

## The Relation of Intellectual Capital & Quality Management System: A Survey from Iran

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### ABSTRACT

Intellectual capital, a new concept, theoretically has positioned in a special position worldwide. In this cross-sectional study numbers of 8 teaching hospitals in Tehran (Iran) were considered. A standard 79-item questionnaire was used for data collection on the intellectual capital. Data analysis was done by spearman correlation coefficient. The relationship between intellectual capital and implementing quality management system was statistically significant (0.01). Due to the meaningful relation between implementing quality systems and development of intellectual capital in the studied hospitals, and due to necessity of enhancing the intellectual capital for better and more qualified performance, it is strongly suggestible that hospitals plan to implement any kind of quality systems.

**KEYWORD:** Intellectual capital, Quality management system, EFQM, Iran

### 1. INTRODUCTION

The health service managers have to deal with a number of challenges such as the on-going system modification, the issue of introducing new technologies and the consequent restructuring, the ever-rising expenses as well as the need for keeping the competitive edge among other service providers (Ahmadi and Karami, 2007). Wagar and Rondeua believe that the only factor affecting the organizational performance is not the planning of the procedures (Wager and Rondeua, 1998) and state that the managers' commitment to their liabilities, policies and guidelines play a very crucial role in realizing the organizational objectives. It is well-known that the processes of work and quality management on the basis of "The Intellectual Capital" theory contributes to the strategic planning involved in the course of organizational development. The objective of incorporating quality and the intellectual capital management in the process of decision making is the improvement of organizational performance in both strategic and executive levels. The integration of these concepts ensures the achievement of the organizational goals though reaching the desired performance level (Caddy, 2007).

A study by Zohor Parvande and Mirkamali (Zohoor Parvande and Mirkamali, 2009) indicates that the human resources must be regarded as an integrated component of the capital value in the organizations because the structure of this component affects the organizations in the management of the intellectual capital in particular and the organizational management in general. In Shahbandarzadeh study (Shahbandarzadeh and Ebrahimi, 2009) stated that the most important component of the intellectual capital in the context of hospitals consists of the human resources. The relationship between the intellectual capital as a variable and other sub variables such as business-performance is studied Shrabati, NajeJavad, and Bonatis (Sharabati, et al. 2010). Francois et al (François, et al. 2005) believe that the on-going training courses in the context of health services make the staff directly involved in the required quality improvement processes. In Zivojinovic et al research (Živojinović and Stanimirović, 2009) showed that Knowledge management, intellectual capital management, balanced point-card, and quality management are not only complementary components but also have a logical relation with concepts of comprehensive quality and organizational learning. In Zigan study (Zigan, et al. 2007) indicated that hospital managers have realized the crucial function of the hidden resources, internal and external rapport, and assessing the employees' performance in the context of human resources management. Caddy (Caddy, 2007) believes that the intellectual capital and quality management are complementary component in many respects. Peng et al (Peng, et al. 2007) in a study on the hospital industry in Taiwan discuss the relative importance as well as the classification of human, structural, communicative resources in respect to performance

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indices. Kim (Kim, et al. 2007) shows that intellectual capital management model includes all European Foundation Quality Management's (EFQM) standards. Toth (Toth, et al. 2012) indicate that The EFQM Excellence Model is a suitable approach for characterizing the management and measurement of human, customer and structural capital within the organization.

In a research (Kunst and Lemmink, 2000) stated that quality management lead to improvements in the hospital business management that is measured through productivity, cost-effectiveness, and upgrading of the health services provided. The other studies by Vallejo et al (Vallejo et al. 2007) indicate that the organizational excellence model not be a comprehensive policy and must be applied only to specific sections in the hospital settings.

The previous studies on this subject have indicated that the managers' failure in assessing the potentials of their staff organizational capital and other capacities is the prime cause of the organizational underperformance that may waste up to 75% of the existing potentials. It is estimated that the proper management of the intellectual capital and the other hidden assets increases the share values of any given organization considerably; 65%-75% (Mourthi, 2009). This study has been conducted to determine the relation between intellectual capital and quality management system (excellence model) in selected training hospitals in Iran.

## 2. METHODS

The study is across-sectional research that conducted in eight teaching hospitals affiliated to Shahid Beheshti University of Medical Sciences in 2013. The four hospitals that held the certificate of organizational excellence made up the experimental group (Taleghani, Imam Hussein, Loghman, and Modaress Hospitals) and the control group included the other hospitals that did not hold this certificate (Masseeh Daneshvari, Shohadeyeh Tajrish, Mahdijeh, and Mofid Children hospitals).

The sampling was done through a field survey. The research sample included 270 staffs that were selected by stratifying sampling (four stratify: General Practitioners, Nurses, Allied Medicine, and Administrative Employees). For the purpose of accuracy (meaningful level=0.05, Cronbach Alpha= 0.95, T-distribution  $d=0.05$ ,  $p=0.5$  and  $q=0.5$ ), number of 302 subjects were selected.

This survey consisting of the qualitative variables of the intellectual capital, the quality management, and the organizational excellence model which includes 9 factors. The intellectual capital is the independent variable and includes these three components: human capital, structural capital, and customers (communicative) capital.

A standard 79-item questionnaire was used for data collection on the intellectual capital within the theoretical framework of the study. The questionnaire consisted on personal details and the intellectual capital sections. The questionnaire reliability was based on a previous research. The validity was determined by experts view. Data were entered the Statistical Package for the Social Sciences (SPSS) software, the version 18 and processed using Independent-Samples T-test and Spirman correlation coefficient. .

## 3. RESULTS

The number of the returned questionnaires were 270 (89%), 41% of the respondents were between 25 to 35 years old; 48% were nurses and 13% were general practitioners. The majority of the respondents held BA degrees. The work experience of 33% was 10 to 20 years; 14% had 20 to 30 years of work experience. Half of respondents (50%) were permanent employees and 13% were contract based staff.

Table 1: Statistical summaries score criteria of excellence model in hospital with Quality Management System

Variables	Mean	SD
Leadership	20.63	<b>13.96</b>
Policy & Strategy	19.15	<b>16.27</b>
People	20.88	<b>15.03</b>
Partnerships &Resources	22.50	<b>13.76</b>
Process	28.40	<b>12.93</b>
Customer Results	23.13	<b>17.26</b>
People Results	21.10	<b>20.12</b>
Society results	15.58	<b>15.76</b>
Key Performance Results	24.38	<b>10.30</b>

The data analysis as given that human capital has the highest ( $=3.16\pm0.57$ ) and the structural capital the lowest ( $=2.81\pm0.72$ ) summarized score.

Table 1 indicates that the process factor has the highest ( $=28.40\pm12.93$ ) and strategy the lowest ( $=19.15\pm16.27$ ) statistical average in the quality management model. The statistical average and standard deviation data of the intellectual capital as given in Table 2 shows that there is a meaningful difference between the hospitals with quality management ( $=3.09\pm0.59$ ) and the ones without this system ( $=2.89\pm0.6$ ). It means that the intellectual capital of these groups differ greatly.

Table 2: The mean & standard deviation & T- test for Intellectual capital rating in separate studied hospitals

Intellectual Capital	Mean	SD
Hospital <u>with</u> Quality Management system	3.09	<b>0.59</b>
Hospital <u>without</u> Quality Management system	2.89	<b>0.60</b>
0.008*		<b>-p</b>

\* significance level: 0.05

In Table 3, the positive indicate direct relationship between the intellectual capital and quality management. It means that whenever the figures are ( $-p=0.01$ ) and Cronbach Alpha ( $<0.05$ ) this relationship is meaningful and quality management system is in place.

Table 3: Spearman correlation Test between the intellectual capital and total score of Quality Management System in hospitals

Subject	Establishment of Quality Management System	
Intellectual capital	Indicate	-p
	0.19	0.01*

Significance Level: 0.05\*

#### 4. DISCUSSION

The study had a young statistical population (25-35 years old) which means that there would be a number of advantages and disadvantages involved. The main advantage was the high educational level of this young and innovative staff, while the lack of experience is the major disadvantage. The young employees may leave the workforce after gaining the required expertise when they become an asset to these organizations.

The female respondents (consisting of the large number of nurses and paramedics) referred to human capital as the most important component of the intellectual capital within any organization while believing that managers would need to have awareness in this respect as other factors such as age, education, etc have usually been involved in their decision making process. This confirms the findings of Zohor Parvande (Zohor Parvande and Mirkamali, 2009), Shahbandarzadeh (Shahbandarzadeh and Ebrahimi, 2009) on the human capital.

The data in table 3 confirm the following hypothesis of the study:

- There is a direct relationship between the intellectual capital and the implementation of the quality management system.

It can be added that the real function the intangible assets in the context organizational concepts is not fully understood. It can be concluded that the components of high ranking managers' commitment, the quality strategic planning, individual development, employees' cooperativeness, and the information services are related to quality and process management. As the above components are the subcomponents of the quality management any improvement in this context leads to better over-all performance. This means that Cady's finding (Caddy, 2007) is confirmed and the intellectual capital affects organizational performance. The quality management contributes to the customers' satisfaction (Macinati, 2008). In Kim (Kim, et al. 2007) and Zivojinovic (Živojinović and Stanimirović, 2009) researches stated that the constant effective knowledge management, intellectual capital management, knowledge creation, knowledge learning and distribution are the areas affected by quality management.

There is a logical relationship between comprehensive quality management, organizational learning and components of knowledge management, intellectual capital management, and balanced point card as these components complete each other. The findings of the present study comply with the results of the two above named studies on the relationship between the intellectual capital and quality management.

## 5. LIMITATIONS

The present research had some limitations such as studying only on eight hospitals affiliated to one university and a small sample as well as its limitation of results generalizability. Therefore, it is suggested that similar studies should be carried out on other teaching and non-teaching and also private hospitals using large samples. Also, future studies should be conducted using other designs especially qualitative methods to obtain more important and depth finding about intellectual capital in hospital environment.

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