

# Knowledge Management Model for Modern Retail Business: A Conceptual Framework

M. W. Yip, H. H. Ng, S. Din, and N. Abu Bakar

**Abstract**—This paper reviewed the relationships between the Knowledge Management (KM) activities and its perceived benefits in the knowledge based organizations. KM activities include: knowledge identification, knowledge acquisition, knowledge application, knowledge sharing, knowledge creation and knowledge preservation. And the perceived benefits of KM are fast customer responsiveness, operation excellence and high innovative intensity. Based on the above review, a conceptual framework for KM implementation in retail business organizations has been proposed. Finally the paper forwarded some limitations of the framework and based on which, directions for future research had been suggested.

**Keywords**—Knowledge Management, Knowledge Management Activities, Retail Business, Knowledge Economy.

## I. INTRODUCTION

THE rapid change in information technology has demanded many organizations to shift from the production concept activities to creating value through the utilization of intangible knowledge economy [1], [2]. Likewise, it is essential for Malaysia retail organizations to embrace Knowledge Management (KM) to drive superior business performance and strengthen the competitive advantage in the marketplace.

Retail industry is one of the major pillars of the Malaysian economy as it contributed approximately 18% (US\$50.64b) of the overall Malaysian GDP (US\$274.22b) in Business Monitor International [3]. The report also projected that the total Malaysian retail sales will grow to US\$77.43b by 2015. Many retail organizations consequently practiced KM activities in their organizational learning programs, since they regarded KM as a strategic asset that could support organizations to attain competitive advantages in the marketplace [4]. However, systematic framework for KM activities is not yet completely developed.

This paper reviews the existing KM activities and its perceived benefits proposed by various researchers and KM practitioners. Based on the literature, a conceptual model showed the relationship of KM activities and perceived benefits for modern retail business organizations is proposed.

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## II. OBJECTIVES OF THE RESEARCH

The paper is set to achieve the following objectives:

- i. To identify the activities and perceived benefits of KM.
- ii. To establish the relationship between the KM activities and KM perceived benefits.
- iii. To propose a conceptual model of KM for modern retail business organizations.

## III. LITERATURE REVIEW

### A. Definition of Knowledge

Knowledge is information combined with experience, context, interpretation and reflection. It is a high value form of information that is ready to apply to decisions and actions [5]. The word “knowledge” consists of two components, namely “know” and “ledge” [6]:

- “Know” means understand, comprehend, realize, perceive or cognize.
- “Ledge” means shelf, platform or a place to put things in general.

In short, knowledge could be considered as ‘actionable information’. Managing knowledge is the fundamental enterprise philosophy and culture of organizations competing in the K-Economy [7].

### B. Definition of Knowledge Management

Below are the definitions of KM from various researchers.

- ♦ KM is the practice of selectively applying knowledge from previous experiences of decision making to current and future decision making activities with the express purpose of improving organization’s effectiveness [6].
- ♦ KM is defined as a systematic, goal oriented application of measurement to the tangible and intangible knowledge assets of the company, with the aim of using the knowledge of the firms to enable the creation of new knowledge that can generate the value for an organization [8].
- ♦ KM can be defined as the process for acquiring, storing, diffusing and implementing both tacit and explicit knowledge inside and outside the organization’s boundaries with the purpose of achieving corporate objectives in the most efficient manner [9].

Based on the above definitions, KM can be defined as a *process* of managing tacit and explicit knowledge in the organization in order to increase the competitive advantages.

### C. Knowledge Management Activities

KM is a process of knowledge creation, storage and sharing, as well as the related activities to make knowledge actionable

to the employees of the organization. Many KM activities have been discussed in the literature. Davenport and Prusak [5] defined KM activities as managing knowledge through capturing, distributing and using knowledge. Ow et al. [10] present KM processes which comprise core activities which are knowledge identification, knowledge acquisition, knowledge creation, knowledge sharing, and knowledge preservation. Alavi and Tiwana [11] classified knowledge management activities into processes, i.e. knowledge creation, storage/retrieval, transfer and application. Furthermore, KM not only can be considered as above activities and is also a tool for improving organizational effectiveness [12].

Literature had identified relatively similar classification of KM activities which are *knowledge identification*, *knowledge acquisition*, *knowledge application*, *knowledge sharing*, *knowledge creation* and *knowledge preservation* as KM activities in an organization [13]-[15].

### 1. Knowledge Identification

*Knowledge identification* is the process where external knowledge for analyzing and describing the company's knowledge environment is identified [16].

Initially, an organization must state its business strategies and objectives. The knowledge requirements have to be identified to meet these goals. The difference between what the organization requires and what it currently has is what is called the *knowledge gap* [10]. Besides, it can be used to identify the knowledge gap of the individual employees which is shown in Fig. 1. A to C shows the current and specialized knowledge that employee requires in an organization. If the individual employee has the existing knowledge from A1 to B1, there will be a knowledge gap in the employee which is shown from B1 to C1.

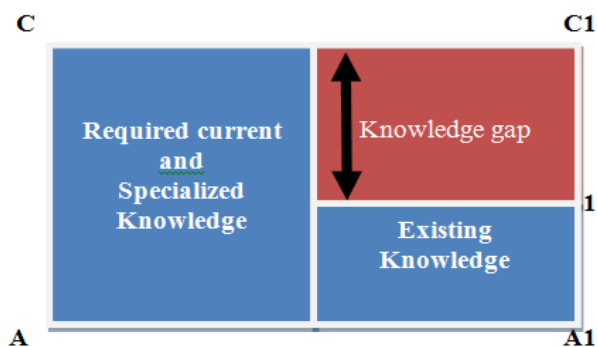


Fig. 1 Schemata of Individual Knowledge Needs Identification

### 2. Knowledge Acquisition

Once the need for knowledge has been identified, intense *knowledge acquisition* activities were constructed in order to close the knowledge gap. There are multiple sources of knowledge that can be gained such as participating in forums, training, seminars, read books, assigning a consultant that provides knowledge, etc.

*Knowledge acquisition* also can be derived both from internal knowledge resources such as knowledge about work practices, reports and documents of various knowledge and

from external knowledge resources such as environmental data, clients' data, competitors' data and other resources including external benchmarking [17]-[19].

### 3. Knowledge Application

After knowledge had been acquired from the suppliers, customers, specialists, knowledge products, knowledge partners etc, the next key focus is *knowledge application*. *Knowledge application* is a source of competitive advantage and is based on the application of the knowledge rather than simple possession of knowledge. *Knowledge application* will make knowledge gained more active and relevant for an organization in creating values. Knowledge has to be applied and practiced in order to enhance innovation and creativity.

Alavi and Tiwana [11] described *knowledge application* as the use of knowledge in decision making and problem solving processes. Hence, the application of efficient knowledge will lead to the development of innovation of the products and services.

### 4. Knowledge Sharing

In a knowledge based economy, knowledge itself is not power, when knowledge is shared, it become power. *Knowledge sharing* refers to sharing not only codified information, but also beliefs, image, experience and contextualized practices that are personalized information [20]. It also can be defined as the process of spreading the knowledge which is already present within the organization [16]. The term COP (communities of practices) has come into use to describe such flexible groups of professionals informally bound by common interests who interact to share and discuss topics related to their interest.

Sharing knowledge is not only limited to sharing information and sharing experience but it involves sharing of new ideas. For example, at Buckman Laboratories, the world's most knowledgeable experts at all levels of Buckman's organization, encouraged group problem-solving and the sharing of new ideas and knowledge. This enables Buckman personnel to collaborate closely with one another, unbounded by factors such as distance and time zones [21].

### 5. Knowledge Creation

*Knowledge creation* is the key focus into creating new knowledge or innovating existing knowledge for the organization. Its focus is on generating new skills, new products, new ideas and new processes. Knowledge creation includes all management efforts consciously aimed at producing capabilities which are not yet present within the organization or which do not exist either inside or outside. Alavi and Tiwana [11] described *knowledge creation* as the development of new know-how and capabilities.

Davenport and Prusak [5] examined *knowledge creation* by focusing on the conscious and intentional generation of knowledge in the organizational context. In addition, Alavi and Leidner [22] claimed that knowledge creation is a continual interplay between the *tacit* and *explicit* dimensions of knowledge and growing spiral flow of knowledge moves through individual, group and organizational levels.

Organizations need to constantly create new and better products, services in order to delight their customers and jolting their competitors. Nonaka and Takeuchi [23] asserted that the use of knowledge is the primary reason that drives Japanese Companies foster creativity and innovation for competitive advantages. Nonaka and Takeuchi [23] suggested a KM model in terms of knowledge creation perspectives based on four kinds of process knowledge conversions. The spiral – type conversions between *explicit knowledge* and *tacit knowledge*, i.e. the SECI (socialization, externalization, combination and internalization) model are as follows:

- (1) from *tacit knowledge* to *tacit knowledge* (Socialization)
- (2) from *tacit knowledge* to *explicit knowledge* (Externalization)
- (3) from *explicit knowledge* to *explicit knowledge* (Combination)
- (4) from *explicit knowledge* to *tacit knowledge* (Internalization)

Generally, creation of knowledge must be built from the knowledgeable platform and lesson learned from joint experiences with everybody's working together in an organization.

#### 6. Knowledge Preservation

Knowledge that has been created should be stored and categorized systematically so that it can be easily and conveniently retrieved, becoming *knowledge preservation* [17].

*Knowledge preservation* is not only about the volume of the knowledge that is captured in the organization, but more importantly it is about the frequency of updating, reusing etc. It involves building a culture of *knowledge preservation* including knowledge capture, learning history etc.

This also includes the development of organizational memory, classified in internal (i.e., individual's skills and organizational culture) and external (i.e., formal policies, procedures, manual and computer files) [11]. Data mining and learning tools are examples of supporting technologies of knowledge storage and retrieval. These systems enable organizations to create organizational memory in the form of both structured and unstructured information and to share this information across time and space [24].

#### D. Perceived Benefits of KM

KPMG International, UK [25] produced a report based on a survey of 423 organizations from Europe and the U.S. In their survey, KPMG has identified the following as expected KM benefits:

- Better decision making
- Better customer handling
- Improve employees skills
- Faster response to key business issues
- Improved productivity
- Increased profits
- Reduced costs
- New and better ways of working
- Increased market share
- Create additional business opportunities
- Improved new product development
- Staff retention
- Increase share price

Moreover, a comprehensive survey of the German TOP 1000 and European TOP 200 companies showed that KM helps to achieve the goals of a company. KM can best be used to increase innovation ability, increase of product quality and productivity, increase of effectiveness and customer satisfaction [26]. Aujiranpongpan et al. [18] supported that KM implementation will lower down the cost and increase productivity.

Besides, the benefits that companies could expect from KM are [27]:

- Foster innovation by encouraging the free flow of ideas
- Improve customer service by streamlining response time
- Boost revenues by getting products and services to market faster
- Enhance employee retention rates by recognizing the value of employees
- Streamline operators and reduce costs by eliminating redundancies (cost of defects).

Pan and Scarbrough [21] reported that knowledge management culture is critical in helping Buckman Laboratories to find innovative solutions to customer challenges and to develop products in anticipation for future needs. This new knowledge can be generated and body of organizational knowledge assets is enlarged through the practice of KM [28].

Spice and Sadler [29] found that the effective knowledge management activities such as effective acquisition (learning) and utilization of knowledge associated with better organization performance. Amidon [30] stated that acquisition brought fresh, stimulating ideas into the organization from the external environment and the innovation process has been defined as "*bring ideas to market*".

Yip et al. [7] found that KM supports an organization to achieve the best quality of products and services by providing greater responsiveness to customers. Other benefits gained from KM include operational excellence, efficiency, innovation in breakthrough products and services. Hence, literature on the effectiveness of KM had become indispensable factor in creating numerous innovations from many organizations [18].

Based on findings and discussions cited in the literature, it could be concluded that successful KM implementation would provide an organization with competitive advantages, fast customer responsiveness, operation excellence and high innovative intensity.

- Desirable Characteristics of the Knowledge Application as Independent Variables:

- The preceding discussion and description of the KM implementation indicate that knowledge activities demonstrate certain desirable characteristics so as to ensure the success of KM Implementation. The knowledge management activities are *knowledge*

*identification, knowledge acquisition, knowledge application, knowledge sharing, knowledge creation and knowledge preservation* which are selected as independent variables are also supported by literature review above.

- Perceived Benefits as Dependent Variables:

- To measure the impact of independent variables, having well-identified dependent variables are very important. For the measurement of the dependent variables for successful KM implementation, the perceived benefits were selected. The perceived benefits of KM are adopted from the literature review above.

#### IV. CONCEPTUAL FRAMEWORK

Previous studies had indicated that the KM activities would bring perceived benefits to organizations. The conceptual framework for KM activities (independent variables) and perceived benefits (dependent variables) is proposed in Fig. 2.

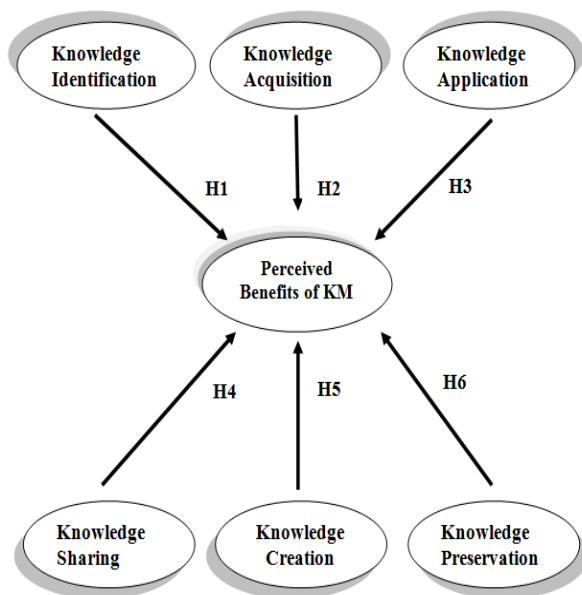


Fig. 2 Conceptual Framework for KM Activities

#### V. HYPOTHESES DEVELOPMENT

Below are hypotheses of KM activities and perceived benefits of KM:

- H1. There is a positive correlation between *knowledge identification* and *perceived benefits of KM*.
- H2. There is a positive correlation between *knowledge acquisition* and *perceived benefits of KM*.
- H3. There is a positive correlation between *knowledge application* and *perceived benefits of KM*.
- H4. There is a positive correlation between *knowledge sharing* and *perceived benefits of KM*.

H5. There is a positive correlation between *knowledge creation* and *perceived benefits of KM*.

H6. There is a positive correlation between *knowledge preservation* and *perceived benefits of KM*.

#### VI. CONCLUSION

The literature review and synthesis of KM within the conceptual framework of the research encompass the concept about the knowledge management activities and perceived benefits of KM. This study concluded that KM activities consisted of *knowledge identification, knowledge acquisition, knowledge application, knowledge sharing, knowledge creation and knowledge preservation*.

These KM activities should also bring some perceived benefits to retail business organizations. The contribution of this paper may assist retail business organizations which are seeking to launch or adapt KM initiatives. These initiatives could support modern retail business organizations to pioneer new KM products and retail business approaches to enrich the current knowledge economy.

The proposed conceptual framework may pose some limitations in term of validity and applicability. Statistical analysis is needed to validate the proposed KM conceptual model. Relationship among all the KM activities and perceived benefits can be explored by using multiple regression analysis. The use of this technique is suggested to validate study findings.

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#### REFERENCES

- [1] Y. J. Yeh, S. Q. Lai, and C. T. Ho, "Knowledge management enablers," *Industrial Management & Data Systems*, vol. 106, no. 6, pp. 793-810, 2006.
- [2] M. Migdadi, "KM enablers and outcomes in the small and medium sized enterprise", *Industrial Management & Data Systems*, vol.109, no. 6, pp. 840-858, 2009.
- [3] Business Monitor International *Malaysia Retail Report Q1 2012*, Singapore, 18th November 2011.
- [4] M. W. Yip, H. H. Ng, S. Din, "Critical Success Factors and Perceived Benefits of Knowledge Management Implementation: Towards A Conceptual Framework," *Australian Journal of Basic and Applied Science*, vol. 5, no. 10, pp. 754-760, 2011.
- [5] T. H. Davenport, and L. Prusak, *Working Knowledge: How Organizations Manage What They Know*. Boston: Harvard Business School Press, 1998.
- [6] S. Hossain, and M. Y. Cheng, *An Introduction to Knowledge Economy Concepts and Issues*, 2nd Ed. Malaysia: McGraw-Hill, 2004.
- [7] M. W. Yip, H. C. Lau and A. R. Songip, "Influence of soft elements on knowledge management implementation in Malaysia higher learning institutions," *Journal of Knowledge Management Practice*, vol. 11, no. 3, 2010.

- [8] P. Akhavan, M. Jafari, and M. Fathian, "Critical success factors of knowledge management systems: A multi-case analysis," *European Business Review*, vol.18, no. 2, pp. 97-113, 2006.
- [9] R. M. Magnier-Watanabe, and D. Senoo, "Organization characteristics as prescriptive factors of knowledge management initiatives," *Journal of Knowledge Management*, vol. 12, no. 1, pp. 21-36, 2008.
- [10] C. K. Ow, R. J. Willett, and K. L. Yap, "Building a Knowledge-based Business School, *Education & Training*," vol. 43, no. 4/5, pp. 268-274, 2001.
- [11] M. Alavi, and A. Tiwana, "Knowledge management: the information technology dimension," in *Handbook of Organisational Learning and Knowledge Management*, M. Smith and Lyles, Ed. Malden: Blackwell Publishing, 2003.
- [12] M. E. Jennex, *Knowledge Management in Modern Organisations*. Idea Group Publishing, 2007.
- [13] APQC (American Productivity and Quality Center Knowledge Management) *Executive Summary: Consortium Benchmarking Study Best-Practice Report*. Houston: American Productivity and Quality Center, 1999.
- [14] G. Natarajan, and S. Shekhar, *Knowledge Management: Enabling Business Growth*. Boston Burr Ridge: McGraw Hill (International Edition), 2000.
- [15] S. C. Chong, Y. K. Wong, and L. Binshan, "Criteria for measuring knowledge management performance outcomes in organisations," *Industrial Management & Data Systems*, vol. 106, no. 7, pp. 917-936, 2006.
- [16] G. Probst, S. Raub and K. Romhardt, *Managing Knowledge: Building Blocks for Success*. New York: John Wiley and Son Ltd, 2000.
- [17] M. J. Marquardt, *Building the learning organization*. New York: McGraw Hill, 1996.
- [18] S. Aujirapongpan, P. Vadhanasindhu, A. Chandrachai, and A. Cooperat, "Indicators of knowledge management capability for KM effectiveness," *VINE*, vol. 40, no. 2, pp. 18 -203, 2010.
- [19] M.H. Zack, "Developing a knowledge strategy," *California Management Review*, vol. 41, no. 3, pp. 125-145, 1999.
- [20] V. Ambrosini, and C. Bowman, "Tacit knowledge: Some suggestions for operationalization," *Journal of Management Studies*, vol. 38, no. 6, pp. 811-829, 2011.
- [21] L.S. Pan and H. Scarbrough, "A Socio-Technical view of knowledge sharing at Buckman Laboratory," *Journal of Knowledge Management*, vol. 2, no.1, pp. 55-66, 1998.
- [22] M. Alavi, and D. E. Leidner, "Knowledge management and knowledge management systems: conceptual foundations and research issues," *MIS Quarterly*, vol. 25, no. 1, pp. 107-136, 2001.
- [23] I. Nonaka, and H. Takeuchi, *The Knowledge Creating Company: How Japanese Companies Create the Dynamics of Innovation*. New York: Oxford University Press, 1995.
- [24] J. P. Walsh, and G. R. Ungson, "Organisational Memory," *Academy of Management Review*, vol. 16, no. 1, pp. 57-91, 1991.
- [25] KPMG Intertional, UK. *Knowledge management research report 2000*. UK: KPMG Consulting, 1999.
- [26] K. Mertins, P. Heisig, and J. Vorbeck, *Knowledge Management: Best Practices in Europe*. New York: Springer-Verlag Berlin Heidelberg, 2001.
- [27] M. Santosus, and J. Surmacz, The ABCs of Knowledge Management. CIO Magazine, May 23: 2001. <http://www.cio.com/forums/knowledge/edit/kmabcscontent>.
- [28] I. Nonaka, and R. Toyama, "Knowledge creation as a synthesizing process," in Hitot Subashi on KM, H. Takeuchi, and I. Nonaka, Ed. Singapore: Wiley, 2004.
- [29] D. P. Spicer, and E. Sadler-Smith, "Organisational learning in Smaller Manufacturing Firms," *International Small Business Journal*, vol. 24, no. 2, pp.133-158, 2006.
- [30] M. Amidon, *Innovation strategy for the knowledge economy, The Ken Awakening*. Boston: Butterworth-Heinemann, 1997.



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