Examining the Effect of Social and Intellectual Value on Organizational Performance Based on the Balanced Evaluation Method and Structural Equations in the Iranian Oil Terminals Company

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ABSTRACT

This study aimed to examine the effects of social and intellectual value on organizational performance based on the balanced evaluation as well as structural equations in the Iranian Oil Terminals Company in 2015. The research method was practical in terms of objectives and descriptive in terms of data collection. The statistical population consists of all the official and unofficial staffs of Iranian Oil Terminals Company in 7 operating districts of Khark terminal, Asaluye terminal, Neka terminal, Tehran, Ahvaz, Boushehr and Mahshahr in 2015 which are approximately 2418 people in general. Among these people, 350 were chosen by Cochran formula for limited societies and single stage cluster sampling method as a sample volume. The method of collecting social capitals data was by the means of the standard questionnaire containing 17 questions and based on the model of Nahapiet and Goushal (1998), intellectual capitals are also consist of 20 questions and based on the research by Bettis (1998) and eventually for the organizational performance the standard questionnaire of Kaplan and Norton has been used which is based on the balanced evaluation method and includes 19 questions. The reliability of this questionnaire for all aspects calculated to be higher than 0.7 by the means of Cronbach's alpha method which indicates an acceptable range of reliability (Average variance extracted > 0.5). The data has been analyzed through the Smart partial least squares software with structural equations modelling method and the final model has been presented. The proper trend of the conceptual model was calculated based on the acceptable and meaningful values for indicators of path coefficients, factor loadings, the presented variance and index of good-ness of fit. The results show that there is a direct and positive relationship with 99% level of confidence, between social value and its aspects (structural, recognition oriented and relationship oriented) as well as intellectual capitals and its aspects (human value, structural and relationship oriented) on organizational performance. On the other hand, the highest amount of effectivity among the factors of social and intellectual value on organizational performance was for relationship oriented factors with the rate of 0.560.

Keywords: Social Value, Intellectual Value, Organizational Performance, Balanced Evaluation Card
JEL Classifications: E37, E32, C53, C5

1. INTRODUCTION

Today it has been cleared that injecting adequate amount of financial and physical values, does not necessarily lead to accelerated improvement and development of countries. However, in the countries in which there are strong and efficient organizations as well as effective official institutions accompanied by expert human resources, physical and financial values could be properly absorbed and utilized in a process of development

and improvement. In modern economies, producing wealth and economic growth are mainly originated from intangible properties, especially social and intellectual capitals. In the near future the role of financial values in comparison with the one of social and intellectual capitals, will decrease dramatically. This issue makes some distance between the actual values of companies and the ones that have been taken into account in traditional accounting. In such conditions, social capitals are the key factors for improving efficiency and performance of organizations and staffs, however,

nowadays efficiency and performance possess such position in which affect all aspects of life and cause a huge gap between developed countries and the third world countries. This condition is so serious that some experts in the area of economic believe that the third world countries face a closed loop of lacking efficiency. Lacking efficiency could lead into increasing prices, which is followed by the increasing price of each unit, this could cause sales slump and losing market, which is followed by decreasing usage of facilities and consequently lacking efficiency of tools, facilities and human resources and eventually it leads to lacking investments to creating new capacities and not using the existing production and service potentials. This closed loop will continue and makes the third world countries more behindhand. Therefore, one of the ways out of this closed loop is noticing to values and human resources in efficient organizations in a country and improving performance of staffs is like healing medicine for ill organizations. That is why in the recent years, there have been lots of researches in the area of increasing staffs' efficiency and performance. Also, some basic parameters such as noticing social and intellectual capitals, performance evaluation, presenting feedbacks and etc. have been taken into account as relevant factors for improving organization's performance. Paying enough attention to these factors in oil companies such as Iranian Oil Terminals Company, which is one of the most significant sources of income in our country, seem to be essential. Oil and its dependent companies and organizations, besides having physical and financial properties, is the key factor in providing our country's budget and as a result possess high social and intellectual capitals which should have been used for approaching aims of development and improvement of our country. So this study, which tried to examine the key role and importance of social and intellectual capitals in oil dependent factories, such as Iranian Oil Terminal Company, as a society for this study, as well as their performance and efficiency, is of a great importance. These values (social and intellectual capitals) and their actual roles in factories are less being examined before and this makes our study even more important (Chen et al., 2004). There are so many reasons for considering and measuring social and intellectual capitals and organizational performance, which the most important ones are as follows, helping organizations to regulate strategies, evaluating executing of the strategies, helping decision making for improvement and development, using the results of measuring social and intellectual capitals as a basis for service compensation and announce these properties to foreign beneficiaries of the organization (Marr et al., 2003). According to these explanations, there have been wide researches both in Iran and abroad, which some of them are mentioned here.

Ellinger et al. (2013), in their study, titled, "Influences of organizational investments in social capital on service employee commitment and performance'', examined the explicitly relationship between investing in social capitals and job performance as well as the relationship between organizational civilized behavior and job performance of staffs. They showed that there is a direct and positive relationship between investment in social capital and job performance and organizational civilized behavior and also between job performance and organizational civilized behavior. Theriou (2011) in an article titled "a relationship between social capital, organizational civilized behavior and

personal performance, an experimental study in the banking industry in Indonesia'', by testing the assumptions in the studies, concluded that structural, relationship oriented and recognition oriented aspects of social capital do not have major effects on personal performance of staffs. In the similar study by Maditinos et al. (2011) which titled "effect of intellectual capital on marketing values and financial performance'' have examined experimental data from 96 Greek factories which were recorded in the stock market in Athens, Greece. These data were divided into for economical groups and have been examined in 3 years between 2006 and 2008. In this study in order to measure intellectual capital, the Palick method has been used and one of the assumptions is that factories with higher amount of social capital, possess a higher ratio of market value to official value. Though, eventually this assumption could not be supported by experimental data and was denied. Bank (2008), in the other study titled "effect of social capital (relational, connective…) on psychological empowerment of staffs in offices in Bangkok, Thailand. Recognized that social capital is effective in psychological empowerment among staffs, but the rate of this effect differs, so that a connector social capital have the highest effect on staff's empowerment rather than the other factors. Donalson and Preston in 2005 have examined effects of structural capital on financial performance in their study. They stated that structural capital belongs to all personnel in an organization and consists of innovation capital, relationship capital, organization's foundation and etc. Evaluating intellectual capitals agree with shareholders' attitude which believe that beneficiary's connections include all parts of the relationship among company and shareholders, staffs, customers, suppliers and representatives of unions. Tan et al. (2007), in their study examined relationship between intellectual capital and financial performance in 150 companies from stock companies between 2000 and 2002 in Singapore. The results of this study were considerable in various parts. One of interesting points was that intellectual capital and financial performance in these companies have a meaningful positive correlation. On the other hand, intellectual capital and future performance of these factories as well as the rate of intellectual capital growth have a positive and meaningful connection with their performance. Contribution of intellectual capital in the companies' performance is different with industry.

Having a comprehensive review on the literature survey as well as the history of the study specially the ones about indicators of social and intellectual capital on organizational performance, after recognizing aspects and indexes, for measuring these parameters we have used multi variable analysis with the SMART partial least squares (PLS) software. By this model, the way in which social and intellectual capital affect organizational performances in the Iranian Oil Terminals Company, have been examined. The assumptions of this study, parallel with a conceptual model of it consist of following items (Figure 1).

1.1. Main Assumptions

1. Social capital has effects on organizational performance in the Iranian Oil Terminals Company
2. Intellectual capital has effects on organizational performance in the Iranian Oil Terminals Company.

2.2. Secondary Assumptions

1. The structural aspect of social capital has effects on organizational performance in the Iranian Oil Terminals Company
2. The relational aspect of social capital has effects on organizational performance in the Iranian Oil Terminals Company
3. The recognition aspects of social capital has effects on organizational performance in the Iranian Oil Terminals Company
4. The humanity aspect of intellectual capital has effects on organizational performance in the Iranian Oil Terminals Company
5. The structural aspect of intellectual capital has effects on organizational performance in the Iranian Oil Terminals Company
6. The relational aspect of intellectual capital has effects on organizational performance in the Iranian Oil Terminals Company.

2. METHODOLOGY OF THE STUDY

The research method was practical in terms of objectives and descriptive in terms of data collection. The statistical population consists of all the official and unofficial staffs of Iranian Oil terminals Company in 7 operating districts of Khark terminal, Asaluye terminal, Neka terminal, Tehran, Ahvaz, Boushehr and Mahshahr in 2015 which are approximately 2418 people in general. The volume of the sample as well as evaluation of some parameters was specified by sampling formula for limited society:

$$n = \frac{Nz^2.pq}{Nz^2 + z^2 qp} = 331$$

So based on Cochran's formula the volume of the statistical sample was calculated to be 331 people. Eventually for being more cautious, the amount of the sample considered 350 people. Considering the fact that those people lived in 7 different operating districts of Khark terminal, Asaluye terminal, Neka terminal, Tehran, Ahvaz, Boushehr and Mahshahr, for making the sample more homogenous and make it easier to having access to them, the multi grouping cluster sampling method has been used. The number of chosen sample in each group in each operating district is classified in Table 1.

In this study, in order to specifying reliability of the questionnaires, content reliability has been used and for doing this, the questionnaires have been presented to professors and some experts in this area and some required amendment have been done. For structural reliability the method of structural equation modeling and smart PLS software have been used. For convergent reliability the average variance extracted (AVE) index was used which its results are summarized here in the Table 2.

In the above table the AVE fore reliability, validity coefficient of composite reliability (CR) and Cronbach's alpha for validity have been used. In order to calculate convergent reliability, Forner and

Table 1: Categorization of official and unofficial staffs in Iranian Oil Terminals Company

Row	Level (operating districts)	Number	$n_n = n.Fn$	$Fn = \frac{Nn}{N}$
1	Khark	1866	0.772	270
2	Asaluye	127	0.053	18
3	Neka	104	0.043	15
4	Tehran	209	0.086	30
5	Ahvaz	23	0.01	4
6	Bushehr	17	0.07	3
7	Mahshahr	72	0.3	10
Total		2418		350

Figure 1: Conceptual model of the study
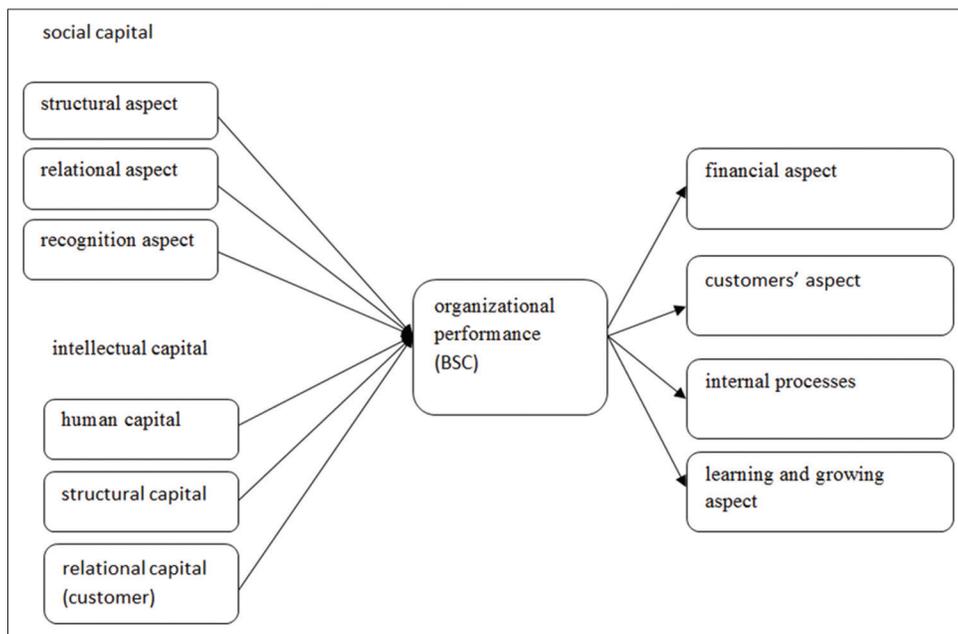
Loker recommended using the AVE index. AVE with the minimum amount of 0.5 represents a proper convergent reliability. This means that a hidden parameter can explain more than half of its indexes' variance (clear parameters). Considering the fact that the AVE factor is more than 0.5 for all of this research's parameters, its structural convergent reliability gets verified. The validity coefficient of CR and Cronbach's alpha evaluate credibility of the tool (Holland 1999, p.78). For evaluating validity of this questionnaire, 30 ones were distributed and in all of them the extracted Cronbach's alpha number were more than 0.7 which represents the proper validity of the questionnaire (Table 3).

Table 2: Validity and convergent reliability

Components	AVE	CR
Social capital	0.6617	0.9168
Structural	0.6635	0.8329
Relational	0.6886	0.8691
Recognition	0.5711	0.8679
Intellectual capital	0.6924	0.9191
Humanity	0.6289	0.8354
Structural-intellectual	0.5090	0.8330
Relational	0.6746	0.8575
Organizational performance	0.7438	0.9301
Financial	0.5550	0.8617
Customers	0.5160	0.8372
Internal process	0.5834	0.8668
Learning and improving	0.5834	0.8668

AVE: Average variance extracted, CR: Composite reliability

Table 3: The results of validity of the questionnaire with Cronbach's alpha

Component	Amount of Cronbach's alpha	Number of questions
Social capital		
Structural	0.724	5
Relational	0.748	7
Recognition	0.721	5
Intellectual capital		
Humanity	0.701	7
Structural	0715	6
Relational	0.750	7
Performance	0.887	19

3. FINDINGS

Figure 2 illustrates the model of structural equations in a state of evaluation of standard coefficients. In this diagram structural equations are numbers or coefficients which show the relationship between hidden and clear parameters and are used for testing the assumptions. These coefficients are mostly called path coefficients and are evaluated considering the model and in a state of coefficient evaluation.

In Figure 3 the study model is illustrated to show how meaningful are the coefficients (t-values). In the other words, this model tests all equations and measurements and path coefficients with t-value.

Based on the results of the t-value all of the load factors get meaningful in the level of confidence of 99% and play an important role in structural measuring.
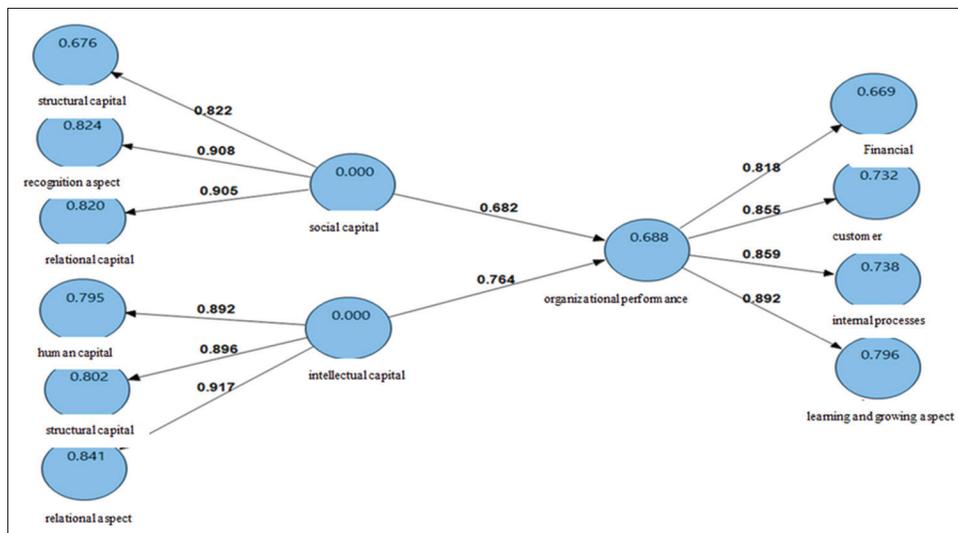
Figure 4 shows the effects of aspects of social capital (structural, recognition and relational) as well as effects of intellectual capital (aspects of humanity, structural and relational) on organizational performance in the state of evaluating standard coefficients.

It can be said by Figure 5 and the standard coefficients that the maximum amount of effectiveness of social and intellectual capital on organizational performance is from the relational factor because it has the highest amount of path coefficient (0.560), after that there are humanity capital and relational capital, respectively.

In Figure 5 the study model is shown in a state of coefficients being meaningful (t-value) for the assumptions of the research based on the effects of social and intellectual capital on organizational performance.

Based on the results of t-test, all the relations got meaningful in the level of confidence of 99% and play an important role in their structural measurements. In the other words, the effects of
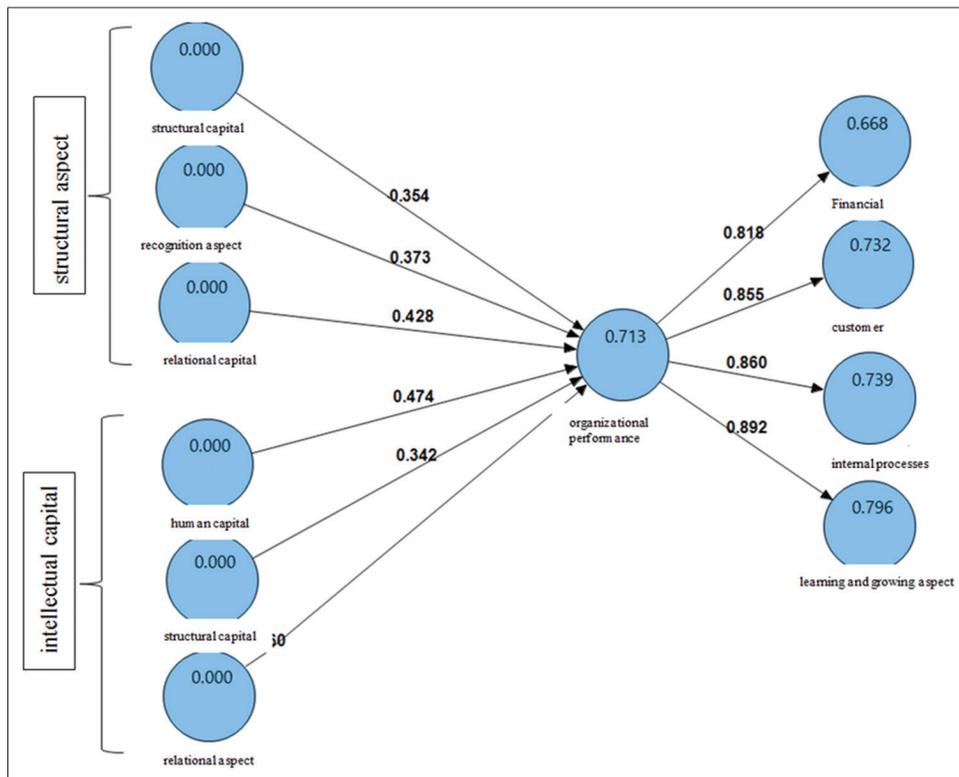
Figure 2: Evaluating standard coefficients for main assumptions

Figure 3: The general model of the study which show how meaningful the main assumptions are
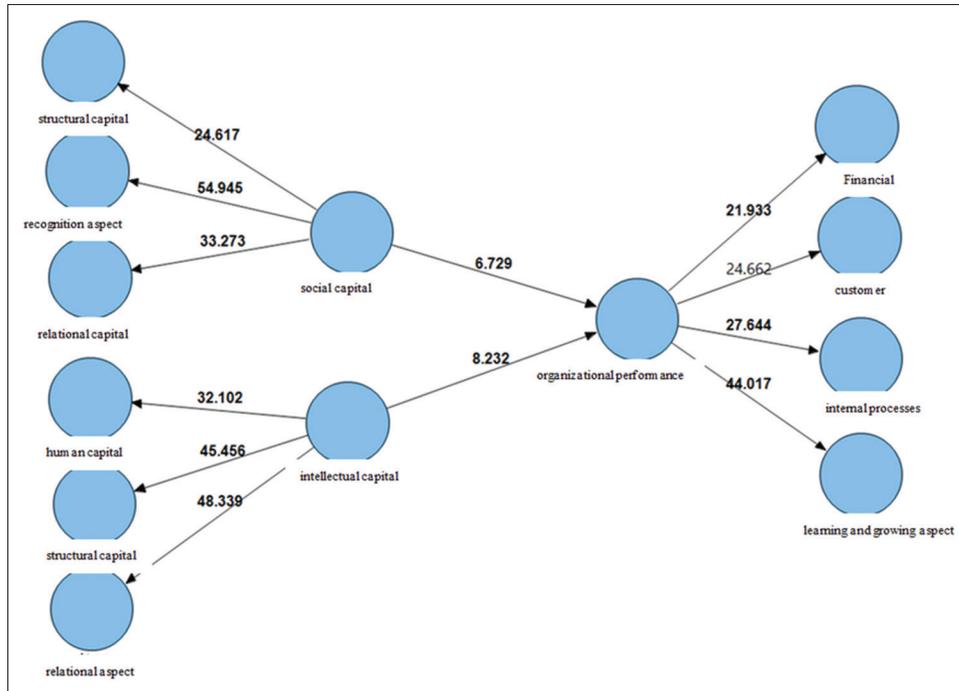
Figure 4: The state of evaluating standard coefficients for the secondary assumptions of the research


aspects of social capitals (structural, recognition and relational) and also the effects of aspects of intellectual capital (aspects of humanity, structural and relational) on organizational performance, get verified.

The results of direct effects as well as the one of the assumptions are presented here in Table 4.

4. CONCLUSION AND DISCUSSION

Modern organizational environments which are associated with some features such as complexity, chaos, pace and accelerated changes, requires development and performance improvement more than before. One of the methods for examining improvement in quality of organizational performance is to

Figure 5: The meaningfulness coefficients of the secondary assumptions in the model
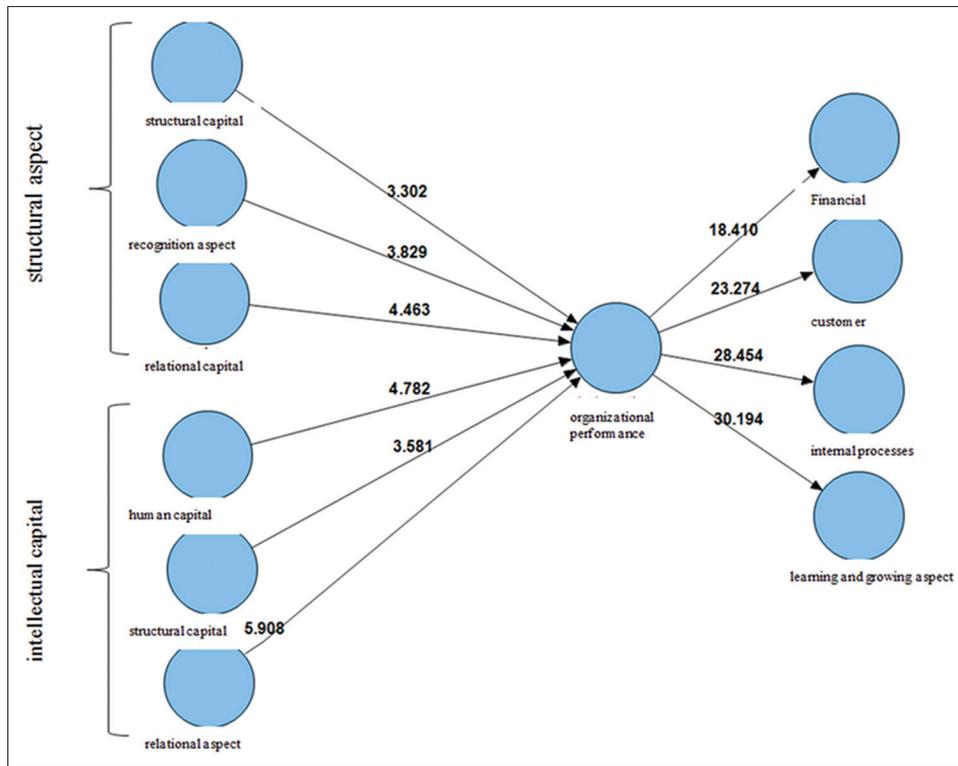
Table 4: Direct effects, t-value and the result of assumptions

Assumption	Aspects of research	t-value	Path coefficient beta	Significant	The result of the assumption
Main assumption	Social capital: Organizational performance	8.23**	0.746	01/0>	Verified
1st secondary assumption	Intellectual capital: Organizational performance	3.30**	0.354	01/0>	Verified
2nd secondary assumption	Structural aspect of social capital: Organizational performance	3.82**	0.373	01/0>	Verified
3rd secondary assumption	Recognition aspect: Organizational performance	4.46**	0.428	01/0>	Verified
4th secondary assumption	Humanity aspect: Organizational performance	4.78**	0.474	01/0>	Verified
5th secondary assumption	Structural aspect of intellectual capital: Organizational performance	3.58**	0.342	01/0>	Verified
6th secondary assumption	Relational aspect of intellectual capital: Organizational performance	5.90**	0.56	01/0>	Verified

**Meaningfulness in the level of confidence of 99%

analyze effective factors and it makes intellectual capital quite important. As a result intellectual capital includes all science-oriented resources which create values for an organization, but are not included in financial records. In addition, each organization besides having an inter organizational connection, has some links with surrounding environment as well as outside the organization. This relationship, which can be both affecting and effective, is considered to be a social capital. So intellectual and social capital are among capabilities and properties of organizations which can help them significantly to create and share knowledge and improve its performance. On the other hand, organizational performance cannot be evaluated and judged only based on financial factors, studies showed that the market values of companies and financial institutions are mainly specified by non-monetary properties also known as hidden properties, such as social and intellectual capitals.

The balanced scorecard is a technique which produces required measures and indexes for evaluation of an organization based on approved operating programs with focus on 4 key aspects, namely, financial, customer, learning and growing and internal processes of organizational business. Based on this quantitative study with particular aims of examining the effect of social capital and its contents (structural capital, recognition and relational) as well as intellectual capital and its contents (humanity capital, structural and customer) on organizational performance of the Iranian Oil Terminals Company, has been done by the means of the balanced scorecard.

5. RECOMMENDATIONS

5.1. Recommendations in the Area of Social Capital and its Contents

Considering the results of our analysis and its findings as well as calculated standard coefficients about the effect of social capital

and its contents, some recommendations are presented here in order to be exploited by the Iranian Oil terminals Company for improving its organizational performance:

- The managers of the Iranian Oil terminals Company need to try that the employees participate in team works and feel themselves as part of the group
- The managers try to strengthen unofficial norms in the company, because in such condition, people feel more comfortable and communicate more effectively and trust each other
- To increase a level of trust in the company by increasing the radius of mutual trust among the staffs
- It is highly recommended that the managers try to hold some workshops and classes for increasing living skills as well as mutual understanding among the staffs. In fact the managers should try to institutionalize this grate saying that: "Whatever you like for yourself, like it for the others and whatever you don't like for yourself, don't for them neither." This saying support this thought among the staffs that they should pay attention to the others' notes, feelings and opinions, exactly as they expect the others to consider theirs.

5.2. Recommendations in the Area of Intellectual Capital and its Contents

Considering the results of our analysis and its findings as well as calculated standard coefficients about effect of intellectual capital and its contents, some recommendations are presented here in order to be exploited by the Iranian Oil terminals Company for improving its organizational performance:

1. Relational capital: In order to strengthen each component of relational capital, these suggestions are presented:
   - Company's policies should focus less on inter organizational operational activities and more on customers, society and circle of values (staffs and providers). Approaching toward customer orientation will cause changing direction from the organization and moving toward the circle of value
   - Teaching behaviors which are related to showing respect to customers, especially for those who are directly involved with customers
   - Examining customers' expectations and requires.
2. Structural capital: In order to strengthen each component of structural capital, these suggestions are presented:
   - Teaching how to work as a team and its relevant techniques in all levels in organizations
   - Appreciation and rewarding team works and using actual team measures
   - Being careful in selecting and hiring people who are technically skillful and are familiar with team work
   - Paying attention to improving processes as well as reducing costs of doing organizational tasks by the staffs
   - Recognition key processes which have the highest value in organizations and in regard customers' satisfaction.

3. Humanity capital: In order to strengthen each component of humanity capital, these suggestions are presented:
   - Attracting and hiring talented people who are compatible with the missions and organizational aims considering learning and growing and staffs' merits
   - Paying attention to training some alternatives for talented staffs who are leaving the organizations
   - Providing some occupational roots for future jobs of each of staffs
   - Paying attention to effective factors for promoting staffs' job satisfactory such as financial and non-financial aids, giving rewards and
   - Measuring job satisfactory, continuously in specific time periods in order to analyzing this information
   - Codification of program and operational aims, through managers in order to recognize operational standards.

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