

The Relationship Between Intellectual Capital and Innovation In Jawwal Company-Gaza

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ABSTRACT

The aim of this study was to explore the relationship between the intellectual capital (human, structural , and customer) and innovation in Jawwal Company. In this study, a descriptive analytical methodology was used where all the employees in Jawwal Company (185 employees) were included . From the 185 distributed questionnaires, 150 were returned with a response rate of 81%. The study found that Jawwal Company is focusing on all the components of intellectual capital (human, structural, and customer) and the mean of all items of the intellectual capital was (80.14%) which indicates that there is a positive evidence that Jawwal Company is managing its intellectual capital effectively. The study also found that the three components of intellectual capital have significant positive relationship at a significant level 0.05 with innovation in Jawwal Company. The study reached many recommendations such as the need to concentrate on all the components of intellectual capital in order to have more innovative competence. The study shows that the most influential component is structural capital. Therefore, innovative performance can be improved by paying particular attention to the company's structural capital.

Keywords: Intellectual Capital , Human Capital, Structural Capital , Customer Capital, Innovation.

INTRODUCTION

In the new economic system, which is popularly known as the knowledge economy, intangible or intellectual assets have eventually recognized as the prominent resources. Companies like software, finance, pharmaceutical; banking, hotel etc. depend to a considerable extent on the intellectual capital for earning revenues (Ahangar, 2011). Knowledge has already become the most vital enabler connection with a high technology enterprise. Intellectual capital is the core of knowledge management. Managing intellectual capital effectively can greatly enhance the competitive advantages of enterprises (Wang , Chang, Huang, and Wang 2011). Global competition and the ever-changing

nature of innovation and creativity as a critical factor, force business enterprise to create or transfer new values or bring out new dimensions in addition to the current ones. Innovation is therefore essential for sustainable competitive advantage (Jacobs and Heracleous, 2005). These obligations also require the complete metamorphosis of present structures, perceptions, and approaches in management and organizational atmosphere.

One of the tools making this metamorphosis possible is the acquired intellectual capital. (Zerenler, Hasiloglu, and Sezgin, 2008). Facing intense globalized competition requires recognizing that intellectual capital is a critical force that drives economic growth (Huang and Liu, 2005). As the main driver of company values in the era of knowledge economy, Intellectual Capital (IC) is becoming more and more important (Ran , Li, and Luo, 2010) .

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In a borderless economy, corporations must search for new solutions to overcome problems that have an immediate impact on their competitiveness and a long-term impact on their survival. These solutions are usually found in developing innovations in strategies, products, processes, and marketing. However, for these innovations to come to fruition, corporations must be able to harness the intellectual capital within them (Nakahara, 2001). The excellent experiences, professional skills, creativities, managerial capabilities, and specialties, etc of employees, project leaders, and senior managers of innovation projects in a firm have a positive effect on its innovation performance (Barczak and Wilemon, 2003). Previous researchers argued that the managerial systems and operation processes of a firm to create value-added activities associated with shrinking its innovation development cycles and the infrastructural characteristics and procedural factors would positively influence its innovation skills. On the other hand, recent researches suggested that firms' culture and organizational commitment of sufficient resources have an important impact on the performance of its innovation (de Brentani and Kleinschmidt, 2004). Moreover, the dynamic organizational capabilities, such as excellent management systems, operation procedures, and the processes of the knowledge management, propel firms' value creation activities that have a positive effect on their innovation skills .

Involving customers who have had close and embedded relationships with a firm should lead to the development of superior products. These close customers provided innovation projects with a diversity of perspectives, competencies, and experiences that fostered significant product and process innovations (Bonner and Walker, 2004). In addition, many manufacturing firms are becoming involved in closer relationships with their suppliers in order to utilize their

skills, capabilities, information, and resources to develop new products faster and at less cost so that closer relationships with suppliers have a positive influence upon firms' innovation performance . Furthermore, firms' strategic communities, including external customers, suppliers, and other partners are helpful to achieve the desired innovation performance (Capello and Faggian, 2005). There is close relationship between intellectual capital and organization innovation, so is organizational culture. Rich intellectual capital is an improvement to promote the organizational innovation; the likelihood of organizational innovation will increase (Yi Lee, 2007) .

Research Problem

Jawwal is the first Palestinian Provider for communication services. After obtaining its license, Jawwal worked hard to build the first Palestinian GSM network and managed to make its first call in 1999. The company had to compete with four Israeli giants in the mobile industry. Towards the end of the year 2001, the Israeli authorities prevented the company from getting any equipment into the country which delayed expansion plans by years. In 2005 The company had to opt for a non conventional solution to increase the capacity of its core network. After around four years of restrictions on importing equipment, Jawwal installed switches and base-stations in London, UK . The political and economic instability in Gaza has been and still is an additional challenge. Getting equipment there is a tedious process, installing base stations and maintaining cell sites are dangerous tasks. In addition to the previous challenges, Jawwal has always been struggling with the limited frequency allocated by Israel . Despite these challenges, the company now controls 60% of the Palestinian market. In 2012, the company's agreement with the Palestinian National Authority will end. This

means that other Palestinian providers will enter the market and compete with Jawwal which may threaten its current market share which exceeded 2 million customers (Ammar, 2010). Under such pressures, Jawwal should focus on innovation and the importance of intellectual capital as innovation and intellectual capital are the key drivers for competitive advantage which will not be accomplished without concentrating on improving the innovative capabilities of the employees. This research will therefore address the following main question:

Is there an association between intellectual capital and innovation in Jawwal Company?

Research objectives

The research has the following objectives:

- To assess the level of intellectual capital (human capital, structural capital, customer capital) in Jawwal Company.
- To explore the association between intellectual capital and innovation in Jawwal Company
- To provide recommendations for the decision makers in the studied organization on how to improve their intellectual capital in order to facilitate innovation.

Research Hypothesis

Main Hypothesis: There is a significant statistical relationship between intellectual capital and innovation in Jawwal Company.

This main hypothesis can be divided into the following sub hypothesis:

- Human capital is positively associated with innovation in Jawwal Company.
- Structural capital is positively associated with innovation in Jawwal Company.
- Customer capital is positively associated with innovation in Jawwal Company.

Research Significance

In the fierce competitive environment, organizations are struggling to respond to customer needs, demand changes and technology development .While the properties of business enterprises (such as land, factory and supplies) form 62 % of enterprise value, today this rate has gone down to 30 % (Teece, 2000). According to the study through which Boulton, Libert, and Samak (2000) have compared the ledger value with market value of 3 enterprises in a 20 years period; while the ledger value of enterprises formed nearly 95 % of its market value, it is has been observed that this rate has gone down to 28 % (Boulton Libert, and Samak , 2000). Successful innovation requires management concern with ideas and people. Therefore, the role of people and their thinking process in innovation need to be appropriately considered (Thompson, 2001). In a research, made on the executives of top 500 enterprises in the U.S.A. and Canada in the year of 2000, it has been determined that these executives consider the data and intellectual capital as the most strategic source of an enterprise (Dzinkowski, 2000). Despite the fact that measuring intellectual capital is considered important, only 35 percent of the companies know how intellectual capital should be measured and reported. (Nordika 2000). Previous research on Jawwal Company such as AL Agha (2008) pointed out that among the least available skills in Jawwal Company is the ability to innovate. Furthermore, Okasha (2008) pointed out to the importance of improving and developing the innovative capabilities of the employees of Jawwal Company in order to face the future competitive environment. Taking the importance of linking intellectual capital to innovation as stated in the literature, and the current and future challenges facing Jawwal Company, this research will address one of the most current and challenging concepts which are not adequately studied especially in

the Palestinian context. The research represents one of the limited researches that focused on the concept of intellectual capital and innovation in the Arab World. It is an extension of previous researches conducted by Seleim, Ashour, and Bontis (2007) which focused on software companies in Egypt and Sharabati, Jawad, and Bontis (2010) which focused on the pharmaceutical industry in Jordan.

Research Scope and Limitations

The research scope and limitations can be summarized as follows:

- a. Place limitations: The field study conducted by the researcher is confined to Jawwal Company in the Gaza Strip - Palestine.
- b. Human resources limitations: This study has included all the employees in Jawwal Company (185 employees) with the purpose of measuring their opinions on how the company is dealing with the concept of intellectual capital and the association of intellectual capital with innovation capabilities.
- c. Time limitations: This research was conducted in year 2011.

Concepts And Basic Theoretical Background

- **Intellectual Capital**

The literature offers many definitions for the concept of intellectual capital. Stewart, (1997) defined intellectual capital as total of the things, acknowledged by the people in an enterprise and helping it gain sur petition. Walsh, 1991 stated that intellectual capital is the data value of an enterprise. Rivette (2000) asserted that intellectual capital is the intellectual riches such as data, information, intellectual property and experiences, which can be utilized to gain wealth recorded data of an enterprise and knowledge, skill and experiences of the

employees in it as the non-sensorial and invisible properties. Marr (2005) explains it as the intellectual material, formalized, owned and activated to produce more valuable property. There are different views about determining the component of intellectual capital . Generally the components forming the intellectual capital may be listed as employee, structural, and customer capital (Zerenler *et al*, 2008, Tai-Ning , Chen, Lin Shou-Yen and Lun, 2011, Sharabati *et al* , 2010, Basta and Bertilsson, 2009, Ngah and Ibrahim, 2009,). It is important to note that the components of intellectual capital are not independent. Rather, the effect of intellectual capital can be optimized only when these three constituent aspects interact and complement one another. These elements interact to create more than the sum of their parts (Subramaniam and Youndt, 2005).

- **Employee Capital (human capital)**

The term "employee capital" points to the concept that human are not merely resources which companies must treasure, but also are "capital" that can be invested to yield income and other useful outputs over long periods of time (Becker, 1975). Human capital represents the individual tacit knowledge embedded in the mind of the employees. It can be defined as a combination of employees' competence, attitude and creativity (Ngah and Ibrahim ,2009) . Human capital is different from structural capital in managing knowledge (Stewart 2000), it is the source of innovation as people contribute their creativity while sharing and transporting knowledge. The entrepreneur and the inventor are pure human capital (Cohen & Kaimenakis, 2006). Human capital should include the personal capabilities, knowledge, and experiences of all employees and management of the enterprise, which are attached to their assets (Shih *et al*. 2010). Seleim *et al*. (2007) argued that human capital is the most important aspect of intellectual capital, and the most important factor

affecting organizational performance. Human Capital represents the knowledge acquired from individual employee's skills, experience and expertise. In this sense, distinct employee profiles provide diverse components of human capital, bringing added value to the organizational (Ferreira and Martinez, 2011, Sharabati *et al*, 2010) . This crucial dimension of intellectual capital involves essential knowledge to perform tasks and is considered its most complex dimension because it is difficult to imitate or replace (Walsh , Enz, and Canina, 2008). Human capital is recognized as the largest and the most important intangible asset in an organization (Ahangar, 2011).

- **Structural Capital (Organizational Capital)**

Structural Capital represents all nonhuman stocks of codified knowledge in an organization (Walsh *et al*, 2008). Structural Capital (Organizational Capital) has been defined as the institutionalized knowledge and codified experience residing within firms utilized through databases, patents, manuals, structures, systems, and processes (Youndt , Subramaniam, and Snell 2004). Structural capital is the supportive infrastructure for human capital—it is the capital which remains in the factory or office when the employees leave at the end of the day. It includes organizational ability, processes, data and patents. Unlike human capital, it is company's' property and can be traded, reproduced and shared by, and within, the organization (Ahangar, 2011).

The components of organizational capital include infrastructure, information systems, routines, procedures, and organizational culture for retaining, packaging, and moving knowledge (Cabrita and Vaz, 2006). Subramaniam and Youndt (2005) found that organizational capital reinforces prevailing knowledge and influences an organization's incremental innovative capabilities. It is the total of systematical studies, aimed

at providing a lever by making the knowledge and skill, which are stated as the employee capital, institutional and forming an united organizational memory (Andriessen, 2001). Structural capital provides a platform for people to be creative (Stewart, 2000). While firms do not own human capital (Cohen and Kaimenakis 2007), structural capital belongs to the organization as a whole. It can be reproduced and shared. A good structural capital will provide a good environment for rapid knowledge sharing, collective knowledge growth, shortened lead times and more productive people (Stewart, 2000). Kamath (2007) argued that the construct of human capital can efficiently improve the establishment of structural capital, and further assist in accumulating the enterprise's intellectual capital. Shih (2008) pointed out that the accumulation of human capital can strengthen the procedural capital of an enterprise, and further the structural capital of the enterprise, as the procedural capital is to construct working procedures and working processes that strengthen production or improve service efficiency.

- **Customer Capital (Relational Capital)**

Any enterprise with a customer has a customer capital. Among all intellectual properties, customer capital has the most outstanding value. Customer Capital is considered a market-based asset that is obtained through affiliation with a brand. It deals with the external environment, and consists of knowledge about marketing, customer appeal and distribution channels (Ferreira and Martinez, 2011) . Relational capital is a company's relationship with its customers and with its network of suppliers, strategic partners and shareholders. The value of these assets is determined by the company's reputation or image (Ahangar, 2011). Mouritsen , Larsen, and Bukh, (2001) define this capital as the title value of an enterprise, continuing

relationships of it with the buyer persons and organizations. As customers are helpful for the overall development of an enterprise in an interdependent relationship, customer capital is the value resulted from the interactions between the direct or indirect stakeholders of the enterprise, including customers, competitors, partners, and governmental bodies (Tai-Ning *et al*, 2011).

Although different measurement systems for measuring intellectual capital have been developed, none of them has been accepted for common use. According to Sveiby (2001), the approaches for measuring intellectual capital fall into four categories: Direct Intellectual Capital Methods (DIC), Market Capitalization Methods (MCM), Return on Assets Methods (ROA) and Scorecard Methods (SC). The methods offer different advantages and disadvantages. Previous research has identified three underlying processes for measuring intellectual capital: integration, learning, and transformation (Shang *et al* 2008). The use of perceptual measures in intellectual capital research focused on examining organizational factors that contribute to employee performance, human capital development and organizational performance. These measures are among the most often used measurement techniques (Sharabati *et al.*, 2010).

Innovation

Innovation is a complex concept and even the definition of innovation has so far ambiguous. Different scholars emphasis on different parts of innovation because of different stand points. Frankel, Maital, and Grupp (2000) have brought our attention to the importance of quantifying, evaluating, and benchmarking innovation competence and practice. Burgelman, Christensen, and Wheelwright (2004) have emphasized on the importance of resource availability in the innovation process. Adams, Bessant, and Phelps

(2006) point out that the literature pertaining to innovation has overlooked the innovation management. Innovation is the process of creating a commercial product from an invention. Innovation can deliver four types of benefits besides cash: knowledge, brand, ecosystem and culture (Ngah and Ibrahim 2009).

Since innovation is a complex process, managing innovation can be seen as one of the most challenging business matters for organizations (Adams *et al*, 2005). Different aspects are used in the literature to measure innovation capabilities. These aspects can be classified into : inputs, outputs and organization. Inputs of innovation involve resourcing of innovation activities including people, financial resources, and tools (Hipp and Grupp, 2006). Thompson (2003) stated that the use of tools and techniques such as total quality management promotes creativity is essential for innovation. Outputs of innovation often consist of factors such as time to market, market sales of new product, project efficiency (Stock, Greis, and Fischer 2001). Organization factors including innovation strategy, organization culture and organization structure are also essential for innovation (Richard, McMillan, Chadwich, and Dwyer 2003). Zerenler *et al* (2008) applied the different characteristics of innovation in two major areas: product innovation and process innovation. product innovation is concerned with generating ideas or the creation of something entirely new that is reflected in changes in the end product or service offered by the organization, while process innovation represents changes in the way firms produce end products or services through the diffusion or adoption of an innovation developed elsewhere.

Intellectual Capital and Innovation

Mathuramavtha (2012) studied the impacts of intellectual capital on innovation in the context of Thailand industrials. Data was collected from 62

organizations across different Thailand industrials. The results showed that the components of intellectual capitals (human, structural and relational capital) have positive impacts on innovation capability and innovation capability positively affects competitive advantage. Al-Dujaili (2012) investigated the impact of the dimensions of intellectual capital (human, structural, and customers) upon organizational innovation. Sixty questionnaires were sent to companies with 52 per cent response rate. The results indicated that structural and human capital have an influence upon organizational innovation, while the rest of the components have no moral effect.

Ghorbani, Mofaredi, and Bashiriyan, (2012) Conducted a research to explore the relationship between intellectual capital management and organizational innovation in the branches of Melli Bank in Iran in 2010 to 2011. The sample consisted of 155 employees of the bank staff. The findings showed that there is a relationship between intellectual capital management and organizational innovation, and a relationship between parameters of intellectual capital management (relational capital, organizational capital, human capital) and intellectual capital management. The rate of regression shows that rate of relational capital is higher than the rate of human capital. Stoeckicht and Soares (2012) conducted a study among 35 Brazilian companies of varying sizes and sectors to test the relationship between their innovative capacity and their intellectual capital management practices, systems, and models. The study included 19 intellectual-capital-related indicators considered important to the development of an organization's innovative capacity.

The results point to a significant correlation between the companies' capability to innovate and the intellectual capital management models they adopted. Li (2012) investigated the role played by the regional intellectual capital in improving regional innovation capability in

Chongqing city. The results show that the three elements of regional intellectual capital, namely regional human capital, regional relationship capital and regional structure capital have a positive correlation with regional innovation capital, in which regional structure capital has a largest correlation with regional innovation capital, and the regional human capital has a smallest correlation with regional innovation capital. Chang and Hsieh (2011) attempted to examine the role of innovation capital in the creation of value for business organizations. Taking an intellectual capital (IC) perspective, the study considers R&D investment and its impacts on the companies' operating, financial, and market performance. Empirical study is conducted on 367 Taiwan semiconductor companies using Pearson correlation and linear multiple regression. The result shows that a company's IC in general has a negative impact on its financial and market performance. However, the association between innovation capital which captured by R&D expenditure efficiency (RDE) and companies' operating, financial and market performance is significant.

Medina, Lavado, Rodríguez, and Luño (2011) differentiated "best innovative companies" from "worst innovative companies" taking into account three separate bodies of literature- intellectual capital, knowledge-based view, and innovation literatures. Based on a sample of 181 firms which belong to manufacturing and services industries, it was found that best innovative performers companies (considering both financial and non-financial dimensions of innovation success) present systematically higher scores for all dimensions of intellectual capital: human, organizational and social capital) than worst innovation performers. Knowledge exchange and combination seems to be characteristic of most successful innovators, but no differences in systemic, tacit, complex and not observable knowledge

have been found for these companies. Finally, firms with more innovation success provide new products or services that incorporates a new technology and new customer benefits (uniqueness), while firms with less innovation success provides new products or services which are unfamiliar or difficult to understand by customers. Al Rosan and Al Ajloni (2010) studied the effect of intellectual capital on innovation in 8 Jordanian Banks. It was found that the concept of intellectual capital does not receive suitable attention at the banks under investigation and innovation capabilities are at a limited level. The study concluded that intellectual capital is positively associated with innovation capabilities for all the dimensions of intellectual capital except for customer capital. Wu1, and Xuejun (2010) collected data from about 31 provinces (or regions) in China in 2006 to test the relationship between regional intellectual capital(IC) and regional innovation capability quantitatively. The results show that there exists positive correlative between regional innovation capability and regional IC as well as its factors (human capital, relational capital and structure capital).

The study also found that there exists positive correlative between human capital and structure capital, there exists positive correlative among these three factors of regional IC, and the correlation between relational capital and structure capital is the strongest, so the three factors of regional IC influence each other, and the relational capital of a region is influenced by its structure capital. Basta and Bertilsson (2009) investigated the relationship between internal reporting of intellectual capital and innovation.

The questionnaire of this study was addresses to companies within SNI-codes 20, 22 and 23 with between 250-800 employees. The results obtained show that there exists a correlation between internal reporting of intellectual capital and innovation for a number of reporting posts, the

most prominent in this study was human capital. Ngah and Ibrahim (2009) traced the intellectual capital of SMEs in Malaysia that contribute to product and process innovation, which lead to higher performance in SMEs. The quantitative method was adopted and questionnaires were distributed using simple random sampling. The study found that human capital is an important element of intellectual capital in SMEs. It was found that customer orientation is very important in SMEs. Limited in financial and expertise, SMEs are very focused on their target market. Compared to large organizations, SMEs are closer to their customers, and, therefore, are able to capture information on customers and market as their source of expertise and know-how. Therefore SMEs are mostly customer-focussed and aware of their competitors' actions. According to this study, SMEs are not innovative in their operation processes and refining their existing products. Zerenler *et al* (2008) investigated the influence of intellectual capital of Turkish automotive supplier industry upon their innovation performance. The study found that three types of intellectual capital (employee capital, structural capital, and customer capital) had a significantly positive relationship with innovation performance. The study also found that the higher the growth rate of an industry, the stronger were the positive relationships between three types of intellectual capital and innovation performance. Furthermore, customer capital was the greatest among these three types of intellectual capital in Turkish automotive supplier industry, employee capital was the next, and structural capital was the least. Wu, Chang, and Chen (2008) attempted to explore how a firm's operational mode can reinforce the advantages of intellectual capital on innovation. Specifically, the main purpose of this study is to develop a comprehensive research model to integrate the interrelationships among social capital, entrepreneurial orientation, intellectual capital, and innovation. In addition to identifying the influences of intellectual capital on innovation, this study

focuses in particular on the mediating effect of intellectual capital and the moderating effects of social capital and entrepreneurial orientation on innovation, which have largely been neglected in previous literature. The results support the mediating role of intellectual capital and the moderating roles of entrepreneurial orientation and social capital on innovation. Specifically, firms that have higher levels of social capital and entrepreneurial orientation tend to amplify the effects of intellectual capital on innovation. Yi Lee (2007) conducted an empirical research focusing on Taiwan Service Firm. Through 81 questionnaires and statistic analysis, it was found that human capital positively influence the organizational innovation. That improves the importance of human capital to organization. Organizational innovation and intellectual capital both can increase the inter-organization effectiveness. These results are for reference to service firms when they do the innovative activities. Subramaniam and Youndt (2005) examined how various aspects of intellectual capital influence different types of innovative capabilities in organizations. Based on a longitudinal, multiple-informant study of 93 organizations, it was found that human, organizational, and social capital and their interrelationships selectively influenced incremental and radical innovative capabilities. As anticipated, organizational capital positively influenced incremental innovative capability, while human capital interacted with social capital to positively influence radical innovative capability. However, it was found that human capital by itself to be negatively associated with radical innovative capability. Interestingly, social capital played a significant role in both types of innovation, as it positively influenced incremental and radical innovative capabilities

Research Methodology

Research Tool: Most Previous research used a

questionnaire that measured intellectual capital depending mainly on Bontis' intellectual capital questionnaire (Bontis, 1998). This research will test the concept of intellectual capital in Jawwal Company depending on previous research that studied the concept (Sharabati *et al.*, 2010, Basta and Bertilsson, 2009, Ngah and Ibrahim, 2009, Zerenler, 2008). Similar to the above mentioned previous studies, the survey of this research divides intellectual capital into three main dimensions: human, structural and customer. These main dimensions are measured using (49) questions as follows Human capital : 14 questions (1-14), Structural capital : 14 Questions (15-28), Customer capital: 21 questions (29-49). As far as innovation is concerned, (29) questions (50-78) are developed benefiting from the previous research that studied the concept of innovation taking in to consideration the nature of the organization under investigations (Zerenler, 2008, PA and Bhattacharyya, 2007, El Farra, 2007, Ngah and Ibrahim, 2009, Basta and Bertilsson, 2009). The questionnaire was translated into Arabic to assure a full understanding of the questions.

Research Population: A complete census was used in this research where all the employees in Jawwal Company- Gaza (185 employees) were surveyed. From the 185 distributed questionnaires, 150 were returned with a response rate of 81%.

Statistical Analysis: A composite of statistical tools was used to analyze the data and to make the interpretation of the data more valid and meaningful. The researcher gave values of the amount of agreement or disagreement with each item of the questionnaire as shown in table (1).

Table (1): The Likert scale model in answering the questionnaire

Weight	Descriptive interpretations
5	Strongly agree
4	Agree
3	No opinion
2	Disagree
1	Strongly disagree

The data analysis was made utilizing (SPSS 18). Table normality. (2) shows the results for Kolmogorov-Smirnov test of

Table (2): Kolmogorov-Smirnov Test of Normality

Field	Kolmogorov-Smirnov	
	Statistic	P-value
Human Capital	0.276	0.000*
Structural Capital	0.239	0.000*
Customer Capital	0.301	0.000*
Intellectual capital	0.175	0.000*
Innovation	0.362	0.000*
All fields together	0.168	0.000*

From Table (2), the p-value for each field is smaller than 0.05 level of significance, then the distribution for each field is not normally distributed. Consequently, Non-Parametric techniques will be used to perform the statistical data analysis such as (Kolmogorov-Smirnov test of

normality, Cronbach's Alpha and Split Half for Reliability, Spearman Rank correlation for Validity, Descriptive Analysis, Spearman Correlation Analysis, and Stepwise Regression). The following table shows the profile of the study sample.

Table (3): Demographic Data

Job Title	Frequency
General Director	1
Director	3
Team Leader	2
Head of Department	7
First Administrator	28
Administrator	109
Qualification	Frequency

Job Title	Frequency
Diploma	31
Bachelor	17
Master and above	102
Age	Frequency
Less than 30 years	36
30 – less than 40 years	102
40 – less than 50 years	12
50 years and Older	-
Gender	Frequency
Male	80
Female	70
Years of Experience	Frequency
Less than 4 year	13
4 – Less than 8 year	46
8 years and higher	91
Total	150

Validity of the Questionnaire

Validity refers to the degree to which an instrument measures what it is supposed to be measuring. Validity has a number of different aspects and assessment approaches. Statistical validity is used to evaluate instrument validity, which include internal validity and structure validity.

- ***Internal Validity***

Internal validity of the questionnaire is the first statistical test that used to test the validity of the questionnaire. It is measured by a scouting sample, which consisted of 40 questionnaires through measuring the correlation coefficients between each item in one field and the whole field. Table (4, 5, and 6) shows the results of the internal validity test.

Table (4):Correlation coefficient of each item of " Human Capital " and the total of this field

No.	Item	Spearman Correlation Coefficient	P-Value (Sig.)
1.	The competence of company's employees as a whole is equal to the most ideal level (matching with their work requirements and responsibilities)	.493	0.000*
2.	The company gets the most out of its employees when they cooperate with one another in team tasks	.327	0.000*
3.	Company's employees undergo continuous training programs every year	.240	0.002*
4.	Company's employees continuously learn from others	.552	0.000*
5.	The ratio of educated personnel is on average compared with industry	.507	0.0008
6.	The company devotes a lot of time and effort to update and develops employees' knowledge and skills	.187	0.011*
7.	The company's market share has been improving over the past few years	.544	0.000*
8.	Company's employees are experts in their respective areas	.818	0.000*
9.	Company's employees consistently perform at their best	.891	0.000*
10.	Company's employees generally give it their all, which makes the company different from others in the industry	.829	0.000*
11.	Company's employees have worked for many years in the firm (turnover is very low(.264	0.001*
12.	The company prides itself on being efficient	.613	0.000*
13.	The staff are highly professional	.869	0.000*
14.	The company has the lowest costs per transaction of any in the industry	.614	0.000*

* Correlation is significant at the 0.05 level

Table (5):Correlation coefficient of each item of " Structural Capital "and the total of this field

No.	Item	Spearman Correlation Coefficient	P-Value (Sig.)
1.	The company has well- developed reward system related to performance	.613	0.000*
2.	The company supports their employees constantly , by upgrading their skills and education whenever it is necessary	.735	0.000*
3.	Staff have sufficient influence over decisions made within the company	.590	0.000*
4.	The company is not a bureaucratic nightmare	.255	0.001*
5.	The company is considered a research leader	.918	0.000*
6.	The company continuously develops work process	.782	0.000*
7.	The company continuously develops and re- organizes itself based on	.881	0.000*

No.	Item	Spearman Correlation Coefficient	P-Value (Sig.)
	research and development		
8.	The company follows up and adopts the latest scientific and technical development around the world	.645	0.000*
9.	The systems and procedures of the company support innovation	.863	0.000*
10.	The company determines appropriate and adequate budget for research and development	.942	0.000*
11.	The company's board of management highly trust and support the research and development department	.912	0.000*

* Correlation is significant at the 0.05 level

Table (6):Correlation coefficient of each item of " Customer Capital " and the total of this field

No.	Item	Spearman Correlation Coefficient	P-Value (Sig.)
1.	The company is currently working on joint projects with many other organizations	.313	0.000*
2.	The company has diverse distribution channels	.443	0.000*
3.	High ratio of company's business is done with strategic alliances	.203	0.006*
4.	The company has many and diverse alliances	.467	0.000*
5.	People from outside the company are consulted when decisions are made within the company	.768	0.000*
6.	The company is able to learn and add value through its partners	.751	0.000*
7.	The company prides itself on being partnership – oriented	.852	0.000*
8.	A poll of company's customer shows them to be loyal to the company and would indicate that they are generally satisfied	.270	0.000*
9.	When it comes to new business, the company’s customer have increasingly selected company's services versus competitors' customers over the past few years	.288	0.000*
10.	The company capitalizes on customer's wants and needs by continuously striving to make them satisfied	.285	0.000*
11.	The company has greatly reduced the time it takes to resolve a customer's problem	.303	0.000*
12.	The company feels confident that their customers will continue to do business with it	.285	0.000*
13.	It is important for the company to share knowledge with its partners	.751	0.000*

No.	Item	Spearman Correlation Coefficient	P-Value (Sig.)
14.	The company gets as much feedback out of customers as it possibly can under different circumstances	.744	0.000*
15.	Customer knowledge is widely distributed throughout the company	.330	0.000*
16.	Data about customers are continuously updated	.428	0.000*
17.	The company has relatively complete data about the suppliers	.888	0.000*
18.	The company continually meets with customers to find out what they want from them	.624	0.000*
19.	The company has a useful and updated information system in use	.416	0.000*

* Correlation is significant at the 0.05 level

Table (4, 5, and 6) clarifies the correlation coefficient for each item of the fields (**Human Capital, Structural Capital, and Customer Capital**) and the total of the field. The p-values (Sig.) are less than 0.05, so the

correlation coefficients of these fields are significant at $\alpha = 0.05$, so it can be said that the items of these fields are consistent and valid to measure what it was set for.

Table (7): Correlation coefficient of each item of " Innovation " and the total of this field

No.	Item	Spearman Correlation Coefficient	P-Value (Sig.)
1.	Company's employees are keen to voice their opinions in group discussion	.174	0.017*
2.	Company's employees usually come up with new ideas	.302	0.000*
3.	Company's employees are continuously encouraged and supported to bring new knowledge and ideas to the business and share their knowledge with their colleagues	.310	0.000*
4.	Company's employees are satisfied with their company's innovation policies and programs	.445	0.000*
5.	Company's employees are highly motivated and committed to share great new ideas within the company	.245	0.001*
6.	Company's business plan shows when changes are needed	.476	0.000*
7.	The company has the requires capabilities needed for success	.708	0.000*
8.	The company can implement the required change efficiently	.809	0.000*
9.	Company's employees are encouraged to take initiative	.746	0.000*
10.	Experienced people are available in the company	.615	0.000*
11.	Company's employees are updated with best practice learning	.714	0.000*
12.	New services are provided efficiently	.690	0.000*
13.	The company provide the required resources to develop ideas	.746	0.000*

No.	Item	Spearman Correlation Coefficient	P-Value (Sig.)
14.	Ideas are carefully considered before making decisions	.727	0.000*
15.	Innovation is well articulated in the company's strategy	.516	0.000*
16.	The company's new processes and strategies are different from the previous ones	.732	0.000*
17.	The company entered high risk projects in the last two years	.850	0.000*
	The company is considered innovative compared to other competitors	.630	0.000*
18.	The company provide unique and innovative features to their customers	.615	0.000*
19.	The company's new processes and strategies are innovative	.721	0.000*
20.	Training programs are available to assist the employees to become more innovative	.809	0.000*
21.	The company is able of integrating internal and external knowledge in order to generate and convert ideas into usable services	.746	0.000*
22.	The company has cross department knowledge sharing	.746	0.000*
23.	The company is capable of transforming itself to a high tech based firm	.725	0.000*
24.	The company provides the required inputs (People, financial resources, and tools) to facilitate innovation	.730	0.000*
25.	The current organizational structure is supportive of the concept of innovation	.850	0.000*
26.	The current organizational culture is supportive of the concept of innovation	.850	0.000*

* Correlation is significant at the 0.05 level

Table (7) clarifies the correlation coefficient for each item of the field " **Innovation** " and the total of the field. The p-values (Sig.) are less than 0.05, so the correlation coefficients of this field are significant at $\alpha = 0.05$, so it can be said that the items of this field are consistent and valid to measure what it was set for.

• **Structural Validity of the Questionnaire**

Structure validity is the second statistical test that used to test the validity of the questionnaire structure by testing the validity of each field and the validity of the whole questionnaire. It measures the correlation coefficient between one field and all the fields of the questionnaire that have the same level of liker scale.

Table (8):Correlation coefficient of each field and the whole of questionnaire

No.	Field	Spearman Correlation Coefficient	P-Value (Sig.)
1.	Human Capital	.678	0.000*
2.	Structural Capital	.832	0.000*
3.	Customer Capital	.809	0.000*
4.	Intellectual capital	.946	0.000*
5.	Innovation	.854	0.000*

* Correlation is significant at the 0.05 level

Table (8) clarifies the correlation coefficient for each field and the whole questionnaire. The p- values (Sig.) are less than 0.05, so the correlation coefficients of all the fields are significant at $\alpha = 0.05$, so it can be said that the fields are valid to measured what it was set for to achieve the main aim of the study.

Questionnaires Reliability

The reliability of an instrument is the degree of consistency which measures the attribute; it is supposed to be measuring . The less variation an instrument produces in repeated measurements of an attribute, the higher its reliability. Reliability can be equated with the stability, consistency, or dependability of a measuring tool. The test is repeated to the same sample of people on two occasions and then compares the scores obtained by computing a reliability coefficient.

• Cronbach's Coefficient Alpha

This method is used to measure the reliability of the questionnaire between each field and the mean of the whole fields of the questionnaire. The normal range of Cronbach's coefficient alpha value between 0.0 and + 1.0, and the higher values reflects a higher degree of internal consistency. The Cronbach's coefficient alpha was calculated for each field of the questionnaire. Table (9) shows the values of Cronbach's Alpha for each field of the questionnaire and the entire questionnaire. For the fields, values of Cronbach's Alpha were in the range from 0.895 and 0.965 . This range is considered high; the result ensures the reliability of each field of the questionnaire. Cronbach's Alpha equals 0.929 for the entire questionnaire which indicates an excellent reliability of the entire questionnaire.

Table (9): Cronbach's Alpha for each field of the questionnaire and the entire questionnaire

No.	Field	Cronbach's Alpha
1.	Human Capital	0.895
2.	Structural Capital	0.932
3.	Customer Capital	0.947
4.	Intellectual capital	0.910
5.	Innovation	0.965
	All items of the questionnaire	0.929

Table (10) : Split Half Method for each field of the questionnaire and the entire questionnaire

No.	Field	Correlation Coefficient	Spearman-Brown Correlation Coefficient
1.	Human Capital	0.977	0.988
2.	Structural Capital	0.849	0.919
3.	Customer Capital	0.974	0.987
4.	Intellectual capital	0.987	0.993
5.	Innovation	0.953	0.976
	All items of the questionnaire	0.988	0.994

Split Half Method

Table (10) clarifies the correlation coefficient for each field of the questionnaire. The correlation coefficients of all field are significant at $\alpha = 0.05$, so it can be said that the fields are consistent and valid to measure what it was set for.

Statistical Analysis

• **Human Capital**

Table (11) shows that the mean of item #11 “Company’s employees have worked for many years in the firm (turnover is very low)” equals 4.45 (89.07%), Test-value = 11.68, and P-value = 0.000 which is smaller than the level of significance $\alpha = 0.05$. The sign of the test is positive, so the mean of this item is significantly greater than the hypothesized value 3 . The mean of item #13 “The staff are highly professional” equals 3.51 (70.13%), Test-value = 5.64, and P-value = 0.000 which is smaller than the level of significance $\alpha = 0.05$. The sign of the test is positive, so the mean of this item is significantly greater than the hypothesized value 3 . The mean of the field “**Human Capital**” equals 4.05 (81.10%), Test-value = 12.17, and P-value=0.000 which is smaller than the level of

significance $\alpha = 0.05$. The sign of the test is positive, so the mean of this field is significantly greater than the hypothesized value 3.

The above results show that Jawwal Company do focus on its human capital as part of its intellectual capital. This is consistent with the literature that stressed the importance of human capital in organizations such as Seleim *et al.* (2007) who argued that human capital is the most important aspect of intellectual capital, and the most important factor affecting organizational performance. This focus on human capital will bring added value to the organization (Ferreira and Martinez, 2011, Sharabati *et al*, 2010). The results are also consistent with (Walsh *et al* , 2008) who stated that human capital is a crucial dimension of intellectual capital and the most complex dimension because it is difficult to imitate or replace and with (Ahangar, 2011) who stated that human capital is recognized as the largest and the most important intangible asset in an organization. The results are also consistent with Ngah and Ibrahim (2009) who traced the intellectual capital of SMEs in Malasya and found that human capital is an important element of intellectual capital in SMEs.

Table (11): Means and Test values for “Human Capital”

	Item	Mean	Proportional mean (%)	Test value	P-value (Sig.)	Rank
1.	The competence of company's employees as a whole is equal to the most ideal level (matching with their work requirements and responsibilities)	3.91	78.13	11.00	0.000*	11
2.	The company gets the most out of its employees when they cooperate with one another in team tasks	4.27	85.47	12.08	0.000*	3
3.	Company's employees undergo continuous training programs every year	4.19	83.87	12.17	0.000*	5
4.	Company's employees continuously learn from others	3.87	77.33	10.46	0.000*	12
5.	The ratio of educated personnel is on average compared with industry	4.05	81.07	12.04	0.000*	9
6.	The company devotes a lot of time and effort to update and develops employees' knowledge and skills	4.01	80.27	12.17	0.000*	10

	Item	Mean	Proportional mean (%)	Test value	P-value (Sig.)	Rank
7.	The company's market share has been improving over the past few years	4.07	81.33	12.04	0.000*	8
8.	Company's employees are experts in their respective areas	4.29	85.73	12.08	0.000*	2
9.	Company's employees consistently perform at their best	4.12	82.40	11.00	0.000*	6
10.	Company's employees generally give it their all, which makes the company different from others in the industry	4.27	85.33	11.96	0.000*	4
11.	Company's employees have worked for many years in the firm (turnover is very low(4.45	89.07	11.68	0.000*	1
12.	The company prides itself on being efficient	4.09	81.71	10.58	0.000*	7
13.	The staff are highly professional	3.51	70.13	5.64	0.000*	14
14.	The company has the lowest costs per transaction of any in the industry	3.73	74.53	10.34	0.000*	13
	All items of the field	4.05	81.10	12.17	0.000*	

* The mean is significantly greater than the hypothesized value 3

• Structural Capital

Table (12) shows that the mean of item #7 “The company continuously develops and re-organizes itself based on research and development” equals 4.25 (85.07%), Test-value = 11.19, and P-value = 0.000 which is smaller than the level of significance $\alpha = 0.05$. The sign of the test is positive, so the mean of this item is significantly greater than the hypothesized value 3. The mean of item #3 “Staff have sufficient influence over decisions made within the company” equals 3.58 (71.60%), Test-value = 4.65, and P-value = 0.000 which is smaller than the level of significance $\alpha = 0.05$. The sign of the test is positive, so the mean of this item is significantly greater than the hypothesized value 3. The mean of the field “**Structural Capital**” equals 3.89 (77.89%), Test-value = 11.45, and P-value=0.000 which is smaller than the level of

significance $\alpha = 0.05$. The sign of the test is positive, so the mean of this field is significantly greater than the hypothesized value 3.

The above results show that Jawwal Company do take structural capital in to consideration as part of its intellectual capital but the mean score is relatively lower than human capital. This focus on structural capital means that the company will be able to reinforce prevailing knowledge and influences an organization’s incremental innovative capabilities (Subramaniam and Youndt , 2005) and provide a platform for people to be creative (Stewart, 2000). This good focus on structural capital will provide a good environment for rapid knowledge sharing, collective knowledge growth, shortened lead times and more productive people (Stewart, 2000).

Table (12): Means and Test values for “Structural Capital”

	Item	Mean	Proportional mean (%)	Test value	P-value (Sig.)	Rank
1.	The company has well- developed reward system related to performance	3.74	74.80	6.99	0.000*	10
2.	The company supports their employees constantly , by upgrading their skills and education whenever it is necessary	3.87	77.40	9.71	0.000*	5
3.	Staff have sufficient influence over decisions made within the company	3.58	71.60	4.65	0.000*	11
4.	The company is not a bureaucratic nightmare	3.93	78.67	10.40	0.000*	4
5.	The company is considered a research leader	3.75	75.07	7.52	0.000*	8
6.	The company continuously develops work process	4.07	81.33	11.14	0.000*	3
7.	The company continuously develops and re- organizes itself based on research and development	4.25	85.07	11.19	0.000*	1
8.	The company follows up and adopts the latest scientific and technical development around the world	4.22	84.44	11.58	0.000*	2
9.	The systems and procedures of the company support innovation	3.75	74.93	6.57	0.000*	9
10.	The company determines appropriate and adequate budget for research and development	3.81	76.27	8.52	0.000*	7
11.	The company's board of management highly trust and support the research and development department	3.87	77.33	9.54	0.000*	6
	All items of the field	3.89	77.89	11.45	0.000*	

* The mean is significantly greater than the hypothesized value 3

• **Customer Capital**

Table (13) shows that the mean of item #17 “The company has relatively complete data about the suppliers” equals 4.37 (87.47%), Test-value = 11.75, and P-value = 0.000 which is smaller than the level of significance $\alpha = 0.05$. The sign of the test is positive, so the mean of this item is significantly greater than the hypothesized value 3. The mean of item #8 “A poll of company's customer shows them to be loyal to the company and would indicate that they are generally satisfied” equals 3.73 (74.67%), Test-value = 10.13, and P-value = 0.000 which is smaller than the level of significance $\alpha = 0.05$. The sign of the test is positive, so the mean of this item is significantly greater than the hypothesized value 3. The mean of the field “**Customer Capital**” equals 4.04 (80.77%), Test-value = 11.84, and P-value=0.000 which is smaller than

the level of significance $\alpha = 0.05$. The sign of the test is positive, so the mean of this field is significantly greater than the hypothesized value 3.

The above results show that Jawwal company do realize the importance of its customer capital as part of its intellectual capital. This concentration is justified by the fact that among all intellectual properties, customer capital has the most outstanding value that includes company’s relationship with its customers and with its network of suppliers, strategic partners and shareholders. The value of these assets is determined by the company’s reputation or image (Ahangar, 2011, Ning *et al*, 2011). The results are also consistent with Ngah and Ibrahim (2009) who found that customer orientation is very important in SMEs.

Table (13): Means and Test values for “Customer Capital”

	Item	Mean	Proportional mean (%)	Test value	P-value (Sig.)	Rank
1.	The company is currently working on joint projects with many other organizations	3.94	78.80	11.71	0.000*	16
2.	The company has diverse distribution channels	4.26	85.20	11.84	0.000*	2
3.	High ratio of company's business is done with strategic alliances	3.96	79.20	11.84	0.000*	11
4.	The company has many and diverse alliances	3.83	76.67	10.76	0.000*	17
5.	People from outside the company are consulted when decisions are made within the company	4.12	82.40	11.26	0.000*	9
6.	The company is able to learn and add value through its partners	4.15	83.07	11.71	0.000*	7
7.	The company prides itself on being partnership – oriented	3.95	78.93	10.05	0.000*	12
8.	A poll of company's customer shows them to be loyal to the company and would indicate that they are generally satisfied	3.73	74.67	10.13	0.000*	19
9.	When it comes to new business, the company's customer have increasingly selected company's services versus competitors' customers over the past few years	3.95	78.92	11.67	0.000*	15
10.	The company capitalizes on customer's wants and needs by continuously striving to make them satisfied	3.95	78.93	11.75	0.000*	13
11.	The company has greatly reduced the time it takes to resolve a customer's problem	3.80	76.00	9.72	0.000*	18
12.	The company feels confident that their customers will continue to do business with it	3.95	78.93	11.75	0.000*	13
13.	It is important for the company to share knowledge with its partners	4.15	83.07	11.71	0.000*	7
14.	The company gets as much feedback out of customers as it possibly can under different circumstances	4.16	83.20	11.75	0.000*	5
15.	Customer knowledge is widely distributed throughout the company	4.18	83.60	11.75	0.000*	3
16.	Data about customers are continuously updated	4.15	83.07	11.71	0.000*	6
17.	The company has relatively complete data about the suppliers	4.37	87.47	11.75	0.000*	1
18.	The company continually meets with customers to find out what they want from them	3.97	79.33	10.45	0.000*	10
19.	The company has a useful and updated information system in use	4.16	83.20	11.75	0.000*	4
	All items of the field	4.04	80.77	11.84	0.000*	

* The mean is significantly greater than the hypothesized value 3

Table (14) shows that the mean of all items of the **Intellectual capital** equals 4.01 (80.14%), Test-value = 11.84, and P-value=0.000 which is smaller than the level of

significance $\alpha = 0.05$. The sign of the test is positive, so the mean of all items of the **Intellectual capital** is significantly greater than the hypothesized value 3.

Table (14): Means and Test values for “Intellectual capital”

Item	Mean	Proportional mean (%)	Test value	P-value (Sig.)
All items of the Intellectual capital	4.01	80.14	11.84	0.000*

*The mean is significantly different from 3

The above results show that there is a strong and positive evidence that Jawwal Company is managing its intellectual capital effectively. If compared to previous studies that measured intellectual capital, it is clear that structural capital scored the lowest in this study and in most of the previous studies (Zerenler *et al.* 2008, Sofian *et al.* 2004, Bin Ismail 2005, Moslehi *et al.* 2006, Salleh and Salamat 2007, Sharabati *et al.* 2010) . Table

(15) summarizes the results of previous studies that measured intellectual capital. This gap between the scores of (human and customer capital) and structural capital means that the qualities and the abilities of the employees with the focus on the company’s customers should be reinforced by creating effective and efficient systems and structures.

Table (15):comparison between mean scores across previous studies

	Zerenler <i>et al.</i> 2008	Sofian <i>et al.</i> 2004	Bin Ismail 2005	Moslehi <i>et al.</i> 2006	Salleh and Salamat 2007	Sharabati <i>et al.</i> 2010	Current study
Human capital	3.67	3.94	3.36	3.15	3.71	3.43	4.05
Structural capital	3.48	3.58	3.39	2.23	3.62	3.06	3.89
Customer capital	3.86	3.89	3.36	3.85	3.83	3.45	4.04
Intellectual capital	-	3.80	3.37	3.08	3.72	3.32	4.01

Hypothesis Testing

Main Hypothesis: There is a significant statistical relationship between intellectual capital (human, structural, and customer) and innovation in Jawwal Company.

- There is a significant statistical relationship between Human Capital and innovation in Jawwal Company.

Table (16) shows that the correlation coefficient between Human Capital and innovation equals .428 and the p-value (Sig.) equals 0.000. The p-value (Sig.) is less than 0.05, so the correlation coefficient is statistically significant at $\alpha = 0.05$. This means that there exists a significant relationship between Human Capital and innovation. This result is consistent with (Dakhli and De

Clercq, 2004, Barczak and Wilemon, 2003) who stated that there exists a positive relationship between employee capital and innovation the excellent experiences, professional skills, creativities, managerial capabilities, and specialties, etc of employees, project

leaders, and senior managers of innovation projects in a firm have a positive effect on its innovation performance. The results are also consistent with Yi Lee (2007) who found that human capital positively influence the organizational innovation.

Table (16):Correlation coefficient between Human Capital and innovation

Hypothesis	Spearman Correlation Coefficient	P-Value (Sig.)
There is a significant statistical relationship between Human Capital and innovation in Jawwal Company.	.428	0.000*

*** Correlation is statistically significant at 0.05 level**

- There is a significant statistical relationship between Structural Capital and innovation in Jawwal Company.

Table (17) shows that the correlation coefficient between Structural Capital and innovation equals .712 and the p-value (Sig.) equals 0.000. The p-value (Sig.) is less than 0.05, so the correlation coefficient is statistically significant at $\alpha = 0.05$. This means that there exists a significant relationship between Structural Capital and innovation. This result means that Jawwal is considering strategies to enhance their innovation performance. The result is consistent with previous researchers who argued that the managerial systems and operation processes of a firm to create value added

activities associated with shrinking its innovation development cycles and the infrastructural characteristics and procedural factors would positively influence its innovation skills (Menona *et al.*, 2002). The result is also consistent with recent researches suggesting that firms' culture and organizational commitment of sufficient resources have an important impact on the performance of its innovation (de Brentani and Kleinschmidt, 2004). The dynamic organizational capabilities, such as excellent management systems, operation procedures, and the processes of the knowledge management, propel firms' value creation activities that have a positive effect on their innovation skills (Marsh and Stock, 2003).

Table (17):Correlation coefficient between structural Capital and innovation

Hypothesis	Spearman Correlation Coefficient	P-Value (Sig.)
There is a significant statistical relationship between structural Capital and innovation in Jawwal Company.	.712	0.000*

Correlation is statistically significant at 0.05 level

- There is a significant statistical relationship between Customer Capital and innovation in

Jawwal Company.

Table (18) shows that the correlation coefficient

between Customer Capital and innovation equals .681 and the p-value (Sig.) equals 0.000. The p-value (Sig.) is less than 0.05, so the correlation coefficient is statistically significant at $\alpha = 0.05$. This means that there exists a significant relationship between Customer Capital and innovation.

The result shows that Jawwal Company is following the recommendations of the literature that suggests involving customers who have had close and embedded relationships with a firm which should lead to the development of superior products. These close customers provided innovation projects with a diversity of perspectives, competencies, and experiences that fostered significant product and process

innovations (Bonner and Walker, 2004). Many companies are becoming involved in closer relationships with their suppliers to develop new products faster and at less cost so that closer relationships with suppliers have a positive influence upon firms' innovation performance. Firms' strategic communities, including external customers, suppliers, and other partners are helpful to achieve the desired innovation performance (Capello and Faggian, 2005). The results are consistent with Subramaniam and Youndt (2005) who found that customer capital played a significant role in both types of innovation, as it positively influenced incremental and radical innovative capabilities.

Table (18):Correlation coefficient between Customer Capital and innovation

Hypothesis	Spearman Correlation Coefficient	P-Value (Sig.)
There is a significant statistical relationship between Customer Capital and innovation in Jawwal Company.	.681	0.000*

Table (19) shows that the correlation coefficient between intellectual capital (human, structural, customer) and innovation equals .703 and the p-value (Sig.) equals 0.000. The p-value (Sig.) is less than 0.05, so the correlation coefficient is statistically significant at $\alpha = 0.05$. This means that there exists a significant relationship between intellectual capital (human, structural, customer) and innovation. The result is consistent with the literature that stated the more the unique competence of the company is, the better innovation performance can be achieved (Garcia and Calantone, 2002). When a company has more intellectual capital, it would create better innovation performance. In other words, when a company has more intellectual capital, it would have more innovative competence to further increase its new product development performance. This result is consistent with the results of previous studies such as (Mathuramavtha, 2012,

Stoekicht and Soares, 2012, Ghorbani *et al* , 2012, Li, 2012) who found a significant correlation between intellectual capital and innovation. Furthermore, Chang and Hsieh (2011) found a positive relationship between intellectual capital and market performance in Taiwan semiconductor companies and Medina *et al* (2011) found that best innovative performers companies present systematically higher scores for all dimensions of intellectual capital (human, organizational and social capital) than worst innovation performers in the manufacturing and services industries. The result is also consistent with Wu1, and Xuejun (2010) who found that there exists a positive correlative between regional innovation capability and regional intellectual capital as well as its factors (human capital, relational capital and structure capital) in 31 provinces in China and with (Al Rosan and Al Ajloni (2010) who studied the effect of

intellectual capital on innovation in 8 Jordanian Banks and found that intellectual capital is positively associated with innovation capabilities for human and structural capital. However it was found that customer capital was not associated with intellectual capital. The results are consistent with Zerenler *et al* (2008) who investigated the

influence of intellectual capital of Turkish automotive supplier industry upon their innovation performance and found that three types of intellectual capital (employee capital, structural capital, and customer capital) had a significantly positive relationship with innovation performance.

Table (19):Correlation coefficient between intellectual capital (human, structural, customer) and innovation

Hypothesis	Spearman Correlation Coefficient	P-Value (Sig.)
There is a significant statistical relationship between intellectual capital (human, structural, customer) and innovation in Jawwal Company.	.703	0.000*

* Correlation is statistically significant at 0.05 level

In order to find out which sub dimension of intellectual capital is mostly associated with innovation, a stepwise regression was used. From (Table 20) , the regression equation is:

$$\text{Innovation} = 1.405 + 0.294 * (\text{Structural capital}) + 0.222 * (\text{Human capital}) + 0.161 * (\text{Customer capital}).$$

Table (20):The Regression Coefficients

	Unstandardized Coefficients		Standardized Coefficients	T	Sig.
	B	Std. Error	Beta		
(Constant)	1.405	0.383		3.664	0.000
Structural capital	0.294	0.038	0.524	7.831	0.000
Human capital	0.222	0.081	0.178	2.754	0.007
Customer capital	0.161	0.064	0.171	2.530	0.012

The regression equation shows that the three components of intellectual capital (structural, human, and customer) have significant positive relationship with innovation in Jawwal Company. This means that the more significant the three types of intellectual capital the better the innovation is within the company. It is also interesting to notice that while structural capital scored the highest correlation with innovation followed by

human and customer , it scored the least significant capital among the three types of intellectual capital. This result contradicts with Basta and Bertilsson (2009) who found that human capital was the most prominent type of intellectual capital correlated with innovation. The result is consistent with Zerenler *et al* (2008) who found that structural capital had the highest correlation with innovation among the three types of intellectual capital.

The previous results show that Jawwal is recognizing the importance of investing in its employees now more than ever before. The Company realized that to stay on top in the near competitive environment, there is a need to place more and more emphasis on developing and retaining its people. The knowledge and experience that employees bring to their work is probably the greatest driver of an organization's success. What employees know helps to build an organization as well as to preserve, maintain and improve it (Adams, 2010). The new conditions that Jawwal is facing call for being able to respond rapidly, to be guided by values, and to become knowledge-based extended enterprises. The need for this shift will accelerate even more quickly over the next ten years.

Conclusions

- Jawwal Company do focus on its human capital as part of its intellectual capital (mean equals 4.05 (81.10%)). This shows that the company realize the importance its human capital and its effect on organizational performance.
- Jawwal Company also focus on its structural capital as part of its intellectual capital (mean equals 3.89 (77.89%)). The mean score is relatively lower than human capital. This focus on structural capital means that the company will be able to reinforce prevailing knowledge and influences an organization's incremental innovative capabilities
- The mean of the field customer capital equals 4.04 (80.77%) which indicates that Jawwal company do realize the importance of its customer capital as part of its intellectual capital. This concentration is justified by the fact that among all intellectual properties, customer capital has the most outstanding value .
- The mean of all items of the intellectual capital

equals 4.01 (80.14%) which indicates that there is a positive evidence that Jawwal Company is managing its intellectual capital effectively.

- The three components of intellectual capital (structural, human, and customer) have significant positive relationship with innovation in Jawwal Company. This means that the more significant the three types of intellectual capital the better the innovation is within the company.
- Structural capital scored the highest correlation with innovation followed by human and customer , but scored the least significant capital among the three types of intellectual capital.

Recommendations

This research was conducted in 2011 and it was expected that Jawwal's agreement with the Palestinian authority will end in 2012 and new competitors will enter the market. In 2013, Jawwal Company is still the only service provider in Gaza as the main future competitor (Wataniya Mobile) could not enter the market. The Israeli Authority prohibits the company from getting their equipments to Gaza purely for political reasons. In 2013, Jawwal is still the leading telecommunication provider in Gaza. It provides its services to more than 2.45 million subscribers with an 81.5% share of the Palestinian market compared to 60% in 2011.

The Ministry of Telecommunication and Information Technology- Palestinian Authority is expecting the entry of other competitors to the market as soon as the political restrictions are lifted. The Ministry is adopting many strategies to develop the telecommunication sector such as developing the general policies for this sector , opening the market for competition based on providing the best services with the lowest possible cost, providing full access to communication and information

technology as a tool for social and economic development, providing the opportunity for partnerships with the private sector, and monitoring and controlling of the companies in the sector to ensure the quality of the provided services.

The threat of new entrants is still facing the company which drives the researcher to provide a list of recommendations for the company that will assist in developing and managing its intellectual capital. Depending on the current situation and the research results, it is recommended that :

Jawwal Company can sustain and even reinforce its focus on its human capital. This could be achieved by developing the competence of company's employees to match them with their work requirements and responsibilities, encouraging the culture of learning , developing the professionalism of the staff, and lowering the costs of the company's transactions compared to others in the industry.

- The company's structural capital needs more attention since it scored the lowest between the other components of intellectual capital. This gap between the scores of (human and customer capital) and structural capital means that the qualities and the abilities of the employees with the focus on the company's customers should be reinforced by creating effective and efficient systems and structures.
- Customer capital can be also further improved by strengthening the company's partnerships and alliances with other organizations, increasing the satisfaction of the company's customer by meeting their needs and wants and solving their problems which will ensure their continuous loyalty, and continuously meet with customers to explore their needs and wants.
- The Human Resource Management Department can

play a vital role in managing and developing the intellectual capital of the company by concentrating on many human resource management practices and initiatives that will foster the company's intellectual capital such as:

1. **Training and development:** Developing and managing intellectual capital requires many skills such as problem-solving skills and the ability to apply judgment and make decisions. Jawwal Company needs to apply mechanisms that enable their employees to gain such skills. Developing knowledge networks (that allow workers to share information, brainstorm, and refine ideas) to develop and manage intellectual capital is highly recommended as it is becoming an important aspect of the training and development profession.
2. **Recruitment and selection:** Jawwal company needs to re- think its recruitment and selection strategy to reduce costs in the light of the expected competitive environment. The intellectual capital of the company can be developed and managed mainly by relying on internal labor force through internally developing employees' knowledge and skills but external attraction of individuals with high knowledge and skills should not be underestimated if needed.
3. **Career management:** By relying mainly on the internal labor market, the company provides its employees the opportunity to develop themselves inside the company which will improve their psychological well being, increase their skills and competences, higher their levels of trust towards the company and strengthen the relationships between the employees.
4. **Performance appraisal:** Performance appraisal is a comprehensive strategy to develop and manage intellectual capital. Jawwal company needs to

implement a purposive performance appraisal system with performance indicators that are consistent with the strategy of the company.

5. **Corporate culture and reward systems:** The corporate culture and the reward system of the company can facilitate the process of managing and developing intellectual capital by providing opportunities for learning and sharing the innovative and creative ideas. Jawwal company need to examine its culture and reward systems/incentives to ensure that employees are rewarded for knowledge they effectively use and share, not just for what they know. This could be achieved by developing a reward system that is closely related to performance.
- By concentrating on all the components of intellectual capital, Jawwal Company can have more

innovative competence. The study shows that the most influential component is structural capital. Therefore, innovative performance can be improved by paying particular attention to the company's structural capital.

Future Research

The following research topics are suggested for future research:

- Measurement of intellectual capital.
- The relationship between the indicators of performance appraisal and intellectual capital.
- The role of Human Resource Management Department in developing and managing intellectual capital.

Managing intellectual capital in non-profit organizations.

REFERENCES

- Adams, M. 2010. The Central Importance of Human Capital, [http:// www. i-capitaladvisors. com](http://www.i-capitaladvisors.com) 2010/06/17/ **he- entral-importance-of-human-capital/**
- Adams, R., Bessant, J. and Phelps, R. 2006. Innovation management measurement: A review. *International Journal of Management Reviews*, 8: 21-47.
- Ahangar, R . G. 2011. The relationship between intellectual capital and financial performance: An empirical investigation in an Iranian company, *African Journal of Business Management*, 5(1): 88-95
- Al Agha, R. 2008. Leadership skills amongst the managers of Jawwal Company, unpublished Master thesis. Islamic University, Gaza.
- Al- Dujaili, M.A.A.2012 . Influence of Intellectual Capital in the Organizational Innovation. *International Journal of Innovation, Management and Technology* 3 (2):128- 135
- Al Rosan,M. A. and Al Ajloni, M. M . 2010 . The effect of intellectual capital on innovation in the Hordanian Banks (Empirical Study), Demacus University , *Journal of Economics and Law*, 26 (2): 37-57.
- Ammar, K. 2010. Jawwal announces exceeding two million customers. Al Quds Newspaper. Tuesday, 27 April, 2010.
- Anderiessen, D. 2001. *Making Sense of Intellectual Capital, New York Elsevier.*
- Barczak, G. and Wilemon, D. 2003. Team Member Experiences in New Product Development: Views from the Trenches. *R&D Management*, 33(5): 463-479.
- Basta, M and Bertilsson, R. 2009. Innovation and Internal reporting of Intellectual Capital - An emperical study, University essay from Göteborgs universitet/ öretagekonomiska institutionen, [http:// ww. ssays.se/essay/ a7220933c/](http://ww.ssays.se/essay/a7220933c/)
- Becker, G.S. 1975. *Human Capital*. New York: Columbia University Press.

- Bin Ismail, M. 2005. *The influence of intellectual capital on the performance of Telekom Malaysia* (Telco), unpublished Doctoral dissertation, Business & Advanced Technology Centre, University of Technology Malaysia, Skudai.
- Bonner, J.M. and Walker, O.C. 2004. Selecting influential business- to-business customers in new product development: relational embeddedness and knowledge heterogeneity considerations, *Journal of Product Innovation Management*, 21: 155–169.
- Bontis, N. 1998. Intellectual capital: an exploratory study that develops measures and models, *Management Decision*, 36 (2): 63-76.
- Boulton, R., Libert, B. and Samak, S. 2000. *Cracking the Value Code. How Successful Businesses are Creating Wealth in the New Economy*, NY: Harper Collins.
- Burgelman, R.A. Christensen, C.M. and Wheelwright, S.C. 2004. *Strategic Management of Technology and Innovation*, 4th edition. New York: McGraw Hill/ Irwin.
- Cabrita, M. and Vaz, J. 2006. Intellectual capital and value creation: Evidence from the portuguese banking industry, *The Electronic Journal of Knowledge Management*, 4 (1): 11-20.
- Capello, R. and Faggian, A. 2005. Collective learning and relational capital in local innovation processes, *Regional Studies*, 39:75-87.
- Chang, W.S., and Hsieh, J. 2011. The dynamics of intellectual capital in organizational development, *African Journal of Business Management*, 5 (6): 2345-2355.
- Chen, W.C., P.L. Liu and C.H. Tsai, 2007. An empirical study on the correlation between ERP knowledge management implementation and enterprise operating performance in Taiwans industries. *International Journal of Computer and Internet Management*, 15: 70-94.
- Cohen, S. and Kaimenakis, N. 2007. Intellectual Capital and corporate performance in knowledge-intensive SMEs. *The Learning Organization*, 14(3): 241-262.
- Dakhli, M., and De Clercq, D. 2004. Human capital, social capital, and innovation: a multi-country study. *Entrepreneurship & Regional Development*, 16: 107-128.
- Darroch, J. and Mcnaughton, R. 2002. Examining the link between knowledge management practices and types of innovation, *Journal of Intellectual Capital*, 3(3): 210-222.
- DE Brentani, U. and Kleinschmidt, E.J. 2004. Corporate Culture and Commitment: Impact on Performance of International New Product Development Programs. *Journal of Product Innovation Management*, 21 (5): 309-333
- Dzinkowski, R. 2000. The Measurement and Management of Intellectual Capital An Introduction. *International Management Accounting*, 78(2): 168-183.
- Ferreira, A.I. and Martinez, L.F. 2011. Intellectual Capital : Perceptions of Productivity and Investment, *RAC, Curitiba*, 15(2): 249-260
- Frenkel, A. Maital, S. and Grupp, H. 2000. Measuring dynamic technical change: a tachometric approach, *International Journal of Technology Management*, 20: 429-441.
- Garicia, R. and Calantone, R.J. 2002. A Critical Look at Technological Innovation Typology and Innovativeness Terminology: a Literature Review. *Journal of Product Innovation Management*, 19 (2):110-132.
- Ghorbani, M., Mofaredi, B and Bashiriyan, S. 2012 Study of the relationship between intellectual capital management and organizational innovation in the banks. *African Journal of Business Management*, 6(15):5208-5217.
- Gloet, M. and Terziovski, M. 2004. Exploring the relationship between knowledge management practices and innovation performance, *Journal of Manufacturing Technology Management*, 15 (5): 402-409.
- Hermans, R. and Kauranen, I. 2005. Value creation potential of intellectual capital in Biotechnology-

- Empirical evidence from Finland, *R&D Management*, 35 (2): 171-185
- Hipp, C. and Grupp, H. 2005. Innovation in the service sector: the demand for service specific innovation measurement concepts and typologies , *Research Policy*, 34:517-35.
- Huang, C.J. and Liu, C.J. 2005. Exploration for the relationship between innovation, IT and performance , *Journal of Intellectual Capital*, 6 (2) : 237-52.
- Jacobs, C.D. and Heracleous, L. 2005. Answers for Questions to Come: Reflective Dialogue as an Enabler of Strategic Innovation, *Journal of Organizational Change Management*, 18(4): 338-52.
- Kamath, G.B., 2008. Intellectual capital and corporate performance in Indian pharmaceutical industry, *Journal of Intellectual Capital*, 9 (4): 684-704.
- Li, P. 2012. The relationship between regional intellectual capital and regional innovation practice: An Empirical analysis based on Chongqing City. Fifth International Conference on Business Intelligence and Engineering, PP.425-429.
- Liu, P. L., Chen, W. C. and Tsai, C. H. 2005. An empirical study on the correlation between the knowledge management method and new product development strategy on product performance in Taiwan industries , *Technovation*, 25 (6): 637-644.
- Marsh, S.J. and Stock, G.N.2003. Building Dynamic Capabilities in New Product Development through Intertemporal Integration, *Journal of Product Innovation Management* , 20 (2) : 136–148.
- Marr, B. 2005. Perspectives on Intellectual Capital. Multidisciplinary Insights into Management, Measurement and Reporting. London: Elsevier.
- Mathuramavtha, C.2012. The Impacts of Intellectual Capital on Innovative Capability: Building the Sustain Competitive Advantage on a Resource-Based Perspective of Thailand Industrials. *International Business Management*, 6 (4): 451-457.
- Mcadam, R. 2002. Knowledge management as a catalyst for innovation within organizations: A qualitative study", *Knowledge and Process Management*, 7 (4) : 233-214.
- Medina , C.C. , Lavado , A.C., Rodríguez, G.C., and Luño , P. 2011. Do best and worst innovative companies differ in terms of intellectual capital, knowledge and radicalness?http://ideas.repec.org/p/pab/wpbsad/11.01.html
- Moslehi, A., Mohagharl, A., Badie1, K. and Lucas, C. 2006. Introducing a toolbox for IC measurement in the Iran insurance industry. *The Electronic Journal of Knowledge Management*, 4 (2):169-80.
- Mouritsen, J., Larsen, H.T. and Bukh, RN. 2001. Reading intellectual capital statements: de scribing and pre scribing knowledge management strategies. *Journal of Intellectual Capital*, 2 (4):359-383
- Nakahara, T. 2001. Innovation management using intellectual capital, *International Journal of Entrepreneurship and Innovation Management*, 1(1) : 96-110.
- Ngah, R. and Ibrahim, A.R . 2009 . The Relationship of Intellectual Capital, Innovation and Organizational Performance: a Preliminary Study in Malaysian SMEs. *International Journal of Management Innovation Systems* , 1(1):1-13.
- Ning, Y.T., Chen,C.H., Yen, L.S., and Lun, T.C. 2011. Knowledge creation and intellectual capital on securities investment services. *African Journal of Business Management*, . 5(3):924-933.
- Okasha. A. 2008. The effect of organizational culture on job performance in Paltel, Palestine, Unpublished Master Thesis, Islamic University, Gaza.
- Ran ,O. , Li, W., and Luo, Y. 2010. Intellectual capital and corporate performance: an empirical analysis from Chinese listed companies. *International Journal of Networking and Virtual Organizations*, 7(4):335-342
- Richard, O. McMillan, A., Chadwich, K. and Dwyer, S. 2003. Employing an innovation strategy in racially diverse workforces- effects on firm performance ,

- Group and Organization Management*, 28:107-26.
- Rivette, K. 2000. Discovering New Value in Intellectual Capital. *Harvard Business Review*, Jan-Feb'00.
- Salleh, A. and Selamat, F. 2007. Intellectual capital management in Malaysian public listed companies international. *Review of Business Research Papers*, 3 (2):262-74.
- Seleim A., Ashour, A., and Bontis N. 2007. Human capital and organizational performance: a study of Egyptian software companies. *Management Decisions* , 45(4): 789-801.
- Shang, S.C., Lin, S. and Wu, Y.L., 2008. Managing service innovation through dynamic intellectual capital. *Industrial Journal and Data Systems*, 109 (3): 322-337.
- Sharabati, A.A. , Jawad, S.N., and Bontis , N. 2010. Intellectual capital and business performance in the pharmaceutical sector of Jordan. *Management Decision*, 48 (1): 105-131.
- Shih KH, Liu YT, Jones, Charlotte, Lin Binshan 2010. The indicators of human capital for financial institutions. *Expert Systems with Applications*, 37(2): 1503-1509.
- Shih, K.H. 2008. Is e-banking a competitive weapon? A causal analysis. *International Journal of Electronic Finance*, 2(2): 180-196.
- Sofian, S., Tayles, M.E. and Pike, R.H. 2004. Intellectual capital: an evolutionary change in management accounting practices, Working Paper Series No. 04/29, Bradford University School of Management, Bradford.
- Stewart, A. T. 1997. Intellectual Capital, The New Wealth of Organizations. New York: Bantam Doubleday Publishing
- Stewart, T. A. 2000. Intellectual Capital: The new wealth of organizations. London, Nicholas Brealey Publishing.
- Stock, G.N. Greis, N.P. and Fischer, W.A. 2001. Absorptive capacity and new product development. *Journal of High Technology Management Research*, 12:79-91.
- Stoekicht, I.P. and Soares, C.A.P.2012. The importance of strategically managing intellectual capital to develop innovative capacity in Brazilian companies . *International Journal of Engineering Research and Innovation* , 4(1): 21-29.
- Subramaniam, M. and Youndt, M.A. 2005. The influence of intellectual capital on the types of innovative capabilities. *Academy of Management Journal*, 48(3): 450–463.
- Sveiby, K.-E. 2001. Methods for Measuring Intangible Assets, <http://www.sveiby.com.au/IntangibleMethods.htm>.
- Tai-Ning,Y., Chen, C.H, Lin Shou-Yen, L.S., and Lun, T.C. 2011. Knowledge creation and intellectual capital on securities investment services. *African Journal of Business Management* , 5(3): 924-933
- Teece, D. J. 2000. Managing Intellectual Capital: Organizational, Strategic, and Policy Dimensions (Clarendon Lectures in Management Studies). NY: Oxford University Press.
- Thompson, J.L. 2001. Innovation through people. *Management decision*, 42(9): 1082-1094.
- Thompson, L. 2003. Improving the creativity of organizational work groups. *Academy of Management Executive*, 17:96-109.
- Tseng, C. Y. and Goo, Y. J. J. 2005. Intellectual capital and corporate value in an emerging economy: Empirical study of Taiwanese manufacturers". *R&D Management*, 35 (2): 187-201
- Walsh, J. P. and Ungson, G. R. 1991. Organizational Memory. *Academy of Management Review*, 16(1):57-91.
- Walsh, K., Enz, C. A., and Canina, L. 2008. The impact of strategic orientation on intellectual capital investments in customer service firms. *Journal of Service Research*, 10(4): 300-317.
- Wang, C.N., Chang, Y.L., Huang, O.H., and Wang, C.H. 2011. Assessment on intellectual capital management for Taiwanese pharmaceutical industry: Using GRA and MPI. *African Journal of Business Management* , 5(7)

- : 2950-2958.
- Wu , W.Y., Chang ,M.L. and Chen, C.W. 2008. Promoting Innovation through the Accumulation of Intellectual Capital, Social capital and Entrepreneurial Orientation. *R&D Management*, 38 (3):265-277.
- Wu1, C. , and Xuejun., W. 2010 . Regional Intellectual Capital and Regional Innovation Capability: An Empirical Study Based on Correlation and Interactive Model, http://en.cnki.com.cn/Article_en/CJFDTOTAL-JSJI201002004.htm
- Yi Lee, T. 2007. The Impacts Of Intellectual Capital and Organizational Culture On the Organizational Innovation and Performance, Master's Thesis, http://ethesis.lib.mcu.edu.tw/ETD-db/ETD-search/view_etd?URN=etd-0614107-142302
- Youndt, M. A., Subramaniam, M. and Snell, S. A. 2004, Intellectual capital profiles: An examination of investments and returns . *Journal of Management Studies*, 41:335-362.
- Zerenler , M. , Hasiloglu, S.B., and Sezgin, M. 2008 . Intellectual Capital and Innovation Performance: Empirical Evidence in the Turkish Automotive Supplier. *Journal of Technology Management and Innovation*, 3 (4):31-40.

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