IMPACT OF INTELLECTUAL CAPITAL ON ORGANIZATIONAL PERFORMANCE: EVIDENCE FROM A DEVELOPING COUNTRY

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ABSTRACT

Intellectual capital has been much discussed in developed nations for organization's value creation. In a competitive market, intellectual capital proved to be a source of a competitive advantage for organizations. However, this study is conducted to anticipate the potential effect of intellectual capital in the context of a developing country. The central objective of this research is to hypothesize the mediation effect of knowledge process capability between intellectual capital dimensions and organizational performance. Survey method is applied for data collection. Data is collected from 154 large manufacturing industries in Pakistan. The analysis is performed via partial least square (WarpPLS 5.0). The outcome of this research revealed that knowledge process capability mediates with all dimensions of intellectual capital. Among the dimensions of intellectual capital, relational capital has the strongest effect on knowledge process capability and organizational performance. The present study advances knowledge by applying intellectual capital effects on organizational performance in a developing country. This study added new insights for the HR managers and policy makers of developing countries to disseminate such concepts to their respective organizations.

Keywords: Intellectual Capital, Knowledge Process Capability, Organizational Performance.

INTRODUCTION

Intellectual capital is recognized as a central source of competitive advantage. It focuses on intangible resources that contribute to value creation of an organization (Edvinsson & Malone, 1997; Lev, 2000; Subramaniam & Youndt, 2005). IC captures "the sum of all knowledge firms utilized for competitive advantage" (Subramaniam & Youndt, 2005). In prior research, IC found to significantly affect organizational performance (Chen et al., 2005; Subramaniam & Youndt, 2005). However, most of the cases only having intangible resources do not guarantee sustained competitive advantage. It is important to know as how to utilize/process such resource throughout the organization. On the other hand, Knowledge Based View (KBV) of a company recognized the role of knowledge process capability in leveraging and managing knowledge in the organizations (Grant, 1996a & 1996b). Specifically, the IC literature deals with intangible resources in firms, whilst knowledge management, discusses the mechanism through which these resources are controlled and managed. Hence, to gain the idea that how knowledge is created in organizational setup, it's important to understand the interaction between these two aspects. Nevertheless, some previous studies discussed the interaction between knowledge management processes and company's performance (Gold et al., 2001; Hsu & Sabherwal, 2011; Tanriverdi, 2005) but, research lacks to put IC to investigation. Kianto et al. (2014) suggested various conceptual models and among those models, one of them is mediation effect of

knowledge process capability among IC and organizational performance. Based on Kianto et al. (2014) conceptual framework, this research discusses an imperative issue that has less discussed. This paper focuses on knowledge process capability that how it mediates between IC and organizational performance? Thus, KBV will guide our attention, how knowledge process capability interacts with IC and organizational performance (Grant, 1996a & 1996b).

In this proposed research framework IC is comprised of human capital, structural capital and relational capital, whereas knowledge process capability is comprised of five sub-dimensions, i.e. Knowledge acquisition, Knowledge documentation, Knowledge creation, Knowledge transfer and knowledge implementation. In this research the term knowledge management, knowledge management process and knowledge process capability are used interchangeably. Though literature shows, these two areas have developed in parallel, but empirical literature lacks explaining how these two approaches combine and further how these two mechanisms interact for organizational value creation (Eisenhardt & Santos, 2002).

Based on Kianto et al. (2014) conceptual framework and KBV theory, this research try to make two crucial contributions. First, this study empirically tests the mediating effect of knowledge process capability between IC and organizational performance. Second, while adding knowledge process capability, it helps to understand either, which individual dimension of IC has more effects on organizational performance?

LITERATURE REVIEW

Underlying Theory: Knowledge-Based View

The theoretical framework of this research is guided by KBV theory. In KBV theory, knowledge has been considered as the most strategic sources of an organization (Grant, 1996b). Proponents of the KBV recognized such resources are central source of competitive advantage, because such knowledge resources are difficult to imitate, socially complex, immobile and heterogeneous. The theory of KBV further validates that knowledge-related resources add more value for achieving organizational performance then tangible resources (Grant, 1996a & 1996b). Furthermore, knowledge resides in individual and it's obligatory for managers to integrate such individual owned knowledge by providing structural arrangements of co-ordination and cooperation among specialized knowledge workers. Moreover, companies focus on organizational knowledge process flowing through these structural arrangements is utilized by individuals for knowledge creation, storage and deployment. Further, such knowledge management processes lead to organizational performance (Valmohammadi & Ahmadi, 2015). Hence, this research examines the mediating role of knowledge process capability between IC dimensions and organizational performance.

The Relationship between IC and Knowledge Process Capability

Human capital is regarded as the skills, satisfaction and motivation of employees (Bontis et al., 2000). On the other hand structural capital refers to organizational structure, procedures and processes and administrative programs (Bontis et al., 2000; Roos et al., 1997). Finally, relational capital denotes the relations with customers and suppliers and their loyalty toward an organization (Kim & Kumar, 2009). On the other hand, Filius et al. (2000) explained knowledge process capability in five sub segments: knowledge acquisition, documentation, transfer, creation and application. Knowledge is a pivotal part for todays' knowledge based companies.

Human capital plays a lead role to process such knowledge. According to Jaw et al. (2006) such knowledge flow through human capital boosts organizational performance. Senior manager's capabilities, teaching and leadership quality should be used to produce an open-minded and conducive learning environment to support employees for completing their tasks. Similarly, companies' structural reform helps knowledge creation. Nonaka et al. (2000) asserted that managers should create a learning environment by giving time, space and attention. Organizations can provide a good working space, a good database to reduce work hours and forms of interaction to discuss common organizational goals. Such structural facilities promote prevailing knowledge (Huang & Jim Wu, 2010) and influence innovation in the organization (Subramaniam & Youndt, 2005). Likewise, relational capital is quite important for organization's knowledge flow. Carmeli & Azeroual (2009) asserted that knowledge process leads to constructive benefits for organizational performance. Moreover, Customers and suppliers have wealth of knowledge and their efficient and effective utilization supports the organizations to accomplish the desired objectives (Bontis, 1998). Based on prior literatures the following hypotheses are posited.

H_1: A positive relationship exists between human capital and knowledge process capability.

H_2: A positive relationship exists between structural capital and knowledge process capability.

H_3: A positive relationship exists between relational capital and knowledge process capability.

The Relationship between Knowledge Process Capability and Organizational Performance

According to Song (2008) a strong and positive relation exists between knowledge creation practices and performance improvement and further emphasized that 40% of organization performance could be due to knowledge creation. In an organization, employees should be provided platform to create and transfer their knowledge within and outside of organization (customers and other stakeholders). Gold et al. (2001) proposed that knowledge process capability is essential for organizational effectiveness. Besides, organizations before lunching knowledge management programs should consider their capabilities, either such program provide any guarantee of success. Because, same knowledge cannot be applied in every organization, that's why it's important for top management of an organization to see the feasibility of such knowledge to their respective business units.

H_4: A positive relationship exists between knowledge process capability and organizational performance.

Mediating Role of Knowledge Process Capability

As time moves on scholastics work linking IC dimensions with knowledge process capability. Jaw et al. (2006) reported that knowledge flows through human capital progress organization performance. The managers need to create a trustful environment which may motivate employees to complete their tasks on time. Similarly, knowledge process also demands practical organizational setup i.e. proper processes, procedures, structure, databases and other required accessories. However, structural capabilities backed organization from internal and external challenges. Such capital promotes knowledge capability (Huang & Jim Wu, 2010), which enhances organizational performance (Valmohammadi & Ahmadi, 2015). In the same

way, for organization's knowledge flow intraunit and interunit relational capital are quite crucial. Carmeli & Azeroual (2009) results showed the positive relationship between relational capital and knowledge process capability; such knowledge leads to constructive benefits for organizational performance. Based on prior discussion, it is noted that there is a lack of studies to check the role of knowledge process capability between IC dimensions and organizational performance; hence, based on previous studies, the following hypotheses are developed.

H_5: *Knowledge process capability positively mediates between human capital and organizational performance.*

H_6: *Knowledge process capability positively mediates between structural capital and organizational performance.*

H_7: *Knowledge process capability positively mediates between Relational capital and organizational performance.*

METHOD

Previous studies instruments are adopted. The five point Likert scale ranging from "1=strongly disagree" to "5=strongly agree" was incorporated. Human capital and structural capital were measured with four items each, adopted from Bontis et al. (2000); Subramaniam & Youndt (2005). Besides, relational capital was measured with three items take up from Bontis et al. (2000). Further, knowledge process capability was measured with four items (Filius et al., 2000). Finally, organizational performance was measured with four items (Sousa, 2004; White et al., 1998).

The target population of current study is large manufacturing companies in Pakistan. The respondents of the current study were top, middle and lower level managers. The surface mail and self-administrated methods were utilized for data collection. We circulated 435 questionnaires, 334 questionnaires were returned and 302 questionnaires were usable. Thus the response rate was 69.42%.

RESULTS

To assess two-stage analytic model i.e. measurement model and structural model, this study applied Partial Least Square (PLS), Structural Equation Modeling (SEM) (Hair et al., 2011). The data analysis is performed by SEM WarpPLS version 5.0 (Kock, 2015). The Table 1 depicts the correlations among constructs. The bold values show the square roots of AVE which are greater than off-diagonal values, confirms the result that the discriminant validity is achieved.

Table 1
DISCRIMINANT VALIDITY COEFFICIENTS

	Variables	1	2	3	4	5
1	Human Capital	**(0.845)**				
2	Structural Capital	0.292	**(0.838)**			
3	Relational Capital	0.330	0.197	**(0.768)**		
4	Knowledge process Capability	0.253	0.208	0.385	**(0.846)**	
5	Organizational performance	0.375	0.254	0.460	0.777	**(0.796)**

Note: Diagonal in parentheses represents the square root of AVE while the other entries represent correlations

Table 2 presents the results of FL, AVE, composite reliability and full collinearity variance inflation factors. The FL was ranged from 0.740 to 0.890, fulfilling the required criteria of ≥ 0.5 (Hair et al., 2011). Using the threshold of 0.5, The AVE was ranged from 0.590 to 0.716 (Fornell & Larcker, 1981). Composite reliability is ranged from 0.878 to 0.946 accepting the criteria of 0.7. Finally, the block variance of inflation factor is ranged from 1.127 to 2.908 that confirm no multicollinearity among constructs.

Table 2
FACTOR LOADING AND RELIABILITY

Constructs	Loadings	AVE	CR	Full collinearity VIFs
Human Capital		0.714	0.946	1.270
HUC1	0.822			
HUC2	0.870			
HUC3	0.861			
HUC4	0.835			
Structural Capital		0.701	0.943	1.127
STC1	0.800			
STC2	0.765			
STC3	0.826			
STC4	0.890			
Relational Capital		0.590	0.878	1.326
REC1	0.803			
REC2	0.750			
REC3	0.782			
Organizational Performance		0.634	0.933	2.908
ORP1	0.744			
ORP2	0.740			
ORP3	0.830			
ORP4	0.822			
Knowledge Process Capability		0.716	0.926	2.545
KPC1	0.861			
KPC2	0.796			
KPC3	0.883			
KPC4	0.853			

Note: CR=Composite Reliability; AVE=Average Variance Extracted

The structural model (Figure 1) shows the hypothesized relationships among variables. A number of model fit indices are suggested by Kock (2015) such as Average Path Coefficient (APC), Adjusted R Square (ARS), Average Block Variance Inflation Factor (AVIF), average adjusted R square and Tenenhaus Goodness of Fit (GoF). The values of APC and ARS were 0.228 ($p<0.001$) and 0.385 ($p<0.001$) respectively. The AVIF was 1.326 (acceptable if <= 5, ideally <= 3.3) and the values of AARS was 0.487 ($p<0.001$). Finally, the GoF was 0.479 (small >= 0.1, medium >= 0.25, large >= 0.36).

R^2 value is used to calculate the predictive power of the estimated model. R^2 shows the variance explained by the independent variables (Barclay et al., 1995). All four variables explicated 69 per cent of the variance. On the other hand, hypothesized relationships (direct and indirect effects) are reported in Table 3. From the analysis, it was found that human capital was significantly positively related to knowledge process capability at (β=0.220, P=0.000). Similarly, structural capital (β=0.112, P=0.050) and relational capital (β=0.360, P=0.000) were also

significant towards knowledge process capability. Thus, hypotheses H_1, H_2 and H_3 were supported. The knowledge process capability also significantly affects organizational performance at (β=0.883, P=0.000), accepting H_4.

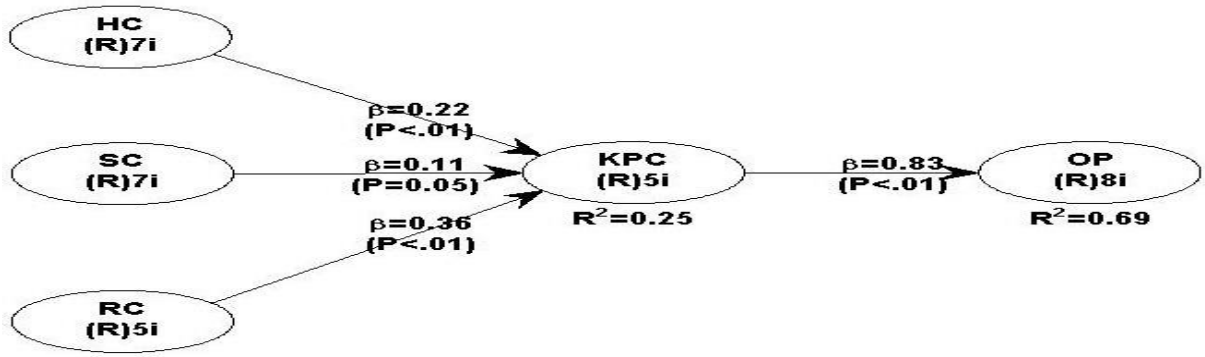

FIGURE 1
THE ESTIMATED MODEL

Table 3
PATH COEFFICIENTS AND HYPOTHESIS TESTING

Hypothesis	Paths	Standardized Estimates	P value	Effect size	Decision
H_1	HC-KPC	0.220	0.000	0.072	Supported
H_2	SC-KPC	0.112	0.050	0.026	Supported
H_3	RC-KPC	0.360	0.000	0.152	Supported
H_4	KPC-OP	0.883	0.000	0.694	Supported
H_5	HC-KPC-OP	0.183	0.000	0.069	Supported
H_6	SC-KPC-OP	0.093	0.028	0.024	Supported
H_7	RC-KPC-OP	0.300	0.000	0.138	Supported

Next, we tested the mediation effect. The bootstrapping was applied to calculate the indirect effect of remaining hypotheses (Preacher & Hayes, 2008). The indirect effect of human capital to organizational performance (β=0.183, P=0.000), structural capital to organizational performance (β=0.093, P=0.020) and finally, relational capital to organizational performance (β=0.300, P=0.034) were proved to be significant. Hence, accepts H_5, H_6 and H_7 respectively.

DISCUSSION AND CONCLUSION

To conclude, this study achieved the proposed objectives by testing a theoretical model. Applying structural equation modeling the empirical outcomes of this study showed that the mediating role of knowledge process capability exists between IC dimensions and organizational performance in the context of Pakistan's manufacturing industries. Secondly, adding knowledge process capability, the relational capital has the strongest effects on organizational performance followed by human capital and structural capital.

The results of this study are exhibited in Table 3 which found the direct and indirect relations among IC dimensions, knowledge process capability and organizational performance. This study corroborates with the findings of Jaw et al. (2006) that employer investment on human capital enhances the flow of knowledge among employees in organization. Similarly, it is

incumbent upon employers to make employees skillful and should be given required working environment which help them to share their inner knowledge for organizational benefits. The findings of this study also support the ideas of Gold et al. (2001) who suggested that knowledge process capability is essential for organizational effectiveness. Besides, organizations should consider their employees' capabilities in advance of launching various knowledge management programs for company's benefits. Managers have to frame a constructive and trustful learning environment for the employees, which in return enable employees to share as well as apply their experiences for value-added product development and improve the overall performance of the organization.

Similarly, among other dimensions of IC, structural capital also has significant direct effects on the knowledge process capability and indirect effects on organizational performance. This capital is very pivotal for the company and the company owns it when the employees go home. Through proper management of structural capital, the long term value can be generated for the organization. Furthermore, Zanda (2011) added that the interaction between knowledge sharing and structural capital can bring competitive advantage in organizations. However, compared with other dimensions of IC, in this study structural capital has a weak relationship with knowledge process capability and organizational performance. One possible explanation for this may be the case of a developing country like Pakistan, where organizations are not well equipped with databases, operating processes, procedures and better production planning. Hence, effective organizational design is needed to complete all structural requirements, which are obligatory in today's competitive and technological environment.

Moreover, the study findings also revealed the role of knowledge process capability between relational capital and organizational performance. Compared with other dimensions of IC, relational capital has the strongest effect towards knowledge process capability which leads to organizational performance. The present study results are aligned with Chen et al. (2005) outcome that also support this notion that individuals share their knowledge with managers and such knowledge sharing helps organizations in the long run. Mangers can gain bundle of knowledge from such external stakeholders. Hence, the customers and suppliers are one of the key sources of a company's expertise. There ideas are very much crucial for company's benefits, because they do have ideas either what new things they need and what should be added or omitted in the existing products. To sum up, this study confirmed that the manufacturing industries in Pakistan utilized the benefits of IC and further identifies the dimensions of IC which need more attention.

Nevertheless, the study includes limitations. First, this study is cross sectional in nature. Besides this, a longitudinal study may be carried out in future. Second, the current study only focused on a single industry, some other manufacturing industries may be added to check the IC impact on the performance of the organization. Finally, this study utilized three dimensions of IC; future study may integrate untested dimensions to the body of knowledge.

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