

EFFECTS OF CONSTITUENT DERIVATIVES OF INTELLECTUAL CAPITAL ON PHARMACEUTICAL DISTRIBUTION SMES PERFORMANCE

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Abstract

Intellectual capital is related to as well documented knowledge (e.g. drawings, manuals, models, etc.) as intangible resources such as traditions, experiences, conscious knowledge, unconscious knowledge and tacit knowledge. Literature emphasize firms that to get competitive advantages; they must give much focus to their knowledge assets known as intellectual capital (IC). However, the literature gives limited information on relative importance of different key/constituent components/ingredients of IC. Further, published empirical studies results are from the western world while in-depth explorations from the developing world/countries are lacking. Therefore, this study presents key components/ingredients of intellectual capital found in pharmaceutical SMEs in Pakistan. The data was collected from 225 registered distribution pharmaceutical SMEs operating/working in the province of Khyber Pakhtunkhwa. The empirical analysis showed that human and spiritual capital was regarded to have significantly positive effects and that customer, structural, social and technological capitals showed to have low effects in this industrial sector, which was an astonishing result. Some explanations of that are given in the paper.

Keywords: *Intellectual Capital, Components of IC, Firm Performance, Khyber Pakhtunkhwa*

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Introduction

Intellectual capital (IC) is a term generally related to intangible resources as well as assets which encapsulate knowledge assets and other resources. It can be divided into different parts with different importance for the total outcome. IC knowledge assets are commonly regarded to be important for any organization and especially for small and medium-sized enterprises (SMEs) as they often are more vulnerable in different aspects than larger enterprises.

In this paper, we discussed the importance of a number of IC components/ingredients that we have investigated in SMEs in Pakistan in the area of Khyber Pakhtunkhwa.

To achieve desired firm performance and competitive advantages organizational management and strategic IC is of prime importance (e.g. Chang & Hsieh, 2011; Mention, 2012; Schiuma & Lero, 2008). However, there are less evidences presented about effects on performance although Hisrich, Peters and Shepherd (2008) and Man, Lau and Chan (2002) argued that SMEs success always have been dependent of key players and their skills as well as on experiences of the owners, managers and workers. Further, Erikson (2002) highlighted that intangible resources such as human capital, which is a driver of innovative activities; always have been among serious and challenging activities for SMEs.

In that respect, employees learn from their interaction with its customers, suppliers, and the feed-back they get from interaction with community and ideas sharing. Based on their findings and what they notice they will act as knowledge transfers from sources out-side the organization to in-side the organizations adding to the firms' IC (Sveiby, 2001). Thus, in today's fast changing business contexts, an organization must manage its knowledge assets effectively - if it wants to get a sustainable long term economic and positive situation (e.g. Kweh, Chan, & Ting, 2014). Organizational knowledge is often seen as intellectual capital that maintain organizations to be valuable, which is emphasized in the context of SMEs seen from the perspective of requirements for competition, innovation and resilience in the globalized world (Gunasekaran et al., 1996).

Since the twentieth century, and especially the last few decades; the attention of organizations has been to explore the importance of intellectual capital (IC) based on interview studies of managers and product developers and gradually the knowledge has increased about its importance and further in-depth studies of organizations have been followed up with new studies (Blackler, 1995; Firer & Williams, 2003; Porter, 1980; Sveiby, 2001; Wang & Chang, 2005; Wernerfelt, 1995). It has been emphasized (e.g. Drucker, 1993; Grant, 1996; Huang and Wu, 2010) that IC can be seen as a basis to achieve competitive advantage.

Further, Cohen, Naoum and Vlismas (2014) and Huang and Wu (2010) concluded that professionals and researchers since long time have used traditional ways to identify and value organizational competition options such as trademarks and patents and gradually the importance of different intangibles such as logos, patents, and brands has been underlined (e.g. Bart, 2001). Thus, IC has been much focused in research and practice since the 1990th, Bontis (1998, 2001), Bontis, Keow, Richardson, (2000) and Usoff, Thibodeau and Burnaby (2002) claimed that it is unclear how specific types of firms manage and focus on development and maintenance of their organizational intellectual capital. In 2004 Mavridis regarded IC as a recognized wealth driver of any form of organization but still there are debates among researchers on what different forms of knowledge are there in competitive organizations.

Cohen et al., Molodchik, Shakina and Barajas, and Ramirez and Gordillo (2014) claimed that insights in the context of IC as a source and ingredient for any organization to avail and retain competitive advantages. Loureiro and Dorrego (2012) argued that discussions and logics in the context of intellectual capital can help to identify and explain the hidden phenomenon/scenarios of the value creation process in organizations. Huang and Wu (2010) and Seetharaman, Low and Saravanan (2004) argued that construct of IC is a tricky phenomenon and that literature studies have shown different definitions of IC. Emadzadeh et al. (2013), Martin-de-Castro et al. (2011), Mouritsen (2006), Swart (2006) and Tome, Naidenova and Oskolkova (2014) have given different definitions of IC, but no common definition accepted by a majority of researchers has so far been presented. However, the term of IC is generally related to intangible resources as well as assets which encapsulate knowledge assets and resources (Petty & Guthrie, 2000; Tome et al., 2014).

In the literature (e.g. Jacobsen et al. 2005; Kweh et al. 2013; Menton, 2012; Menton & Bontis, 2013; Molodchik et al., 2014; Ngah & Ibrahim, 2009; Pulic, 1998 & 2000; Ramirez & Gordillo, 2014; Roos et al. 2005; Seetharaman et al, 2004; Stewart 1997; Tom et al., 2014; Wang & Chang 2005) have presented different components of IC. In most of the mentioned studies, IC has been discussed with such as two or three of the components as; human capital, structural capital, innovation capital, physical capital, customer capital, process capital, relational capital, organizational and technological capital. In some studies, management capabilities and human resources capabilities, innovative capabilities, internal process capabilities, networking capabilities, customer loyalty and reputation, and value added intellectual coefficient (VAIC) are mentioned to different depth as influencing factors. Khan (2016) also conceptualized ingredients of intellectual capital in different scenarios.

Edvinson (1997), Edvinsson and Stenfelt (1999), Kweh, Chan and Ting (2013), Labra and Sanchez (2013), Lerro, Linzalone and Schiuma

(2014), Petty and Guthrie (2000), Stewart (1997), Silva, Stratford and Clark (2014) and Sveiby (1997) contemplated IC phenomenon as specific knowledge in-side and out-side of organizations, which enable them in performing better and to achieve sustained competitive advantages. Britto, Monetti and Lima-Jr. (2014) and Johanson, Maertensson and Skoog (1999) and Sveiby (1997) viewed intellectual capital as a phenomenon that ensures people of an organization desire and understanding of what bring success and value to the company. In the opinion of Stewart (1997) the phenomenon of IC is linked to assets producing knowledge and thus it brings value to organizations. Bontis (1998) viewed IC as a blend of both information and firms' knowledge, which brings value. Seleim and Bontis (2013) argued that firms may get desirable and sustained competitive advantage when they ensure to maintain and manage their intellectual capital strategically. Erikson (2002), Man, Lau and Chan (2002) and Nooteboom (1993) argued that knowledge assets are key to successful SMEs, that's include experience, knowledge and skills and strength and innovative capabilities to these firms, which inturn make these firms strategically strong and competitive.

From our literature studies, we have found that there is a deficiency of IC discussions in developing countries such as Pakistan. Furthermore, the literature lacks evidences/studies specifically from the perspective of developing countries as Pakistan and more specifically in the context of distribution pharmaceutical SMEs.

Components of IC

Based on the literature studies, we concentrate on six important components of IC here.

Human Capital

Human capital is generally seen as a fundamental ingredient of IC (e.g. Choo & Bontis, 2002; Edvinson & Malone, 1997; Molodchik et al., 2014; Zeghal, & Maaloul, 2010). Muhammad and Ismail (2009) claimed that human capital encompasses knowledge-intensive, skills-based and overall competencies of people in an organization. Tome et al. (2014) claimed that HC is knowledge nested in individuals. Thus, it is a basis and fundamental factor for success of firms as a strategic fount of innovation and creativity (Bontis, 1999; Lerro et al., 2014). Fernandez, Montes and Vasquez (2000) interpreted HC as knowledge hold by employees through which the individuals increase the value of their professional qualifications and contribute to firm performance. Ireland, Hitt and Sirmon (2003) saw human capital as a strategic resource and basic asset for firms to gain competitive advantages. Roos and Roos (1997) emphasized that intellectual capital consists of employees' attitudes, competencies and

intellectual agility which can lead firms to competitive advantages. Hitt, Lee and Yucel (2002) concluded that skills, competencies and knowledge of the overall work-force in firms are parts of the human capital. Hence, HC is a derivative of IC and refers to human knowledge relating to attitude, expertise, knowledge of skills and intellectual agility.

Customer Capital

Bontis (2004) and Ngah and Ibrahim (2009) explained customer capital as the relationship of an organization with external environment which creates information/knowledge. Such relations are established between a business and its suppliers, customers, users, and consumers as well as other stakeholders. Tai-Ning et al. (2011) emphasized that customers are a force for generation of revenue for almost any form of companies and hence ventures need to create good and fruitful relations which make strong and winning ties of relations of customers with their firms. Pfeffer (1994) and Uzzi (1996) argued that for a long time survival and sustainability of firms, the knowledge asset in the form of customer capital is an important factor.

Structural Capital (StC)

Bollen, Vergauwen and Schnieders (2005) and Muhammad and Ismail (2009) reported that structural capital encapsulates knowledge available in organizations when the employees end their work and go home and the StC maintains in the organization. It can e.g. be in the form of technical equipment and structure etc. Structural capital is in the form of organizational knowledge present in its technological infrastructure and the support of it. Ramezan (2011) emphasized and stressed organizations to have a systematic focus on the structural capital, which deals with structures and systems of their firms and explains structural capital as part of intellectual capital. It drives competitive advantage and is an important ingredient for value creation in firms. Cohen and Kaimenakis (2007) argued that firms with resources and requirements can request to hire, to hold or purchase structural capital or can share it in duplicated forms.

Social Capital (SoC)

Bueno, Salmador and Rodriguez (2004) claimed that social capital always has been an important ingredient/factor for organizational success. Koka and Prescott (2002), Mention (2012), Molodchik et al. (2014) and Nahapiet and Ghoshal (1998) viewed and reported that SoC can be used for value creation as it is the resultant of business interactions with people outside the firms and interaction with them and other firms. Hitt, Lee and Yucel (2002) viewed social capital as a set of interactions between people and organizations (outside) and employees of the specific organization.

Simply, it generates/produces certain information and knowledge that then helps in taking actions to create value for the organizations.

Technological Capital (TC)

Technological capital comprises of archives, databases, software, technical developments and patents, etc., present in the organizations (Ramirez & Gordillo, 2014). Bueno, Salmador, Rodriguez and Catro (2006) highlighted that technological capital also is an intangible (knowledge) asset in firms and on basis of which innovation and technical processes take place. Therefore, TC contributes in achieving long lasting competitive advantage. Fernandez et al. (2000) view TC as a part of knowledge assets that enables firms to be innovative and sustainable. Hence, technological capital as derivative of intellectual capital is included and refers to organizational knowledge relevant to use and practice of information technology in organizations.

Spiritual Capital

In cultures and regions where religion is a dominant part of the daily life, the spiritual capital can play an important role also for at least local business activities (Ottoosson 2018). More specific, Berger and Hefinar (2003) and Ismail (2005) mentioned spiritual capital as a blend of knowledge combining spirit as well as beliefs extracted from religion and that virtual power is generated by individuals or organizations with the guidance and help of religious beliefs and knowledge of spirituality (Liu, 2008). Howard (2002) claimed that people look for purpose of living and life. Thus, it has in religious cultures a consistent purpose in people's lives and ultimately generates a form of knowledge in originations. Hence in this research, the concept of spiritual capital encapsulates and refers to the organizational knowledge as part of IC relevant to beliefs and culture of sincerity, honesty, hard work and commitment. Therefore, the data to trace spiritual capital is traced from perspective of knowledge in organizations about beliefs and culture of sincerity, honesty, hard work and commitment.

Conceptual Framework

To sum up, Figure 1 shows how the six different parts of IC can influence the performance of a firm

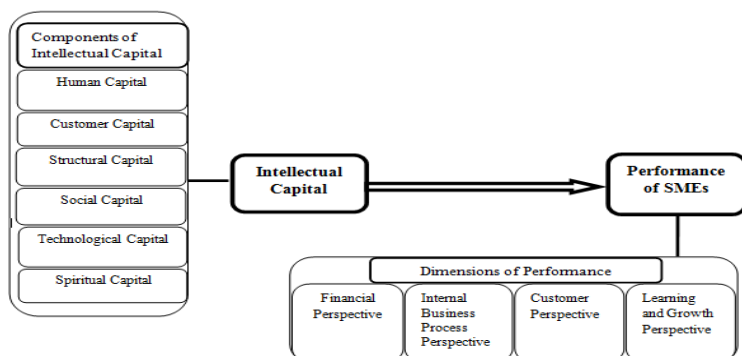


Figure 1: How IC and its components can influence the performance of a company

Research Methodology

To empirically trace the conceptual frame-work of this research in SME's in Pakistan, a comprehensive questionnaire was adapted from work of Khan (2016). The questionnaire with five point Likert Scale, comprised of 90 items; 71 for intellectual capital and 19 for tracing firm performance. The balanced score card (BSC) approach was incorporated to trace firm performance and a subjective approach was used to measure firm performance, as in Pakistan it is experienced that SMEs are not so positive to share their figured-based financial data. The BSC approach, known as “cockpit view of firm performance” gives insights of performance such as financial, internal business process, customer focus, learning and growth.

The pilot study was performed in 40 distribution pharmaceutical SMEs and Cronbach's alpha values of the instrument appeared above 0.70, hence the internal consistency was well established.

Data was collected by sending out a comprehensive questionnaire by email to the CEOs of 650 SMEs with-in the pharmaceutical distribution operating sector in the Khyber Pakhtunkhwa province (KPK) of Pakistan. Whilst, as in this context there are no comprehensive directories of SMEs in Pakistan available; a list of such companies was developed from different sources. Then questionnaires were sent to the 650 listed firms. If answers were not received after 15 days, follow ups were done through emails and phone calls. In the end 225 firms replied meaning about a 35 % answering rate. Although the answering rate was low however we believe that the results can be used as an indication of the view in this business sector in Pakistan region. To note is that all the answering managers were Muslims.

Data Analysis

The collected data was normal and skewness & kurtosis values appeared in between +/- 1.00 (Hair, Anderson, Tatham and Black, 1998). It was not found any outliers in data as all the standardized Z scores/values for outliers check appeared with-in range of +/- 3 (Hair, Black, Babin & Anderson, 2010; Kumar, Talib & Ramayah, 2013; Tabachnick & Fidell, 2007). Hence the data appeared normal and thus, the internal consistency of items for constructs through Cronbach Alpha values also appeared above 0.70 (Bourque & Clark, 1992; Bryman & Bell, 2003; Hair et al., 2007; Nunnally, 1967).

The principle component factor (PCA) analysis for all the constructs was done with VARIMAX Rotation and all the values appeared with in normal ranges for all tests as KMO & Bartlett's Tests, with $p = 0.000$, Anti Image Matrices, and 50 % Total Variance Explained based on eigen-values more than 1 (Hair et al., 2010; Kumar et al., 2013). However, the Communalities Values for some items of the constructs appeared below 0.5 and were thus deleted. The details are as follow, i.e., for human capital five items were deleted with communalities values as 0.431, 0.466, 0.460, 0.437, and 0.468. For customer capital four items with communalities values as 0.476, 0.370, 0.408, and 0.322 were deleted. For structural capital two items were deleted with the communalities values as 0.482 and 0.478. For social capital one item was deleted with communalities value as 0.470. For technological capital and spiritual capital three items from each construct were deleted with communalities values as 0.427, 0.385, and 0.483 and 0.283, 0.493 and 0.342 respectively. Thus, the Cronbach Alpha values were checked again and appeared above 0.70. The multicollinearity issue was observed after factor analysis between constituent components of intellectual capital. The tolerance values were above 0.10 and variance inflation factor (VIF) values were below 10. Thus the values/numbers were within normal values for all variables (Kumar et al., 2013).

Lastly, computation was done for the constructs and after the computation; a multiple linear regression analysis was done to highlight effects of constituent ingredients of intellectual capital on firm performance. Overall regression analysis model appeared a good fit with R square value as 0.613, whilst unstandardized-beta-coefficient for human capital was 0.251 with a t-value 2.411, and $p = 0.017$, unstandardized-beta-coefficient for customer capital was 0.127, with t-value 1.907, and $p = 0.058$, unstandardized-beta-coefficient for structural capital was 0.023 with a t-value 0.393 and $p = 0.694$, unstandardized-beta-coefficient for social capital was 0.102 with t-value 1.133, and $p = 0.259$, unstandardizedbeta-coefficient for technological capital was 0.155 with t-value 1.529, and $p = 0.128$ and unstandardized-beta-coefficient for spiritual capital was 0.339with t-value 5.093, and $p = 0.000$.

Figure 2 shows the findings inserted in Figure 1.

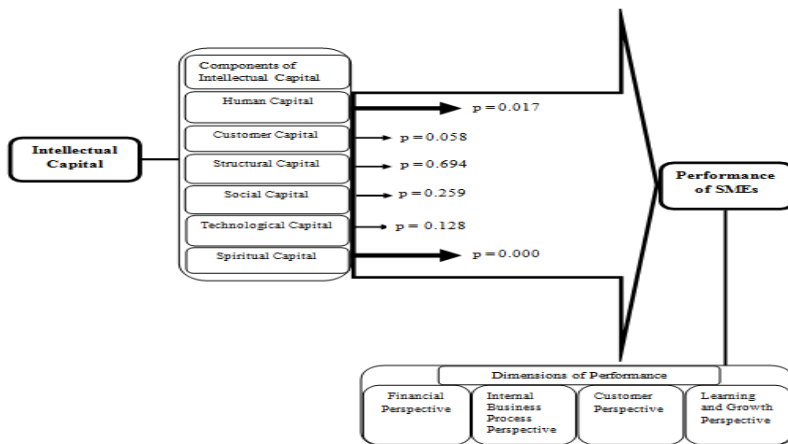


Figure 2: How IC and its components influenced company performance in Pakistan

Discussion & Conclusion

The conclusions are based on the statistical analysis of the responses from operation managers in the investigated businesses in Pakistan. The empirical analysis showed that human and spiritual capital in the culture and local region of Khyber Pakhtunkhwa (KPK) was regarded to have significantly positive effects for the investigated pharmaceutical SMEs but that customer, structural, social & technological capitals showed to have low effects, which were astonishing results.

The study analysis highlighted human capital as significantly and positively associated with firm performance (with $p = 0.017$), which means that the human capital (key employees) are well preserved as a basic asset with relevant expertise, capabilities and qualifications. The results from this study highlights that human capital is pivotal for the investigated firms. Thus, these firms rely mainly on human capital based on individual competencies, creativity and capabilities. In turn it enables these organizations to be resilient to challenges and ensure better firm performance. Much of the individual assets are tacit knowledge and also the spiritual capital showed to be significant (with $p = 0.000$). It is thus well established that the employees in these firms have deep religious beliefs, practices and strong spiritual ties, which also points-out/highlights that the residents/working in this sector in the region of KPK are having strong religious concerns and beliefs. The collected data of this study show that all the 225 firms had Muslim operation managers.

The other capitals mentioned in figure 2 constitute intellectual capital construct but the statistical analysis of data shows that individually some of these ingredients/components (i.e., customer, structural, social and technological capitals) do not have significant contributions in the firms' performance and are not significantly associated with firm performance. However, they play fundamental role when it comes to the construct of intellectual capital, as the results provide evidence that as a single construct intellectual capital significantly contributes in performance of distribution pharmaceutical SMEs.

The customer capital appeared with $p = 0.058$, which is not significantly associated with performance. The reason may be that these firms operate and deals with only distribution of the pharmaceutical products and serve as distribution channels and distribute products to whole-sellers/retailers and do not have own interest in direct customer relations or needs.

The structural, social and technological capital appeared with $p = 0.393$, $p = 0.259$ and $p = 0.128$ respectively, which means that these forms of knowledge do not significantly affect firm performance in the investigated firms. It can be concluded that the investigated distributors have not invested in structural, social and technological capitals and that their day-to-day activates mainly are based on their human capital and spiritual capital.

Lastly, it can be concluded that managing businesses in Pakistan with its strong religious influence in daily activities, is much different from managing activities, e.g., in the Nordic countries Sweden and Norway of Europe placed diametrically opposite to Pakistan on the cultural map, e.g., www.worldvaluessurvey.org/images/Culture_Map_2017_conclusive.png.

Future Research

The research model used in this study can be used with other performance dimensions/indicators in future studies and can include other constituent components of intellectual capital. The framework can also be extended to other countries, industry sectors and to specific knowledge economies contexts to empirically explore and evaluate different topics at a deeper level. Other factors (such as mediators and moderators) effecting firm performance may also be considered and explored in combination with intellectual capital.

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