Relationship of Intellectual Capital With The Organizational Performance of Pharmaceutical Companies in Pakistan

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Abstract: Today numerous organizations recognized the worth and importance of intellectual capital. There is no doubt intellectual capital plays a crucial role in the current ever-challenging and aggressive business environment, particularly in knowledge-intensive organizations such as pharmaceutical industry. The organizations that aspire to be branded as being successful and competitive need to demand and find better ways to improve their organizational performance by utilizing their intellectual capital. Generally, intellectual capital comprises human capital, consumer capital and structural capital. Therefore, this study attempted to find the relationship of the components of intellectual capital with the organizational performance of pharmaceutical companies in Pakistan. Three hypotheses, which attempted to test the relationship of the components of intellectual capital with the performance of the pharmaceutical companies in Pakistan, were proposed, and Pearson correlation was used for this purpose. The findings showed that intellectual capital has positive relationship with organizational performance and all three research hypotheses were supported.

Key words: Intellectual capital, human capital, customer capital, structural capital, organizational performance, pharmaceutical industry.

INTRODUCTION

At the beginning of the twenty first century the paradigm of production-based economy has shifted to a knowledge-based economy. According to Kim, Yoon, Kim, Lee and Kang (2006), a turning point in the global development process has occurred from the last decade of the 20th century. In contemporary era it is recognized that knowledge has become the main source of social, economic, and cultural development. Knowledge is embodied in human beings in tacit and explicit forms. Tacit knowledge is mainly based on common sense while explicit knowledge is derived from academic accomplishment (Smith, 2001). In a knowledge-based economy almost all activities are based on knowledge, and it has become the most important economic resource and is replacing financial and physical capitals as the most critical capital (O'Donnell, Regan, Coates, Kenedy, Keary and Bekery, 2003; Demediuk, 2002; April, 2002). Many organizations focused their attention to utilize and strengthen the knowledge-based assets of organization to gain exponential growth (Hamzah and Ismail, 2008). Further, they argued that majority of the organizations apply their knowledge and internal capabilities to take competitive advantage. From this, it appears that the performance of an organization depends on how well the organization manages its knowledge-based assets.

Stewart (2002) argued that the knowledge-based economy is mainly constituted on three pillars. First, knowledge has become what we buy, sell and do; second, knowledge-based assets have become more crucial to organization; while third, in order to prosper new management techniques, new technologies and new strategies are required to explain the knowledge-based assets. However, the knowledge embedded in individuals and organizations has been stated as ‘intellectual capital’ (Demediuk, 2002; Sullivan, 1999; Stewart, 1997). In a knowledge-based economy, organizations are managed based on intellectual capital, and they are completely depends upon the intellectual capital. Khalique, Shaari, Isa and Ageel (2011) stipulated that intellectual capital is a critical source for organizations to take competitive advantages. In the same way, Sharabati, Jawad and Bontis (2011) and Collis (1996) argued that inspite of the importance of intellectual capital most of the organizations do not grasp the fact on the importance and application of intellectual capital in their organizations. In these days organizations are facing tremendous and fierce global competition for their survival, and intellectual capital is recognized as a critical resource that drives economic growth and organizations to compete global challenges (Huang and Liu, 2005).
The role and importance of high-tech organizations in a knowledge-based economy is highly recognized. Among others, companies within the pharmaceutical industry are considered as one of the most important knowledge-intensive organizations, and a great source of intellectual capital (Daum, 2005). In addition, Wang (2011) pointed out that pharmaceutical industry is consistently making more investment in order to protect their intellectual property rights and enhance their research and development (R&D) capacity. Pharmaceutical industry is considered as high-tech, high innovative and well balanced with in respect of human intervention and technology. It mainly based on intellectual capital for a source of innovation and business performance (Devol, Wong, Bedroussian, Wallace, Ki, Murphy and Koepp, 2004; Chen, 2004; Hermans, 2004; Zucker, Darby and Brewer, 1994).

According to Sharabati et al. (2011), a significant number of the existing research on intellectual capital has focused on the developed world, particularly within Anglophonic and Scandinavian nations. Researchers in developing countries have carried out studies to identify the role of intellectual capital toward the innovation and the performance of organizations for example Mexico (Trevinyo-Rodriguez and Bontis, 2007), Malaysia (Bontis, Keow and Richardson, 2000), Egypt (Seleim, Ashour and Bontis, 2004), Pakistan (Shaari et al. 2011; Khalique et al., 2011); and Iran (Mahmoodsalehi and Jahanyan, 2009).

The scope of this study is somewhat unique because the concept of intellectual is not well known to most managers in the pharmaceutical industry in Pakistan. In Pakistan, there are very few studies on the role of intellectual capital toward the organizations performance, and Khalique et al., (2011) introduce the concept and identify the role of intellectual capital in high-tech small and medium enterprises in Pakistan. Therefore, in this study, pharmaceutical industry was chosen to measure the effect of intellectual capital on the performance of pharmaceutical companies in Pakistan.

Literature Review:

The term intellectual capital was first coined by Jon Kenneth Galbraith in 1969 (Chang and Hsieh, 2011; Khalique, Shaari and Isa, 2011a). Many researchers, academician and practitioners generally argued that there is no uniform definition of intellectual capital available in literature. According to Kozak (2011) and Khalique et al. (2011a) the concept of intellectual capital is still underdeveloped, and there is no standard definition of intellectual capital is available that will identify its subcomponents. It has been found that many researchers defined the same concept of intellectual capital but in different ways. Stewart (1997, p. 67) defines intellectual capital as a “packaged useful knowledge.” In addition, Stewart illustrated that intellectual capital is a total stock of the collective knowledge, information, technologies, skills, expertise, intellectual property, customer loyalty and team management that can be used to create value of the products and services in organizations. According to Edvinsson (1997), intellectual capital is the sum of human capital and structural capital. However, Stewart (1997) widens the concept of intellectual capital and argued that intellectual capital is mainly constituted of three parts, namely human capital, customer capital and structural capital. Brooking (1996), Edvinsson (1997), Roos et al. (1997) and Bontis (1998) pointed out that intellectual capital is based on three components namely human capital, customer capital and structural capital. They illustrated that intellectual capital based on various intangible resources, such as employee’s competence, knowledge, education, skill, intellectual agility, brand name, customer relationship and organization structure (Bontis et al., 2000, Shaari, Khalique and Isa, 2010).

As indicated earlier, intellectual capital constituted three important components: human capital, customer capital and structural capital. Human capital is the most critical component of intellectual capital. According to Khalique et al. (2011a), human capital is considered as the heart of intellectual capital. According to Edvinsson and Malone (1997), Bontis (1998) Shaari et al. (2010), and Isaac, Herremans and Kline (2010), human capital relates to employee’s knowledge, competence, skill, capability and innovation. Bontis et al. (2000), Shaari et al. (2010) and Khalique et al. (2011a) illustrated that employees generate intellectual capital through their competence, attitude and intellectual agility. Therefore, human capital is a pivot component of intellectual capital.

Customer capital is mainly based on the relationship between the organization and its customers (Edvinsson and Malone, 1997, Shaari et al., 2010; Tai- Ning et al. 2011). Bontis et al. (2000) describe that customer capital is based on the knowledge that embedded in the marketing channels and with customer relationships that an organization can develop through the course of conducting business. Khalique et al., (2011) illustrated that customer capital comprises customer satisfaction, loyalty and network. Regarding the importance of customer capital, Roos et al. (2001) and Hill and Jones (2001) stipulated that the relationship with customers is very important for organizations because customers buy products or services from the enterprises. Therefore, customers are the main source for revenue generation of organization.

Structural capital can considered as glue for an organization. It is also a critical component of intellectual capital. Structural capital of organization represents all the nonhuman storehouses of knowledge including databases, organizational charts, process manuals, strategies, routines and policies (Bontis et al., 2000; Wu and Tsai, 2005; Shaari et al., 2010; Khalique et al., 2011). Generally, structural capital of organizations comprises infrastructure, system policies and procedures (Khalique et al., 2011a). Roos et al. (1998) stated that structural
capital as “what remains in the company when employees go home for the night”. According to Stewart (2000), and Shih, Chang and Lin (2010) structural capital mainly provides the environment that support individuals to invest their human capital to create and leverage its knowledge to enhance the organizational performance.

Intellectual capital has been recognized, formalized, captured and leveraged to produce a higher valued asset and enhance the organizational performance (Wang, 2011). According to Khalique et al (2011) intellectual capital is playing a significant contribution to enhance the performance of organizations. Sharabati et al. (2010) found that intellectual capital is a critical success factor to enhance the innovation, creativity and organizational performance of Jordan pharmaceutical industry.

**Conceptual Framework And Research Hypotheses:**

Figure 1 outlines the proposed conceptual framework of this study. This model posited that there is a direct and positive association between intellectual capital and organizational performance (Stewart, 1997; Bontis et al., 2000; Sharabati et al., 2010; Khalique et al., 2011b). In this study, three components of intellectual capital namely human capital, customer capital and structural capital were employed. The conceptual framework is depicted in figure 1.

![Conceptual Framework](image)

**Fig. 1: Conceptual Framework.**

The research hypotheses tested include the following:
1. Human Capital has positive association with the organizational performance of pharmaceutical companies in Pakistan.
2. Customer capital has positive association with the organizational performance of pharmaceutical companies in Pakistan.
3. Structural capital has positive association with the organizational performance of pharmaceutical companies in Pakistan.
4. Intellectual capital has impact on the organizational performance of pharmaceutical companies in Pakistan.

**Research Methodology:**

There were 31 pharmaceutical manufacturing companies in Islamabad and Rawalpindi that were registered with the Pakistan Pharmaceutical Association (2010). The entire population based in Islamabad and Rawalpindi was chosen to explore the topic of intellectual capital in pharmaceutical industry. A structured questionnaire based survey having 28 items was used to collect the data from pharmaceutical companies based on Islamabad and Rawalpindi. In this study the amended version’s questionnaire items of Bontis, (1998), Ismail (2005), Young, Tsai and Lee (2007), Tovstiga and Tulugurova (2007) and Choudhury (2010), Khalique et al., (2011b) were employed. All amendments were made in the Pakistani context. A total of 150 set of questionnaire were dropped in organizations. Seventy out of 150 useable questionnaires were returned. Data were screen and cleaned. The response rate was found to be satisfactory. Pearson correlation was used to test the hypotheses.

**Reliability Of Research Instrument:**

In this study to ensure the reliability of the instrument Cronbach Alpha was used. Cronbach Alpha value is widely used to verify the reliability of the construct. Therefore, Cronbach Alpha was used to test the reliability of the proposed constructs. The findings indicated that human capital had a coefficient of 0.819, customer capital of 0.744, structural capital of 0.711 and organizational performance of 0.855. All constructs depicted that the value of Cronbach Alpha are above the suggested value of 0.5 (Nunnally and Bernstein, 1994; Nunnally, 1974). On the basis of reliability test it was supposed that the scales used in this study is reliable to capture the constructs. Reliability of the constructs is shown in Table 1.

<table>
<thead>
<tr>
<th>Variables</th>
<th>Cronbach Alpha</th>
</tr>
</thead>
<tbody>
<tr>
<td>Human Capital</td>
<td>0.819</td>
</tr>
<tr>
<td>Customer Capital</td>
<td>0.744</td>
</tr>
<tr>
<td>Structural Capital</td>
<td>0.711</td>
</tr>
<tr>
<td>Organizational Performance</td>
<td>0.855</td>
</tr>
</tbody>
</table>
Findings:
This study attempted to identify the relationship between the components of intellectual capital and organizational performance of pharmaceutical industry in Pakistan. To understand the role of intellectual capital in industry, three research hypotheses were constructed. Pearson correlation was used to test the proposed research hypotheses of the study. The result of the study illustrated that each of the components of intellectual capital is positively related to the organizational performance of pharmaceutical companies. As indicated by the value of correlation coefficient (0.503), the findings showed that human capital appeared as the most important component of intellectual capital in influencing organizational performance of pharmaceutical companies in Pakistan. Human capital is a primary and very critical component of intellectual capital because it is a very important source of innovation (Bontis, 1998; Stewart, 1997; Edvinsson and Malone, 1997). The correlation coefficient of the structural capital and consumer capital were 0.459 and 0.378 respectively, and they were significant at 1% level. Thus, this appears to indicate that structural capital and customer capital tend to have lower influence on the performance of pharmaceutical companies in Pakistan than that of human capital. Overall, the results illustrated that there components of intellectual capital have positive relation with organizational performance. Therefore, the correlation findings of the study supported the proposed first three research hypotheses. The results of Pearson correlation are indicated in Table 2.

Table 2: Pearson Correlation.

<table>
<thead>
<tr>
<th>Variables</th>
<th>HUC</th>
<th>CUC</th>
<th>STC</th>
<th>ORGP</th>
</tr>
</thead>
<tbody>
<tr>
<td>Human Capital (HUC)</td>
<td>1</td>
<td></td>
<td>0.457**</td>
<td></td>
</tr>
<tr>
<td>Customer Capital (CUC)</td>
<td>0.480**</td>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Structural Capital (STC)</td>
<td>0.459**</td>
<td>0.459**</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Organizational Performance (ORGP)</td>
<td>0.503</td>
<td>0.373</td>
<td>0.378</td>
<td>1</td>
</tr>
</tbody>
</table>

** Correlation is significant at the 0.01 level (2-tailed).

In order to test the research hypothesis four multiple regression was employed. The results of Table 3 demonstrated that the 29.4% (R square = 0.29.4) of the variance in organizational performance was jointly explained by the three independent variables namely human capital, customer capital and structural capital (F = 9.171; Sig. = 0.00). The findings showed that the research hypothesis 4 is also supported. It concludes that the regression model is useful. The results of multiple regression have been tabulated in Table 3.

Table 3: Model Summary: Aggregate effect of Independent Variables on the Dependent Variable.

<table>
<thead>
<tr>
<th>Variables</th>
<th>Unstandardized Coefficients</th>
<th>t- value</th>
<th>Significant level</th>
</tr>
</thead>
<tbody>
<tr>
<td>Constant (β)</td>
<td>1.845</td>
<td>4.120</td>
<td>.000</td>
</tr>
<tr>
<td>Human Capital</td>
<td>0.275</td>
<td>2.919</td>
<td>.005</td>
</tr>
<tr>
<td>Customer Capital</td>
<td>0.129</td>
<td>1.265</td>
<td>.210</td>
</tr>
<tr>
<td>Structural Capital</td>
<td>0.128</td>
<td>1.191</td>
<td>.238</td>
</tr>
<tr>
<td>R-value</td>
<td>0.542</td>
<td></td>
<td></td>
</tr>
<tr>
<td>R^2-value</td>
<td>0.294</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Std. Error of Estimate</td>
<td>0.473</td>
<td></td>
<td></td>
</tr>
<tr>
<td>F value</td>
<td>9.171</td>
<td></td>
<td>0.000</td>
</tr>
</tbody>
</table>

Note: Unstandardized coefficient are reported along with t statistics at *=P<.05

The findings of the study depicted in Table 3 also depicted that only one variable named human capital appeared as a significant contributor towards the organizational performance in regression model at 99% confidence level with unstandardized beta coefficient of 0.275 and t-value 2.919(p=0.005). However, customer capital and structural capital have showed insignificant impact on the organizational performance of pharmaceutical companies at 95% confidence level with unstandardized beta coefficient of 0.129 and t-value 1.265 (p > 0.05), 0.128 and t-value 1.191 (p > 0.05) respectively. Moreover, the overall regression model was found to be significant at 95% confidence level.

Discussion And Conclusion:
The crux of this study was to identify the role of intellectual capital in influencing the organizational performance of pharmaceutical companies in Pakistan. Based on previous studies, the components of intellectual capital were expected to have positive relation with organizational performance. The output given in Table 2 illustrated that there is a significant positive relationship between the components of intellectual capital, namely human capital, customer capital and structural capital with organizational performance of pharmaceutical companies while Table 3 depicted that intellectual capital has significant impact on the organizational performance of pharmaceutical companies in Pakistan.

The findings also indicated that human capital has been a major contributor towards the organizational performance of Pakistan pharmaceutical companies. This is in line with Kamath (2008) who found that in Indian
pharmaceutical companies, human capital appeared as the major contributor towards the organizational performance. The results also revealed that the structural capital and customer capital have positive relationship with organizational performance, and based on the value of the correlation coefficients, these variables appeared as second and third contributor respectively. The findings demonstrated that intellectual capital can be used to mobilize, assemble, and manage all intangible resources in order to enhance organizational performance, and this concur with the findings of other studies (Bontis et al., 2000; Salina and Wan Fadzilah, 2008; Chen et al., 2005; Kamath, 2008; Sharabati et al., 2010). Undoubtedly, intellectual capital has contribution toward the organizational performance of pharmaceutical companies in Pakistan. Moreover, this finding enhances intellectual capital theory by demonstrating that intellectual capital has significant positive relationship with organizational performance. The findings emphasize the importance of the components of intellectual capital, which comprise of human capital, customer capital, and structural capital, in influencing performance of an organization. As such, when an organization increases its intellectual capital, it is expected that its performance will be enhanced. Finally, this study will be a milestone for future research in this area, particularly in Pakistan.

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