

The Effect of Intellectual Capital Management on Organizational Competitive Advantage in Egyptian Hospitals

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Abstract

Aim-To test the effect of intellectual capital management on organizational competitive advantage in Egyptian hospitals.

Method- This study is a cross-sectional analytical study. The study was conducted in two hospitals (El-Nozha International Hospital and El-Demerdash Hospital). Study subjects consisted of three levels of management either nurses or physicians. (36) from El Nozha and (70) from El-Demerdash hospital.

Results- Structural capital and competitive advantage variables of the study were high and very high means. Also, human capital high significantly and positively correlated with competitive advantage ($r = 0.79, p < .01$), while it was ($r = 0.73, p < .01$) in structural capital and ($r = 0.88, p < .01$) in relational capital.

Conclusion- There was strong positive and high significantly ($r = 0.79, p < .01$), ($r = 0.73, p < .01$) and ($r = 0.88, p < .01$) correlation between human capital, structural capital and relational capital respectively with competitive advantage.

Keywords: human capital, structure capital, relational capital, intellectual capital, competitive advantages

1. Introduction

In the past years, intellectual capital IC and its measurement was a subject of the researches only in developed countries, however, nowadays it is a subject of interest in all over the world (Ahagarzadeh, 2010). In today business environment with characteristics like globalization, competition and high rate of changes in technology, tangible assets such as capital, land and raw martial do not create competitive advantage for organizations and they must set intangible assets as a base for sustainable competitive advantage (Shafiezadeh, 2007). Therefore, it is necessary that key resources, performance incentives and competition in organizations to be determined by managers because increasing knowledge and application of intangible assets help companies to be efficient, profitable and creative (Namazi and Abrahami, 2007). Intellectual capital (IC) is a key driver of innovation and competitive advantage in today's knowledge based economy (Bontis 2004; Yu-Shan Chen 2007). Many organizations have realized the important fact that their real value is not reflected in their materialistic capital, but in their intellectual capital. Intellectual capital included human capital, structural capital and relationship capital. Human capital refers to idea capital (the manpower, employee abilities and attitude of the knowledge base) and leadership capital (the characteristics of experts and managers); structural capital refers to innovation capital (patents, trademarks, copyrights, knowledge database) and procedure capital (working procedures, trade secrets); relationship capital refers to customer relations, supplier relationships, and the relationship of network membership (Mahmood , Baratali & Somayeh 2012).

The current debate on intellectual capital management is set in the context of a changing model of management and organization structures. It is said that organizations are moving from command and control to delegation, empowerment and coaching. Through this, everyone in the organization has an opportunity to shape the way it works. It is the role of management to harness and maximize that potential. It's clear that managers who want to grow their organization's intellectual capital must be able to expand intelligence, encourage innovation and exercise integrity (Antonio et al. 2008; Ahangar 2011).

Indeed, these are the three core competencies of intellectual capital management. Intellectual capital (IC) represents the collective knowledge that is embedded in the personnel, organizational routines and network relationships of an organization (Stewart 1997; Bontis 2004; Christina 2006). IC has been recognized as an important resource that organizations need to develop to gain sustained competitive advantages (Bramhandkar; Erickson & Applebee 2007). Intellectual capital can be defined as the 'economic value' of three categories of intangible assets of a hospital (Kong, 2010).

Competitive advantage occurs when an organization acquires or develops an attribute or combination of attributes that allows it to outperform its competitors. These attributes can include access to natural resources, such as high grade ores or inexpensive power, or access to highly trained and skilled personnel human resources. New technologies such as robotics and information technology can provide competitive advantage, whether as a part of the product itself, as an advantage to the making of the product, or as a competitive aid in the business process (for example, better identification and understanding of customers) (Arend 2003; Barney 2007). The term competitive advantage is the ability gained through attributes and resources to perform at a higher level than others in the same industry or market (Burden & Proctor 2000; Cousins 2005). Superior performance outcomes and superiority in production resources reflects competitive advantage (Fahy; Farrelly & Quester 2004; Gottschalg & Zollo 2007). Competitive advantage as the ability to stay ahead of present or potential competition, thus superior performance reached through competitive advantage will ensure market leadership.

Competitive Advantage is developed on the basis of three characteristics. First, competitive advantage must be able to generate customer value. Customer value may be defined by the customer in terms of speedy delivery, lower price, convenience, or other characteristics. Second, the customer must be able to perceive the increased value of the product or service. Whether or not the product is superior to the competition is not as important as whether the customer perceives the product to be superior. Third, for competitive advantage to be effective, it should be difficult for competitors to copy (Burden & Proctor 2000; Barney 2007). The first step in developing competitive advantage is to identify relevant competitors. Next, business owners must identify their strengths and business resources. These might include location, specialty product merchandise, or better-trained and more knowledgeable employees. If the business is a new business venture, this step should focus on the various resources that the business is able to bring together. While these may seem limited compared to the resources of larger competitors, competitive strategy is more about leveraging what resources are available.

Finally, the business venture needs to identify a position in the market commensurate with the resources and capabilities of the business (Gottschalg & Zollo 2007; Liao & Hu 2007). Christina Suci (2006) studied Intellectual Capital as a source of the competitive advantage. The main aim of the study is to provide a synthesis of the new international framework of debate dedicated to intellectual capital. Result showed there is a strong and significant correlation between human capital investments and human capital assets, and also between structural capital investments and structural capital assets, countries that have a high value of intellectual capital investments also have a high value of intellectual capital assets. Measurement of the extent to which intangibles are made productive reveal that high values of intellectual capital assets are no guarantee for high intellectual productivity. It seems that intellectual capital investments and assets are necessary, but not sufficient to make intellectual capital productive.

2. Significance of the Study

Today, the intangible assets move into the driver's seat in successful corporations. Forward looking hospitals are recognizing the need to measure and manage these assets as carefully as they do their tangible ones. There are several reasons for this change. First, these hospitals recognize that human capital drive's innovation. It is people not building or machines create new product and service ideas, improve processes, and help hospitals shift direction in order to create new sources of value. To gain competitive advantage hospitals need highly skilled, experienced and motivated people to meet global need (Antonio et al 2008; Bataineh & Al Zoabi 2011; Mahmood; Baratali & Somayeh 2012). A hospital's intangible assets are increasingly crucial in today's knowledge economy. In fact, intangible assets are more important to a hospital's survival than are its raw materials. Just as rivers, ports and railroads were the infrastructure of the industrial revolution; talent and knowledge constitute the infrastructure for growth of economy to-day because the human talent is responsible for inspiring changes.

3. Aim of the Study

The aim of this study was to test the effect of intellectual capital management on organizational competitive advantage in Egyptian hospitals through:

1. Measure the effect of Human Capital on competitive advantage.
2. Measure the effect of Structural Capital on competitive advantage.
3. Measure the effect of Relational Capital on competitive advantage.
4. Investigate the relationship between intellectual capital management (human, structural and relational) on organizational competitive advantage.

4. Research Questions

1. What is the relationship between intellectual capital management (human, structural and relational) and competitive advantage?
2. How will human, structural and relational capital correlate with competitive advantage?

5. Subjects and Methods

5.1 Research design

A cross-sectional analytical design was used in carrying out the study.

5.2 Setting:

The study was conducted in two hospitals. One of them private hospital (El-Nozha International hospital) and the other one is teaching hospital (El-Demerdash hospital).

5.3 Subjects

The study subjects consisted of three levels of management: top management, middle and functional management. All available managers either nursing or medical managers with at least one year experience were included in the study. Accordingly, 36 managers were chosen from El-Nozha International hospital and 70 managers were from El-Demerdash hospital.

Distribution of Management Levels according to hospitals

Hospital	Management Levels (n=) 106					
	Top		Middle		Functional (1 st line Managers)	
	No.	%	No.	%	No.	%
Teaching						
▪ El-Demerdash	2	1.89	18	16.98	50	47.17
Private						
▪ El-Nozha International	2	1.89	10	9.43	24	22.64

5.4 Tools of data collection:

Intellectual Capital Management questionnaire format:

This tool was developed after reviewing the relevant literature. It was reviewed by experts in the related field, and modifications were made based on their suggestions. The Cronbach Alpha coefficient of the instrument was 0.88 for the study sample. The instrument had high construct validity (with a part-whole correlation of 0.90). It was self-administered questionnaire. It was divided into three sections. It measured the respondents' views toward the effect of human capital on competitive advantage. Statements (1-9) represent human capital. Structural capital presented in statements (10-22). Relational capital presented in statements (23-31). Each item was measured in term of five points Likert scale from 1 (strongly disagree) to 5 (strongly agree).

6. Pilot Study

The aim of the pilot study was to test the practicability, and to estimate the time required to complete tools. The researcher randomly selected 10 managers from El-Nozha hospital and 22 from El-Demerdash hospital, from different management levels. The time needed to fulfill questionnaire format ranged between (30-45) minutes. Collecting pilot study data lasts for one month. All of these subjects were included in the main study sample. The time needed to fulfill questionnaire format ranged between (30-45) minutes.

7. Field Work

The field work of this study was executed for one year. Data collection began on mid of June, 2012 and was completed June 30, 2013. The researcher started to use the developed tool with selected sample participants in their settings according to the available time for each of them after explaining to them the purpose of the study. This lasted for seven months because most of the time they were busy and due to our country's political circumstances which may interfere some times as hospitals announce an emergency situations.

8. Administrative and Ethical Aspects

To carry out the study in the predetermined hospitals, letters containing the aim of the study were directed from the researcher' faculty of Nursing to each hospital director and to obtain their permission and help to conduct the study in their facility. The researcher then met hospitals directors and explained the purpose and methods of data collection for the study. Researcher also obtained study subjects' approval orally after explaining the purpose and method of data collection for the study. Confidentiality, anonymity and the right to withdraw from the study at any time were guaranteed.

9. Statistical Analysis

SPSS statistical software package was used for data analysis. Pearson correlation analysis was used for assessment of the inter-relationships among quantitative variables. Statistical significance was considered at p-value <0.05.

10. Results

Table (2) presents human capital descriptive statistics. As this table indicates, the highest mean was item # 4 " Our employee are wildly considered the best in our services" (4.22) with (0.88) Standard deviation (Std), while item # 6 " Our employee are developing new ideas and innovation" scored the lowest mean (3.11) with (0.99) Std.

As shown in **table (3)** the results of this structural capital variable, the mean for all items either high or very high that assuring the importance of structural capital in achieving and sustaining competitive advantage of the firm, statement # 11 that says " Our organizational structural adjust according to environmental changing" came first with high mean (4.58) with (1.99) standard deviation, while statement # 10 that says " Our organization has self controls units cares in knowledge" came the lowest with average (3.35) with (0.76) standard deviation.

Concerning relational capital **table (4)** illustrates that Statement # 26 "Management encourage employees to develop their own skills, abilities, etc" considered the highest item with (4.89) mean with (1.05) standard deviation. On the other hand, statement # 28 " Employees partner with customers, suppliers; develop solutions "the lowest mean (3.02) with low standard deviation (1.49).

As shown in **Table (5)** shows the results of this competitive advantage variable of the study are high and very high means, Statement # 31 " Our organization's services diversity is one of a competitive advantage resources" the highest mean (4.89) with low standard deviation (1.08). Meanwhile, statement # 24 "Our organization achieved a competitive advantage due to its cost leadership strategy" the lowest mean (3.16) with standard deviation (0.95).

Table (5) describes correlation among mean scores of human capital, relational capital, structural capital and competitive advantage. As evident, it was found that human capital high significantly and positively correlated with competitive advantage ($r = 0.79$, $p < .01$) thereby more interested in skills, knowledge, capabilities of employees will achieve more competitive advantage in organization. Also structural capital with competitive advantage was highly significantly and positively correlated ($r = 0.73$, $p < .01$). Similarly relational capital with competitive advantage was high significantly and positively correlated ($r = 0.88$, $p < .01$). Thereby employee's interaction and exchange knowledge and information's will increase organizational competitive advantage.

Table 2: Human capital descriptive statistics (n=106)

Number	Statement	Mean	Std
1	Human skills residing with and utilized by employees	3.12	0.59
2	Human knowledge residing with and utilized by employees	3.14	1.02
3	Human abilities residing with and utilized by employees	3.44	0.93
4	Our employee are wildly considered the best in our services	4.22	0.88
5	Our employee are experts in there jobs and functions	3.81	1.07
6	Our employee are developing new ideas and innovation	3.11	0.89
7	Our organizational environment and shared values provide great support to innovation	3.93	1.81
8	Our employees are satisfied with our organization.	3.55	0.97
9	Our employees perform at their best.	3.16	1.12

Table 3: Structural capital descriptive statistics (n=106)

Number	Statement	Mean	Std
10	Our organization has self controls unit's cares in knowledge.	3.35	0.76
11	Our organizational structural adjust according to environmental changing.	4.58	1.99
12	Our organization encourages informal relationship to exchange knowledge.	4.12	1.8
13	Our organization's culture contains valuable ideas ways of doing work.	4.26	1.89
14	Our organization has enough data bases and access for that.	3.53	0.83
15	Our organization embeds much of its knowledge and information in structures, systems and process	3.88	1.06
16	Our organization has its own out and inside communicate net that helpful in exchange knowledge	4.38	1.44
17	Our organization prides itself on being market-oriented.	3.72	0.86
18	Our organization prides itself on being efficient.	3.82	1.14
19	Our recruitment program is comprehensive; we are dedicated to hiring the best candidates available.	3.89	0.92
20	The systems and procedures of the organization support innovation.	3.99	0.76
21	The organization's culture and atmosphere is supportive and comfortable.	4.11	1.15
22	Our organization consistently comes up with great new ideas.	3.41	0.95

Table 4: Relational capital descriptive statistics (n=106)

Number	Statement	Mean	Std
23	Employees are skilled at collaborating with each other to diagnose and solve problems	3.48	0.59
24	Employees share information and learn from each other	4.17	1.72
25	Employees exchange and interact ideas with people from different areas of the hospital	4.77	1.45
26	Management encourage employees to develop their own skills, abilities, etc	4.89	1.05
27	Management present motivations and rewards for exchange knowledge and information through employees	3.12	0.89
28	Employees partner with customers, suppliers; develop solutions.	3.02	1.49
29	Employees apply knowledge to solve problem and catch opportunities that arise around	4.11	.78
30	Management present net work for all partner: suppliers, stakeholders, etc.	3.89	1.09
31	Employees are excited to voice their opinions in group discussions.	3.001	0.98

Table 5: Competitive advantage descriptive statistics

Number	Statement	Mean	Std
24	Our organization achieved a competitive advantage due to its cost leadership strategy.	3.16	0.95
25	Our organization identifies a position in the market with the resources and capabilities of the work.	4.44	0.93
26	Our organization's Competitive Advantage generates customer's value.	4.012	0.87
27	Our organization developing Competitive Advantage to identify its relevant competitors.	4.69	1.06
28	Our organization achieved a competitive advantage due to its differentiation strategy.	3.99	1.21
29	Service flexibility is one of competitive advantage resources.	4.87	1.15
30	Speed of offering services led to achieve a competitive advantage.	4.015	0.66
31	Our organization's services diversity is one of competitive advantage resources.	4.89	1.08

Table 6: Descriptive Statistics and Correlations among mean scores of human capital, relational capital, structural capital and competitive advantage

Variables	Mean	Std	Pearson Correlation coefficient
			Competitive Advantage
Human Capital	3.39	0.89	0.79*
Relational Capital	3.93	0.92	0.73*
Structural capital	3.83	0.51	0.88**
Competitive Advantage	4.26	0.62	0.96**

(*) statistically significant at $p < 0.05$ (**) high statistically significant at $p < 0.001$

11. Discussion

Nowadays, managing the intellectual capitals in an organization has become one of the most important concerns of the organizations. Since these kinds of resources have considerable effects on profit-making, function, and value, it needs more attention, resources, and more emphasis from the management boards of the organizations. Managing intellectual capitals enables organizations to develop and expand organizational merits. Human capital is one of the most important and in fact the most important type of intellectual capitals in an organization. However, the present study revealed that the highest mean was for "Our employees are wildly considered the best in our services". These findings were consistent with **(Namazi; Abrahimi 2007; Longo et al. 2009; Ahangar 2010)** who asserted that human capital is the main source of creativity and innovation. This was supported by **(Ahangar 2011)** who emphasized that human capital is the organization's workforce's skill sets, depth of expertise, and breadth of experience. This also agreed by **(Mahmood; Baratali & Somayeh 2012)** who stated that human resources are the living and thinking part of intellectual capital resources. While it was contradicted with **(Bontis 2004; Liao & Hu 2007)** who found that the highest mean was for "Organizational environment and shared values provide great support to innovation". On the other hand "Our employees are developing new ideas and innovation" scored the lowest mean in the present study. These findings were inconsistent with **(Bataneh & Al Zoabi 2011)** who found in their study that " Our employee are experts in there jobs and functions" scored the lowest mean.

Structural capital covers a broad range of vital elements. Foremost among these are usually the organization's essential operating processes, how it is structured, its policies, information flows, and content of its databases, its leadership and management style, and its culture, and its incentive schemes. The results of the present study revealed that the mean for all items either high or very high that assuring the importance of structural capital. These findings were supported by **(Youndt & Snell 2004; Longo et al. 2009; Kong 2010)** who emphasized that structural capital is the skeleton and the glue of an organization because it provides the tools and architecture for retaining, packaging and moving knowledge along the value chain. "Our organizational structural adjust according to environmental changing" came first with the highest mean. These findings were in contrast with **(Bataneh & Al Zoabi 2011)** who found that "Our organization's culture contains valuable ideas ways of doing business". While, "Our organization has self controls units cares in knowledge" came the lowest mean in the present study which were consistent with **(Bataneh & Al Zoabi 2011)** who found the same in their study.

Moreover, relational capital is the knowledge embedded in relationships with customers, suppliers, industry associations or any other stakeholder that influence the organization's life. "Management encourages employees to develop their own skills, abilities, etc" considered the highest mean in the present study. These results were in contrast with **(Longo et al. 2009; Kavida & Sivakoumar 2010)** who found that "Employees are skilled at collaborating with each other to diagnose and solve problems" which had the highest mean. Also, the present study results' were supported by **(Kong 2010; Saeid, Narges & Morteza 2012)** who asserted that frustrated managers often do not recognize that they can tap into a wealth of knowledge from their own clients and suppliers. Understanding better than anyone else what customers want in a product or a service, is what makes someone a business leader as opposed to a follower. This was agreed by **(Mei-Fen; Yu-Je Lee & Gao-Liang 2012)** who asserted that customer and supplier loyalty, target marketing, longevity of relationships and satisfaction are all measurable elements of this form of intellectual capital. Meanwhile, "Employees partner with customers, suppliers; develop solutions" was the lowest mean in this study. This was inconsistent with **(Bataneh & Al Zoabi 2011)** who found that "Management presents net business for all partners: suppliers, importers, stakeholders, etc" was had the lowest mean in their study. From the researcher's point of view relationships can only be managed; they cannot be controlled. Improvement in external capital involves looking outside an organization's boundaries to such things as developing relationships and trust with customers, suppliers, and surrounding communities.

Nowadays, Organizations face many challenges in this changeable world through the knowledge-based economy through globalization. This hyper competition creates a need for new tools that help organizations have competitive advantage for the products they provide in the market. The competitive advantage within new economies has shifted from material and financial assets to intangible and non-financial assets. However, the present study revealed that competitive advantage variables are high and very high means. "Our organization's services diversity is one of a competitive advantage resources" came the highest mean. These results were in contrast with **(Christina 2006; Bataneh & Al Zoabi 2011)** who found that "Speed of offering services led to achieve a competitive advantage" was the highest mean.

On the other hand, "Our organization achieved a competitive advantage due to its cost leadership strategy" which was the lowest mean in this study, this was inconsistent also with (Fahy; Farrelly & Quester 2004; Bataineh & Al Zoabi 2011) who asserted that "Our organization identify a position in the market commensurate with the resources and capabilities of the business".

In the millennium less people will do physical work and more people will do brain work, this is intellectual capital IC. This study was also an endeavor to investigate the relationship between IC and organizational competitive advantages. The results of the present study strongly confirmed that IC high significantly and positively correlated with competitive advantage. This was consistent with other researchers, who have shown that IC is positively associated with organizational outcomes and is especially recognized as one of the important resources of competitive advantages to firms (Gottschalg & Zollo 2007; Chen 2008; Ahangar 2010 & Kong 2010). There is also convincing evidence supporting a positive relationship between IC and competitive advantages. Also, the present study results' were supported by (Antonio et al. 2008) who asserted that the relation between all the three dimensions of IC and competitive advantage is meaningful, relational capital is the most important predictor of competitive advantage. This was agreed by (Min Lu et al. (2009) who studied capability and efficiency of IC in companies in Taiwan. They suggested that the IC performance rating should be considered as a key element for achieving greater innovation and competitive advantages. While; these results were in contrast with (Ahangar 2011) who found that there is no relationship between human capital (HC), relational capital (RC), structural capital SC, and competitive advantage in vehicle industry. So, from the researcher's point of view the main factor in intellectual capital for performance improvement is human capital; in this regard, if managers want to improve their organization's performance, they should focus on empowerment and development of employees' capabilities. Also, top managers and policy makers should decide on the mechanisms to encourage intangible-based entrepreneurial behaviors.

12. Conclusion

According to the study findings, it is concluded that there was strong positive and high significantly ($r = 0.79$, $p < .01$), ($r = 0.73$, $p < .01$) and ($r = 0.88$, $p < .01$) correlation between human capital, structural capital and relational capital respectively with competitive advantage.

13. Recommendations

Based on the study findings, the following recommendations were suggested:

- I. First for managers who are caring to develop core competencies of intellectual capital in their organizations should do the following:
 1. Facilitate and train teams on knowledge creation and innovation.
 2. Conduct team focused workshops to apply innovation skills to specific work challenges regarding revenue generation, quality, etc.
 3. Coach teams to cultivate a better climate for innovation. Multiple-way conversations will help people address the top issues that surface during the innovation process.
 4. Assess the culture for intelligence and innovation. Conduct a "culture audit" to test for the values, mind-sets, behaviors and outputs of the innovative learning organization.
 5. Develop innovative approaches to technology networking, organizational structure, performance appraisals, rewards, etc., to encourage greater intelligence, innovation and high-integrity relationships.
- II. Secondly for managers who design organizations should consider doing the following for:
 1. Human capital construct, they should encourage employees to work in teams and motivate them. Besides, employees' compensation and benefit need to be improved to retain talents in the organization.
 2. Structural capital construct, managers should create a supportive atmosphere where employees can be inspired and creative.
 3. Relational capital, the managers should capitalize on customers' wants, launch products that fit their needs, and get feedback from customers
- III. Further research in this stream would strengthen a prescriptive theory about intellectual capital management, in the search for gaining sustainable competitive advantage.

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