

## Studying the influence of intellectual capital on gaining competitive strength

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### ABSTRACT

The purpose of writing the current paper is to survey the effect of intellectual capital on competitive advantage in Abyek cement Company. Two separated questionnaires about intellectual capital (contains human, organizational and relational capitals) were designed and after proving their validity and reliability distributed among 277 employees in Abyek Company. The results of applying Pearson and Regression test explained that intellectual capital and its indices have positive and meaningful influence on competitive advantage in which the effect of human and relational capital was more than organizational capital. The result of applying Entropy technique proved the mentioned results. Finally it was found that all variables apart from human capital were placed in high levels.

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### Introduction

Occurrence of information technology, formation of information and network society and also high technology development and growth especially in communication, computer and engineering fields, have changed template of global economy growth. In results of these changes, knowledge was replaced instead financial and physical capitals as the most important one (Heidari Kord Zangeneh et al, 2012).

Recent studies have illustrated against decreasing yield of traditional resources (like money, land, Machineries and . . .), knowledge is the most important one to enhance business performance. What is so important is that market has identified value of knowledge and intangible factors in process of value creating. Recently amount and ratio of this "hide value" has been decreased (Bontis et al, 1999).

So present and future success of organizations is related to allocation of financial and physical resources and of course knowledge management. So one of the leadership tasks is creating a workplace to implement knowledge management properly. In present era, the challenge opposite managers is providing an appropriate environment to human mind growth in knowledge-based organizations (Bontis, 1996). Therefore the most basic skill of managers in knowledge-based organizations is "knowledge management" (Quinn, 1992).

Moreover, it has an intangible nature and so the knowledge and all other intangible assets of an organization can be ignored by managers and leaders. It has been suggested that just 20 percent of knowledge-based features are utilized by managers in an organization. Indeed knowledge-based business environment needs a new model to include all 'hidden', intangible factors of the organization. In this position, the emerging field of 'intellectual capital' has become into the center of researchers' attention in 3<sup>rd</sup> millennium (Bontis, 2000).

In Abyek cement company managers believe that competition and gaining competitive advantage in global field will be more achievable by attending intangible assets. Regarding to different dimensions of competitive advantage enables organizations to achieve more competitive strength.

The study helps managers in all organizations to develop competitive strength attending intellectual capitals in their organizations.

In the current paper we are trying to survey the influence of intellectual capital on gaining competitive advantage in Abyek Company.

### Literature Review

#### Intellectual capital

In a simple definition, intellectual capital includes the difference between market value and book value in the same organizations (Seetharaman et al, 2002). In another definition, intellectual capital was defined as: intangible business assets or factors which are affected on organizational performance and critical success factors which are not reflect in balance sheets (Jelicic, 2007).

Intellectual capital is applied with other names like intangible assets, knowledge-based assets, knowledge capital, informational assets, human capital and hidden values (Bontis, 2001; Razafindrambinina & Kariodimedjo, 2011) and includes innovations, ideas, fundamental knowledge different methods of product design, computer programs and publications. In other word, intellectual capital contains the assets which are intangible, but gradually lead to wealth creating for organizations (Ghoraie Ahangar, 2011).

Up to now lot of models were presented for intellectual capital in which different dimensions were considered (Vaskeliene, 2007) and in base of each defined indices dimension, some techniques have been applied (Uziene, 2010). But in the most important model, intellectual capital has separated to 3 main dimensions: human capital, organizational capital and relational capital (Bontis, 1998).

#### Human capital

Human capital which also called human resource capital (Shun Wang, 2011) is backbone of intellectual capital and vital key to organizations' wealth creating (Royal & O'Donnell, 2008). It contains all intellectual assets in organizations (Roos et al, 1997) (e. g. knowledge, skill and other capabilities) which make employees solve own and customers' problems (Skandia,

1994; Sullivan, 1998). This kind of capital includes all employees' knowledge and show organizations' capability to find the best solution based on employees' knowledge (Cornachione, 2010).

#### Organizational capital

Organizational capital contains non mental assets of organizations (Roos et al, 1997) which includes factors like databases, customers' information, brands and organizations' structure and when employees go back to their home, remain in organizations (Skandia, 1994). Organizational capital which also called structural capital belongs to organizations and is independent to people (Edvinson and Malone, 1997).

#### Relational capital

Relational capital is the most important dimension of intellectual capital in creating added value (Kamath, 2008) and contains internal and external relations with stakeholders (Roos et al, 1997). Distribution channels and customers' satisfaction and loyalty are the most essential factors to create added value in organizations (Bannany, 2008). This kind of capital is related to suppliers, retailers, wholesalers and especially customers (Haanes & Lawendahl, 1997).

#### Competitive advantage

Competitive advantage is excess level of organizations' suggestions attractiveness in customers' view compared with competitors (Warren, 1998). In other definition, competitive advantage is differentiation in characteristics of each organization which enabled it presenting better servicing to customers (Ma, 1999).

The definitions above and other ones about competitive advantage explain that competitive advantage has direct correlation with customers' values. But there are two important concepts about competitive advantage:

1. Its creation and acquisition by affective and efficient combining environmental and organizational resources utilizing competitive intelligence and communicational networks;
2. Stabilizing gained competitive advantage is related to nature of competitive advantage, organizational support planning and rivals' actions and capabilities (Mehri & Khodadad hosseini, 2005)

Recent studies in strategic management emphasize on knowledge management as a basis for competitive advantages in organizations (Argote & Ingram, 2000; Barney, 2001; Prime & Butler, 2001). Many factors can influence organizations' competitiveness such as developing organizations' potentials (Johannessen & Olsen, 2003) and distinct production and services compared to their competitors (Turban & Mclean, 2002).

From this viewpoint, competitiveness is fundamentally based on the organization and its knowledge (Cater, 2001). Tacit knowledge is part of the expertise which cannot be easily publicized or simply coded or copied. Usually, this kind of knowledge is content dependent, for example the knowledge obtained from a problem solving situation in a specific organizational content. This means that although knowledge is inside individuals, it can be articulated within the organization. Whereas to imitate and copy the tacit knowledge is nearly impossible, this kind of knowledge \_ as a part of organizational capability \_ becomes a source of competitiveness. The reason is the cumulative nature of knowledge, and it is formed by the time and experience. This kind of resource is inimitable and very unique for the organization (Hilliard, 2004).

In addition, Argote and Ingram (2000) have supported the idea that the knowledge sharing rate in organizations is

measurable through measuring the changes in existing knowledge or organization performance. By other means, knowledge-based properties have an immediate effect on how the knowledge is transferred in the organization (Syed-Lkhsan and Rowland, 2004). Therefore, knowledge sharing results in central competence development. It improves organizations performance and finally creates the competitive benefits for organizations (Liao and Hu, 2007).

#### Conceptual framework of research

Considering research literature, the conceptual model below can be chosen for the current study. This model measures the effect of intellectual capital on competitive advantage. Within this model, intellectual capital is independent variable and competitive advantage is the dependent one.

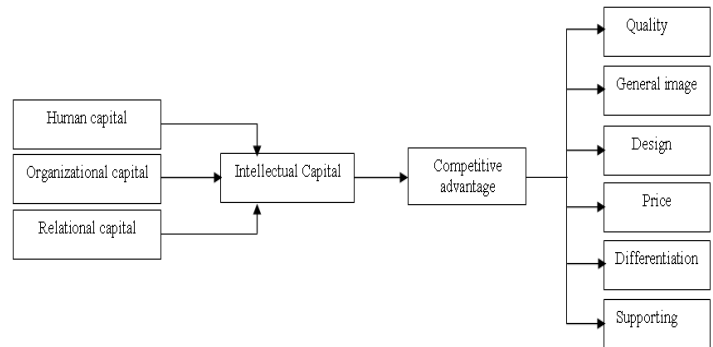


Chart 1: Conceptual framework of research

#### Research Methodology

Statistical society of the current research is 277 employees in Abyek cement Company which are familiar to intangible assets and competitive advantage fields. As this number seems to be adequate, no sampling strategy was used.

Current study can be considered as a descriptive survey if we observe it from data collection aspect and it would be an applied research if the goals of the study are considered. To collect the data, library method (refer to books, articles, libraries, etc...) and fieldwork (questionnaire) were used. The questionnaire was designed in two parts; 46 questions in intellectual capital and 22 questions in competitive advantages and then they were distributed among the samples (participants). To analyze the data, SPSS 19 and Pearson, Regression and Average tests were utilized. Management experts were asked to evaluate the validity of questionnaires. To do this, the questionnaires were given to some university professors and experts in management. Then, they confirmed the applied modifications and the questionnaires were given to the participants. To determine the questionnaires' reliability, the 'Cronbach Alfa technique' was applied. For this purpose, 35 people were chosen randomly (from the participants) and the questionnaires were given to them. The 'Cronbach's Alfa' values for all variables were calculated:

**Table 1: the results of reliability**

Variables	Cronbach Alpha
Human capital	0.83
Organizational capital	0.77
Relational capital	0.85
Competitive advantage variable	0.79

These values support the reliability of questionnaires, because the calculated results for cronbach's alpha are more than 0.7.

## Data Analysis and Discussion

### Kolmogorov-Smirnov test

To survey normality of data distribution in statistical society, Kolmogorov-Smirnov test was applied.

**Table 2: The results of applying Kolmogorov-Smirnov**

Variables	Sig
Intellectual capital variable	0.145
Human capital	0.072
Organizational capital	0.088
Relational capital	0.183
Competitive advantage variable	0.096

As sig amount for all variables calculated less than (0.05), so normality of data distribution was accepted. Therefore for data analyzing some parametric tests were utilized.

### Pearson Correlation Test

To investigate the relations of the variables, this test was applied. The results are shown below

As can be viewed from Table 3, there is a meaningful and direct correlations between intellectual capital and their dimensions with competitive advantage.

### Regression Test

To investigate how intense the effect of intellectual capital is on gaining competitive advantage, the regression test was used.

Table 4 suggests that there is a direct and meaningful linear correlation between intellectual capital and its dimensions with competitive advantage.

### Average Test

This test has been used to measure competitive advantage and intellectual capital levels and their dimensions.

As it can be easily seen, all the variables except human capital are higher than Z-value. Therefore, Table 7 suggests that 'Abyek' company is at a favorable level of its competitive advantage, intellectual capital and its dimensions.

### Conclusion and Further Suggestions

Current study has been conducted in a community of 277 employees in 'Abyek' co. The results from correlation test propose a meaningful and positive relation between intellectual capitals with gaining competitive advantage in 'Abyek' co. While the regression test shows how intense the effect of every variables is, in which the human capital was more effective than others in gaining competitive advantage which means 'Abyek' company should focus more and more on their trades with customers, suppliers, stockholders, etc to increase relational capital that leads to achieve more competitive advantage.

In continue, with the Entropy technique application, intellectual capital dimensions were ranked. In this ranking, human capital and relational capital (as intellectual capital dimensions) were having more strength than structural capital. Finally, the average test was applied to the data, to investigate the level of each variable. The results showed that all the variables apart from human capital were on a desirable level. Considering the results, some managerial suggestions can be proposed:

The relational capital (from the intellectual capital dime) had high effect on competitive advantage. Therefore, it can be claimed that the next step to achieve competitive advantage are: to plan and program improvement for external relations with the customers, suppliers, and investors, to assess their satisfaction and loyalty, to inform the staff about the market goals and customers types, and to publicize the customers, suppliers, and investors' feedbacks and finally to manage the relational

knowledge (such as customer's knowledge, investors knowledge, supplier knowledge).

While the human and structural capital are also effective on gaining competitive advantage, it is possible to put a step ahead toward relational capital improvement through presenting education and consultation, and organizational opportunities to help human capital to improve. And also, giving appropriate customer-oriented education to the staff in close contact with the customers, continuing persistency, and on time respond to the customers' expectations and complaints could be other ways for achieving competitive advantage.

### Other managerial recommendations

As brand is one of relational capital components, managers are recommended to prevent to offer high prices relying on the strength and power of the corporate brand but instead, they can strategically add value to their brand by delivering the lowest possible prices.

- Increasing efficiency in raw materials machineries and equipments, trying to make supportive culture for creativity and innovation improvement, human resource development and learning, human resource productivity measurement are other suggestions to improve organizational capital.

- make use of employees' ideas, performance management and enhancing employees' skills, capabilities, creativity and attitudes to improve human capital.

- Creating an integrated software system to facilitate knowledge sharing process and affective leadership.

- Making educational courses to improve organizational learning.

### Research limitation

- Lack of appropriate responsibility among statistical society led to distributing questionnaires for three times

- Intellectual capital model had three dimensions of human, organizational and relational capital. But other comprehensive models including spiritual capital are suggested for future research.

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**Table 3: The correlation between intellectual capital with competitive advantage**

Correlation	Pierson r	sig	Test result
Intellectual capital with competitive advantage	0.57	0.044	Positive and meaningful correlation
Human capital with competitive advantage	0.61	0.000	Positive and meaningful correlation
Organizational capital with competitive advantage	0.49	0.000	Positive and meaningful correlation
Relational capital with competitive advantage	0.56	0.000	Positive and meaningful correlation

**Table 4: Multi-variables regression between intellectual capital and competitive advantage**

Variables	Standardized	Unstandardized Coefficients		T value	sig
	Beta	Standard error	B		
Constant		4.086	2.044	11.528	0.022
Human capital	0.611	0.059	0.544	7.764	0.000
Organizational capital	0.455	0.263	0.396	5.228	0.014
Relational capital	0.521	0.076	0.475	6.011	0.000

**Table 5: Results of the Average Test**

Dimensions	Z <sub>0.05</sub>	Z value	Test result
Intellectual capital	1.645	2.752	High level ranking in application
Human capital	1.645	0.966	Low level ranking in application
Organizational capital	1.645	1.839	High level ranking in application
Relational capital	1.645	2.217	High level ranking in application
Competitive advantage	1.645	3.466	High level ranking in application

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