

EFFECT OF KNOWLEDGE INFRASTRUCTURE AND KNOWLEDGE PROCESS ON ORGANIZATIONAL EFFECTIVENESS: A STUDY OF BANKING SECTOR OF PAKISTAN

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Abstract

The purpose of this study is to develop and present a model which will help the organization to improve the organizational effectiveness and to get competitive advantages in the market. Research also highlighted the organizational effectiveness with prospect of organizational capabilities in term of infrastructure and knowledge process capabilities. Sample size of the present study is 300 and collected from middle and top level management in different organizations. SEM is used to describe the relationship and impact in the presented model. Results offer the biases for empathetic of presumption for the firm as it come into a platform of knowledge management. Certain limitations and contribution of the study, managerial implications and future directions are also provided in order to get deep comprehensions of unexplored areas which are not sheltered in this study.

Key Words: Knowledge infrastructure capabilities, Knowledge process capabilities, Competitive Advantage, Knowledge effectiveness.

Introduction

This research is based on knowledge effectiveness which has a strong relationship with competitive advantage. Purpose of the study is to highlight the issue faced by organizations regarding knowledge management and gaining competitive advantage. Knowledge is considered to be an asset of the organizations while organizations are now trying to retain the extensive knowledge management efforts to remain competitive. This article will help the organizations in transforming and the transportation of knowledge in the organization and share knowledge with new workers and the co-workers. The objectives of this article are to find out how knowledge infrastructure capabilities construct in organization, to explore the effective knowledge process and infrastructure capabilities which lead towards organizational effectiveness and also to gauge the impact of organization effectiveness on competitive advantage. Current study also tests the mediating role of organization effectiveness between knowledge process capabilities, knowledge infrastructure capabilities and competitive advantages.

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Knowledge management is the very important asset for any organization in today's environment because all organization want to compete with the external environment and with the market forces. Organizations have some control on their existing knowledge and create or gather new knowledge for their favor and for their existence and competition in the market. The information revolution is transforming the nature of competition informative and collecting new information in a competitive advantage for any organization (Porter & Millar, 1985). Competing in any environment the knowledge about culture and the environment is very necessary for any organization to survive and compete in the current era. In Pakistani environment all the companies are trying to compete not only with each other but with the international brands as well and trying for the leading position in the market. Uribetirado ,Melgerestrade and Bornacellycastro(2007) describes that all the knowledge which is collected needs to be managed in a way that can fulfill organizational current knowledge needs and futuristic knowledge needs . Knowledge creation, collection and disseminations for gaining and maintaining the competitive advantage is the one of the core challenge for organizations (Hevner & Chatterjee, 2010). Knowledge management system has to help the organization in creating maintaining and adopting new knowledge which can help the organization to maintain the competitive advantage (Alavi & Leinder, 2001). It is also discussed in last decade that intellectual capital can also help the firm to get leverage on other companies but its mechanism vary from organization to organization (Edvinsson & Malone, 1997; Bonits, Keow & Richardson, 2000, Yasee, Dajani & Hasan, 2016). In the prevailing situation in the country Pakistani firms have to work hard for survival. Due to energy crisis, unemployment, literacy, political instability now organizations are looking for new ways to get competitive at market place, among many effective uses of knowledge one good strategy is to get competitive advantage. Present study helps to find the tactics and the related knowledge management approaches while gaining the required and new extensive knowledge for the organization competitive advantages in the market. In this way we will identify the knowledge management for the perspective of organization capabilities.

Literature Review

It is a fact that current economies are knowledge based economies and all the countries are working on the knowledge related issues. Day by day world is becoming a global village and knowledge sharing is the main pillar of the globalized world. In the current era of states and countries, knowledge and intellectual capital fixed in organization system and process and human capital lead the organization to competitive advantages and organizational effectiveness (Bontis, Dragonetti, Jacobsen, & Roos, 1999). Innovation in organization and the intellectual capital and knowledge is the main way to change in the organization and also the easy way to competitive advantage and organizational effectiveness (Seleim & Bontis, 2013). Technology and the upgradation of the knowledge management system and the knowledge sharing system can also improve the organizational effective system and organizational competitive advantages (Kock & Davasion 2003). In this article we will explore the knowledge infrastructure capabilities which have three components or dimensions: technology, structure, culture. The second variable is knowledge process capabilities which have four dimensions: acquisition, application, protection, and conversion. We will see the impact of these two variables on organizational effectiveness, i.e. how knowledge infrastructure capabilities and knowledge process capabilities affect organizational effectiveness and then how these variables show how we can improve or take the competitive advantage of any organization (Hermans 2004). Relational capital or assets of an organization can help in the embedded knowledge, in the supplier's customers and in a good relationship with partners (Yitmen, 2012). In an organization there are many processes and many resources which can increase or improve or affect the performance. All these resources can be tangible or intangible which can have a direct or indirect impact or effect on the organizational competitive advantages (Omerzel & Gulev, 2011). Furthermore, Nahapiet and Goshal (1998) have stated that the intellectual capital is created through the combination and exchange of intellectual resources that may be represented as explicit or tacit knowledge within organizations. Human capital or resources contain all the efficiency and capabilities of the organizational employees are the asset of the organization (Hsu & Fang, 2009). Thatcher et al (2011) found that use of a system enhances and improves their performance. An organization

which combines technologies in its system has a good and strong positive impact on the knowledge sharing inside the organization (Kock & Davison, 2003). The employees working in the organization are the most important asset for the organization. Both the experience and the knowledge skills and abilities of the employees are the asset of an organization (Kamukama, 2013). The knowledge asset is either static that means the available stocks (knowledge) within the organization (Sveiby, 1997) or dynamic (the flowing) that is the result of knowledge progression in the stock communication (Ross et al, 2005).

Infrastructure capabilities

Technology

Technology helps the system or the organizations to get knowledge and to get a connection between the organization system and the employees. This can help the organization to maintain the knowledge and implement the required knowledge at the time needed and help the organization to get the competitive advantage. In today's environment no organization can work without new technology and innovation (Tecee 2003).

Structure

The organizational structure is the basis of the organizational work improvements and organizational effectiveness. All the units and functions working in the organization are responsible for the organization's effectiveness and competitive advantages of the organization. The structure of the organization should be upgraded and the employees should have a part in the structure making system (Dell & Grayson 2003).

Culture

Culture is the most important feature of an organization in which we include the norms, values and the traditions of the organization. Sometimes the culture of an organization is the big hurdle for its knowledge infrastructure capabilities and the knowledge process capabilities. An organization should adopt the culture of the environment where it is working and the employees should work according to the environment and the culture of the country (Nonaka & Takuchi, 2001).

Process Capabilities**Acquisition Process**

The improvement in current knowledge and the acquiring the new knowledge is acquisition. All the organizations have to collect and maintain the required and relevant data and knowledge and also that knowledge will help the organization to get the competitive advantage and also to improve the efficiency of the employees (Decker, Bignell, Lambertsen, & Porter, 2001).

Conversion Process

Knowledge management is a process of conversion of the knowledge which already the organization has in hand. The organizations establish, participate, combine, practice the knowledge and distribute knowledge in the required units. The previous knowledge which an organization has got in the past should be properly maintained in the record for the upcoming employees in the organization which can help and also motivate the employees who will ultimately lead the organization to organizational effectiveness and competitive advantage of the organization (Decker, Bignell, Lambertsen, & Porter, 2001).

Application Process

Application based system is the system in which the knowledge is applied in the organizations the storage, recovery, application, contribution, and sharing of the required and applied knowledge in the organization as we discussed that the knowledge acquiring and maintain the knowledge in an organization cannot help until and unless that knowledge is applied and used in the proper way to get competitive advantages and organizational effectiveness (Decker, Bignell, Lambertsen, & Porter, 2001).

Protection process

Security concerned with the knowledge management for the organization which will protect the knowledge asset of the organization. This system helps the organization in securing and maintaining the knowledge which they have and also helps the system in the illegal use of the knowledge the knowledge protection is a very important issue and it should be fulfilled that the knowledge is saved because it is the asset of the

organization all the employees are an asset to the organization(Decker, Bignell, Lambertsen, & Porter, 2001).

Theoretical Framework

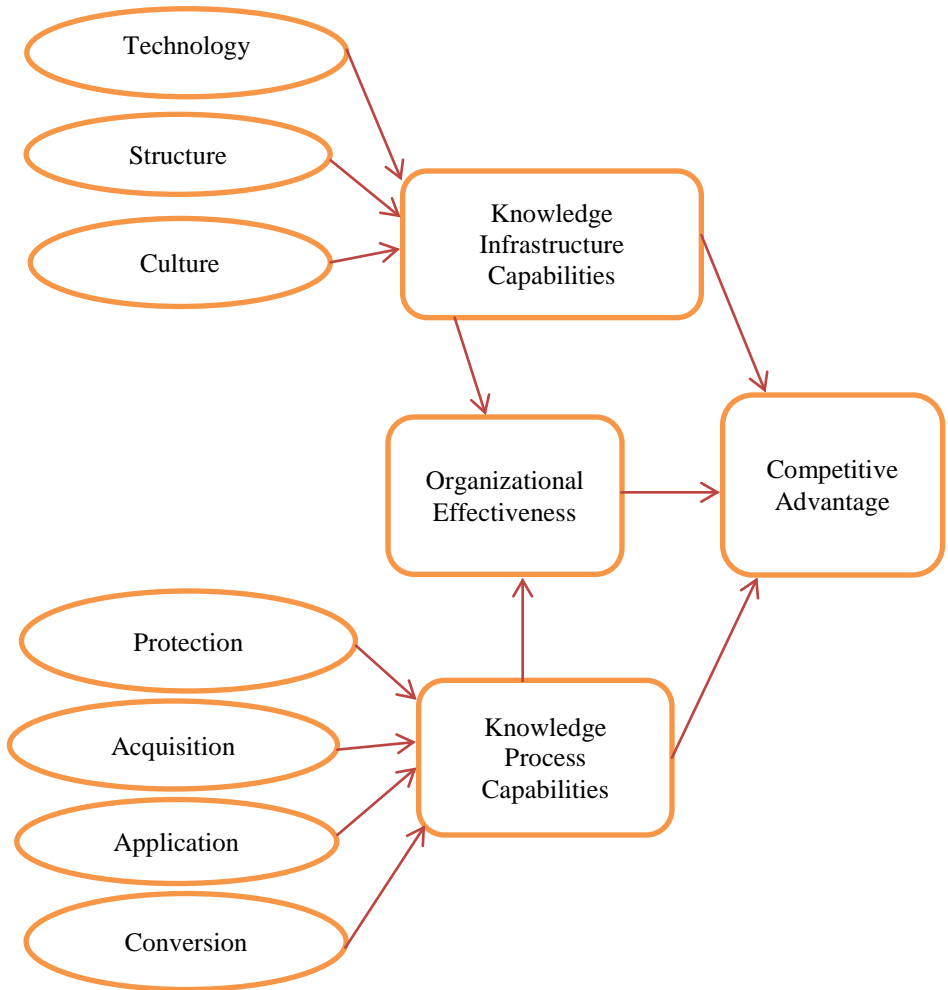


Figure 1: Theoretical Framework for the effect of Knowledge infrastructure capabilities and knowledge process capabilities on organizational effectiveness and competitive advantage

Hypotheses

H1: Knowledge infrastructure capabilities have positive impact on organizational effectiveness.

H 2: Knowledge process capabilities have positive impact on organizational effectiveness.

H3: Knowledge infrastructure capabilities have positive impact on competitive advantage.

H 4: Knowledge process capabilities have positive impact on competitive advantage.

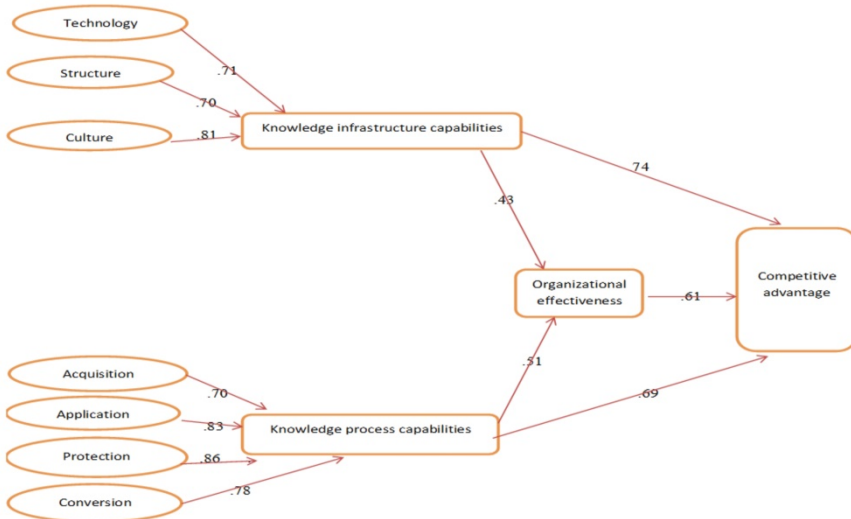
H 5: Organizational effectiveness has positive impact on competitive advantage.

H 6: Organizational effectiveness mediates between knowledge process capabilities and competitive advantage.

H 7: Organizational effectiveness mediates between knowledge infrastructure capabilities and competitive advantage.

Data Collection

Banking industry has been chosen for collection of data, and survey questionnaire was floated in different cities of Pakistan like, Lahore, Faisalabad, Multan, Chakwal, Rawalpindi and Islamabad. As to consider ethically researcher has to take permission from respective bank manager for collection, while adopting a rigorous process, 300 responses have been taken out.



Results and Discussion

AMOS is used to analyzed the data and to check the direct and indirect effects of the proposed model, assumption for running the SEM has

already been observed and to ensure that data has been normal before proceeding further. Table 1 depicts the results from H1 to H5, all hypotheses have been found significant up to 0.001 and that enhances our faith in the proposed model. Correlation was also run to check the relationship between variables which also lies within acceptance range.

Hypothesis 1 has been accepted and illustrated in table 1. It shows a positive impact of Knowledge Infrastructure capabilities on organizational effectiveness with the beta coefficient value 0.43 at 0.05 significance level, which indicated that KIC has positive and significant impact on OE at 0.05 . Results and findings of the present hypothesis have been validated with previous studies (Bontis, 2001; Kong & Prior, 2008). Hypothesis 2 findings depict that knowledge Process Capabilities have positive impact on organizational effectiveness, while beta coefficient for the present hypothesis is 0.57 at significance level of 0.05. It demonstrated that the higher level of knowledge process capabilities lead to higher level of organizational effectiveness. Findings of the present hypothesis have also been found in accordance with previous studies (Nonaka, & Teece, 2001; Mehralian, Rasekh, Akhavan, & Ghatari, 2013; Nahapiet, & Goshal, 1998; Nonaka & Takeuchi, 1995).

Hypothesis 3 that knowledge infrastructure capabilities are positively and significantly related with competitive advantage, findings also highlighted that beta coefficient of 0.72 at 0.05 level of this research study also supports the stated hypothesis. Correlation among KIC and CA has found 0.65 significant association. The beta coefficient value also identifies that higher the KIC practices are adopted within the organization, the more the OE will develop within the organization. For Hypothesis H₄, findings of the contemporary study specify that knowledge process capabilities of organizational division and of the unabridged functional zone of banks, has significant and positive connection with the OE in Banks. Correlation between KPC and CA is 0.65 with positive and significant association while the beta value of 0.62 at 0.05 significant level illustrated that KPC is a significant determinant of OE. Hypothesis H₅ is that organization effectiveness is significantly associated with competitive advantage. Correlation between KPC and CA has been found 0.45 with positive and significant association while the beta value of 0.59 at 0.05 significant level illustrates that OE is a

significant and positive impact of CA. It also states that the greater the organizational effectiveness is embraced, the more the competitive advantage phenomenon is assimilated within the Banks .

Table 1: Summary of Hypotheses Results of H1 to H5

Connection Between Variables	Beta value	Critical Value	P value	Decision / Remarks
β_1 (OE←KIC)	0.43	8.21	0.00	Supported
β_2 (OE← KPC)	0.57	9.21	0.00	Supported
β_3 (CA← KIC)	0.72	8.61	0.00	Supported
β_4 (CA← KPC)	0.62	9.13	0.00	Supported
β_5 (CA ← OE)	0.59	7.29	0.00	Supported

Note OE= Organizational Effectiveness, KIC = Knowledge Infrastructure Capabilities , KPC = Knowledge Process Capabilities , CA = Competitive Advantage , KM = Knowledge Management

Table 2: Mediator Model (for OE)

Variable	Total Effect (C)	Direct effect (C')	Indirect effect (ab)	Result	Mediation level
KIC-OE-CA	$\beta = .256$ $p = 0.001$	$\beta = .332$ $p = 0.020$ $\beta = .234$	$\beta = .420$ $p = 0.002$	Significant	Partial
KPC-OE-CA	$\beta = .457$ $p = 0.02$	$p = 0.012$	$\beta = .234$ $p = 0.003$	Significant	Partial

Note OE= Organizational Effectiveness, KIC = Knowledge Infrastructure Capabilities, KPC = Knowledge Process Capabilities, CA = Competitive Advantage, KM = Knowledge Management

Baron and Kenny (1986) describe method for mediation analysis, although this may be consider one of the most accepted utilized approach but few updated method are also available for the analysis like (Preacher & Hayes, 2008) and Bootstrapped method. The results illustrated (Table 2) are verified by using bootstrapping technique in SPSS (Preacher & Hayes, 2008) by drawing 5,000 samples and 95% bootstrapped confidence interval as suggested by Ng et al. (2014). Mediation effect has also been analyzed through direct and indirect path, as depicted that both direct and indirect path for Hypothesis 6 has significant and positive

impact with 0.001 and 0.002 respectively. It shows partial mediation for Knowledge Infrastructure capabilities through organizational effectiveness to competitive advantage.

Proposed hypothesis H6 is statistically analyzed that illustrates that Organizational Effectiveness significantly mediates the linkage between Organizational Infrastructure Capabilities and competitive advantage. The findings illustrated that influence of Organizational Infrastructure Capabilities on competitive advantage is demonstrated to be significant as demonstrated by total effect beta coefficient value = 0.256 and $p = 0.001$, while after the mediation effect of OE between the relationship of Organizational Infrastructure Capabilities on competitive advantage with the direct beta coefficient is 0.332 at significance level of 0.015, illustrated still to be significant but marginal decrease in the beta coefficient is depicted, while indirect effect of beta coefficient is 0.420 with significant level at 0.002. This confirms that OE act as a partial mediator in the association of Organizational Infrastructure Capabilities and CA and thus H6 hypothesis is partially accepted. Similar is the case for H7. Results also indicate that Organizational Effectiveness partially mediates between Knowledge Process Capabilities and competitive advantage. A center tenet of KM capabilities is that it will have a direct and positive association with the organizational effectiveness. Importantly performance may not always be a direct measure of capabilities but is instead a state which should, but may not always, follow successful KM capabilities.

Conclusion and Managerial Implications

KMS capabilities and KMS effectiveness both have an impact on each other and both of these lead to organizational effectiveness and further to competitive advantage. The data was collected through questionnaires which were floated in different banks. A correlation matrix was used to check the relationship between these variables and regression analysis was used in this study. The correlation shows the relationship between the variables in the model which was valid and was proven by the method. This research has a direct and indirect influence on the employee's behavior and satisfaction working in the organization. This article demonstrates that the intellectual capital and the intellectual

employees are the asset of the organization and the intellectual capital of an organization also helps organizations to get the competitive advantage and the organizational effectiveness. The employees are not always motivated to change and they are not motivated to new technologies and processes. The users of KMS capabilities and KMS effectiveness have some input and output satisfaction about the system. Ease of the use of the technology, i.e. search ability, quality and usefulness are also reasons for considering satisfaction in the use of a KMS. However, it is valid to suggest that humancapital indirectly and significantly influences competitive advantage as it is embedded in the relational capital. The finding that RC and SC affect competitive advantage is consistent with Hsu and Fang (2009) study. They found that RC is the greatest factor among IC components in Taiwanese design companies. Structural capital is the second factor and human capital is the last one. Further, Wang and Chang (2005) found that IC elements directly affect performance with the exception of human capital. Human capital indirectly affects performance through the other three elements: innovation capital, process capital, and customer capital. As predicted, the effect of relational capital on competitive advantage was moderated by gender and age, and the effect was strongest among younger men. In case of structural capital, its effect on competitive advantage was moderated by gender only such that the effect was slightly stronger for females than males. Thus, intellectual capital is a source of competitive advantage.

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