Developing Intellectual Capital Model for Energy Industry

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Abstract. *Intellectual capital is an important topic that has been viewed as one of the most value increase of company resources and key capitals in entrepreneurial development. This study aims to design a model for measuring intellectual capital. The previous models are reviewed and indicators for measuring are extracted. The population is 1104 managers and experts of 13 firms of Iran Transfo Company and 285 samples were selected randomly classified from companies. Data were collected by questionnaire, and we use structural equation modelling for the analysis. Our proposed intellectual capital model includes 5 aspects of human, structural, customer, the relational and systemic capital. All aspects have significant positive relationship with each other. Structural, relational and customer capital had the most intense relationships in the model and systemic and human capital were in fourth and fifth respectively.*

Keywords: *Customer capital, human capital, intellectual capital, relational capital, structural capital.*

1. Introduction

Intellectual capital is defined as an important intangible asset, which cannot be revealed accurately in company's financial statements, but reflects real value of the company and is based on knowledge (Yildiz, Meydan, & Güner., 2014). Intellectual capital is a new topic that has been proposed as one of the most value increase of company resources and key capitals in entrepreneurial development. There is a significant relationship between financial performance of firms and intellectual value added, intellectual capital efficiency, relational capital efficiency, human capital efficiency, structural capital efficiency, and economic value added (Salehi, Enayati, & Javadi, 2014). Hence, the necessity to develop and manage intellectual capital has become a serious commitment at the national macro level and business arena, in a way that we could witness the emergence of the knowledge-based economy that is based on intellectual capital.

In general assets of organization can be divided into two categories: tangible assets and intangible assets that intangible assets generally are called intellectual capital and trend of assessment is toward assessing intangible assets (intellectual capital). Intellectual capital can be known most critical asset of an organization. In the era based on knowledge, a new type of capital named intellectual capital is presented as the basis for achieving core and strategic competencies for superior performance and in order to achieve sustainable competitive advantage, attention to the knowledge, how to benefit from it, establishing a framework for the use of information and offering new knowledge will be considered essential. In other words, organizations success is not limited to obtaining capital and financial and material resources, but is subject to achieving intangible assets that can help stable superiority is achieved. In short, intellectual capital is an attempt to make effective use of knowledge (Chen, Zhu, & Yuan Xie, 2004).

Furthermore, the results of Chitsazan, Bagheri, and Yusefi (2017) study indicated that intellectual, psychological, and social capitals significantly affect business innovation. Besides, organizational culture moderated the impact of intellectual and psychological capital on business innovation (Chitsazan et al., 2017). On the other hand, twenty-first century is described by the development of knowledge importance and its impact on all aspects of the organization (Brookings, 1966). According to the material described, intellectual capital can be used in the creation and application of knowledge to increase the value of organization (Chen et al., 2004). According to the material described, intellectual capital can be used in the creation and application of knowledge to increase the value of organization.

In this study we are looking to provide a new model of intellectual capital management in Iran Transfo based on indicators and relationships that are specific to the organization. At first the concepts of intellectual, human, structural, customer, non-covered customer relational and systemic capital are discussed and then the connection between them is checked and indicators to measure each of the concepts mentioned will be extracted based on theoretical bases of study. Next, the research method and results will be described. ultimately, the conclusion will be discussed.

2. Literature Review

2.1. Intellectual Capital Management
An empirical analysis by Pucci, Simoni, and Zanni (2015) revealed that there is direct and positive relationship between the value of intellectual capital of the company and performance. Chang (2013) found that intellectual capital has positive directly/ indirectly impacts on financial performance. Findings by Lu, Wang, and Kweh (2014) showed that there is the positive and significant relationship between Intellectual Capital and the performance of the company.

The economy moved towards investing in human resources, information technology, research and development to maintain competitive advantage and ensure survival of organizations is essential. Due to this it can be concluded that the source of organizations economic value creation is the intangible assets that is called intellectual capital. In other words, organizational capabilities are based on intellectual capital (Ramirez, Lorduy, & Rojas, 2007). In a knowledge-based business in the wake of changes that have been created due to different causes such as globalization, international and multinational competition, informed customers, competitors and suppliers (Ordóñez de Pablos, 2006). Knowledge, compared with other factors of production, such as money, land and material equipment, is more important, so that today it is mentioned as business initial material and its most subsequent result (Bukh, Larsen, & Mouritsen, 2001).

What has attracted the most attention increasingly is intellectual capital. Because knowledge-based business environment requires an approach that includes intangible assets such as human capital capabilities and competencies, innovation, customer relationships, organizational culture, organizational system and structure. Galbraith (1969) first time used the term intellectual capital but its new application goes back to the 1990s. Due to this, so far the definition that is widely accepted, has not been proposed. But it is believed that intellectual capital is something beyond the mind and includes intellectual action too.

Intellectual action means moving from knowledge to the use of knowledge and points that intangible assets must convert knowledge into product or service that are valuable and create value for organization and company (Mølbjerg Jørgensen, 2006). According to Brookings (1996), intellectual capital is a combination of the market capital, human capital and intellectual property. Sveiby (1997) says intellectual capital is immaterial value consists of 3 components of staff

competence, internal and external structure. According to Bontis, Dragonetti, Jacobsen, and Roos (1999) research, intellectual capital is a concept that classifies all intangible resources and their internal communications. Mouritsen and Larsen (2005) has suggested that intellectual capital refers to resources such as employees, customers, information technology and so on. In another study, according to Petty and Guthrie (2000), intellectual capital is the economic value of two groups of organization capitals that is structural capital and human capital (Chen, Shih, & Yang, 2009).

There is no the same definition of intellectual capital, but as you see, most definitions include similar words such as skills, experience, intangible capitals, and value creation. According to the above definitions of intellectual capital, it can be stated that the concept of value creation is frequently used in connection with intellectual capital which means that intellectual capital is useful for organization if it leads to added value. Differentiation of human capital, structural capital and customer/ relational capital has been widely accepted on these definitions. But in addition to human capital, structural capital, customer and non-customer relational capital, recently systemic capital also has been presented as another kind of intellectual capital that is described below (Ackoff, Finnel, & Gharajedaghi, 1984). In addition, in some references, regarding the importance of the customer capital, have separated it from relational capital and recently knowledge capital that will be described later has been located among the components of intellectual capital.

2.2. The Dimensions of Intellectual Capital
2.2.1. Human capital
Human capital, is the intellectual capital base and is the essential element in the implementation of its tasks (Chen et al., 2004), human capital is referred to capabilities, skills and expertise of human organs. Human capital represents the inventory of an organization member's knowledge (Bontis et

al., 1999). Chen et al. (2004) also discusses that human capital as the basis of intellectual capital refers to factors such as knowledge, skills, abilities and employees attitudes that lead to improve performance and create profit for the company.

Human capital has led the organizations to a large extent rely on their knowledge and skills to generate revenue, growth and improve efficiency and productivity (Sveiby, 1997). According to Brookings, human capital includes the skills, expertise, problem solving ability and leadership styles (Brooking, 1996). Finally we can say that human capital involves variables such as establishing and maintaining relationships between working groups, established succession plan/ succession planning in organization, hiring the right people based on attraction plan, upgrading staff skills on an ongoing basis, having intelligent and creative personnel, education per capita, appropriate professional qualifications of staff, the proper attitude of employees to organization, safety and job security of personnel, the well-being of employees, having an appropriate career path / professional growth potential for employees and empowering employees based on required continuous training programs (Bontis, 1998; Campbell et al., 2010; Lee, 2010; Mouritsen and Larsen, 2005; Rudež, & Mihalič, 2007; Tunc Bozbura, 2004).

2.2.2. Organizational and Structural Capital
Youndt (2000) knows organizational capital as institutional knowledge belonging to an organization which is accumulated and stored in databases, guidelines etc. Structural capital consists of all non-human resources that include the databases, organizational charts, processes, strategies, action and operational plans etc. (Roos, Edvinsson, & Dragonetti, 1997). According to Chen et al., (2004) research, structural capital can be classified more clearly as organizational culture, operational process and information system. According to Bontis (1998), if an organization has poor working systems and procedures, intellectual capital will not achieve its

maximum potential ability. But organizations with strong structural capital will have a supportive culture that will allow people to do new things, to fail and learn. Human capital and structural capital interact with each other to help organizations to shape and develop and apply Customer/ Relational capital in coordinated way (Chen et al., 2004).

The structural capital of an organization includes several variables that these indices could be mentioned: implementation and establishment amount of management systems, deployment and management of organization processes, procedures and organizational systems of facilitating innovation, investment in new technologies, implementation of strategic plan, investments in information technology, updating databases, absence of bureaucratic disaster, investing in research and development, credentials, certificates, patents, investment in infrastructures/ modern equipment, proper mission of the company, right landscape of the company , common corporate values, accepted moral principles, and so on (Campbell, & Rahman, 2010; Hsu and Fang, 2009; Lee, 2010; Mouritsen, & Larsen, 2005).

2.2.3. Non-customer Relational Capital and Customer Capital

Brooking (1996) in market capitals case, notes customer, customer loyalty and distribution channels that are related to customer. Stewart (1997) also stated that customer capital includes market information for use in attracting and retaining customers. New definitions have expanded customer capital concept to relational capital that includes all organization relationships with customers, competitors, trade associations, government and so on (Bontis et al. 1999).

Generally, customer capital that acts as a bridge and mediator in intellectual capital, is the main determining factor in the transformation of intellectual capital to the market value and thus the performance of the business. Therefore, development of relational capital depends on supporting human and structural capital (Chen et al., 2004). In other words, the main theme of relational capital, existing knowledge in marketing channels and relationships with customers and other intellectual capitals lead to improved performance of organization through it.

However, in some research because of the high importance of customer capital, relational capital is divided into customer relational and non-customer relational capital. The most important customer relational capital variables include developing new ideas and products for every customer, reducing time of problem solving of customers greatly, customers good image of the company, identifying target markets and customers, having most loyal customers proportion to competitors in the industry, continuous reduction of customer complaints, the ability to create confidence in customers, the number of customers, the top brand in the industry, having prestigious customers, proper marketing and so on. Among non-customer relational capital cases such as good communication with financial suppliers, shareholders, suppliers of goods and services, government, local and provincial authorities, the media attending in the media, conferences, social responsibility and so on can be mentioned (Campbell et al., 2010; Hsu and Fang, 2009; Martínez-Torres, 2006). It should be noted in some studies also relational capital is also named as social capital but in this research, use the concept of relational capital due to the consensus of experts.

2.2.4. Systemic Capital

However, in addition to human capital, structural capital, non-customer and customer relational capital, Systemic capital is also introduced as a kind of intellectual capital recently. In recent years, in a theoretical and philosophical study, a model of intellectual capital was presented. In this model, intellectual capital had been divided into five human capital, structural capital, customer capital, relational capital and systemic Capital on the basis of processes, structures, systems

and external environment. Another capital is also raised that is called systemic capital. systemic capital means the ability to adapt organization to future changes that affect by social system on the organization. In addition, Systemic capital emphasizes on the ability and effectiveness of the organization on its future and its creation (Ackoff et al., 1984).

2.3. Research Conceptual Model

Regarding research theoretical bases and previous studies, it can be said that intellectual capital is a new subject in management field in recent decade and intellectual capital dimensions have been clear and explained in different studies to some extent. However, there is no similar definition of it. Indicators of intellectual capital models also vary according to the type of organization. In previous research and models, there was not to a large extent comprehensive and systematic approach on different patterns and this research is trying to explore a variety of studies to extract key components of intellectual capital. After expert consensus on the three key components of human capital, structural capital and customer capital, serious effort has not been made to develop the mentioned models and the present study tries to develop intellectual capital management model.

Relational capital has been studied in general in most previous studies. But regarding the increasing importance of issues related to marketing and customer as well as the strategy and values of Iran Transfo Company, this type of intellectual capital was divided into two customer-centric relational capital and non-customer relational capital in this study. Considering the above-mentioned issues, the separation of the two categories of customer capital and non-customer relational capital from Systemic capital larger concept was essential.

Systemic capital is a new intellectual capital that was theoretically in previous research and this research seeks to operationalize this component in research and development of intellectual capital management model. Capital system, new intellectual capital that previous research has been theoretically and this research seeks to operationalize this component of the research and development of intellectual capital management model. One of the things that was in the previous research is the lack of extensive review and customization and localization of measuring indices of components, this research using qualitative and quantitative methods tries to customize and localize measurement indicators for Iran Transfo industrial group. Therefore, in this study we are beginning to provide a new model for managing intellectual capital in Iran Transfo group based on indicators and relationships that is specific to this organization. This is shown in the next figure. In the following model according to the research described, a model for Iran Transfo intellectual capital management is offered that includes 5 components as follows:
1. Systemic capital
2. Structural capital
3. Non-customer relational capital
4. Customer capital
5. Human capital

According to the theoretical foundations of intellectual capital management and performed studies, we propose a new research conceptual model in the next figure.
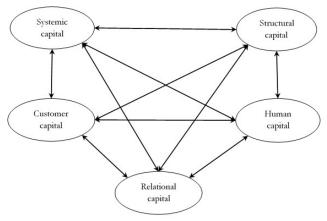
Figure 1.
The Conceptual Model of Intellectual Capital Management

In line with the research conceptual model, we propose the following research questions:

1. Research Question 1: What are the dimensions and model of intellectual capital management?
2. Research Question 2: What is the status of intellectual capital dimensions?
3. Research Question 3: What is the relationship among intellectual capital model dimensions?

3. Methodology

The original population of study is 1104 directors, supervisors, and experts from 13 companies of Iran Transfo group. Iran Transfo is a group consisting of 13 companies that was founded as the first manufacturer of electricity distribution transformers. 285 subjects were randomly selected classified from group companies on the basis of sample size determination method at the error level of 5%. The following table details the number of samples specified in the group companies and most of the samples belonged to Zanjan Iran Transfo Company.

Table 1.
Respondent Profile.

Row	Company	Number of managers and experts	Sample percent	Sample number
1	Electrical Pars insulators company	47	4.26%	12
2	Iran Transfo trading company	52	4.71%	13
3	Iran Transfo customer services company	20	1.81%	5
4	Kushken transformer making company	87	7.88%	22
5	Sadaf Gostar insulator company	9	0.82%	2
6	Iran Transfo research institution	39	3.53%	10
7	Zanjan industrial oil refining company	6	0.54%	2
8	Iran Transfo company	119	10.78%	32
9	Iran Transfo post development company	16	1.45%	4
10	Iran Transfo Zanjan distribution company	164	14.86%	42
11	Trans post pars company	79	7.16%	21
12	Iran Transfo Zanjan company	461	41.76%	119
13	Ashna rah Sama transportation company	5	0.45%	1
	Total	1104	100%	285

Ultimately 271 questionnaires were approved and used for data analysis. 73% of questionnaires' respondents were male and 27% were female, also 37.6% of those were 30 years or less, 42.1% were 31 to 40 years old and 20.3% were older than 40 years old. 55.4% of questionnaires' education degree was M.S. and higher, 41% was M.S. and 3.7% was Associate degree. In associate with questionnaires' job experience, the results show that 11.8% of questionnaires have experimented over than 20 years, 10.7% have 16 to 20 years, 7.7% have 11 to 15 years, 17.3% have 6 to 10 years and 25.4% have lower than 5 years. Besides, 1.4% of questionnaires' organizational position were managing director, 6.9% were deputy managing director, 4.5% were general manager, 23.6% were chief, 4.1% were supervisor, 18.1% were chief expert, and other 41.4% were expert. Also, 42.4% of our data came from Mother Company of Iran Transfo Zanjan, 14.4% came from Zanjan Distribution' Company, 10.7% came from Iran Transfo' Company and 32.5% came from other companies.

Data was collected from the researcher-made questionnaire based on study theoretical grounds and its validity was reviewed and approved by managers, directors and experts of Iran Transfo group and some professors as well as the primary distribution of questionnaires among a number of group workers and applying the corrective opinions. In addition divergent validity or the first order exploratory factor analysis and convergent validity or first order confirmatory factor analysis were used to confirm the validity of the questionnaire questions.

After first order exploratory factor analysis, some questions were removed from the set of questions because of the very low correlation with latent variable. To assess the reliability, retest and Cronbach's alpha were used. Initially, 30 people were selected at random from the population and the questionnaire was distributed among 30 people for the first and second time. The results showed a high correlation between people's response. Also in this study, the alpha coefficient of whole questionnaire was 0.92 which indicates the high reliability of the questionnaire. The reliability of human capital is 88%, structural capital 85%, customer capital 86%, relational capital 82% and Systemic capital is 90%.

4.   Findings and Discussion

4.1. Mean population test

The average test results of a population in following tables are analyzed based on that if lower and upper limits of the test statistics is positive, population mean in that component or dimension is more than 3 and in other words is desirable. It should be noted where the top and bottom limits of test statistics is positive, the first mean that is the mean statistics sample is larger than the second mean that is Likert compared value (i.e. number three) and test statistics is in the claim accepting area.

Table 2.
Mean Univariate Components Test.

components	t-statistics	d.f.	Significance level (Two-tailed)	Lower limit	Upper limit
intellectual capital	-5.744	270	0.000	-0.2968	-0.1453

According to the tables it can be concluded that intellectual capital is not in good condition and among the dimensions of intellectual capital only relational capital is in good condition, and other aspects and components of the study in Iran Transfo group are not in desirable level.

Table 3.
Mean Univariate Dimensions Test.

components	t- statistics	d.f.	Significance level (Two-tailed)	Lower limit	Upper limit
Human capital	-8.592	270	0.000	-0.4660	-0.2923
structural capital	-4.644	270	0.000	-0.3179	-0.1286
Customer capital	-5.191	270	0.000	-0.4055	-0.1825
Relational capital	7.607	270	0.000	-0.1880	-0.3193
Systemic capital	-9.167	270	0.000	-0.5618	-0.3632

4.2. Correlation Test Between the Dimensions of Intellectual Capital

In this part, Pearson's correlation coefficient was used to investigate the relationship between intellectual capital dimensions. The coefficient calculates correlation between two distance or relative variables and its value is between +1 and -1. If the obtained value is positive means that two variables changes happen in the same direction that is with the rise in each variable, the other variable also increases, and vice versa if the coefficient value is negative means that two variables act in each other opposite direction means that increasing the value of a variable the values of the other variable decrease and vice versa. If the value is zero indicates that there is no relationship between two variables and if +1, correlation is perfect and positive and if -1 there is a perfect negative correlation. If the relationship between the two variables was examined and there was a significant relationship between them, we can also calculate the correlation coefficient and the correlation degree. Correlation coefficients specify the dependence of two variables:

1. If the correlation coefficient is less than 0.25, coefficient is very low.
2. If the correlation coefficient is between 0.25 and 0.35, it is low.
3. If the correlation coefficient is between 0.35 and 0.65, it is average.
4. If coefficient of correlation is between 0.65 and 0.85, it is high.
5. If the correlation coefficient is more than 0.85, it is very high.

Table 4.
Correlation Test among Dimensions of Intellectual Capital

Component	Description	Human capital	structural capital	customer capital	relational capital	Systemic capital
Human capital	Pearson coefficient	1	0.817	0.342	0.446	0.721
	Significance level		0.000	0.000	0.000	0.000
	Sample number	271	271	271	271	271
Structural capital	Pearson coefficient	0.817	1	0.589	0.745	0.744
	Significance level	0.000		0.000	0.000	0.000
	Sample number	271	271	271	271	271
Customer capital	Pearson coefficient	0.342	0.589	1	0.781	0.744
	Significance level	0.000	0.000		0.000	0.000
	Sample number	271	271	271	271	271
Relational capital	Pearson coefficient	0.446	0.745	0.781	1	0.498
	Significance level	0.000	0.000	0.000		0.000
	Sample number	271	271	271	271	271
Systemic capital	Pearson coefficient	0.721	0.744	0.415	0.498	1
	Significance level	0.000	0.000	0.000	0.000	
	Sample number	271	271	271	271	271

Regarding results of the Pearson correlation coefficient and significance level, these results were obtained concerning the components of intellectual capital in the following tables:

1. Correlation coefficient between human capital and structural capital is significant and is equal to 0.817, so the connection between human capital and structural capital is positive, significant and high.
2. Correlation coefficient between human capital and customer capital is significant and is equal to 0.342, so the connection between human capital and customer capital is positive, significant and low.
3. The correlation coefficient between human capital and relational capital is significant and is equal to 0.446, so the connection between human capital and relational capital is positive, significant and average.
4. The correlation coefficient between human capital and Systemic capital is significant and equal to 0.721, so the connection between human capital and Systemic capital is positive, significant and high.
5. The correlation coefficient between structural capital and customer capital is

significant and equal to 0.589, so the link between the structural capital and customer capital is significant and average.
6. Correlation between structural capital and relational capital is significant and equals to 0.745, so the relationship between structural capital and relational capital is positive, significant and high.
7. The correlation coefficient between structural capital and Systemic capital is significant and equals to 0.744, so the relationship between structural capital and Systemic capital is positive, significant and high.
8. Correlation coefficient between customer capital and relational capital is significant and equals to 0.781, so the relationship between customer capital and relational capital is significant, positive and high.
9. The correlation coefficient between the customer capital and the Systemic capital is significant and equals to 0.415, so the connection between customer capital and the Systemic capital is positive, significant and average.
10. The correlation coefficient between

Systemic capital and relational capital is significant and equals to 0.498, so the relationship between Systemic capital and relational capital is positive, significant and average.

Table 5.
Relationship Interpretation Among Dimensions of Intellectual Capital

row	dimensions	coefficient	Interpretation
1	Structural capital ....Human capital	0.817	Positive, significant and high
2	Relational capital..........Customer capital	0.781	Positive, significant and high
3	Relational capital ....Structural capital	0.745	Positive, significant and high
4	Systemic capital ....Structural capital	0.744	Positive, significant and high
5	Systemic capital ....Human capital	0.721	Positive, significant and high
6	Customer capital ....Structural capital	0.589	Positive, significant and average
7	Systemic capital ....Relational capital	0.498	Positive, significant and average
8	Relational capital ....Human capital	0.446	Positive, significant and average
9	Systemic capital ....Customer capital	0.415	Positive, significant and average
10	Customer capital ....Human capital	0.342	Positive, significant and low

The next table shows the correlation amount of the model variables and relationships. According to the findings, structural capital with relationship intensity of 3.89 and relational capital with 3.47 have the greatest impact on the model. Customer, systemic and human capital are in next place.

Table 6.
The Interconnection of Model relationships and variables

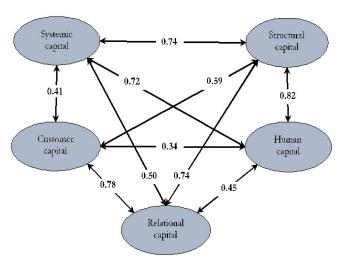| Capital	human capital	Structural capital	Customer capital	Relational capital	Systemic capital	Total relations
Human capital	1	0.817	0.342	0.446	0.721	**3.32**
Structural capital	0.817	1	0.589	0.745	0.744	**3.89**
Customer capital	0.342	0.589	1	0.781	0.744	**3.45**
Relational capital	0.446	0.745	0.781	1	0.498	**3.47**
Systemic capital	0.721	0.744	0.415	0.498	1	**3.38**

Figure 2 shows the operational model of intellectual capital management:

Figure 2.
The Operational Model of Intellectual Capital Management

5. Conclusions

Today the intangible capital and knowledge assets are among essential factors in the survival and development of innovative organizations. Following a comprehensive literature study, focus group discussions, and factor analysis, we define fundamental aspects of intellectual capital in five aspects (1) human capital, (2) customer capital, structural capital, relational capital and systemic capital. Meanwhile, Iran Transfo company status in all aspects of intellectual capital other than relational capital was descent. According to what has been proposed in this study, we provided a model for the design and explanation of a model for the measurement of intellectual capital management for active firms in the B2B markets.

According to the results associated with the relationship between intellectual capital aspects, all aspects of intellectual capital have significant positive relationship with each other, of which 5 relationships are positive, significant and high, 4 relationships are positive, significant and average and 1 relationships are positive, significant and low. Significant finding is that intensity of direction

of all components with together is high, but the intensity of the relationship of customer capital with other aspects is lower related to other relationships and dimensions. In other words, the possibility of enhancing other aspects with each other is more than the customer capital, so it is recommended that the following procedures with this dimension indices that will come later is in the foremost consideration.

According to the other results, it is recommended to enhance and further improve customers capital status the following tasks can be performed: 1-Design, deployment of marketing information systems, marketing research to improve customers capital status, 2-Design, deployment of customer relationship management system in order to attract customer feedback, 3-Achieving proper recognition of clients / target market, their needs and establishing mechanisms for effecting customer feedback. The most important factor in improving is customer capital. Therefore it is recommended that studies related to segmentation of target markets and market knowledge to be a priority. This is important since Iran Transfo Company products are corporative and

further interactions with customers and relational marketing is advised. Given the more importance of customer capital and its effects, this point is among the first proposed measures.

In the next step following suggestions can be made to improve the structural capital further. 1-Investment in infrastructures / modern equipment is the most important variable of structural capital. What is concluded from research results and structural capital relationship with other components of the research provides attention to this matter, becoming systemic of activities of the organization, establishing mechanisms to improve and facilitate activities related to customer capital and human capital and so on. 2-Focus on the issue of organizational culture and promotion of organizational culture of innovation and review creator is absolutely essential in this regard. 3-Recognition, implying and establishment of modern management systems have priority in organization activities.

In the next step the following ways can be done to further improve the status of human capital: 1-Empowerment of staff based on the continuous programs, is the most important variable of human capital so it is recommended that company takes serious measures for implementation, deployment and evaluation of educational program, 2-According to the results of study, the use of talented young staff, educating, their empowering and maintenance beside company experienced staff is of the highest priority for Iran Transfo company and attracting professional and experienced staff from other companies is not recommended, 3-Using creativity tests for hiring staff and high care in attracting smart and creative staff, 4-Implementation of systems including offers system will provide great aid for presenting staff ideas, 5-Creation and deployment a committee concerning group conference continuous meetings and holding regular meetings and learning groups are strongly recommended. 6-Regarding the

results and the importance of providing new ideas in group meetings by the staff, it is recommended that an innovation center is established in the company.

In the next step to enhance and further improve the Systemic capital that its most important variable is ability to adapt to future, it is recommended that serious studies is done in the field of foresight and futures studies, particularly in the context of the upcoming changes in the power industry and its future risks. Finally, the following ways can be done to improve further the relational capital status: 1-This dimension in terms of impact amount on organizational innovation through the mediation of knowledge management related to other dimensions of intellectual capital management has less effectiveness and its status is better than the other dimensions in Iran Transfo industrial group, so it should not be an improvement priority and after improvement of other aspects, actions associated with this indicator is put in the company program. 2-Proper communication with stakeholders and sponsors/ banks is the most important variable of relational capital.

It is recommended that in time of relational capital improvement, these two cases be in company priority. Regarding the company is publicly traded and the need to large financing for under construction projects, relationship with financial institutions is felt more than ever. In addition it is recommended that evaluation of intellectual capital, its dimensions and indicators is done in regular periods and it is tried all dimensions is at standard and minimum acceptable level, of course it must be regarded that customer, structural and human then systemic and relational capital are in priority. According to the results, it is suggested that Iran Transfo and other companies focus on all aspects of intellectual capital at standard level as well as regard Systemic capital as one of the missing intellectual capital. The findings of the research is consistent with research findings of Zhou and Fink (2003), and Roos et al. (1997), concerning positive and significant

impact of customer capital as one of the components of intellectual capital on the impact management.

The novelty of this study is that in none of previous research the customers capital, knowledge creation and organizational innovation is in a model at the same time and the study dealt with their simultaneous review and how components and key variables impact on each other, It also recommended that the evaluation of intellectual capital, its dimensions and indicators is done in regular courses and it is tried that all dimensions are at standard and minimum acceptable level, of course it must be regarded that customer, structural and human then knowledge and relational capital have priority. Significant result has been systemic capital generation and test as new intellectual capital in this area. Another important finding is the separation of customer capital from relational capital because it is very important. According to survey conducted importance of this component will be more in the future. In the end, it is necessary to point out that in the real world no research and study is without limitations and key constraints of this study were budgetary constraints. Collecting detailed data of various group companies and spending a lot of money and time were some of difficulties and obstacles that researchers overcame them with great effort.

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