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Intellectual capital and organizational learning capability in Iranian active companies of petrochemical industry

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Abstract

In the knowledge economy era, taking the advantage of knowledge has become an important impetus for the development of organizations to foster their competitive position. In k-economy, intellectual capital and specifically human capital are core elements of this equation. This paper centers on investigating the relationship of intellectual capital and the organizational learning capability in Razi petrochemical company. It employs the Spearman correlation to analyze the hypothesis and LISREL to examine the practical side of the proposed model. The result shows significant correlation between three dimensions of intellectual capital and organizational learning.

Keywords: Intellectual capital, Human capital, Relational capital, Structural capital, Organizational learning capability, Razi petrochemical company;

1. Introduction

Competition among firms has gone under transformation. The traditional bases of competitive advantage have begun eroding. Over the last decades, several driving forces have emerged such as globalization of business and international competition, sophisticated customers, competitors and suppliers, etc. Intellectual capital is becoming a crucial factor for a firm's long-term profit and performance in the knowledge-based economy. These forest the firm’s recognitions of core competence from tangible to intangible assets. This current era employs more efforts not only to describe intellectual capital (IC), but also to use it as a framework to both value understanding and manage it for strategic outcomes. These undertakings occur in the situation that IC moves beyond a fascinating concept to a pre-requisite for organizational reporting and management. Intellectual capital is a group of knowledge-based assets. These assets are increasingly enhancing the organizational competitiveness by adding value to the

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stakeholders (Pew, 2007). Traditionally, a company stands in a competitive position once it is able to produce similar product at a lower cost. Thus, competitive advantage stems from lower cost, through which the company endeavours higher profit margin. According to), Intellectual capital is considered as a source of competitive advantage, which increases profit of a company Hazlina and Zubaidah (2008).

There is plethora of studies and discussion on the significance of intellectual capital and developing conceptual framework for implementation. The creation of conducive and attractive conditions for enhancing a firm’s capability-building process through intellectual capital is pivotal in the theoretical model reference!!!. Therefore, presently the studies are required to centre on the evaluation, measurement and managing these types of capital (Marr, 2003). This study aims to elaborate on the essential role of intellectual capital through investigating the relationship of intellectual capital and the organizational learning capability. Current paper hypothesizes the positive meaningful relationship between the intellectual capital and organizational learning. To examine the hypothesis, the study divides the main hypothesis into three sub- hypotheses. The analysis demonstrates three aspects of intellectual capital are in positive meaningful relation with the capability of learning in the selected organization in petrochemical industry.

2. Constituent elements of Intellectual capital

In 1998, Bontis developed the constitutional elements of human capital as human capital, structural capital and relational capital. Following his categorization, Chen and his colleagues (2006) enhanced it by adding innovative capital to the previous elements. They also believe that this is a fragile framework, unless supported by continuous relations. In fact, they were concerned about the relation between the intellectual capital elements rather than the elements (Choi, 2003). Literature review shows that majority of intellectual capital frameworks tried to employ three dimensions of human, relation and construct in investigation of intellectual capital (Marr, 2005). The current study examines these three dimensions: Human Capital, Relational capital and Structural Capital.

3. Core elements of organizational learning capability

Organizational learning capability is as an intrinsic capability of an organization to create, enriched, and utilizes knowledge to outperform its competitors. It is the capacity to generate and generalize ideas moving beyond multiple organizational boundaries, through specific management initiatives and practices. However, these disciplines are still vague in both theory and practice (Jamali et al., 2006). Ulrich (1993), defines organizational learning capability as the capacity of managers within an organization to generate and generalizes ideas with impact. According to the definition of organizational learning capability, the capabilities are categorized in to two main elements (Khorshidi, 2003):

1) Elements to create ideas
2) Elements to develop ideas

These are two essential factors to evaluate organizational learning in the current study.

4. Intellectual capital and organizational learning capability

Lin, Chen and Han (2007), assert in their studies that intellectual capital includes all the created assets through mental activities such as acquisition, innovation and creating knowledge. Intellectual capital affects knowledge management in positive way and improves the organizational learning capability. Knowledge innovation is the main component in creating product value and economical growth in the k-based economy. Employees are main players in the organizational success in such an economy (Rothberg, 2009). Pfeffer, concludes that human resource training and retention is the most important competitive strategy in information based economy. By the growth of employees performance, more knowledge is created to improve the organizational learning capability (Rothberg, 2009), therefore as the first hypothesis the study proposes:

H1: Human capital is in meaningful relation with organizational learning capability.

Systems and problem solving process and creating values in organization are devoted to the organizational structure capital. These systems include overall organizational process, organizational structure design and the capability to use information technology and the information system structures (Lopez, 2008). Organizational culture, as a structural capital element might be useful in developing the organizational learning capability. For
instance, an organization may create an appropriate environment to persuade informal learning. This culture grows employee's willingness to share knowledge.

The organization's efforts in stabilization of its intellectual capital management system will equip it to find operational approach in using patents that will result in the enhancement of the organizational learning capabilities. Structural capital will help the idea development across the organization and will decrease the unfairness in judgment and decision making processes (Rothberg, 2009). Therefore:

H2: Structural capital is in meaningful relationship with organizational learning.

Employees with higher level of relational skills with external environment, find more chances to access different resources. The relationship of the organization with research institutes, consultant and knowledge centers, creates relational capital. In this process, organizations gain more information from their customers to improve organizational learning capabilities (Rothberg, 2009). In this case, the study hypothesizes that:

H3: Relational capital has meaningful relationship with organizational learning.

5. Methodology

The current study employs the correlation method to test the hypotheses. Our goal is to operationalize the findings. The reliability of the research is approved by 82% of the Cronbach alpha value.

5.1. Sample and data collection

This study focuses on the total number of 3000 employees in the Razi Petrochemical Company. The number of 550 questionnaires was randomly distributed among the employees and 510 questionnaires were received. In this study the respond rate of 92.7% will lead to appropriate analysis. Due to the significance of petrochemical industry in Iran and the economy dependence on oil, current study has chosen the investigation of Intellectual capital in providing organizations with learning capabilities in this industry. The importance of petrochemical industry lies in the diversifications of products and supplying thousands of subordinate factories. In the privatization process, which started from 2007, the ownership of Razi petrochemical company was transmitted to a consortium, constituting Turkish and Iranian companies with the total price of 635 million US dollars. Razi petrochemical company is the giant producer of ammoniac, brimstone and the sole producer of phosphoric acid and di-ammonium phosphates. These products supply the local requirements and the exported products achieved dominants role in supplying global requirements, either.

5.2. Measures

For consistency, all responses were measured using a Likert-type scale, with 1 = “strongly disagree,” 4 = “neutral,” and 7 = “strongly agree.” The questionnaire is the combination of the studies of Bontis et.al (1998, 2000) to investigate intellectual capital and Cohen and Levinthal (1990) to test organizational learning capabilities.

6. Analysis

The study uses the Spearman correlation to test the hypothesis due to the nature of the variables. In addition, to check the overall fit model of the conceptual framework of this research, we have used structural equation model (SEM). In this equation, we have examined the appropriateness of the variables through which we have tested our hypotheses. Secondly we have investigated the significance of the relationships between variables in the study. The SEM index includes AGFI, GFI - RMSEA. The study proposes that if the ratio of  to df (degree of freedom) is less than 3, RMSEA < 1 and the amount of AGFI and GFI more than 80%, the model has got appropriate fit for investigating the hypothesis (Kalantari, 2009).

<table>
<thead>
<tr>
<th>Hypotheses</th>
<th>Spearman correlation coefficient</th>
<th>SD</th>
<th>Result</th>
</tr>
</thead>
<tbody>
<tr>
<td>H1: Human capital is in meaningful relation with organizational learning capability.</td>
<td>0.71***</td>
<td>1.41</td>
<td>H1 is accepted</td>
</tr>
<tr>
<td>H2: Structural capital is in meaningful relationship with</td>
<td>0.64***</td>
<td>1.36</td>
<td>H2 is accepted</td>
</tr>
</tbody>
</table>
Table one illustrates the results of the hypotheses. Based on the results the study concludes that there are meaningful correlations between the human capital and organizational learning, human capital and organizational learning capability and structural capital and organizational learning capabilities. In order to test the structure of the overall fit model the study used the structural equation model. Through this process, the study has tested whether the proposed model is appropriate to test the relation of intellectual capital and organizational learning. According to Structural Equation Modeling, the study proposes that the conceptual model is appropriate to test the relationship of intellectual capital and organizational learning capabilities. Based on the analysis, chi-square/df is less than three, RMSEA is close to zero, GFI, and AGFI is above 90%.

7. Discussions and conclusion

We studied the relationship between intellectual capital and organizational learning capabilities in this research. The findings show that there is positive and meaningful relationship between all three elements of intellectual capital and organizational learning capabilities. Among three elements, we have found that the relationship of human capital with organizational learning capabilities is more significant. It states that through investments in human capital the organization achieves higher level of learning and creating opportunities to robust the organizational effectiveness. The second level in the relationship study goes to the structural capital. The structural capital is a substantial element in developing the ideas and fosters the employees' relationship in knowledge share and distribution. Based on the findings, the study concludes that the management of Razi petrochemical company has realized that learning is an important source of competitive advantage, and has already moved toward ‘learning’ strategies that they will lead their organization in long-term survival. However, two building blocks ‘leadership’ and experimentation’ still need some improvements, as evidenced by the relative low scores the Razi petrochemical company has shown. Moreover, the results depict quite strong adherence of the oil and gas sector companies to procedures of formalized cultures. Bureaucracy was always a feature of non-profit organizations. Formalization is negatively related to all performance measures (financial and non-financial) but all are statistically insignificant. In this situation of tight bureaucracy and in order to reach the higher level of organizational learning capabilities some revisions in overall system performance might be desirable to provide more flexible environment for the employees to enhance the organizational learning capabilities.

Our findings are subject to major limitations. First, the researchers cannot draw generalizations based on the sample. The reasons for this may be attributed to the limitation of sample size as it is applied only in a particular industry. We have studied the intellectual capital relationship with organizational learning in petrochemical industry. This was due to the significance of this industry all over the world. In order to explore the reliability of the findings conducting the same research in other settings will be helpful.

Secondly, we assume that there are some other factors that may intervene in the proposed relationship, such as organizational culture. Future studies may also take into account the level of access to recent human resource systems in this relationship. There are number of developing or third world countries that have high level of energy resources, but the managerial mindset and systems are far from the established standards. Thus, they are not aware of the recent approaches toward the human resource management system. This may prevent the organizational to recruit those results in the scarcity of the intellectual capital in the organization.

More robust performance indicators, different samples and a longitudinal study with qualitative and quantitative research design can reinforce the limitations of the current study.
8. Implications for practice

Our analysis and findings in this research originate following applicable recommendation:

1. Razi petrochemical company need to give more importance to their expertise and accommodate them with required facilities to increase their knowledge and skill. The managers also need to support their novel and created ideas.

2. There is the lack of appropriate environment to share knowledge in the Razi petrochemical company. The organization need to establish an environment for ease of communication between employees. In such an environment the employees will voluntarily share their experiences. This will originate transformation in the managerial mindset toward teamwork and perceiving it as necessary condition for achieving mature ideas. In particular, high level of autonomy may facilitate knowledge sharing and innovation. Conceivably, due to greater allocation of time and freedom for creativity and planning to share some degree of ownership for new products and services with the employees they will participate more in developing products and services. These dynamic work environment places appreciably greater demands on the higher quality workforce, which in turn poses new challenges for HRM professionals in terms of ensuring adequate knowledge, capabilities and skills. This needs to be concurrent with challenges in work design and approaches toward training and development. The study emphasizes that learning is an essential part of innovation, suggesting that participating in updated activities may be critical for sustained innovation. In this process the organizations may observe the idea creation spontaneously throughout a working day, for instance when talking to customers or suppliers. The discussion certifies the importance of human capital in enhancing organizational learning capabilities.

3. The study has observed that in Razi petrochemical, customers' requirements exploration is not practiced, appropriately. Therefore, these organizations need to create closer relationship with their customers by conducting researches on investigating their requirements.

4. Managers appreciate the importance of intellectual capital in the organization, when they observe its role in creating sustainable competitive advantage.

5. Based on the findings of the study and in order to gain the desired outcome from the firm's intellectual capital, it is recommended that Razi petrochemical foster organizational learning capabilities through below process:

- Shared vision
- Informal information exchange
- Peer-to-peer learning
- Legitimate peripheral participation
- Support mechanisms
- Management's support
- Openness to change
- Appropriate tools, such as IT infrastructure
- Professional group culture

This process may lead Razi petrochemical to establish comminute of practice in their organizations that will gradually overcome the inherent problems of slow moving hierarchy in fast moving economy. In addition, through this process they might overcome the tight bureaucratic system currently practiced in the organization.

References


