

The intervening role of organizational dynamic routines: Absorptive capacity and knowledge management perspective

Abbas Saghali

Faculty of Management, Multimedia University
Cyberjaya, Malaysia

Corresponding email: a_saghali@yahoo.com

Shahryar Allahverdi

FOM, Multimedia University

Abstract—In recent years, most organizations have provided a new reservoir of knowledge in re-engineering of business processes, expert systems, strategy focus activities, cultural programs and norms. This study helps the clarification of the connection between absorptive capacity (ACAP) of new external knowledge in the organizations and knowledge management processes. The research was written according a conceptual model with respect to ACAP components and their influence on processing of KM stage through identified themes of organizational dynamic routines. A literature review was closely undertaken to elicit the organizational dynamic routines that affect knowledge identifying, creating, sharing, using and storing in the context of KM processes. These identified routines that play a potential intervening role between absorptive capacity (ACAP) and KM stage include system of knowledge transfer, strategic planning, cultural environment, information technology advances and organizational structure. The result of this paper can be invaluable for practitioners and academics to examine characteristics of ACAP by focusing on dynamic routines of organizations which may enhance certain outcomes of KM processes.

Keywords: *Absorptive capacity, Organizational dynamic routines, Knowledge management processes*

I. INTRODUCTION

Knowledge management is recently recognized as a routine-based capability for organizations and also the only source for sustained competitive advantage for them. Most of KM frameworks contain the implications in which knowledge processes that include acquisition, creating, sharing, using and storing are closely mentioned (Sun, 2010). To the organizational identification and value recognition of information and external knowledge, absorptive capacity can be viewed as assimilation and absorbing information and knowledge which should be put into performance stage. Accordingly, knowledge of recipients is changed by absorbing new state of knowledge and information (Mu et al., 2010). Gap of organization's knowledge is managed by KM infrastructure of firms which lead to dynamic capabilities of firms (Cepeta and Vera, 2007). Effective knowledge is created by different

levels of business processes. As well as processes of business and knowledge are separated from each other, right action in terms of rich performance outcomes can not be implemented. At this point, Modeling of business processes can be considered as an effective tool to manage organizational change (Chung et al., 2003 ; Han and park, 2009). Analysis and classification of core activities in KM-frameworks can be described with implementations of identifying, using, creating, sharing and storing. The further analysis shows two categorizes of "sharing and using" and "creating and using" which can be considered as two-term combination of KM-frameworks. Three-term combination illustrates "sharing, creating, storing" and four-term combination indicates "sharing, creating, using, identifying" in terms of KM-frameworks (Heisig, 2009; Shaw and Williams, 2009). Heisig (2009) shows four context factors in KM-framework review that include human oriented factors culture (leadership and people), organizational process and structure, technology, and management process (strategy and measurement).

This study addressed this question that how organizational dynamic routines that include system of knowledge transfer, strategic planning, cultural environment, information technology advances and organizational structure can connect ACAP of new external knowledge to KM processes. Objective of the study is to analyze five factors of organizational dynamic routines with respect to ACAP components and KM implementations. There are not sufficient studies to concern with ACAP and knowledge management issues in this regard and this can be viewed as the gap of this research.

II. LITERATURE REVIEW

Complexity of technology in 21st century causes firms to promote their innovation levels. At this point, they need a better interpretation of cause-effect relationship of knowledge capabilities and expertise gaps in the context of organizational growth (gray, 2006). Cohen and Levinthal (1990) mentioned the problem in relation with knowledge capabilities gaps, research and development schedule and management of technology transfer. According their term, organizational absorptive capacity includes learning capability of organizations, creation and performance of new knowledge, dissemination of new knowledge and better using of intangible resources.

Firms attempt to make a change in different practices of their management levels and investment in technology advances to obtain a sustainable competitive advantage. They put an emphasize on creating sharing and assimilating of knowledge in terms of absorptive capacity (Tu et al., 2006; Godkin,2010). Sun (2010) relatively made an attempt to build a theoretical framework to connect absorptive capacity with different processes of KM.

Innovation plays a key role to determine the importance of knowledge transfer .A systematic operation in infrastructure, trade, technology and regulation is mentioned as an important theme which can construct knowledge transfer processes in organizations (Shaw and Williams , 2009;Yahya and Goh,2002). Transfer of unit learning form experience of employees from one organization to another one that strongly promote system of knowledge transfer in a firm (Molina et al., 2007).

Advantages of knowledge strategic planning support different types of knowledge (Kim et al., 2003).Powerful knowledge strategic planning conceptually plays an important role in the world of business. With respect to a directional strategic planning, knowledge-based system creates an environment to support decision making procedures in organizations (Huang, 2009; Martins, 2007). Organizational culture which is routin-based processes to do things and live by them can be symbolized as a tree. Core values and management style are roots and legends, philosophies, structure and systems are leaves and branches .At this point, culture of knowledge sharing can be embedded in roots of this symbolized tree (King, 2007). In the context of organizational culture, design of IT tools facilitates knowledge creation, capture, storage and distribution (Park et al., 2004; Crinivasan, 2004). Know-how marketing enables management commitment and knowledge transfer among staffs, good teamwork among foreign and local staffs and relationship strengths. Cultural distance has a negative effect on these issues (Evangelista and Hau,2009).

Lai and Lee (2007) studied 154 companies which involved with knowledge activities to illustrate power of the organizational culture and its impact on central knowledge management processes.

Sher and Lee (2004) declared that endogenous and exogenous knowledge has a positive relationship with dynamic capabilities and enhance them. They acknowledged that information technology advances empower KM by illustration of some considerable characteristics of KM processes. In this way, IT development leads to increasing of the value of knowledge assets (Tseng, 2008).

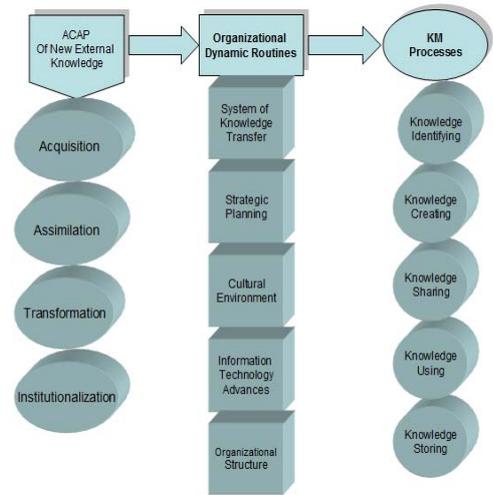
Knowledge sharing influences on information processing. Willem and Buelens (2009) mentioned four aspects of organizational structure that include coordination, centralization, formalization and specialization .They examined the adaption of these aspects with organizational knowledge sharing. According their findings, centralization has a negative impact on knowledge sharing processes and lower formalization has a positive effect. They declared that there is a strong

relationship between coordination and knowledge sharing (Zheng, 2010).In addition, it can be suggested that a higher extension of innovation leads to more favorable social interaction among staffs of firms in the context of organizational structure (Choo et al.,2007;Chen and Huang,2007).At this point, we can focus on a deep understanding of organizational dynamic routines and their intervening role in mention to components of ACAP and KM processes.

III. A CONCEPTUAL MODEL

Absorptive capacity of new external knowledge can be seen as a type of organizational learning which leads to development and refinement of existing knowledge. In this regard, absorptive capacity focuses on processing of learning procedures in the organization that arrange structure of new knowledge as well as to exploit opportunity for codifying of knowledge processes(Sun,2010;Sieg,2010). We concern with a new strategic model in this paper with respect to characteristics of five dimensions of organizational dynamic routines and different aspects of absorptive capacity (acquisition, assimilation, transformation and institutionalization) which strongly support KM applications.

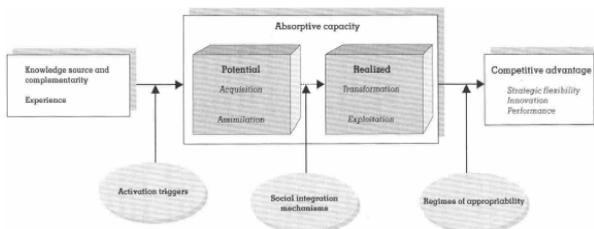
Figure 1. A Conceptual Framework for Organizational Dynamic Routines



A. Absorptive capacity

Absorptive capacity can be viewed as an important procedure-based capability for the organizations. Dynamic capabilities which are embedded in organizational processes enable firms to change their internal environment, enhance their resources and adapt to market condition to achieve competitive advantage. Dimensions of ACAP compose of four complementary capabilities that include acquisition, assimilation, transformation and exploitation (Zahra and George, 2002;Todorova and Durisin,2007; Godkin,2010; Sun, 2010).

Figure 2. ACAP Model



Source: Zahra and Goerge (2002)

Acquisition can be defined as organizations' capability to acquire a variety of knowledge which has been generated externally and is critical to organizational implementation. We can highlight five components in acquisition including prior investment, prior knowledge, intensity, speed and direction.

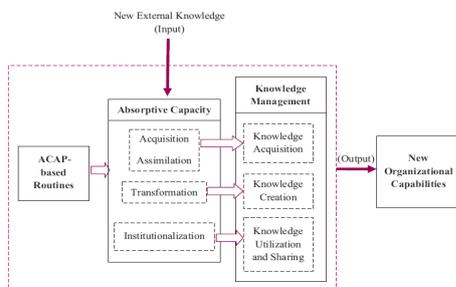
Assimilation can be viewed as organizational processes which permit it to interpret and understand the information that is achieved from external resources (Kim,1997;Zahra and George, 2002).Organizations which obtain sustained competitive advantage seek to change their internal environment. At this point, they create absorptive capacity and put an emphasize on knowledge assimilation and knowledge sharing. Construction of absorptive capacity in organizations enhances their ability to assimilate innovative technology and managing performance (Tu et al, 2006).

Transformation can be defined as organization's capability which support processes to combine obtained knowledge and existing knowledge in the firm with respect to two components of internalization and conversion(Zahra and George, 2002; Godkin,2010;Sun,2010).

Exploitation puts an emphasize on knowledge application and using of new knowledge for commercial operations (Cohen and Levinthal,1990; Zahra and George, 2002;Sun,2010).

Sun (2010) argues that organizations can institutionalize acquisition, assimilation and transformation of knowledge into new process for continuous exploitation and enable organizations to enhance new capabilities for responding external stimuli. In this study, we focused on four themes of acquisition, assimilation, transformation and institutionalization as components of ACAP in modeling of framework.

Figure 3. Conceptual model of routine-based absorptive capacity



Source: Sun (2010)

B. Organizational dynamic routines

1) System of knowledge transfer

The importance of knowledge is for two reasons: process of knowledge acquisition and process of knowledge creation. Systematic knowledge which is essential for process of knowledge acquisition is built by criteria established procedures in the context of organizational environment (Sun, 2010). Knowledge management projects often focus on identifying knowledge to connect people with each other. Electronic tools to create a sustainable organizational growth and improve learning ability have a key role in this regard. In fact, the main goal of knowledge management is to contribute creating a learning organization to improve the ability to match with the market place (Yahya and Goh, 2002). We can consider KM and system of knowledge transfer in the context of innovation. Knowledge transfer can be mediated by individuals, structure of organization, cultural environment and structure of work place. Improvement of knowledge transfer between SMEs is moving up in some countries such as UK which makes an effect to improve knowledge flows and absorptive capacity of SMEs and formalize it at a national level (Shaw and William, 2009; Hsieh, 2009). Internal and external knowledge transfer has a relationship with different quality management as one of the most relevant research topics which support operational management (Molina et al., 2007; Richer and Niewiem, 2009).

2) Strategic planning

Knowledge perspective is used to rearrange and reexamine business strategies, organizational process, IT plan of operations and structure of organization by focusing on different types of knowledge assets and maximizing of strategic values. At this point, knowledge economy and knowledge based competition play a key role (Chen, 2008 ; Kim et al,2003). Knowledge strategy planning can be viewed as organizing asset of activities and resources to create an organizational vision and design architecture of organizational KM stage (Kim et al,2003). An effective strategic planning provides a successful strategic performance and is fundamentally important to improve business operations. A conceptual, visionary and directional strategic planning contributes to a knowledge-based system in support of managerial decision-making (Haung,2009 ;Martins,2007). Individuals who involve organizational participatory decision making strongly look for new stage of knowledge. This type of knowledge –based decision making gives a strategic direction to the organization (Sun, 2010; Daghfous and Emirates, 2004;Selen, 2000).

3) Cultural environment

Organizational cultural environment can strongly affect on knowledge management by adaption to changing external environment in mention to new knowledge creation (Sun,2010;King et al.,2007). Culture can be viewed as an antecedent of a nice knowledge management stage and its succeeding. Various levels of culture have influence on knowledge management activities in different ways (King, 2008). Culture of an organization is simply the personality and character of that organization. By focusing on different attempts of knowledge management and IT

operations ,practitioners identified significance of human being activities in organizational procedures(Park et al., 2004).To improve knowledge performance, firms should accept an entrepreneurial culture. In fact, interest in organizational culture stems from assumption that culture of organizations can be resulted in superior financial performance (MacManus and Loughridge,2002;Lai and Lee,2007;Magnier-watanabe and Senoo,2009).

4) *Information technology advances*

By IT revolution, value of K-assets was strongly enhanced (Tseng,2008). The first stage in projects of KM technology can be viewed as k-workers activities which are supported by information technology operations. IT support for KM stage can be classified into three categories that include information about K-sources, information for representing of knowledge and processing of information. At this point, KM that is supported by information technology can help to identify current situation and future plan for organizations (Gottschalk and khandelwal, 2003; Lee and China, 2007).

KM enhances dynamic capabilities and is a considerable determinant to improve business activities and edge competitive advantage. Information technology advances as a fundamental dimension of theoretical and empirical convergence of knowledge management can present the role of software to support inter-functional K-operation and K-coordination activities. All of these depend on organizational ability to integrate mechanisms to support directional transaction flows between function-based and computer-based knowledge and performance level (Raggad, 1996;Sher and Lee,2004).

5) *Organizational structure*

Teamwork, commitment, cultural distance, management commitment and relationship strength have strongly impact on tacit and explicit knowledge learning in organizational context (Evangelista and Hau, 2009). Three items of formalization, centralization and integration compose structure of organizations which likely affect social interaction among members. Organizational structure of the workflow makes some mechanisms available for the corporations to execute, perform and manipulate the activities of KM stage (Choo et al 2007; Chen and Haung, 2007; Zheng et al.,2010). Internal characteristics of organizational context try to focus on structure, culture and strategic power which create an environment where implementation of firms takes place.

We should mention intervening mechanism which links organizational context and strategy to organizational effectiveness. KM plays a potential mediating role in this regard (Zheng et al,2010;Willem and Buelens,2009;Huang and Chen,2009).

IV.

CONCLUSION

In this paper authors have tried to illustrate why it is important to understand intervening themes of organizational routines that make ACAP more relevant to particular processes of knowledge management stage and

practitioners context. We identified five items in the context of organizational dynamic routines and analyzed their linking role between ACAP and KM processes. This routine-based conceptual model indicates how and by which items components of absorptive capacity of external knowledge can be mapped and connected to the KM processes. In this conceptual paper we did not make an effort to examine the relative importances of ACAP procedures, and we acknowledge that organizational dynamic routines may be overlap ACAP and KM in a meaningful way. We believe that the dynamic routines in this conceptual paper can be useful from the both perspective of academics and practitioners to better understand the discipline of ACAP in the particular context of KM. More surveys are encouraged to extend the conceptual model of this paper that can be adapted to a variety of situations related to KM stage.

REFERENCES

- [1] Camison,C. &Fores,B.(2010), "Knowledge absorptive capacity: New insights for its conceptualization and measurement",*Journal of Business Research*,63, pp.707-715
- [2] Cepeda,G. & Vera,D. (2007), "Dynamic capabilities and operational capabilities: A knowledge management perspective", *Journal of Business Research*,60,pp.426-437.
- [3] Chen,C.J. & Haung,J.W.(2007), "How organizational climate and structure affect knowledge management-The social interaction perspective", *International Journal of Information Management*,27,pp.104-118.
- [4] Chen,C.K.(2008), "Causal modelling of Knowledge-based economy", *Management Decision*,Vol.46,No.3,pp.501-514.
- [5] Choo,A.S.,Linderman,K.W.,Schroeder,R.G.(2007), "Method and context perspectives on learning and knowledge creation in quality management", *Journal of Operations Management*,25,pp.918-931.
- [6] Cohen,W.M. &Levinthal,D.A.(1990),"Absorptive capacity:A new perspective on learning and innovation",*Vol.35*,No.1,pp.128-152.
- [7] Daghfus,A.(2004), "Organizational learning, knowledge and technology transfer, a case study ",*The Learning Organization*,Vol.11,No.1,pp.67-83.
- [8] Evangelista,F. & Hau,L.N.(2009) , "Organizational context and knowledge acquisition in IJVs: An empirical study",*Journal of World Business*, 44,pp.63-73.
- [9] Gottschalk, P. & Khandelwal,V.K.(2003), "Determinants of knowledge management technology projects in Australian Law firms", *Journal of Knowledge Management*,Vol.7, No.4, pp.92-105.
- [10] Haung,H.C.(2009), "Designing a knowledge-based system for strategic planning:A balanced scorecard perspective", *Expert Systems with Applications*,36,pp.209-218.
- [11] Haung,H.T. & Chen,C.L.(2009), "Emerging organizational structure for knowledge-oriented teamwork using genetic algorithm", *Expert System with Applications*, 36,pp.12137-12142.
- [12] Heisig,P. (2009), "Harmonisation of knowledge management – comparing 160 KM frameworks around the globe", *Journal of Knowledge Management*,Vol.13,No.4,pp.4-31.
- [13] .Helms,M.M.,Ahmadi,M.,Jih,W.J.K., Etkin,L.P.(2008), "Technologies in support of mass customization strategy: Exploring the linkages between e-commerce and knowledge management", *Computers in Industry*, 59,pp.351-363.
- [14] .Hsieh,M.H.(2009),"Human centric knowledge seeking strategies:a stakeholder perspective", *Journal of Knowledge Management* ,Vol.13,No.4,pp.115-133.
- [15] Kim,Y.G.,Yu,S.H., Lee,J.H.(2003), "knowledge strategy planning:methodology and case",*Expert Systems with Applications*,24,pp.295-307.

- [16] Kim,L.(1997), "The dynamics of Samsung's technological learning in semiconductors", *California Management Review*, Vol.3, No.39, pp.86-100.
- [17] King,N.,Kruger,N.,Pretorius,J.(2007), "Knowledge management in a multicultural environment,a south African perspective", *Journal of Knowledge Management* ,Vol.59, No.3, pp.285-299.
- [18] King,W.R.(2008), "Questioning the conventional wisdom:culture-knowledge management relationships", *Journal of Knowledge Management*, Vol.12 , No. 3, pp.35-47.
- [19] Lai,M.F. & Lee,G.G.(2007), "Relationships of organizational culture toward knowledge activities", *Business Process Management Journal*, Vol.13, No.2, pp.306-322.
- [20] Laudon,K.C.& Laudon,J.P. (2009), "Management information System", Pearson Education, Inc., New Jersey, pp.46-61; 253-256; 439-469.
- [21] Magnier-Watanabe,R. & Senoo,D.(2010), "Shaping knowledge management: organization and national culture", *Journal of Knowledge Management*, Vol.14, No.2, pp.214-227.
- [22] Martins,L.P.(2007), "A holistic framework for the strategic management of first tire managers", *Management Decision*, Vol.45, No.3, pp.616-641.
- [23] Massingham,P.(2004), "Linking business level strategy with activities and knowledge resources", *Journal of Knowledge Management*, Vol.8, No.6, pp.50-62.
- [24] Mcmanus, D., Loughridge , B.(2002), "Corporate information, institutional culture and knowledge management: a UK university library perspective", *New Library World*, Vol.103, No.1180, pp.320-327.
- [25] 25.MolinaL.M.,Llorens-Montes,J.,Ruiz-Moreno,A.(2007), "Relationship between quality management practices and knowledge transfer", *Journal of Operations Management*, 25, pp.682-701.
- [26] 26.Mu,J.,Tang,F., MacLachlan, D.L. (2010), "Absorptive and disseminative capacity: Knowledge transfer in intra-organization networks", *Expert system with applications*, 37, pp.31-38.
- [27] 27.Park H., Ribier,V., Jr, W.D.S.(2004), "Critical attributes of organizational culture that promote knowledge management technology implementation success", *Journal of Knowledge Management*, Vol.8, No.3 ,pp.106-117.
- [28] 28.Ragged,B.G.(1996), "Neural network technology for knowledge resource management", *Management Decision*, Vol.34, No.2, pp.20-24.
- [29] 29.Selen,W.(2000), "Knowledge management in resource-based competitive environments: a roadmap for building learning organizations", *Journal of Knowledge Management* ,Vol.4, No.4, pp.346-353.
- [30] 30. Sun,P.(2010), "Five critical knowledge management organizational themes", *Journal of Knowledge Management*, Vol.14 , No.4, pp.507-523.
- [31] Sher,P.J. & Lee,V.C.(2004), "Information technology as facilitator for enhancing dynamic capabilities through knowledge management", *Information & Management*, 41, pp.933-945.
- [32] Shaw,G.& Williams, A.(2009), "Knowledge transfer and management in tourism organisation: An emerging research agenda", *Tourism Management*, 30, pp.325-335.
- [33] Szulanski,G.(1996), "Exploring internal stickiness: Impediments to the best practice within the firm", *Strategic Management Journal*, Vol.17, pp.27-43.
- [34] Todorova,G.& Durisin,B.(2007), "Absorptive capacity: valuing a reconceptualization", *Academy of Management Review*, vol.32, pp.774-786.
- [35] Tseng,S.M.(2008), "The effects of information technology on knowledge management systems", *Expert Systems With Applications*, 35, pp.150-160.
- [36] Tu,Q., Vonderembse, M.A., Ragu-Nathan, T.S. and Sharkey, T.W.(2006), "Absorptive capacity: Enhancing the assimilation of time-based manufacturing practices", *Journal of Operations Management*, 24, pp.692-710.
- [37] Willem,A. & Buelens,M.(2009), " Knowledge sharing in inter-unit cooperative episodes: The impact of organizational structure dimension", *International Journal of Information Management*, 29, pp.151-160.
- [38] Zheng,W., Yang,B., Mclean,G.N.(2010), "Linking organizational culture, structure, strategy and organizational effectiveness", *Journal of Business Research*, 63, pp.763-771.
- [39] Zahra,S.A. & Georg.G.(2002), "Absorptive capacity:A review, reconceptualization , and extension", *Academy of Management Review*, Vol.27, No.2, pp.185-203.
- [40] Yahya,S.& Goh,W.K.(2002), "Managing human resources toward achieving knowledge management", *Journal of Knowledge Management* , Vol.6 , No.5, pp.457-468.