

An integrated model for learning organization with strategic view: Benchmarking in the knowledge-intensive industry

Shu-Hsien Liao^a, Wen-Jung Chang^{b,*}, Chi-Chuan Wu^b

^a Department of Management Sciences and Decision Making, Tamkang University, No. 151, Yingjung Rd., Dansui Jen, Taipei 251, Taiwan

^b Graduate School of Management Sciences, Tamkang University, No. 151, Yingjung Rd., Dansui Jen, Taipei 251, Taiwan

ARTICLE INFO

Keywords:

Organizational learning (OL)
Learning organization (LO)
Strategic management
Benchmarking
Knowledge-intensive industry (KII)

ABSTRACT

Facing such a fast-changing environment, an organization should be more market-driven and learning-oriented. It is believed that a learning organization (LO) is apt to develop and maintain its own competitiveness rather than that without learning ability. Even though many studies have been addressing the importance of LO and the plausible relationship with competitiveness, the incoming impacts of knowledge have force them to focus attentions on knowledge-intensive industry (KII). Managing change is the high priority for continuing education institutes (CEIs), one of KII in Taiwan, coping simultaneously with diversified market needs and limited resources. Prior literatures, however, concerned with strategy-performance relationship have been oversimplified the contextual effects. Therefore, this study decides to develop a conceptual framework with an adaptation of Prajogo and Sohal's model to describe the missing linkage in context of environment-strategy-performance (ESP). To serve as benchmarking, we further introduce an integrated model named 'the Learning Organization Pyramid' (LOP) for facilitating a good understanding of LO and CE system. This study finally concludes that a LO would be the best solution for KII to bridge the gap in terms of system planning.

© 2009 Elsevier Ltd. All rights reserved.

1. Introduction

It is true that the only constant thing in life is continuously changing. In 21st century, the so-called knowledge-based economy era, no one can prevent himself/herself from the challenges of knowledge as well as organization itself. The power of knowledge is a very important resource for preserving valuable heritage, learning new things, solving problems, creating core competences, and initiating new situations for both individual and organizations now and in the future (Liao, 2003). Many organizations currently engage in knowledge management (KM) in order to leverage knowledge both within their organization and externally to their shareholders and customers (Rubenstein-Montano et al., 2001) for creating superior customer value and improving their performance. Thus, those issues involving KM have attracted attentions from researchers and practitioners in last decades.

An organization of good performance is mostly resulted from its responsiveness and adaptability to the surrounding environment. A competitive environment requires an organization to pursue more complex dimensions of performance, most notably quality and innovation (Bolwijn et al., 1990). Stata (1989) and Sinkula

et al. (1997) suggest that organizational learning (OL), especially in knowledge-intensive industry (KII), not only leads to organizational innovation, but also becomes the only sustainable competitive advantage. Murray and Donegan (2003) argue that learning orientation can lead to a favorable culture for innovation and improving the behavior and capability of individuals so that the organization can more effectively respond to its environment. In addition, Hackman and Wageman (1995) assert that effective quality management is 'about as learning-oriented as it is possible for a management program to be'. It is no surprise that quality and innovation has significantly become two determinant resources of competitiveness in today's business environment. Above all, it is reasonably accepted that the role of OL plays in context of competitiveness.

Beginning in the 1980s, the concept of a learning organization (LO) was articulated by scholars and practitioners. LO is defined as a place where knowledge is fully utilized, capacity is expanded, behavior is changed, and competence is gained (de Geus, 1988; Garvin, 2000; Saylor, 1992; Senge, 1990; Swieringa & Wierdsma, 1992). Even though many theorists have viewed LO as a successful foundation for contemporary organizations (Robbins, 2001) and have been addressing its importance and plausible relationship to competitiveness in terms of quality, innovation and business performance (Baker & Sinkula, 1999; Chang & Sun, 2007; Dai, Duserick, & Dai, 2005; Ellinger, Ellinger, Yang, & Howton, 2002), the

* Corresponding author. Tel.: +886 2 26215656; fax: +886 2 86313214.

E-mail addresses: michael@mail.tku.edu.tw (S.-H. Liao), rickrong@gmail.com (W.-J. Chang), ccwu1002@hotmail.com (C.-C. Wu).

large knowledge input, short product life cycles, high demand for customized products, and great quantity of production value (Liao, Fei, & Chen, 2007) have forced these researchers and practitioners to focus attention on KII.

Because of the popularization of life-long learning, the life-long education has dominated the world education systems for these decades. Continuing education (CE), the major force of life-long education, provides appropriate opportunities for those who cannot finish their professional or normal education in the past in contrast to the traditional higher education (e.g., universities/colleges). Since 1998, the Ministry of Education (MOE) has been promoting the 'Recurrent Education' and 'Life-long Education' in Taiwan; the number of continuing education institutes (CEIs) has been on the rise around the island. Thus, managing change is the high priority for CEIs coping simultaneously with diversified market needs and limited resources. These changes, as a result, force CEIs to make attempts to retarget their market and customers and to redesign their operating system.

Just like any business, KII is subject to fast-changing environment too. Prior literatures, however, concerned with strategy-performance relationship rarely focus on CE and have been oversimplified the contextual effects. From strategic management perspective, we suggest that there probably exists a missing linkage somewhere in the so-called 'environment-strategy-performance' (ESP) chain. To explore the potential gap within the ESP context and further to search for the best solution to bridge this gap, this paper, therefore, proposes a new conceptual model named 'ESCAPE', which is based on the concept of Prajogo and Sohal (2001) with some modifications.

To date, there are lots of CEIs in Taiwan, including universities and colleges, institutions of vocational training, community colleges, life-long education and adult education institutes and corporate consulting companies and so on. In terms of market concentration, universities and colleges are supposed to be the representative of CE for following analyses. Our case institute, the School of Continuing Education of Chinese Culture University (SCE), is the largest CEI in Taiwan and it would be a good example of paradigm transfer for its flexible strategies and innovative initiatives.

This study makes three contributions to the extant literature. First, the survey on CEIs will help researchers and practitioners to broaden and refresh their views with this emerging industry in knowledge economy. Next, a graphical representation is used for clearly depicting the causality of ESP chain. Finally, we also suggest that the key role of OL plays in the missing linkage between organizational culture and organization's capabilities or competences.

2. Theoretical background

2.1. Organizational learning (OL) and KII

Facing an environment with high competitions and rapid changes, organizational learning (OL) has already become the requisite for survival (Fulmer, 1994). For the rapid environment changes and the fast increases of technology, skills and knowledge, organization therefore needs to learn to adapt to these changes (Huber, 1991). In today's business environment, most people agree that the organization's ability to learn faster than competitors is a significant source of competitive advantage (McGill & Slocum, 1993; Nevis, DiBella, & Gould, 1995; Senge, 1990; Slocum, McGill, & Lei, 1994; Stata, 1989; Ulrich, Von Glinow, & Jick, 1993).

As a result of IT progress and the accumulation and diffusion of knowledge, KII has become a dominant role in a country's economic development. It is worth noting that the nature of the

knowledge-based economy should focus on 'innovation' first and all these innovation-intensive activities would further enhance organization's capabilities for creating superior value and maintaining sustained competitiveness. Thus, OL has been regarded as one of the strategic means for organizations to successfully archive their long-term objectives (Cunningham & Gerrard, 2000; Harung, 1996; Senge, 1990).

2.2. Organizational learning and knowledge management (KM)

Organizations are seen as learning through processes that create new knowledge or modify existing knowledge (Phang, Kankanhalli, & Ang, 2008). From the knowledge-based perspective, Bates (1998) argued that knowledge is the basis of learning. An organization cannot compete with others in this changeable environment for the lack of adequate knowledge and renewal capability. Knowledge or information is now perceived as the most significant strategic resource in organizations, and its management is regarded as critical to organizational success (Ipe, 2003). The development and growth of organizations have made information technology and information capital significant assets in organizations (Lai, Lin, Lin, Wang, & Huang, 2009). Managing knowledge is important because knowledge is one of the most strategic weapons that can lead to sustained increase in profits (Choi & Lee, 2002).

Facing such a turbulent environment, business must keep on learning in order to maintain its competitiveness. Garratt (1990) indicates that the enforcement of KM ability would be conducive to the enhancement of OL capability. In other words, business could have organizational learning capabilities underlying well individual learning (Nonaka & Takeuchi, 1995). According to Stata (1989) and Senge (1990), learning was the only sustainable competitive advantage, and a learning situation resulted in organizational knowledge (or memory) (Schatz, 1992). Sarvary (1999) considered OL as KM. He regarded KM as a business process, through which firms generate and utilize their institutional or collective knowledge, including OL, knowledge production and knowledge distribution. OL is the process through which a firm obtains information or knowledge. Consequently, OL is the KM capability by which people acquires and utilizes information and knowledge.

2.3. Organizational learning and organizational culture (OC)

OC is the shared understanding or values of an organization's employees, which in turn will determine how things work in the organization (Wallach, 1983). Osland, Kolb, and Rubin (2000) defined OC as a pattern of shared values and beliefs that produce certain norms of behavior. Andrew and Yate (2002) argue that OC is an aggregation of shared values, beliefs, and understandings among members. Tucker (2001) describes OC as a company's values, traditions, priorities and paradigms and its universal existence within organization will affect the implementation of organizational change.

Dodgson (1993) provides a comprehensive definition of OL: OL involves the ways firms build, supplement and organize knowledge and routines around their activities and within their culture, and adapt and develop organizational efficiency by improving the use of the broad skills of their workforces. OL is seen as a dynamic process based on knowledge, which implies moving among the different levels of action, going from the individual to the group level, and then to the organizational level and back again (Crossan, Lane, & White, 1999; Huber, 1991). Lopez, Peon, and Ordas (2004) argued that collaborative culture influences OL, which in turn influence business performance.

A culture encouraging change is a critical feature of OL. Especially facing such a fiercely environmental situations, organization

needs more stronger adaptive culture to motive the mutual cooperation and learning among members (Daft, 2001). Schein (1996) suggests that OL failures may be caused by the lack of communication among the organization's different cultures. According to Kululanga, Edum-Fotwe, and McCaffer (2001), OL acts as a catalyst for implementing an organizational learning culture and such the learning culture would systematically improve OL. Brian and Patarawan (2003) suggested that OC is positively related to OL.

2.4. Organizational learning and learning organization (LO)

To some degree, the theory of LO can be seen as a branch of that of OL whereas OL is the strategy for developing a LO. Beginning in the 1980s, the concept of a learning organization was articulated by scholars and practitioners. An organization can be viewed as a learning entity. An organization is made up of individuals. Individuals must learn first before OL can occur. Without a LO there can be no continuous improvement (Chang & Sun, 2007). Swieringa and Wierdsma (1992) point out that OL is the changing of organization behavior. Essentially, LO is not only capable of learning, but also of learning to learn. In other words, it is not only able to become competent but also to remain competent.

The experimental experience of English enterprises, Garratt (1990) suggests that a LO is the application of organizational development and learning. Garvin (2000) defined LO as a LO is an organization skilled at creating, acquiring, interpreting, transferring and retaining knowledge, and at purposefully modifying its behavior to reflect new knowledge and insights. Senge (1990) proposes five disciplines of LO: (1) systems thinking; (2) personal mastery; (3) mental model; (4) shared vision; and (5) team learning.

3. Strategic management perspective—environment, strategy and performance

The extant strategy literature in general has approached the construct of the environment from many different perspectives. In some cases, strategy is viewed as managerial response to environmental forces driving change. In other instances, it is approached from the perspective of managerial anticipation or to be out front of changes in order to seize opportunity before others. The main theme underlying this construct is the causal relationship the environment has with firm performance (Olsen, 2004).

Strategy is an essential part of any effective business plan. By using an effective competitive strategy, a company may find its industry niche and learn about its customers (Porter, 1980). The fundamental question in SM is how firm achieves and sustain competitive advantage (Teece, Pisano, & Shuen, 1997). Basically, SM is an array of decisions and actions (processes), which lead to the development of an effective approach to achieve the organization's objectives (Glueck & Jauch, 1984). To some degree, SM is regarded as a bridge building between the perceived present situation and the desired future situation (West-Burnham, 1994; Wheale, 1991). To achieve and to maintain a superior competitiveness than the other competitors, a firm should take advantage of its product cost to beat its rivals and then to provide values to its consumers.

3.1. Original ESP model—Prajogo and Sohal's research

Prajogo and Sohal (2001, 2006a) suggest that there are three factors affecting TQM, namely external environment, original strategy and internal environment (i.e., culture). Prajogo and Sohal (2006b) also point out that business environment, organizational strategy, and OC impact TQM practices in order to determine quality or innovation performance. This paper thus argues that the original ESP chain can be divided into two separated parts, including

'environment-strategy-culture' (ESC) linkage and the relationship of TQM-innovation. From strategic management perspective, it is obvious that the original ESP model is limited to an outside-in approach and is not appropriate to provide researchers and practitioners with useful information to catch the whole picture of ESP. Therefore, this paper proposes an integrated model to improve understandings of ESP.

3.2. Conceptual model—ESCAPE

The term 'ESCAPE' refers to 'the adoption of this system can help an organization to escape from the old and inefficient situation and then move towards another new and innovative situation'. In a word, the ESCAPE model provides with a strategic direction moving towards success and superior performance. The original concept of ESCAPE is derived from the competitive theories and management principles (e.g., the resource-based view & TQM). ESCAPE comprises six key components, such as Environment (E), Strategy (S), Capability/Competence (C), Advantage (A), Performance (P), and Evaluation (E) (Fig. 1).

By comparison with original ESP model, it is evident that the ESCAPE model provides broader view and useful information for understanding any value-created initiatives within CEIs. Even though there is an inconsistency (or gap) between ESP and ESCAPE, for example, the term 'C' in ESP refers to culture whereas the term 'C' in ESCAPE refers to 'capability/competence'. After realizing the impacts of LO on competitions in the future, this paper proposes a new term 'C2C', which highlights the continuous process from creating an open/positive culture to developing its own capability.

From strategic management (SM) perspective, the nature of SM characterizes adaptability and sustained competitive advantage (SCA) while adaptability shows an interdependent relationship between environment and organization. Basically, an organization's SCA might result from the successful integrations of internal skill, activities and resources and efficient implementation. It is evident that an organization today with high mutual learning and close interaction among its partners is supposed to be a market-driven, innovative and learning-oriented.

Consequently, it is necessary to validate the ESCAPE model with some management theories and principles. Accordingly, this paper zooms in ESCAPE to examine the working processes within organization in detail (Fig. 2). This paper argues that LO is not only capable of learning, but also of learning to learn. That is they are not only able to become competent but also to remain competent. The strategic model consists of the following five parts, which are closely interlinked each other.

- Environment-strategy-culture—Prajogo and Sohal (2001).
- Organizational learning—Huber (1991).
- Learning organization—Senge (1992, 1994).
- Knowledge management—Nonaka and Takeuchi (1995).
- Resource-based view—Hamel and Prahalad (1994).

To facilitate a good understanding of a qualified CE system and an innovative program of CEI, we would further introduce a conceptual model, taking an example by a case CEI, as a benchmarking in following section.

4. An integrated model—Learning Organizational Pyramid (LOP)

4.1. Defining LOP

Knowledge is the key to effective competition (Demarest, 1997). It is no doubt that the impacts of the environment on organizations have been significant and the challenges have forced them inevitably

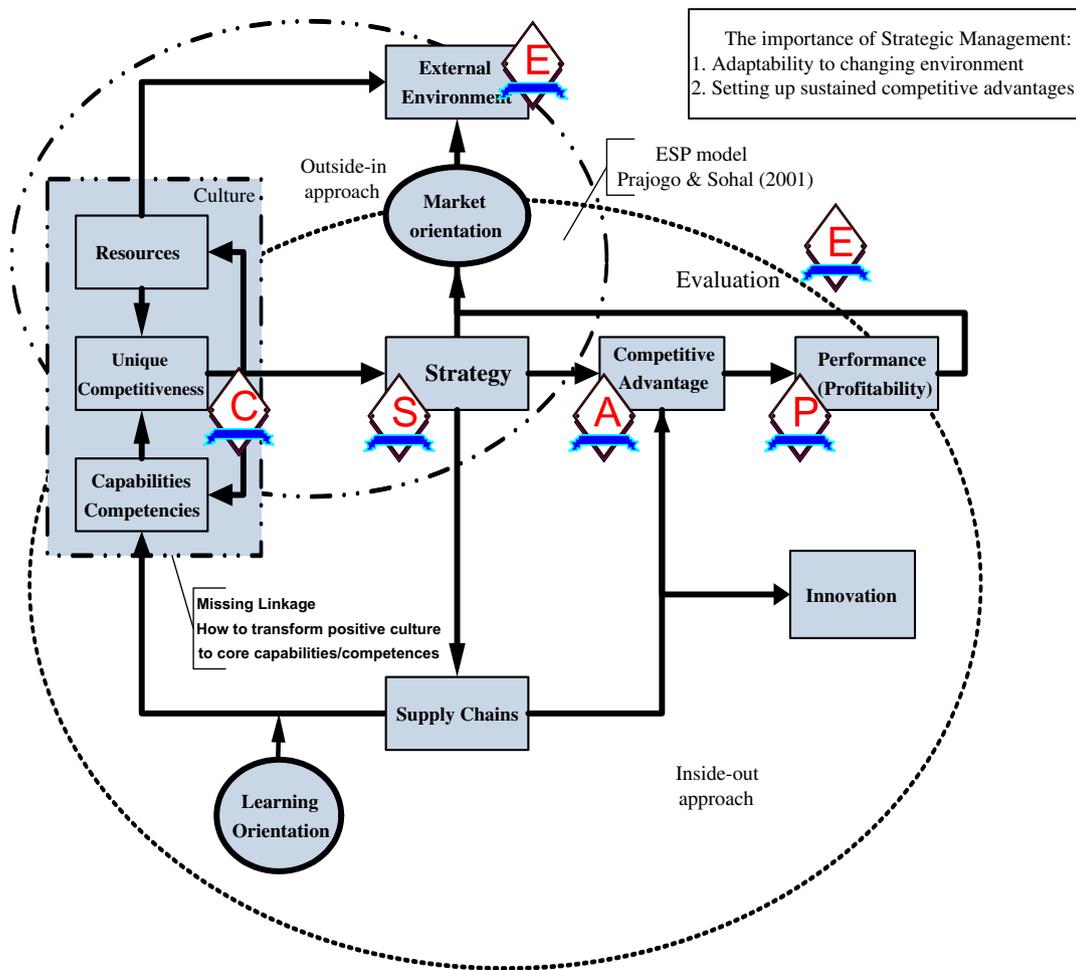


Fig. 1. ESCAPE model.

to deal with. More and more organizations today are confronted with increasing homogeneity of competition, growing market uncertainty and changing customer demands. Alavi and Leidner (1999) indicate that many organizations are developing information systems designed specifically to facilitate the sharing and integration of knowledge. LO is another concept in the knowledge society (Robbins, 2001). Both as power and a resource, knowledge is strategically important for individuals and enterprises (Liao, Fei, & Liu, 2008). OL has emerged as a key strategic variable and has been found to be an important absorptive process driven by innovation (Cosier et al., 1981; Cohen & Levinthal, 1990; Kiechel, 1990; Stata, 1989). OL would enhance the innovative capacity of an organization (Argyris & Schon, 1978) and the learning capability might be the competitive advantage available to the company of the future as environment change dramatically (Cosier et al., 1981).

Realizing the impact of LO on competition in the future, we would introduce an integrated model entitled, the "Learning Organization Pyramid (LOP)" (see Fig. 3) into this paper to aid in organizational knowledge management internally. Mapping the image of ESCAPE to LOP model, there are three major mechanisms in this model: (1) the concept of 'The 5th Discipline' (Senge, 1990, 1992); (2) TQM implementation (e.g., ISO 9001), and (3) KM activities (i.e., knowledge creation, knowledge storage, knowledge sharing and knowledge diffusion). All these components are integrated effectively to link the database and virtual library (i.e., LOL) to business operation system (BOSS) thoroughly within the organization.

For many years, organizational researchers have been concerned with the issue that how firm can build and sustain the com-

petitive advantage (Day, 1994; Day & Wensley, 1988). Today, the rapid change that we experience in the market demands an unparalleled learning response from organizations (Bennett, 1994). All organizations in an open system need to learn and if they fail to adapt to these environmental pressures (i.e., economic, social and technological), they will cease to exist (Bartell & Bates, 2001). Learning will lead to organization's ability to rightly act on stimuli which resulting from either internal or external to the organization (Bhatt & Zaveri, 2002; Bierly & Hamalainen, 1995; Steensma, 1996). On the basis of resources and capabilities theory of the firm, knowledge is a source of competitive advantage (Conner & Prahalad, 1996). Moreover, the development of an effective and efficient knowledge management system has been considered a means to this end (Nonaka, 1994). The below is a description of these five main elements of the LOP:

4.2. Five components of LOP

Building shared vision—All activities within organization are under the instructions of a shared vision. This shared vision is one, which brings individuals together as one and is one, which will lead the company in a manner of which it was planned to be.

Mental edge—It should be bore in mind from top to bottom of the organization ladder, that the only way to beat the competition is through continuous improvement, constant innovation, and the ability to adapt and react to market changes in a timely manner. Thus, the mental edge and shared vision should be seen as necessities for shaping the shared value within organization completely.

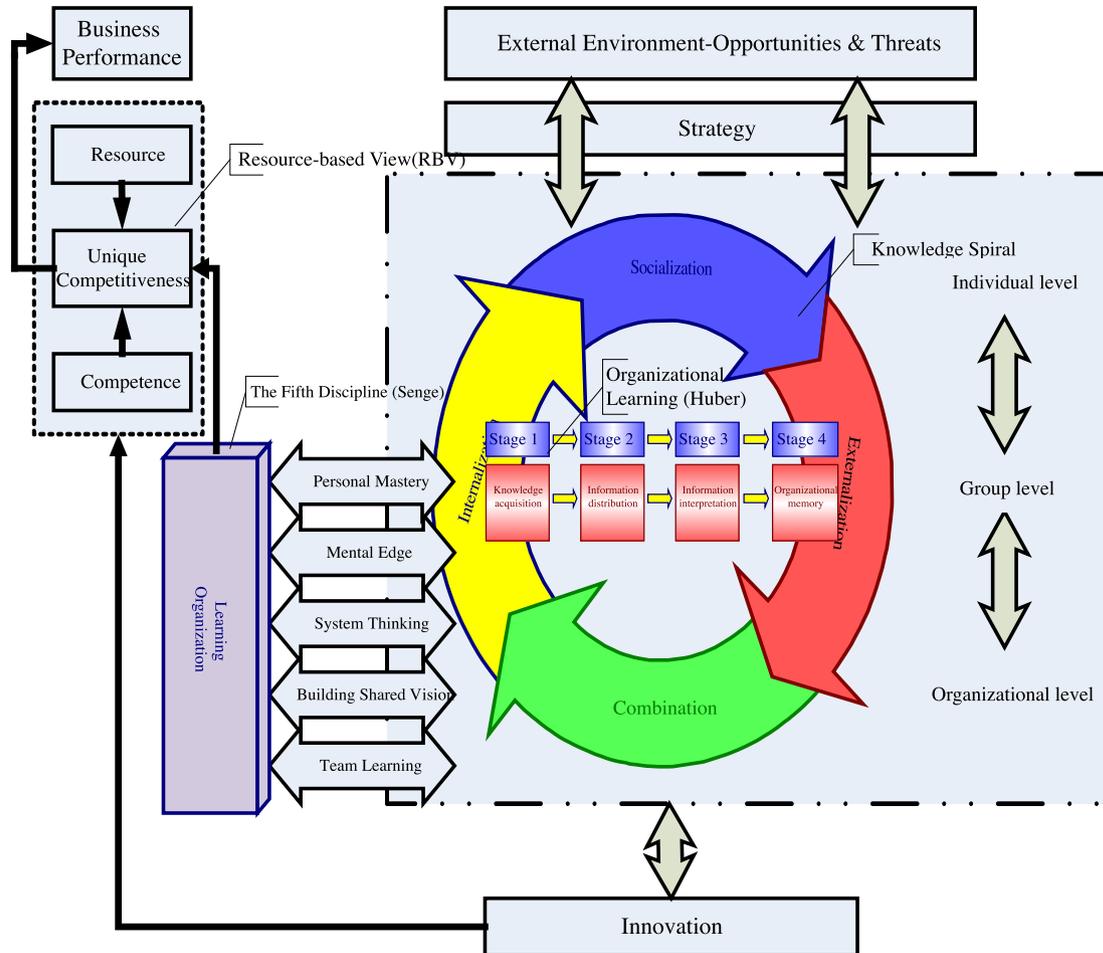


Fig. 2. Zoom in ESCAPE model.

Business Operating Systems (BOSS)—All human resources are determined to be valuable assets and intellectual capital to the organization. An organization’s utmost performance mainly relies on every individual’s achievement. In LOP model, we encourage individuals to devote themselves to self-development, knowledge creation and sharing through utilization of the Business Operating Systems (BOSS), including inquiry, research and development, communication, marketing, and others in service delivery process.

ISO 9000—Adopting ISO 9000 in LOP enables transformation of tacit knowledge into explicit knowledge. In general, there are little difference between ISO 9000 and TQM. McAdam and McKeown (1999) argue that ISO 9000 is the basis of TQM. ISO 9000 is a technique-oriented system whereas TQM is a complex operating system linking people and technique (Liao, Cheung, & Lai, 1995). For ISO 9000 put emphases on the consistency in the four actions, PDCA (plan-do-action-check), and on standardization of procedures. Thus, ISO 9000 could provide an effective and consistent manner of transferring knowledge from one time frame to another thoroughly. Such transference would further generate quality assurance in the process, necessary in efficient and effective operations within an organization.

Learning Organization Library (LOL)—The main structure of LOP is ‘Learning Organization Library’ (LOL). It is a function-oriented database comprised of various knowledge-based libraries storages and handles the requisites for daily operation, R&D, marketing, production, and administration.

To sum up, knowledge of an organization’s own environment is vital for strategic decision-making (Drucker, 1995). Organiza-

tions in high competitions need a system to help make more informed decisions in time. According to the previous descriptions, we rather refer LOP to a knowledge-based system (KBS) or a decision support system (DSS) in terms of system planning. Basically, LOP characterizes a system with a user-interface (BOSS) and a friendly access to operating database (LOL), a place in favor of innovative and open culture for cultivating KM and OL activities, a quality-assurance.

5. Conclusions and future research

5.1. Conclusions

Facing such a turbulent and uncertain environment today, a CEI itself should develop its capabilities and core competences to outpace its rivals in order to create superior customer value and improve financial performance (e.g., profitability, market share and growth rate). In this respect, CEIs should be equipped with the capability of market-driven and learning-focused. This statement is similar with the findings of Slater and Narver (1995) and Sinkula (1994). This study suggests that a LO would be the best solution for KII (e.g., CEIs) to bridge the gap. Thus, if CEIs want to succeed in ever-changing marketplace today, they should learn how to satisfy various levels of customer’s needs and how to design a feasible operating system so as to embrace the innovation performance, the operating efficiency and effectiveness, and sustained competitive advantage.

- Baker, W. E., & Sinkula, J. M. (1999). The synergistic effect of market orientation on organizational performance. *Journal of the Academy of Marketing Science*, 27, 411–427.
- Bartell, S. M. (2001). Training's new role in learning organizations. *Innovations in Education and Teaching International*, 38(4), 354–363.
- Bates, W. (1998). *Organizational learning and knowledge technologies in a dynamic environment*. The Netherlands, Dordrecht: Kluwer Academic Publishers.
- Bennett, J. K. (1994). The building blocks of the learning organization. *Training*, 31(6), 41–49.
- Bhatt, G. D., & Zaveri, J. (2002). The enabling role of decision support system in organizational learning. *Decision Support Systems*, 32, 297–309.
- Bierly, P. E., & Hamalainen, T. (1995). Organizational learning and strategy. *Scandinavian Journal of Management*, 11(3), 209–224.
- Bolwijn, P. T., & Kumpe, T. (1990). Manufacturing in the 1990s—productivity, flexibility, and innovation. *Long Range Planning*, 23(4), 44–57.
- Brian, D. J., & Pattarawan, P. (2003). Understanding the antecedents of effective knowledge management: The importance of a knowledge-centered culture. *Decision Sciences*, 34(2), 351–384.
- Chang, D. S., & Sun, K. L. (2007). Exploring the correspondence between total quality management and Peter Senge's disciplines of a learning organization: A Taiwan perspective. *Total Quality Management and Business Excellence*, 18(7), 807–822.
- Choi, B., & Lee, H. (2002). Knowledge management strategy and its link to knowledge creation process. *Expert Systems with Applications*, 23(3), 173–187.
- Cohen, W. M., & Levinthal, D. A. (1990). Absorptive capacity: A new perspective on learning and innovation. *Administrative Science Quarterly*, 35, 128–152.
- Conner, K. R., & Prahalad, C. K. (1996). A resource-based theory of the firm: Knowledge versus opportunism. *Organization Science*, 7(5), 477–501.
- Cosier, R. A. (1981). Dialectical inquiry in strategic planning: A case of premature acceptance? *Academy of Management Review*, 6, 643–648.
- Crossan, M., Lane, H. W., & White, R. E. (1999). An organizational learning framework: From intuition to institution. *Academy of Management Review*, 24(3), 522–537.
- Cunningham, J. B., & Gerrard, P. (2000). Characteristics of well-performing organizations in Singapore. *Singapore Management Review*, 22(1), 35–64.
- Daft, J. (2001). The acquisition, transfer and depreciation of knowledge in service organizations: Productivity in franchises. *Management Science*, 41(10), 1750–1762.
- Dai, Z., Duserick, F., & Dai, L. (2005). Achieving competitiveness by organizational learning: Strategy, transformation and measurement. *Issues in Information Systems*, 6(2), 147–153.
- Day, G. S. (1994). The capability of market-driven organization. *Journal of Marketing*, 58, 37–52.
- Day, G. S., & Wensley, R. (1988). Assessing advantage: A framework for diagnosing competitive superiority. *Journal of Marketing*, 52(2), 1–20.
- de Geus, A. P. (1988). Planning as learning. *Harvard Business Review*, 1, 70–74.
- Demarest, M. (1997). Understanding knowledge management. *Long Range Planning*, 30(3), 374–384.
- Dodgson, M. (1993). Organizational learning: A review of some literatures. *Organization Studies*, 14(3), 375–394.
- Drucker, P. F. (1995). The information executives truly need. *Harvard Business Review*, 73(1), 54–62.
- Ellinger, A. D., Ellinger, A. E., Yang, B., & Howton, S. W. (2002). The relationship between the learning organization concept and firms' financial performance: An empirical assessment. *Human Resource Development Quarterly*, 13(1), 5–22.
- Fulmer, R. M. (1994). A model for changing the way organizations learn. *Planning Review*, 22(3), 20–24.
- Garratt, B. (1990). *Creating a learning organization: A guide to leadership, learning, and development*. New York: Simon & Schuster.
- Garvin, D. A. (2000). *Learning in action: A guide to putting the learning organization to work*. Boston: Harvard Business School Press.
- Glueck, W. E., & Jauch, L. R. (1984). *Business policy and strategic management* (4th ed.). New York: McGraw-Hill.
- Hackman, J. R., & Wageman, R. (1995). Total quality management: Empirical, conceptual and practical issues. *Administrative Science Quarterly*, 40, 309–342.
- Hamel, G., & Prahalad, C. K. (1994). *Competing for the future*. Boston, MA: Harvard Business School Press.
- Harung, H. S. (1996). A world leading learning organization: A case study of Tomra Systems, Oslo, Norway. *The Learning Organization*, 3(4), 22–34.
- Huber, G. P. (1991). Organizational learning: The contributing processes and the literatures. *Organization Science*, 2(1), 88–115.
- Ipe, M. (2003). Knowledge sharing on organizations: A conceptual framework. *Human Resource Development Review*, 2(4), 337–359.
- Kiechel, W. (1990). The organization that learns. *Fortune*, 133–136. March.
- Kululanga, G. K., Edum-Fotwe, F. T., & McCaffer, R. (2001). Measuring construction contractors' organizational learning. *Building Research and Information*, 29(1), 21–29.
- Lai, M. C., Lin, Y. T., Lin, L. H., Wang, W. K., & Huang, H. C. (2009). Information behavior and value creation potential of information capital: Mediating role of organizational learning. *Expert Systems with Applications*, 36, 542–550.
- Liao, S. H. (2003). Knowledge management technologies and applications—literature review from 1995 to 2002. *Expert Systems with Applications*, 25, 155–164.
- Liao, S. H., Fei, W. C., & Chen, C. C. (2007). Knowledge sharing, absorptive capacity and innovation capability: an empirical study on Taiwan's knowledge intensive industries. *Journal of Information Science*, 33(3), 340–359.
- Liao, S. H., Fei, W. C., & Liu, C. T. (2008). Relationships between knowledge inertia, organizational learning and organization innovation. *Technovation*, 28, 183–195.
- Liao, Z., Cheung, M. T., & Lai, Y. L. (1995). ISO 9000 and its integration with TQM. In *Engineering management conference* (pp. 214–217).
- Lopez, S. P., Peon, J. M. M., & Ordas, C. J. V. (2004). Managing knowledge: The link between culture and organizational learning. *Journal of Knowledge Management*, 8(6), 93–104.
- McAdam, R., & McKeown, M. (1999). An analysis of the impact of ISO 9000 and total quality management on small businesses in Northern Ireland. *Total Quality Management*, 10(2), 229–241.
- McGill, M., & Slocum, J. (1993). Unlearning the organization. *Organizational Dynamics*, 67–79. Autumn.
- Murray, P., & Donegan, K. (2003). Empirical linkages between firm competencies and organisational learning. *Learning Organization*, 10(1), 51–62.
- Nevis, E. C., DiBella, A. J., & Gould, J. M. (1995). Understanding organizations as learning systems. *Sloan Management Review*, 36(2), 73–85.
- Nonaka, I. (1994). A dynamic theory of organizational knowledge creation. *Organizational Science*, 5(1), 14–37.
- Nonaka, I., & Takeuchi, H. (1995). *The knowledge creating company*. Oxford, England: Oxford University Press.
- Olsen, M. D. (2004). Literature in strategic management in the hospitality industry. *International Journal of Hospitality Management*, 23, 411–424.
- Osland, J. S., Kolb, D. A., & Rubin, I. M. (2000). *Organizational behavior: An experiential approach* (7th ed.). Englewood Cliffs, NJ: Prentice Hall.
- Phang, C. W., Kankanhalli, A., & Ang, C. (2008). Investigating organizational learning in eGovernment projects: A multi-theoretic approach. *Strategic Information System*, 17, 99–123.
- Porter, M. E. (1980). *Competitive strategy*. New York: The Free Press.
- Prajogo, D. I., & Sohal, A. S. (2001). TQM and innovation: a literature review and research framework. *Technovation*, 21, 539–558.
- Prajogo, D. I., & Sohal, A. S. (2006a). The relationship between organization strategy, total quality management (TQM), and organization performance: the mediating role of TQM. *European Journal of Operational Research*, 168, 35–50.
- Prajogo, D. I., & Sohal, A. S. (2006b). The integration of TQM and technology/R&D management in determining quality and innovation performance. *Omega*, 34, 296–312.
- Robbins, S. P. (2001). *Organizational behavior: Concepts, controversies and applications* (9th ed.). Englewood Cliffs, NJ: Prentice Hall.
- Rubenstein-Montano, B., Liebowitz, J., Buchwalter, J., McCaw, D., Newman, B., & Rebeck, K. (2001). A systems thinking framework for knowledge management. *Decision Support Systems*, 31, 5–16.
- Sarvary, M. (1999). Knowledge management and competition in the consulting industry. *California Management Review*, 41(2), 95–107.
- Saylor, J. H. (1992). *TQM field manual*. New York: McGraw-Hill.
- Schatz, B. R. (1992). Building an electronic community system. *Journal of Management Information Systems*, 8(3), 87–107.
- Schein, E. H. (1996). Three cultures of management: The key to organizational learning. *Sloan Management Review*, 38(1), 9–20.
- Senge, P. M. (1990). *The fifth discipline: The art and practice of the learning organization*. New York: Doubleday.
- Senge, P. M. (1992). Building learning organizations. *Journal for Quality and Participation*, 15(2), 30–38.
- Sinkula, J. M. (1994). Marketing information processing and organizational learning. *Journal of Marketing*, 58, 35–45.
- Sinkula, J. M., Baker, W. E., & Noordewier, T. (1997). A framework for market-based organizational learning: Linking values, knowledge and behavior. *Journal of Academy of Marketing Science*, 25(4), 305–318.
- Slater, S. F., & Narver, J. C. (1995). Market orientation and the learning organization. *Journal of Marketing*, 59, 63–74.
- Slocum, J., McGill, M., & Lei, D. (1994). The new learning strategy: Anytime, anything, anywhere. *Organizational Dynamics*, 23(2), 33–47.
- Stata, R. (1989). Organizational learning: The key to management innovation. *Sloan Management Review*, 30(3), 63–74.
- Steensma, H. K. (1996). Acquiring technological competencies through inter-organizational collaboration: An organizational learning perspectives. *Journal of Engineering and Technology Management*, 12(4), 267–286.
- Swieringa, J., & Wierdsma, A. F. M. (1992). *Becoming a learning organization beyond the learning curve*. Wokingham, UK, Reading, MA: Addison-Wesley.
- Teece, D. J., Pisano, G., & Shuen, A. (1997). Dynamic capabilities and strategic management. *Strategic Management Journal*, 18(7), 509–533.
- Tucker, R. B. (2001). Innovation: The new core competency. *Strategy and Leadership*, 29(1), 11–14.
- Ulrich, D., Von Glinow, M. A., & Jick, T. (1993). High-impact learning: Building and diffusing learning capability. *Organizational Dynamics*, 22(2), 52–66.
- Wallach, E. J. (1983). Individual and organizations: The cultural match. *Training and Development Journal*, 37(2), 28–35.
- West-Burnham, J. (1994). Strategy, policy and planning. In T. Bush & J. West-Burnham (Eds.), *The principles of educational management*. Harlow: Longman.
- Wheale, J. (1991). *Generating income for educational institutions: A business-planning approach*. London: Kogan Page.