Study the effect of intellectual capital on organizational innovation
(Case Study: Managers and employees of Saderat Bank branches)

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Abstract

This study was performed with purpose of investigating the effect of intellectual capital on organizational innovation (case studying of managers and employees of Zahedan Saderat bank branches). Statistical society of this study included all managers and employees of Sade Bank of city of Zahedan the number of 190 people. The sample size was determined 128 people using of Cochran formula. The data collection tool in this study, is two standard questionnaires. for determining the effect between variables was used from test of multiple regression and for determining the difference between variables was used from T test for independent groups. The results of study showed that intellectual capital influences on organizational innovation of managers and employees. It was observed that there is relationship between the dimensions of intellectual capital and organizational innovation. There is significant reversed relationship between human capital and organizational innovation of managers and employees, but there was a significant positive relationship between structural capital and relational capital with organizational innovation.

Keywords: Intellectual capital, human capital, structural capital, relational capital, organizational innovation.
**Introduction**

In recent decades, intellectual capital as knowledge-based capital, has attracted considerable attention into itself. Today, with all-round growth and development of information technology and becoming of knowledge of the global economy, organizations have been settled in environment that they inevitably pay more attention to their intangible assets for surviving and winning in a competitive world based knowledge. Modern economy has important role in excessively increasing of important of intellectual capital. (Bakezade and Poormohammadi, 1389). Knowledge and intellectual capital as sustainable strategies for achieving and maintaining competitive advantage has been detected (Drucker, 1988, citing Pahlevanian, 1391).

As well as modern organizations to can continue their life at the new paradigm of the competition between organizations that space is highly competitive and knowledge-based, they should look to innovation as an essential strategy. In the current era and they should identify Organizational factors affecting organizational innovation while identifying environmental changes, to deal with them and they should give these changes the best answers. In today's changing environment and knowledge-based, Innovation is increasingly considered Due to the changing patterns of organizational competitiveness and the need to adapt to rapid changes. For this reason, one of the issues that managers face is the question of what Proceedings to develop and improve innovation in the organization should be doing (the Golden, 1390) Because in recent decades with dominating culture of competition in the economic, political, social and organizational space, innovation as a successful solution, has get as an integral part of the context of community movement and smaller levels of organizational environments.

The banking industry is one of the most important parts of any economy, because banks as intermediaries of funds alongside exchange and insurance are considered the main pillars of the financial markets. Banking has more important in Iran’s economy, Because of the lack of development of the capital market to the extent required, in practice it is banks that are responsible for long-term financing. One of the factors that could make a capital in banking is intellectual capital (Sir David and Radaie, 1385).

the basis and foundation of Competitive economy is based on intellectual capital, The amount effect of intellectual capital in existing processes of organization will be one of methods of determining the weaknesses and strategies to help deciding of managers. Organizations are successful and can survive in the competitive world that they constantly make thinking and new ideas functional in the organization (Babae, 1390) the innovation is a process that in this process allows one to climb his imagine the skies first, then bring it to the ground and engines (engineering ideas) to be converted into idea, then he converts his ideas by the idea management into practical, useful and appropriate ideas. (Herman, 2011).

(Creativity), converts the ideas into products, services and processes followed by that, and will eventually the innovation process ends with “the commercialization of products, services and new processes or developed in the market (Gahangard, 1391) In this regard, performed
studies in the field of intellectual capital indications are that organizations that there is intellectual capital, better act in achieving high levels of growth and development.

That's why, in recent decades, attention to due to intellectual capital has converted into an unavoidable necessity, because organizations can improve and develop competitive advantage indicators, including organizational innovation and promote creativity through intellectual capital.

Research Literature

Ghorbani et al (1392) in a study titled "The relationship between intellectual capital management and organizational innovation" conducted among 155 employees of Bank Mille of Iran reached the conclusion that there was a significant positive relationship between intellectual capital and organizational innovation. The results of study also showed that intellectual capital indirectly affect personal and business factors.

The results of Asgharzadidh (1391) study entitled Effects of intellectual capital on organizational innovation, reflect the positive impact of each of the components of intellectual capital on organizational innovation of mentioned industrial complex that respectively the structural capital, customer capital and human capital have the most effective.

Chopanie et al (1391) in a study titled "The relationship between intellectual capital and organizational innovation (Case Study: development Insurance Corporate)" was examined. The results of Pearson correlation test suggests that there is a positive relationship between intellectual capital and organizational innovation, also the results of correlation test results showed that all components of intellectual capital (customer, humane and structural) have a positive and meaningful relationship with organizational innovation.

Zarenler et al (2013) examined "The impact of intellectual capital on innovation performance. They analyzed and explored about effects of intellectual capital on innovation in study entitled" Intellectual capital and innovation performance ". The results of study showed that three kinds of staff - intellectual capital, structural capital, and customer capital and innovation performance have a significant positive relationship. The results of this study also showed that raising the growth rate of the industry confirmed significant positive relationship between three types of intellectual capital with innovation performance.

Huang and Huynh (2013) examined "The relationship between intellectual capital and performance in engineering consulting companies in Taiwan.". The results showed that a positive correlation exists between the three components of intellectual capital and business performance, the highest correlation related to human capital and then to the customer capital (relationships) respectively. Also, there was the positive correlation between the three components of intellectual capital (human, structural and customer).

Instruments

Inventory of Assessment of intellectual capital, which by Bontis (1998) is made that it has 42 questions with closed Response. This has structure has three elements: human capital,
structural capital and relational capital (customer), that it measures the amount of intellectual capital among managers and employees of Saderat bank branches of Zahedan town (Aghajanzadeh, 1390).

Inventory of organizational innovation; was used by Fishman and Karl (2001) that it was composed of 16 closed-answer questions, and categorize of questions is based on the 7-degrees Likret scale (very high, high, rather high, medium, rather low, low, too low) is (Mirzaee, 1388).

Methodology

In this study, statistical society was 190 people, that they are total managers and employees of branches of Saderat Banks in Zahedan, the size of samples based on Cochran's formula was (128) participant.

Findings

Distribution of sex, Abundance, level of education and organizational post of respondents

Table 2: Distribution of respondents by sex, Separation, the level of education and organizational post.

<table>
<thead>
<tr>
<th>Categories Sexuality</th>
<th>frequency</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Female</td>
<td>80</td>
<td>52.6</td>
</tr>
<tr>
<td>Male</td>
<td>72</td>
<td>47.4</td>
</tr>
<tr>
<td>The level of education</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Top diploma</td>
<td>37</td>
<td>24.3</td>
</tr>
<tr>
<td>Licentiates degree</td>
<td>100</td>
<td>65.8</td>
</tr>
<tr>
<td>Top licentiates and higher</td>
<td>15</td>
<td>9.9</td>
</tr>
<tr>
<td>Organizational duty</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Manager</td>
<td>27</td>
<td>17.8</td>
</tr>
<tr>
<td>Employee</td>
<td>124</td>
<td>81.5</td>
</tr>
<tr>
<td>Total</td>
<td>152</td>
<td>100</td>
</tr>
</tbody>
</table>
The findings of research hypotheses:

Table 3. The analysis regression models of independent variables

<table>
<thead>
<tr>
<th>Model</th>
<th>Correlation</th>
<th>Appointment coefficient</th>
<th>Appointment coefficient</th>
<th>Standardized error of estimation</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>0/92</td>
<td>0/84</td>
<td>0/84</td>
<td>0/63</td>
</tr>
</tbody>
</table>

Table 4. The level of significance of multivariable linear regression equation

<table>
<thead>
<tr>
<th>Source of changes</th>
<th>Total of squares</th>
<th>The degree of freedom</th>
<th>Average of squares</th>
<th>The amount of F</th>
<th>The level of significance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Regression</td>
<td>265.108</td>
<td>3</td>
<td>88.369</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Error</td>
<td>47.493</td>
<td>119</td>
<td>0.399</td>
<td>221.421</td>
<td>0.000</td>
</tr>
<tr>
<td>Total</td>
<td>312.602</td>
<td>122</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Findings of intellectual capital is effective on organizational innovation among managers and employees of Saderat banks.

Among the obtained models only one model was chosen as the best model. In this model, the amount of F 221.421 and the significant level of 0.000 tells us that the independent variables explain well the dependent variable and overall regression equation is significant. Calculation of Coefficient R is 0.921 that show high correlation coefficients and coefficients of determination equation is 0.848 that it indicate 0.84 percentage changes related organizational innovation is explained by these independent variables.

Table 5. The amount of contemporaneous impact of independent variables on organizational innovation

<table>
<thead>
<tr>
<th>variable</th>
<th>B</th>
<th>Standard error</th>
<th>Beta</th>
<th>T</th>
<th>significance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Human capital</td>
<td>-0.551</td>
<td>0.032</td>
<td>-0.659</td>
<td>-16.994</td>
<td>0.001</td>
</tr>
<tr>
<td>Structural capital</td>
<td>0.682</td>
<td>0.040</td>
<td>0.647</td>
<td>17.153</td>
<td>0.001</td>
</tr>
<tr>
<td>Relational capital</td>
<td>0.408</td>
<td>0.019</td>
<td>0.807</td>
<td>21.043</td>
<td>0.001</td>
</tr>
</tbody>
</table>

As it is seen at above table, the variable of relational capital has the highest Coefficient of Beta to amount 0.807 percentage. The second variable in terms of Beta weight is variable of human capital with Beta 0.659 that it has negative and reverse impact on organizational
innovation in terms of being negative. The variable of structural capital with the amount 0.647 is third effective variable on organizational innovation.

Graph 1. Histogram graph of impact of independent variables on organizational innovation

![Histogram graph of impact of independent variables on organizational innovation](image)

Graph 2. Dispersion graph of impact of independent variables on organizational innovation

![Dispersion graph of impact of independent variables on organizational innovation](image)
Discussion

According to the results of this study, there was direct and significant impact and relationship between organizational innovation and intellectual capital of managers and staff that it was expectable because similar studies were performed in this field with similar variables that it indicates direct impact and relationship of two above variables including Ghorbani and et al (1392) in a study that they did titled examining of relationship between intellectual capital management and organizational innovation, they reached to this result that there is positive and significant relationship between intellectual capital and organizational innovation.

Asgharzadih (1391) in a study that he did titled "Effects of intellectual capital on organizational innovation”, The results reflect the positive impact of each of the components of intellectual capital on organizational innovation of mentioned industrial complex that Respectively the structural capital, customer capital and human capital have the most effective.

Chopanie et al (1391) in a study titled "The relationship between intellectual capital and organizational innovation (Case Study: development Insurance Corporate)” was examined among 98 people from managers and staff and assistants development Insurance Corporate. The results of Pearson correlation test suggest that there is a positive and significant relationship between intellectual capital and organizational innovation. Also the result of present study has consistent with findings of Hermans and Karanen (2005), Chan and Chen (2008), Zarenler and et al (2013), Delgad and et al (2011). So we will reach to this result that the present study has consistent with performed studied in regarding to relationship and
impact of intellectual capital variable with organizational innovation. Also, it was seen that there is positive and negative relationship and impact between dimensions of intellectual capital with organizational innovation that it means that there was reverse and significant relationship between human capital and organizational innovation of managers and staff. But there was significant and positive relationship between structural capital and relational capital with organizational innovation.

Zarenler et al (2013) examined "The impact of intellectual capital on innovation performance. The results of study showed that three kinds of staff - intellectual capital, structural capital, customer capital and organizational innovation performance have a significant positive and relationship.

Structural capital is as knowledge that it remains in organization in end of every work days, it belongs to the whole organization, and it should attend sufficient renewed production able and sharing with others to improve intellectual capital. The amount perception of them from intellectual capital should be considered in selecting and appointment of managers of organizations especially banks. Because background of creativity and innovation in organization staff is provided with giving importance to intellectual capital. It can be take action to improve intellectual capital through Constance of customers, fame goodness and organization relationship with providers its resources in field of relational capital.
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