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Study the Effect of Intellectual Capital and Knowledge Sharing on Organizational Innovation of Software Companies

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Abstract

The overall goal of this study is to evaluate the effect of intellectual capital and knowledge sharing on organizational innovation of software companies within the structural equation models. Accordingly, the necessary data were gathered by using questionnaires of 30 software companies established in Tehran, who were selected by the cluster sampling method. After confirming the reliability and validity of tools, by using the Cronbach's alpha and confirmatory factor analysis, data obtained with structural equation modeling and LISREL software were analyzed. Findings suggest that intellectual capital has a positive and significant impact on knowledge sharing (0.27= β) and organizational innovation (0.48= β). In addition, the findings showed that knowledge sharing with a coefficient equal to 0.30has a positive impact on organizational innovation. On the other hand, the findings indicate that, knowledge sharing between intellectual capital and organizational innovation had a mediating role and the intellectual capital has a direct impact on innovation through knowledge sharing and has an indirect impact on organizational innovation in the Software companies of research population.

Keywords: intellectual capital, knowledge sharing, organizational innovation, human capital, structural capital and relational capital

Introduction:

Without a doubt, the present time can be considered as one of the times that are different to other courses of the world in different aspects. The industrial economy movement to a knowledge-based economy and physical and material capitals fading out and the importance of finding immaterial capitals, such as human, knowledge and intellectual capital are the most important characteristics of this age, which have attracted the attention of experts much higher than other characteristics. The emergence of a new economy based on knowledge and information has increased the researchers' attention to the study in the field of intellectual capital, and experts in this field have used the intellectual capital as an indicator to determine the value of knowledge-based companies and organizations today (Tan et al., 2007). Challenges such as flexibility in critical condition, speed in responding to customer needs and market, operational effectiveness in order to cut costs, environmental issues, workforce management expertise

that often lacks a high commitment and allotment and the development of good working relationships with diverse groups of stakeholders and shareholders, has prompted the organizations to respond to these challenges. Many scholars and experts have responded to these challenges, turning to innovation, whether in the form of a learning organization as an innovative and creative organization (Baucus et al., 2008; Lim & Dallimore, 2004). In other words, organizational innovation is increasingly as one of the main factors for long-term success of the companies in competitive markets. The reason for this is that companies with building innovation capacity will be able to respond faster and better than non-innovative companies to environmental challenges (Jimenez-Jimenez et al., 2008).

Lim and Dallimore (2004), in this regard, believe that the intellectual capital has a fundamental and increasing importance in innovation, productivity, growth, improving business competitiveness, economic performance and these assets increase the opportunities of the organizations. Therefore, today's organizations must pay attention increasingly to understand and manage of these assets for success in a competitive market. On the other hand, one of the managers' principal objectives in the use of knowledge management in organizations is improving knowledge sharing between individuals within an organization and between individuals and organizations, in order to create competitive advantage. Effective knowledge sharing between members of the organization leads to reduced costs in the production of knowledge, and to ensure the dissemination of best working practices within the organization and enables organizations to solve their problems and most importantly the innovation. The power of people, in the exchange of knowledge, experience and skills will add to their economic growth and new services. Hence, knowledge sharing is considered the prerequisite for innovation development in product or service (Renzl, 2008). Sharing knowledge is very important for the organization in the sense that helps the organization in the development of skills, capabilities, creating added value and develop innovative strategies and activities. Software companies, is now considered as one of the major sectors of the IT industry, that due to the rapid and continuous changes in production and service provision in this area, more than any other innovation organization in providing products or services, is considered a vital matter to compete with other companies. One of the strategies that can help these companies to improve the quality and speed of innovation is intellectual capital and knowledge sharing. The main objective of this study is to investigate the effect of intellectual capital and knowledge sharing on organizational innovation of software companies. Therefore, in this study, in addition to study the direct impact of intellectual capital on organizational innovation, the mediating role of knowledge sharing between intellectual capital and organizational innovation among software companies is also evaluated.

Intellectual Capital

Intellectual capital is a multidisciplinary concept, its understanding in fields related to business, and trade is varied. (Huang et al., 2007) On the other hand, with the review of theoretical literature, it can be found that, each of the authorities has defined the intellectual capital, according to their point of view and to dare to say that the general consensus has not taken place on a definition of intellectual capital. In Table 1, we see some definitions related to intellectual capital.

Table 1: Terminology and definitions of intellectual capital

Authors	Terms / concepts	Meaning / Definition
Itami (1991)	Intangible assets	Assets that cover the whole range of phenomena such as IT, customer confidence, brand image, corporate culture and management skills.
Hall (1992)	Intangible assets	They are valuable resources that turn other resources of organization into valuable assets.
Smith (1997)	Intellectual property	They are part of organizational capital that with tangible capitals, leads to competitive advantage and improve the

		performance.
Brookings (1997)	Intellectual Capital	Intellectual capital is a combination of market assets, human assets, intellectual property and infrastructure assets.
Advinson and Malone (1997)	Intellectual capital and intangible assets	Assets that have not physical nature, but they are the source of value creation in the organization.
Sveiby (1997)	Non-material values	Non-material values consist of three components: staff competence, internal structure, external structure.
Nahapiet and Ghoshal (1998)	Intellectual Capital	Knowledge or ability to know is a social gathering, such as the organization and the community.
Stewart (1998)	Intellectual Capital	It is an intellectual material, knowledge, information, intellectual property; experience- can lead to added value.
Granstrant (1999)	Intellectual property	It is related assets to creativity, knowledge and identity of a person.
Harrison and Sullivan (2000)	Intellectual Capital	The knowledge that can be turned into profit.
Brennan and channel (2000)	Intellectual Capital	Capital (rights) based on the knowledge of an organization or company
Sullivan (2000)	Intellectual Capital	Intellectual capital is important, despite being intangible.

Source: (Chang, 2008.by citing Mir Kamali and the emergence of the case, 2008).

Although there is no shared consensus on the definition of intellectual capital, however, most scholars and experts on intellectual capital have pointed out shared components, in the field of intellectual capital aspects (Mir Kamali and the emergence of the case, 2008). With this said, the dimensions of intellectual capital consist of structural capital, human capital and relational capital (client). In other words, most definitions of management of intellectual capital involve the human, structural and relational capital. (Bataineh and AlZoabi, 2011) We explain that in the following.

Human Capital

Human capital includes knowledge, creativity, experience and professional working skills of employees and the people in an organization (Tayles et al., 2007). Human capital is the total of professional knowledge, talents and skills, risk-taking and problem-solving abilities of human resources in an organization (Hasnavi, et al., 2013, Hasnavi, Zahedi, 2012). Human capital also reflects the tacit knowledge of people that is embedded in their minds. Human capital is an important source of innovation and strategic rebuilding of any organization and the organization can produce and identify the value in knowledge-based economy by using it (Zahedi and Lotfi Zadeh, 2007). From another perspective, the human capital refers to the value added that by employees in the process of transforming knowledge and experience to goods and services, which provide income for the organization (Nazari et al., 2011).In general, human capital refers to factors such as knowledge, skills, abilities, creativity and attitude of employees, which can lead to improved performance and make a profit for the organization (Chen, 2008).

Structural capital

Structural capital can be defined as the total capital of organization in procedures, processes, organizational strategies and guidelines and databases (Nazari et al., 2011). In other words, hardware, software, databases, organizational structure, organizational exclusive rights, trademarks can be regarded as structural capital. Klein (2012) has defined the Structural capital as hardware, software, databases, organizational structure, organizational patents, trademarks and all the capabilities of the organization, which supports employee productivity.

Relational Capital (customer)

Relational capital refers to the relation with the organization's key stakeholders, including employees, customers, shareholders and others who benefit from the financial promotion. (Nazari et al., 2011) This capital involves the knowledge in market, customer communication channels and the relationships with stakeholders. (Tayles et al., 2007) This can be defined as a knowledge that is obtained through interaction between individuals and networks of cross-organizational relations. (Batineh and Al Zoabi, 2011) On the other hand, this type of capital is a value that customers and stakeholders have respect for the organization and this value will be formed through communication between the organization and customers (McGill, 2006).

Intellectual capital and knowledge sharing

Knowledge sharing means sharing knowledge or transferring experience among different organizational units. According to Davenport and Prusak (1998), Knowledge sharing is defined as "knowledge exchange activities among organizational units for current and future benefits". Also, knowledge sharing within the organization, at different organizational levels and in different units, or between them, will happen formal and informal ways and in two different transmission methods, including sharing tacit knowledge and explicit knowledge sharing. Knowledge sharing between the units "is a process through which an organizational unit can be influenced by the experience of other organizational unit". (Argote and Ingram, 2000)Bartol and Srivastava (2002) have defined the knowledge sharing as a process that during which the staffs publish their information and knowledge across the organization, so that through it, people exchange their knowledge mutually (explicit and implicit) and jointly create new knowledge. Send and receive compulsory knowledge sharing knowledge or possessed by individuals (Teng and Song, 2011, Sangari et al., 2014). Learning the sharing knowledge process in the organization includes an explicit and tacit knowledge. Tacit knowledge is an identified knowledge with specific content that is difficult for structuring and distribution. In contrast, explicit knowledge is a knowledge that is spreadable easily and is within the framework of the official and symbolic language (freeze and Kulkarni, 2007).Tacit knowledge can be a set of experiences, skills, working perspectives and values, a subjective system within a person that cannot be said and is not stored in any database, but its place is in the human mind, and it makes up the activities. Explicit knowledge is a knowledge that is objective and can be expressed as a formal and systematic language. This type of knowledge is independent of personnel and is in computer information systems, documentation and organizational documents.

The research findings indicate that today's enterprise by having structural, human relational capital will act more successfully in the field of knowledge sharing (Chen et al., 2012; de Clercq et al., 2013). To explain the results, it is noted that having the workforce with the skills, abilities and knowledge and the right attitude is such as premises and knowledge sharing areas. Because the main requirements for knowledge sharing among staff is their skills, knowledge, capabilities and the ability to attract and in the next step, is sharing it (Hsu, 2008, Akhavan and Zahedi, 2014, Akhavan et al., 2014).In the relational capital aspect, it is noted that strong relations between members of an organization, will improve their willingness to transfer knowledge to each other, to achieve personal goals. In fact, the high quality and quantity of relationships between managers, employees, customers, or other stakeholders, will make the sharing of knowledge possible efficiently than before (Widen Wulff and Ginmn, 2004).On the other hand, the structural capitals that mean the appropriate procedures of processes, strategies, hardware and

software would be an incentive of knowledge sharing and a support of knowledge sharing and realize it with minimal cost and time (Pierce, 2012 Akhavan et al., 2014). Considering the research literature in this area suggests that more researchers have a major focus on the hardware and software used by organizations to share their implicit and explicit knowledge. Their findings suggest that, having software or hardware related technologies could improve the quality and quantity of knowledge sharing within the organization more than ever, and makes this process possible with low time and cost (Zhang et al., 2012; Leonardi and treem, 2012). Hsu (2008) has also concluded that, knowledge sharing plays an important role in improving the performance and such a role will be more important through human capital with more quality. In fact, people with the skills, abilities, knowledge and improved attitude, will have the ability to share high implicit and explicit knowledge. In another study in the same field, Esmedland (2008) states that the transfer of tacit knowledge sharing (share and use it) will be facilitated through social networks and within the organizations, which their characterization is interpersonal relationships as well as long-term working relationships , and in these organizations, the expectation of reciprocity and mutual relationships between staff is the norm.

Organizational innovation, intellectual capital and knowledge sharing

Innovation is a continuous and planned process to increase strength and competitive advantage of a company through lower costs and therefore lower prices, better and higher quality and efficiency and more effectiveness of goods and services and in the overall, it increases the income and reputation of the organization (Carpenty and Iveco 2007). Organizational innovation is as a development or acceptance of an idea or the conduct in business that is new to the corporation. Creating value from new technology or administrative activities is based on new products or processes (Wang, 2007). Innovation involves the creation, adoption and implementation of new ideas in the field of processes, new products and services or marketing techniques. In fact, organizational innovation is defined as the implementation of the ideas for the new organization, whether it involves new products, services, processes, management or marketing systems. Innovation involves the conversion and utilization of existing knowledge. For this purpose, it is necessary for employees to share their knowledge and information. In this regard, Nonaka (1994) believes that innovation occurs when the employees share their knowledge within the organization and when this knowledge is shared, a shared and new vision will be formed (Jimenez-Jimenez et al., 2008). In the field of knowledge sharing impact on organizational innovation, many researches have been done, that all reveal a positive impact of the intellectual capital on knowledge sharing and organizational innovation and knowledge sharing of innovation. These studies are summarized in Table 2.

Table 2- summarizes of the previous research findings

Researchers	Year	Method	Result
Tsai	2001	regression	Organizational knowledge management strategies have a direct impact on organizational innovation.
Cavusgil	2003	Path analysis	Sharing tacit knowledge has a positive impact on organizational innovation.
Spencer	2003	Pearson correlation	Knowledge sharing strategies have a positive effect on the organizational trends in innovation of the organization.
Liao et al.	2007	Multivariate Regression	Knowledge sharing has a positive impact on organizational innovation.
Subramaniam& Youndt	2005	Path analysis	Human, organizational and social capital influence radical and the incremental innovation capability and capacity, improve, and enhance them.
Wu et al.	2007	Path analysis	Structural capital and relational capital have a mediating role between human capital and innovation performance.
Lin	2008	Path analysis	Self-knowledge, organizational support, and organizational

			rewards and ICT have a positive impact on knowledge sharing and knowledge acquisition. In addition, gathering and sharing knowledge, enhance organizational innovation capabilities.
Zerenler et al.	2008	Path analysis	There was a significant and positive relation between intellectual capital and its components (human capital, structural capital and customer capital) with innovation performance.
Rohana Ngah & Abdul Razak Ibrahim	2009	Path analysis	Intellectual Capital in small and medium companies has a crucial role in creating production and process innovation and can subsequently lead to improved organizational performance of these companies.
Wang& Wang	2012	Path analysis	Sharing explicit and tacit knowledge have a high impact on the quality and speed of organizational innovation and thereby improves organizational performance.
Yecsil& Dereli	2013	Path analysis	Knowledge sharing processes within the organization can improve individual and organizational innovation capabilities.
Yecsil& Dereli	2013	Path analysis	Knowledge sharing not only has an important role in improving innovation capabilities, but also through improving the innovative capability or time can improve the innovative performance of the organization.

Conceptual Model of the Research

Intellectual capital in the conceptual model of the research (Figure 1) is considered as the independent variable. This variable, based on Bontis (1998), has three components of structural, relational and human capital. The dependent variable, as the conceptual model shows, is the organizational innovation. Organizational innovation variable in this study consists of three components: production, administrative and process innovation that has been introduced in many studies, as the three main components of organizational innovation. What has the innovation aspect of this model is that, knowledge-sharing variable, which is both explicit and tacit knowledge sharing, is intended as a mediatig variable. In other words, apart from the direct effect of intellectual capital on organizational innovation, its indirect effect will be examined through knowledge sharing, the hypothesis presented in this study have also inserted in the conceptual model of the research according to the relevant routes.

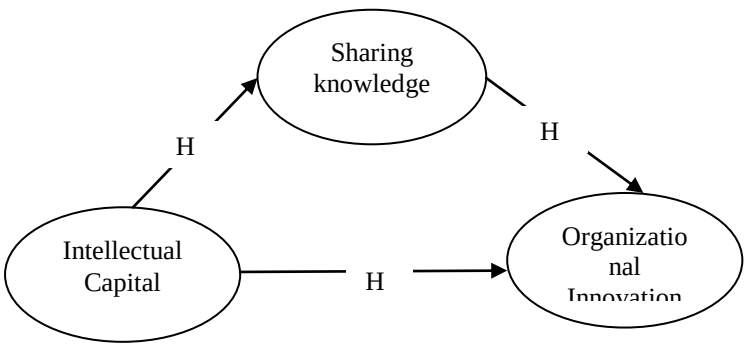


Figure 1: Conceptual Model of the Research

Research Hypothesis:

Intellectual capital has a positive impact on knowledge sharing.
Intellectual capital has a positive impact on organizational innovation.
Knowledge sharing has a positive impact on innovation.
Intellectual capital through knowledge sharing has a positive impact on organizational innovation.

Population, sample and sampling method

The statistical population of the research included all the software companies established in the city of Tehran. These companies are now working in the field of administrative and financial areas of production automation software, web design and programming, manufacturing computer hardware, computer network installation, designing educational software by using specialized personnel. Using cluster-sampling method, Tehran is divided into five regions: North, South, East, West and Center and from each region, the number of six companies was selected at random. Therefore, the questionnaires were developed and distributed among the company's staff and 287 questionnaires were collected from these companies. In the following, with the study of returned questionnaires, many of them that had incomplete information were excluded from the analysis process and 276 questionnaires were analyzed.

Research Tools

To measure and evaluate the research structures, four questionnaires were used that each of them are mentioned as follows.

Intellectual Capital: To measure this variable Bontis tool (1998) was used. The tool has 42 items that are scored based on the five-point Likert spectrum. This questionnaire has three components, namely human capital (15 items), structural capital (13 items) and customer capital (14 items). Reliability and validity of this tool are approved by using confirmatory factor analysis and Cronbach's alpha. Cronbach's alpha coefficients for components of human, structural and relational capital respectively are 0.86, 0.79 and 0.70.

Sharing knowledge: To measure knowledge sharing Wang and Wang (2012) tool was used. The tool has two components of tacit knowledge sharing and obvious knowledge sharing. Tacit knowledge sharing in this questionnaire has 7 items and obvious knowledge sharing has 6 items that are scored based on the five-point Likert spectrum. The validity of this tool is approved by using confirmatory factor analysis and its reliability is approved by using Cronbach's alpha. Cronbach's alpha coefficients for implicit and explicit knowledge sharing components, respectively are 0.81 and 0.75.

Organizational innovation: To measure organizational innovation, Mirkamali and Chupani questionnaire (2011) was used. This questionnaire consists of 17 items and 3 components of production, administrative and process innovation, which is scored based on the five-point Likert scoring. Reliability and validity of this tool are approved by the research of Mirkamali and Chupani (2011). In this study, the Cronbach's alpha coefficient for each component of production, administrative and process innovation respectively are 0.78, 0.82 and 0.72.

Research findings

The findings related to demographic variables are listed in Table 3. The findings suggest that 72.3 percent of respondents are male and 27.17 percent of respondents are female. In the field of distribution of respondents by age variant, the findings showed that 10.10% of respondents were at the age of 20 to 25 years, 31.70% were at the age of 26 and 30 years, 34.49% were at the age of 31 to 35 years, 17.07% were at the age of 36 to 40 years and 6.62% were higher than 41 years.

Table 3 - demographic findings of the research

Variables	Frequency	Percentage/Frequency
Gender		
Female	78	27.17
Male	209	72.82

Age		
20 to 25 years	29	10.10
26 to 30 years	91	31.70
31 to 35 years	99	34.49
36 to 40 years	49	17.07
above 41 years	19	6.62
Education		
Bachelor	150	52.26
Master	118	41.11
PhD	19	6.62
Working background		
Less than one year	19	6.62
1 to 5 years	89	31.01
6 to 10 years	80	27.87
11 to 15 years	59	20.55
16 to 20 years	33	11.49
above 21	7	2.43

Also, the distribution of respondents' frequency according to the education, the research findings indicate that 52.26 percent had a bachelor's degree, 41.11 percent had master degree and 6.62 percent had PhD degree. In addition, the results of the working background show that 6.62 percent had below a year of work experience, 31.01 percent had between 6 and 10 years of work experience, 27.87 percent had between 6 and 10 years of work experience, 20.55 percent had between 11 and 15 years of work experience, w11.49 percent had between 16 to 20 years of work experience and 2.43 percent had work experience more than 21 years.

To ensure the validity of measurement tools the confirmatory factor analysis as well as software LISREL were used. By using confirmatory factor analysis, we can determine which variables are correlated with one factor and which factors are correlated by one factor (Kline, 2005). In fact, by using this test, we will determine that if each of the variables observed has a significant factor loading on the infrastructure structure or not. Results of confirmatory factor analysis are listed in Table 4. The findings suggest that administrative, production and process innovation respectively, have factor loadings equal to 0.68, 0.80 and 0.73. All the factor loadings are significant in the Alpha P <0.01. Implicit and explicit knowledge sharing components with the factor loadings of 0.63 and 0.92 have a significant role in sharing knowledge structure. Similarly, human, relational and the structural components with factor loadings of 0.76, 0.98 and 0.89had significant factor loadings on organizational innovation structure.

Table 4: Results of confirmatory factor analysis

Factor loads on structures				Variables
Intellectual Capital	Sharing knowledge	Organizational Innovation	Cronbach's alpha	
			0.72	**Organizational Innovation**
		0.80		Product innovation
		0.68		Administrative innovation
		0.73		Process innovation
			0.83	**Sharing knowledge**
	0.63			Sharing tacit knowledge
	0.92			Explicit knowledge sharing
			0.89	**Intellectual Capital**
0.76				Human Capital
0.98				Relational capital
0.89				Structural capital

(All factor loads are significant at the level of alpha 0.01).

To evaluate the characteristics of the fitting measurement models, the characteristics of the fitting $\chi 2/df$،RMSEA[1]،[2]NNFIGFI،[3]CFI،[4]NFI،[5]AGFI[6] are used. Each of these indicators has a reasonable amount, which determining the rates indicate a proper fitting of models. According to the Kline's idea (2005), if the index value of$\chi 2/df$ is less than 5, it has been approved and the smaller this ratio is, the better fitting of the model will be better. The indicators for good models equals to 0.05 or less. The amount of0.08 for RMSEA index represents a reasonable error for the approximation in the population; however, the less this amount is, the corresponding model error will be lower. Fitting index (GFI) and adjusted fitting index (AGFI) also shows that how much the model has a better fitting than the lack of it.Based on the contract, the NFI, GFI, AGFI, and CFI should be equal to or greater than 0.90 to ensure the proper fit of the model (Kline, 2005). The results show that each of the organizational innovation structures, knowledge sharing and intellectual capital has an acceptable fitting indicator. Findings on the correlations between the research structures are listed in Table 5. Findings show that the correlation coefficient of intellectual capital and knowledge sharing is 0.23, that the correlation coefficients are significant at $p < 0.01$ and a positive relation is between them. Moreover, the correlation coefficient of intellectual capital with organizational innovation 0.45) is significant at $p < 0.01$ and a positive relationship is between them. Finally, knowledge sharing also with a correlation coefficient equal to $r = 0.32$, has a significant and positive relation to organizational innovation.

Table 5: correlation matrix between research variables

[1]Root Mean Square Error of Approximation
[2]Non-normalized fit index
[3]Goodness of Fit Index
[4]Comparative fit index
[5]Normalized fit index
[6]Adjusted Goodness of Fit Index

No	Variables	Average	The standard deviation	1	2	3
1	Intellectual Capital	4.18	0.95	1		
2	Sharing knowledge	4.02	0.71	0.23**	1	
3	Organizational Innovation	4.11	0.87	0.45**	0.32**	1

* p < 0.05 ** p < 0.01

In Figure 2, the research model is presented along with the estimated parameters and provided standard values have been inserted on each of the routes. As you can see, all the estimated direct routes coefficients were significant at the Alpha P < 0.01 and had a positive impact on each other. Then, each of the direct, indirect and total effects was studied in detail, according to the results presented in Table 3 and we will study the presented hypotheses test.

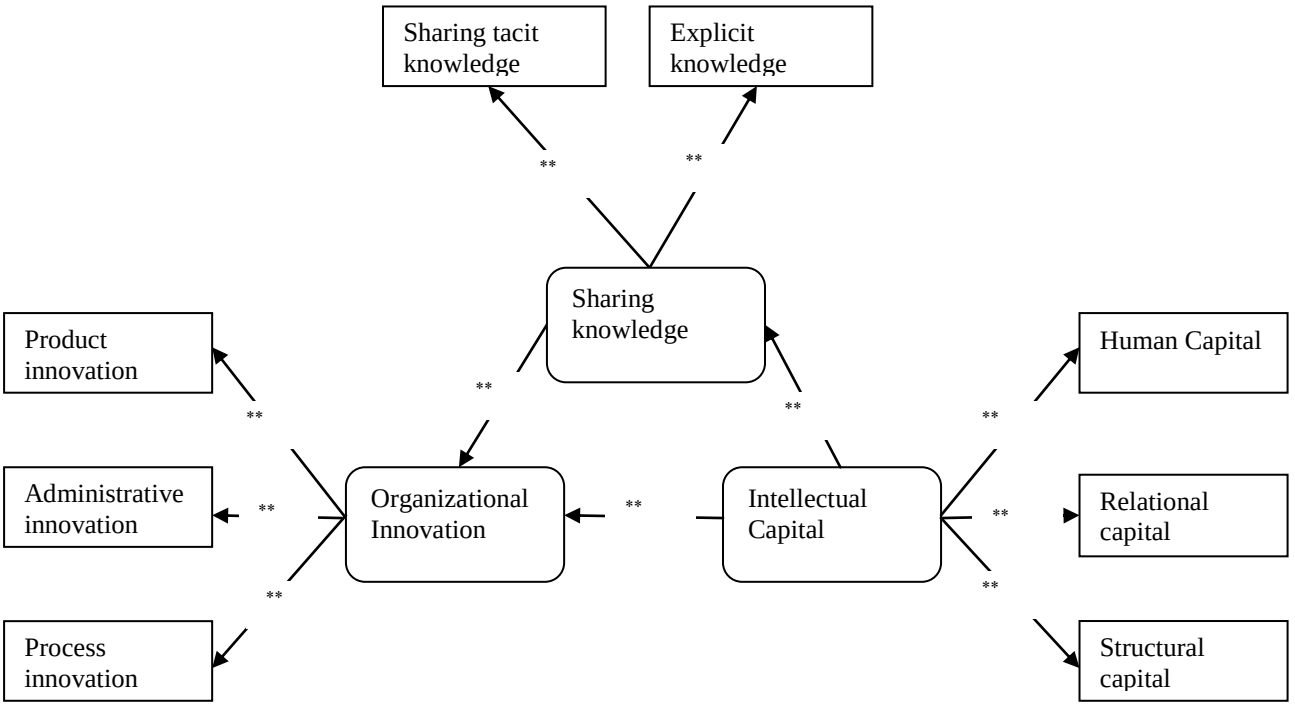


Figure 2: The research model was tested by using LISREL software (* p <0.05 and ** p <0.01)

As Table 6 shows, the direct effect of intellectual capital on knowledge sharing is significant with a coefficient equal to 0.27 in the Alpha p < 0.01. Thus the first hypothesis is confirmed. The second research hypothesis was that intellectual capital has a positive impact on organizational innovation.

Findings show that the coefficient of intellectual capital direct impact on organizational innovation was 0.48 and the amount is significant at an alpha level of p <0.01. With this said, it can be concluded that the second hypothesis is confirmed.

Table 6: Estimating the direct, indirect and total impact coefficients

Directions	direct impact	Indirect impact	Total effect
On organizational innovation:			
Sharing knowledge	0.30**	-	0.30**
Intellectual Capital	0.48**	0.081**	0.56**
On knowledge sharing:			
Intellectual Capital	0.27**	-	0.27**

* p < 0.05 ** p < 0.01

In addition, the findings of Table 6 show that the coefficient of knowledge sharing impact on organizational innovation equal to 0.30 that is significant at the level of alpha p <0.01. So with such a result, it can be noted that the third hypothesis is confirmed. Findings showed that the indirect effect of intellectual capital on organizational innovation through knowledge sharing reaches to 0.081 and this amount is significant at the level of alpha p <0.01. So, in addition to the direct impact of intellectual capital on organizational innovation through knowledge sharing, it has an indirect impact on organizational innovation. The total effect is the sum of direct and indirect effect of intellectual capital on organizational innovation reaches an amount equal to 0.56. Therefore, knowledge sharing plays a mediating role between intellectual capital and organizational innovation.

But, fitting indices obtained from the tested model in Table 7 show that RMSEA index in estimated model had an acceptable level of the 0.062 and the other fitting indicator such as CFI, GFI, NFI, NNFI and AGFI respectively 0.98, 0.97, 0.97, 0.96 and 0.94 are all acceptable amounts. So the best characteristic of fitting shows that the data for this study have a good fit with the factor structure of this model.

Table 7: Characteristics of model fitness

Index	NFI	NNFI	AGFI	GFI	CFI	RMSEA	x/df
The accepted	≥0.90	≥0.90	≥0.90	≥0.90	≥0.90	≤0.08	≤5.00
An estimated	0.97	0.96	0.94	0.97	0.98	0.062	2.54

Conclusion:

Another finding of the study is that intellectual capital is positively related to organizational innovation. This finding is consistent with the research results of Negah and Ibrahim (2009), Zerenler et al. (2008) and Lin (2008). Therefore, human, relational and structural capital knowledge assets play an important role in creating and improving of organizational innovation. An intellectual, human and infrastructural property that enables the organization to carry out its activities, leads to strengthening innovation occurs within the organization. As a result, software companies' attention to intellectual capital as a lever for creativity and innovation and protecting their competitive success is essential.

Other findings of this study suggest that knowledge sharing has a positive impact on organizational innovation. This finding is consistent with the findings of Wulff and Ginman (2004), Hsu (2008), Pierce

(2012). Innovation is a process in which knowledge will be created, shared and the integrated with aim of new knowledge to be used to in new products and services. So, as research results show, knowledge sharing operates as a resource for innovation. Because knowledge makes learning new techniques and solving problems, knowledge sharing can encourage knowledge exchange and creation of the organization to improve the competitive advantages; when people share their views, experiences, knowledge and information with other employees, the innovation increases in the organization. In this regard, Saenz et al (2009) suggests that the knowledge sharing is a key topic and substantive discussion on promoting the ability of the organization. This finding indicates the value of knowledge sharing within the organization and its role in organizational innovation. In fact, when the value of knowledge will clear, that is shared with other people and is used to improve innovation and organizational performance; otherwise, the lack of explicit and tacit knowledge sharing reduces its usability and availability and this matter reduces the use of knowledge in order to develop innovative outcomes. Another result of path analysis is that intellectual capital impacts on innovation through knowledge sharing. Intellectual capital acts as a source of ideas, knowledge, information, experience and intangible assets in the organization. When knowledge, information and intangible assets of an organization increase, people will have more tendency to share their knowledge and information with other people in the organization and thus, when the exchange of knowledge and information will happen between employees within the organization, the combination of prior knowledge with new knowledge of workers increases and the probability of innovation and creation of new ideas generated within the organization will be added. In fact, the sharing of knowledge among people with views, grounds and knowledge and information about various areas is a basic and important step for the combination of knowledge and innovation in organizations.

In relation to the findings, it can be concluded that the implicit and explicit knowledge sharing in software companies creates and provides employees' use of knowledge and information and the continuation of this process can increase innovation capabilities and innovative performance. Sharing knowledge is as the most critical factor of innovation and in fact, the spark of creating ideas and innovative thinking between members of the organization. Because, by sharing knowledge, achieving the power of organizational members to implicit and explicit knowledge of each other will increase and it would be effective in production or service innovation, administrative and process innovation. Effective knowledge sharing between members of the organization leads to reduced costs in the production of knowledge and to ensure the dissemination of best working practices within the organization, and enables organizations to solve their problems and most importantly the innovation.

It should be noted that the emergence of organizational innovation is a process that is based on knowledge and is the output of intellectual capital knowledge sharing. Because, by knowledge sharing among employees, their ability to deal with new ideas and even supporting it, will increase. In such organizations, because of intellectual capital and the use of knowledge, learning occurs more, which in turn; it leads to solve the problem, provide new and non-imitating solutions to get things done and generally innovation. In other words, organizations with high levels of intellectual capital are likely to be a learning organization that constantly puts new ways of doing things to the test (Shateri and Faraji, 2010). In general, the results can be received from this research is that human resources of software companies will be able to improve organizational innovation through implicit and explicit knowledge sharing , by having specialized knowledge, talents and risk-taking capabilities and problem-solving abilities as well as capital lies in the procedures, processes, strategies, and organizational instructions and database and subsequently, efficient and effective relation with stakeholders such as employees, customers and shareholders.

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