's overall performance was deteriorating to the extent that it either underwent a radical reform or termination of operations because of drastically decreased patients. The transformation of the case hospital began with recruitment of a new hospital director in September 1999. The way the director restructured the hospital and its KM process with very limited human resources to enhance its customer capital has become a benchmark in Taiwan's health care industry. In May 2002, the Common Wealth Survey Center reported a revenue growth rate of 35.64% achieved by the case hospital, the highest compared to an average of 7.76% for the eight largest hospitals in Taiwan. This revival was observed after the new TMT assumed duty in 2 years. The fact that their hospital beds tripled to 1,050 in 2006, serving around 5,000 patients daily, showed a rapid increasing level of customer capital. Currently, the hospital is constructing a new 14-story building with an internal space of 82,134 square meters. The following discussion will focus on illustrating the drivers for the transformation of the case hospital and, in the process, discussing the propositions of the proposed taxonomy for building customer capital through KM processes.

Human Capital—Top Management Team

The leadership within the case hospital determines the organizational mission and direction in the initial stage of reform, which involves the process of conceptualization and transformation. The hospital director, who is also a professor of a preeminent university, was named "Father of Heart Transplant" in Taiwan (Chang, 2002) and was conferred with the highest honor, the Individual National Quality Award, in November 2005 by the government. His determination in reviving the case hospital was very strong from the beginning.

The director recruited his "brightest student" to be the chief of the Surgery Department a few months after the director took office. Others consider them the two souls of the TMT and the hospital at large (e.g., Hsieh, 2005; Huang, 2005). Both are valuable human capital in the organization and the industry because they are both hands-on, proactive to the changing environment, and very committed to the cause. Scholars have advocated that demographics and personality traits of top managers could serve as the predictors of organizational outcomes—strategic choice and performance (Hamel, 1991; Nonaka, 1994; Uzzi, 1997). These leaders' commitment to their professions and their direct responsibility in resources management enable them to fulfill the mission of their respective organizations, and these organizations have shown significant market penetration and sales growth, which will be further elaborated in the section of financial performance.

Market-Based Organizational Learning

The case hospital director capitalized on the rapid advancement in technology and has invested in digitizing and automating the entire operation. Both medical professionals and service associates have been given opportunities to enrich and update their knowledge and are motivated to respond to the customers' demand for clinical excellence, efficiency, and emotional support through the e-management process. For instance, the second author witnessed an incident during a clinic visit: A transferred patient could not describe clearly the medicine that was prescribed by her previous hospital. The nurse immediately accessed the computer and showed the patient various available dosage forms on the computer screen. The matter was resolved in less than 3 minutes. The market-based learning of the staff allows them to provide more customer-oriented care that attracts more patients to the case

hospital. In the end, the clinical staff has greatly benefited from the increasing opportunity of managing more varieties of challenging cases.

Knowledge Management Process

The study identified three stages of the KM process which the open-heart surgical team of the case hospital engages in: (1) Obtain, share, secure, and advance the key technology; (2) innovate mechanisms for continuous improvement of the technology, its sharing, and storage; and (3) institutionalize successful processes that add value. The process of acquiring new technology and/or techniques is a major undertaking of the organization. As was discussed in the previous section, relational embeddedness has a positive impact on information acquisition, product development, interfirm collaboration, networks, and building knowledge (Hitt & Tyler, 1991; Uzzi, 1997), so that the TMT of the case hospital believes in cooperation that encourages a sharing of technology support systems through their embedded social network. The hospital director utilizes his embeddedness as a professor of the University Medical School and has signed an alliance agreement which enables him to co-hire about 80 doctors with the University Hospital. Not only are these joint-recruits able to bring to the case hospital innovative skills and techniques to better serve its patients but they also provide a channel for knowledge exchange and learning opportunities for the staff of the case hospital. The following sections further elaborate the three stages of the case hospital's KM process.

Key technology attainment and advancement. The impetuses for initiating the flow of attaining and advancing the key technology mainly were from the professional arena and/or the market feedback. For example, vascular picking in supporting a coronary artery bypass grafting surgery traditionally was a 20-cm incision on the leg and the procedure required about 2 hours. The open-heart surgical team first successfully imported a new skill when the team picked the vessel from an arm (still a 20-cm incision) to provide for a better quality vessel as they were told was possible through their network and social contacts. The Chief was the first doctor who adopted the new skill and later transferred this skill to other surgeons after he matured the procedure. He continued to refine the technique to respond to the patients' requests for even less visible incisions to permit them to wear short sleeves or shorts. Today, the team has been able to perform a less than 30-minute procedure of making a 2-cm small cut. As such, this KM process has allowed market-based organizational learning through the human capital and, in turn, has generated returns.

Innovating mechanisms for continuous improvement. A major challenge that the TMT faced was how to ensure the extraction and sharing of the hidden and tacit knowledge owned by the employees. The open-heart surgical team mandated a weekly forum for knowledge sharing, storing, and continuous improvement. The hospital director, surgery chief, nurse specialists, perfusion technicians, and other relevant personnel were able to freely share and discuss cases at the forum. Every Saturday morning, they usually first reviewed the operated cases and discerned areas for improvement, and then previewed the cases for the following week in terms of each patient's personal background, recovery situation, and the upcoming surgical procedure. The team culture has been established in a fashion that enables nurses to have an equal share of voice. After each meeting, all information on individual patients would be filed electronically. This KM mechanism facilitated the building of a customer database, generating knowledge from data analyses, and disseminating information to the decision-makers and those who would interface with the customers. In addition to the TMT human capital, the case hospital has effectively utilized the inputs and feedback of the patients, their family members, and the care providers with this mechanism. This system echoes what the scholars have advocated that knowledge should be accumulated through human resources and stakeholder relationships (Carlucci et al., 2004; Dyer & Singh, 1998). In turn, the KM process enhances the TMT's influence on market-based organizational learning.

Institutionalization of the knowledge management processes. With the evident constraints of a severe shortage of qualified human resources, the TMT of the case hospital is concerned about

institutionalizing a formal hospital-wide process whereby all relevant personnel may learn from each other, take ownership of patient care, and provide most efficiently and effectively quality services to a greatest number of heart patients. As discussed previously, the surgical unit successfully adopts a team-oriented approach. Table 1 demonstrates a process loop, which has allowed the team to care for 1,500 open-heart cases in 3 years. The hospital director and the chief took charge of the operation but the overall procedural success relied upon the support of competent staff in the value-added process loop.

Table 1		
An example of the process loop		
Process of a Clinic re/visit with the routing of Room 1 → Room 2 → Room 3 → Room 1		
Room 1: (1–2 nurses) Check-in and check-out	Room 2: (1–2 nurse specialists) Data collection, recording	Room 3: (1 physician, 1 nurse specialist, and 1 nurse) Physician examination
Step 1 Patient history retrieval Patient document check Blood pressure recording	Step 2 Preliminary history check, symptoms and main concerns recorded on patient's history Various test result recording Outpatient incision treatment (remove the incision sewing lines..)	Step 3 Nurse presents history passed from Room 3 and other test results (X-ray...) Nurse specialist locates the case in computer Physician examines Nurse specialist processes the prescription and makes appointment for next visit Nurse passes history to Room 1 for further examination or discharge
Step 4 Further examination process guidance (optional) Prescription explanation Return visit explanation		
Remarks: 1. This clinic visit process loop allows the hospital director to effectively examine around 80–100 patients in one afternoon without sacrificing the service quality. 2. There are inner doors between the three rooms for fast communication of care takers.		

Customer Capital

The case hospital operates in a market economy with keen competition. The integration of market-based learning with the KM processes has ensured the provision of quality services to various patient segments. Traditionally, each surgeon fought his or her own battles by competing with peers for patients. The surgeon's special skills were seen to be proprietary, have been guarded with care, and could only be transferred to the trusted apprentices.

With the established culture of market-based learning at all levels, the frontline staff worked together to collect valuable intelligence regarding the patients' perceptions, as well as decision-making processes, staff preferences, and the staff's knowledge about the competitors' ancillary services, advanced equipment, unique services, and more favorable payment terms. The frontline staff then strived to achieve not only customer satisfaction but also customer delight in the minds and through the lenses of the patients and their families (Kohli et al., 1993). For example, the key surgeon, in addition to a nurse, usually takes time and effort to explain to the patient and his or her family the details of the surgery and also allows ample time for answering questions that help to soothe the patient's anxiety.

Hence, the market-based learning culture and KM processes of the case hospital significantly affect the building of customer capital. Customer loyalty is an important indicator for customer capital and is reflected on patient population increases, patient testimonies published in the media, and varied demonstrations of patient appreciation. The overall satisfaction rate of 83% for inpatient services is a good indication for attaining customer capital. In the health care context, customer loyalty could be measured by the rate of cross-selling and referrals, and customer capital can be expressed as market intelligence, patient delight, and patient loyalty.

The financial performance in a hospital, on the other hand, depends on patient numbers and management effectiveness. For the case hospital, the fact that patient numbers are significantly increasing has been evidenced by two more parking lots that were constructed in a short time span. Table 2 indicates its successful financial performance with the statistics reported by the Common Wealth Publisher Survey Center in Taiwan. Specifically, the open-heart surgical team generated about 8% to 10% of total hospital revenue and outperformed itself financially with a doctor ratio of 2.9% (4 doctors to the total 137 doctors in 2004). Overall, the annual sales growth of the case hospital for the past few years has been ranked number one among the eight large hospitals in Taiwan (Huang, 2005).

Year	Sales (US\$)	Sales/Employee (US\$)	Debt/Assets (%)
2002	1.03 billion	64,062	32.76
2003	1.23 billion	69,375	27.41
2004	1.40 billion	73,125	22.63

Practice Implications

Managing a financially healthy hospital operation has become more challenging particularly in the knowledge and market economy. Patients and/or their advocates have more access to information through a Webenabled technology; these information access increases, when combined with keen competition in the health care industry, compel hospital management to be more “customer-oriented” and sensitive to the market dynamics. The same phenomenon has been observed in the United States, and the authors have further examined the application of the proposed taxonomy in three Midwest-based health networks.

The conceptualization of the specialty hospital under one of the networks started with the TMT’s vision of designing an all-digital hospital. Its KM system enables the delivery of customer-oriented services with fully electronic patient records, which clinicians can view instantly inside or outside of the hospital. Its financial performance delivered a 1.5-year payback for all investments in total digital equipment and networking. Comparatively, the second network presents an example that suffers with continuously decreasing insurer population due to its absent market-based learning and KM system resulting from lack of resources. The third network has launched a major endeavor in assuring the provision of exceptional patient experiences within a set timeframe. The strategic directions and determination from its TMT have steered the project forward in the areas of implementing the KM system to facilitate communication internally and externally, cultivating a customer-centric (including both patients and employees) organizational culture, and identifying best practices and performance matrices.

In summary, the research results present some lessons for both health care providers and hospital administrators.

For Health Care Providers

The case of the open-heart team instigates three domains for consideration: (1) innovative versus conventional practices, (2) team practices versus encircled territory, and (3) inviting active nurse participation versus taking orders. The first domain should have implications on alleviating

therapeutic error and improving treatment outcome. Interdisciplinary collaboration is facilitated by the advancement of technology, such as RFID together with other digital equipment. The team effort should be enhanced with a learning culture and sharing spirit. Active nurse participation in decision making for patient care delivery was identified as one of the most important success factors for the case hospital. The frontline staff has a critical impact on patients' perceived emotional connectedness, which leads to a delightfully surprised patient experience.

For Hospital Administrators

The process delineated in the proposed taxonomy demonstrates the important role that the TMT plays in transforming an organization. The main challenges are how a hospital manages to form such a nucleus in the senior management level; whom to recruit on the basis of personality traits, backgrounds, and the social/professional network; what the effective channels of communication are among these key members horizontally; and how the shared vision as well as the directives can be developed within the organization vertically down to the frontline staff who contribute directly to the patient experience.

The case hospital has a closely knit TMT. Both the hospital director and the chief of the surgical team are effective in influencing and inspiring others to work toward a common goal and in empowering the staff to achieve this goal. They also effectively utilize teams to provide intimate and efficient patient care. The patient throughput process (illustrated in Table 1) reiterates the importance of teamwork. Routine weekly team meetings might be a common practice in other hospitals. The key is how the leaders are preparing for such a meeting and how this meeting is conducted. An essential element observed in the case study is that both the key leaders set a very high standard with their own example while working intimately with their subordinates. They also commit resources to the development of each and every individual in the team. Their relational embeddedness, which also is considered as organizational resources, allows not only for interfirm collaboration, networks, and knowledge building knowledge (Hamel, 1991) but also for linking interfirm networks that facilitate overall learning (Uzzi, 1997).

The moderating effect of KM processes is evident in all hospitals/health networks in both Taiwan and the United States. A developed understanding from the patient's perspective facilitates the innovation and the provision of exceptional services, which differentiates one hospital from another. The installation of a KM infrastructure and the institutionalization of the process allow for organic information exchanges and knowledge building. This market-oriented learning culture (Sinkula, 1994) results in a patient-focused health care with a customer capital accumulation and a healthy financial profile.

Conclusions

Based on the concept of intellectual capital, which mainly contains human capital, structural capital, and social capital, this study has adopted a more focused viewpoint in examining the relationships among the TMT human capital, market-based organizational learning, KM processes (partial structural capital), and customer capital (partial social capital). Both literature reviews and case study findings indicate the pivotal role that the TMT plays in cultivating an organizational learning orientation that leads to an enhancement of customer capital. The findings also suggest that KM processes moderate both paths. Accordingly, the study proposes research propositions for future empirical tests in the health care sector.

The human capital of the TMT cannot be more emphasized in a hypercompetitive era. Many companies acknowledge the importance of market-based organizational learning and KM, yet action is lacking. Employees are the crucial actors of good concepts, who generally are motivated by TMT's strategic emphasis and resource commitment. Therefore, without activating the human element,

structural capital cannot be realized. Customer capital, an important goal of every service company, is the value embedded in the marketing channels and in customer relationships within the organization. Nowadays, patients have been transformed from passive care receivers to consumers who become the driving force in the innovation of health care delivery for the knowledge economy (Morath, 2003; Scott, 2003). It is therefore timely to study how KM processes and infrastructures facilitate customer capital building in increasingly important industries such as health care.

The limitation of this research includes first, Figure 1 as a conceptual model which needs to be empirically tested. Second, only one case hospital was examined; more cases could have enhanced the validity of the propositions. Third, a simple focus on the partial concept of intellectual capital may have left out some important elements of the concept. Future research could empirically test the propositions and investigate more case companies. In addition, comparing studies conducted in various manufacturing and service industries should add value to this field of study. Furthermore, cross-cultural comparisons should also prove to be enlightening.

In conclusion, customer capital stems from customer delight. Customer satisfaction and customer loyalty are no longer sufficient in the knowledge economy. For the patient and the hospital, the relationship becomes smarter and deeper through every encounter. The interactions are no longer discrete transactions; rather they reflect an ongoing knowledge exchange process (Day, 2000). Therefore, how to activate company human capital, that is, to design a facilitating organizational learning and KM mechanism to capitalize on customer resources, has become a pressing issue.

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