

## The investigation of intellectual capital on organization innovation (the case study of Ilam Police)

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**Abstract:** This study investigated the effect of Intellectual Capital on the Organizational Innovation of Ilam police staff. The research method was descriptive of correlation type and the statistical population included all of the Ilam police staff. Among them, 368 people using simple random sampling method were selected as the sample of the study. To measure the desired variables of intellectual capital, organizational innovation was used. To analyze the data, the Pearson correlation coefficient and multiple regression analysis were used. The results showed that there was a positive significant relationship at the level of less than 0.05 between the Human Capital and Innovation ( $r=0.746$ ,  $p=0.000$ ), the Structural Capital and Organizational Innovation ( $r=0.647$ ,  $p=0.000$ ); the Relational Capital and Innovation ( $r=0.671$ ,  $p=0.000$ ), and also the Intellectual Capital and Organizational Innovation ( $r=0.765$ ,  $p=0.000$ ) of Ilam police staff. At the end, the limitations and recommendations for further research are presented.

**Key words:** *Intellectual capital; Organizational innovation; Police staff*

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### 1. Introduction

In an attempt to create and develop strategic advantages and to antecede the competitors, today's forefront organizations have brought the issue of developing human capacities and promoting the degree of organizational commitment of the staff. And since the present era has been called the era of quick and drastic change and evolutions, in so doing, all the possible mechanisms across the board will be employed. Different organizations such as the Traffic Police have quickly undergone these changes. To survive and stay, these organizations have to be in tune with the drastic changes and evolutions and also have to update their human and software resources parallel to the hardware changes (Leithwood, 1992).

Moreover, Islamic Republic of Iran's police force, which is the largest leading organizations providing security and order in the country, has to precede updating organizational innovation and reaching its organizational objectives via the exploitation of intellectual capital within and outside the organization including the capital (human, structural, relational). Knowledge capitals, which are sometimes known as intellectual capitals and also hidden assets, include intellectual material, knowledge, information and also intellectual possession that the organization can employ them to create knowledge (Kong, 2007). Therefore, this is the management of the capitals which provides the cognitive and social bases for the potential of invention, innovation, and creativity (Adlof et al.,

2013). The diversity and multiplicity of the applications that the intellectual capital can have in the police have necessitated its movement toward an innovative organization and an active knowledge (Asgari, 2012). Besides, this condition causes much of the knowledge resources of the police make the implicit (tacit) knowledge of its employees.

On the other hand, the active and intensive participation with motivation and creativity of the employees has a very important and determining role in the implementation of the desired knowledge management projects of the police. Hence, creating readiness and the necessary tendency for active participation to help the intellectual capitals for organizational innovation is considered as one of the fundamental infrastructures of the police.

In fact, it can be said that knowledge management, intellectual capital, and their management arises as a strategic need for all the organizations including the police who are willing to promote the progress of innovation (Bahrami, 2011).

Consequently, the main objective of this study was to investigate the relationship between intellectual capital and organizational innovation among personnel of the Police Force. Besides, regarding the importance of the relationship among knowledge, intellectual capital, and organizational innovation in promoting the military organizations and police forces as well as considering that no study has been done in police forces of Ilam province, it seemed necessary to examine the relationships.

### 2. Theoretical Underpinnings and Review Literature

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## 2.1. Intellectual Capital

Knowledge and Intellectual Capital have been recognized as the sustainable strategies to achieve and protect the competitive advantage of the organizations (MahmoodAbadi, 2013). Considering organizational resources, Intellectual Capital concerns creating wealth through investing on knowledge, information, intellectual property, and experience and it encompasses three fundamental and interconnected components. In fact, these three components are interdependent as follows:

- A) **The first and most important component is Human and Intellectual Capital:** It consists of knowledge, skills and experience of staff and managers as well as effective response to posterity. The various elements of human capital encompass attitudes, competencies, experiences, skills, implicit knowledge and innovativeness, talent and knowledge that are all in the people's minds in the organizations (Bahrami, 2011). This capital in police station included commanders, noncommissioned officers, staff, task forces, and students. The organization would be destroyed through these people's leaving.
- B) **The second component of the organization is Structural Capital:** It deals with learning and the present knowledge in routine activities. The collection of knowledge that is remained in an organization at the end of the day when people left the organization reveals the main core of Structural Capital. This capital is considered as the supportive substructure of Human Capital including all non-human resources of knowledge (databases, manuals of the processes, strategies, procedures, organizational culture, publications and copyrights) in the organization.
- C) **Relational Capital:** This capital identifies the formal and informal relations of an organization with external (foreign) stakeholders and their perceptions about the organization as well as the exchange of information between them and the organization. Relational capital is important for an organization. Because relating the Human Capital and Organizational Capital with other external (foreign) stakeholders act as an enhancing element of value for the organization (Bentis, 2000). In police station, this capital is defined as all the resources that relate the organization to the external forces, such as clients, customers, etc.

## 2.2. Organizational Innovation

Today, the Organizational Innovation is placed in three different classes; product innovation, developmental innovation, and administrative innovation (Damanpour & Schneider, 2008). From organizational perspective, innovation means the exploitation of new idea. In fact, the process of creating, developing and implementing a new idea or a new treatment is called innovation. Beside

Intellectual Capital, innovation can be considered as an organizational change to answer to the external environment or an influence on it (Anderson, 2004). In other words, organizational innovation means something new to use. Organizational innovation requires converting ideas into organizational usable forms, and this idea is used to promote organizational performance

**A) Administrative and Technical Innovation:** The distinction between administrative and technical innovation is based on the social structure. Administrative innovation deals with a change in the organizational structure and administrative process, so that the innovation of administrative organization has a close relationship to administrative activities and an indirect relationship with business activities of the organization. Technical innovation associated with a change in products, services and technology of the production process; this organizational innovation directly deals business activities of an organization and it associated with changes in products and processes (Damanpour & Schneider, 2008).

**B) Radical and Incremental Innovation:** Radical innovation emphasizes managers' change of attitudes and strengthening the resources of technical knowledge and incremental innovation on the complexity and the lack of concentration. When the organizations produce new products and improve management processes, they will require the impetus and aptitude of human capital to create new ideas, to develop innovative approaches, and to create new opportunities. Radical innovation within an organization is greatly different from incremental innovation and radical innovation is essential for long-term successes of the organization (Safar Zadeh, 2012).

**C) Product and Process Innovation:** Typically, the organization uses these two types of innovation to create competitive advantage. Product innovation refers to "Producing new products or a respond to an external consumer or a demand of the market", and process innovations is, in fact, "The new elements that are used in the productions or service activities of the organization" (Scarborough, 2003). Organizational innovation involves converting ideas into organizational usable forms, and this idea is used to promote organizational performance (Damanpour & Schneider, 2008). (Yong and Chin, 2006). Chang & Lee. (2008) investigated the relationship between cumulative knowledge and organizational innovation. The findings indicated that there is a significant relationship between cumulative capacity of knowledge capital and innovation. In addition, the organizational culture and external environment influence the relationship.

Roz and Sintes (2011) studied some features of the managers that influence the innovation in the organization. They have concluded that managers' training, high experience and ownership of the organization increase the probability of innovation in the organization.

Torres (2006) at the University of Seoul Spain also showed that human and intellectual capital, structural capital have a positive effect on relational capital and the relational capital has a positive effect on human capital. On the investigation of the relationship between intellectual capital and organizational performance, Hong and Chang (2007) determined that structural capital and relational capital are higher than the average in these organizations and human capital is lower than the average. And human and intellectual capital has the greatest impact on the other components as well as the organizational performance.

Rezaie et al. (2013) examined the role of intellectual capital and the improvement of service quality. The results showed that there is a significant direct correlation between the dimensions of intellectual capital and the quality of service from the customers' point of view.

### 3. Research hypotheses

#### 3.1. Research major hypothesis

There is a relationship between intellectual capital and organizational innovation of Ilam police staff.

#### 3.2. Research minor hypotheses

- There is a significant and positive relationship between human capital and organizational innovation of Ilam police staff.
- There is a significant and positive relationship between structural capital and organizational innovation of Ilam police staff.
- There is a significant and positive relationship between relational capital and organizational innovation of Ilam police staff.
- There is a multiple relationship among small-scales of intellectual capital and organizational innovation of Ilam police staff.

### 4. Methodology

#### 4.1. Procedure, population, and sample of the study

The research method was descriptive of correlation type. The researcher made an attempt to obtain the required information of the sample status through questionnaire. The research population includes all personnel, staff, commanders and police experts of Ilam who were working in 2013-2014. Based on the Morgan Table, 368 people gathered as the population of the study; therefore, to avoid tarnishing questionnaires, 370 questionnaires were distributed.

#### 4.2. Instruments

The following instruments were used to gather the desired information. A) The intellectual capital questionnaire: (in this study) to examine the intellectual capital, Bantis's (2000) questionnaire has been used, which consists of 20 items with 3 components of human capital, structural capital and relational (customer) capital. Level of internal consistency (Cronbach's alpha) of the questionnaire is 0.87. James's (2008) innovation questionnaire contains 17 questions and its Cronbach's alpha is reported 0.69 to 0.83. It encompasses three small-scale of structural, cultural, and human resources.

### 5. Findings

The collection of data, concerning the utilized questionnaires, indicates that 93.5 percent of the participants were male and the rest, i.e. 6.5 percent, were female. Moreover, among all the respondents, the maximum frequency related to the age category of 30-40: 268 people, 72.8%; the minimum frequency related to the ages over 40 years: 38 people, 12.4%; and the ages less than 30 years old composed 62 people (16.8%) of the sample. Furthermore, the highest frequency was in Bachelor degree: 150 people (40.8%), and the lowest frequency related to Master degree: 19 people (5.1%). And among the rest, 102 people (27.7%) had Diploma (high school graduates) and 97 people (26.4%) had Associate degree.

**Table 1:** Pearson correlation coefficients between Knowledge Management, Intellectual Capital and Organizational Innovation

Variable	Intellectual Capital	The Test Result
Innovation	r = 0.765 p = 0.000	Hypothesis 1 confirmed

The main hypothesis: There is a relationship between intellectual capital and organizational innovation.

The results of Table 1 show that there is a positive and significant relationship between intellectual capital and organizational innovation. Table 2 shows the results of the analysis of Pearson correlation coefficients. There is a significant positive correlation between knowledge management dimensions and the dimensions of human capital and organizational innovation.

As Table 2 divulges, there is a positive significant relationship, at the level of less than 0.001, between the small-scales of intellectual capital (human capital, structural capital, relational capital) and organizational innovation. Hence, all the hypotheses are confirmed. Is there a multiple relationship between the small-scales of intellectual capital and organizational innovation? To answer this question, multiple regression analysis was conducted and the results are demonstrated in the Table 2.

As revealed in Tables 2 and 3, multiple regression analysis method was employed to investigate how much of the variance in the dependent variable of

organizational innovation is explained by the independent variables. To this end, the organizational innovation variable as the criterion variable and the variables of human capital, structural capital, relational capital (customer) as

the predictor variable were entered into the regression model. The results are presented in the above (preceding) Tables.

**Table 2:** The correlation coefficient between the research variables

Variables	Independent variable	Dependent variable	Pearson coefficient r	Significance level p	The Test Result
	Human Capital	Organizational Innovation	0.746**	0.000	Hypothesis 2 confirmed
	Structural Capital		0.647**	0.000	Hypothesis 3 confirmed
	Relational Capital		0.671**	0.000	Hypothesis 4 confirmed

**Table 3:** The results of regression analysis to predict the dependent variable based on the independent variables

Change source	Total square	df	Mean square	f	p	R	R2
Regression	930.45911	3	977.15303	962.174	000.0	769.0	591.0
The remaining	759.31571	363	87.470	----	----	----	---
Total	689.77663	366	----	----	----	----	-----

**Table 4:** The results of regression analysis to predict the effect of independent variables on the dependent variable

Variables	B	Standard Error	Beta	t	P
Dependent variable (Organizational Innovation)	404.10	828.1	-----	690.5	000.0
Human Capital	820.0	097.0	919.0	480.8	000.0
Structural Capital	685.-0	303.0	175.-0	260.-2	024.0
Customer Capital (Relational)	007.0	317.0	002.0	033.0	974.0

Based on these results and the observed f (174.962) with 3 and 363 degrees of freedom, it is significant at the level of less than 0.01 and 59.1% of variance in the dependent variable is explained by the independent variables. Therefore, there is a multiple relationship among a combination of components of the organizational innovation intellectual capital.

To define the contribution (portion) of each independent variables, the results in Table 3 showed that the largest contribution belonged to human capital variable (b=0.919, p=0.000) and the second variable, structural capital, (b=-0.175, p=0.024) was significant. But the variable, customer (relational) capital (b=-0.002, p=0.974) was not significant i.e. it did not contribute to explain the dependent variable of organizational innovation. Thus, the regression equation for prediction is as follows:

$$y = \text{The fixed amount (10.404)} + \text{Human Capital (0.919)} + \text{Structural Capital (-0.175)}$$

## 6. Discussion and conclusion

Intellectual Capital is taken into account as one of the key factors in organizational innovation and organizations success in recent years. Thus, this study provides evidence to answer the following questions: "Is there any significant relationship between Intellectual Capital and organizational innovation among the staff and personnel of Ilam police? Or do the small-scales of Intellectual Capital influence the organizational innovation of the police? According to the results of the statistical analysis of

the main hypothesis of the study, there is a significant positive direct correlation between the Intellectual Capital and organizational innovation of the police force i.e. through increasing Intellectual Capital (human capital, structural capital, and customer [relational] capital) among police staff, the organizational innovation is increased as well. The results of the first hypothesis are in accord with the research results of (Damanpour & Schneider, 2008), Bahrami et al. (2011); Safarzadeh et al. (2012), Chang (2008), Torres (2006), King (2008), Rezaie et al. (2013).

In its explanation, it can be said that this correlation means that the organizational innovation among police force employees increases by increasing the level of Intellectual Capital. Today, the modern military forces of the world are going to exchange knowledge to the next generation with regard to the practical (functional) nature looking for new ideas.

To explain this correlation, job cooperation between employees and police force staff should be considered and it also should be allocated to update training and adequate attention to the components of human capital and identification of knowledge assets as well as their exact evaluation. And the law enforcement officials (police force officials) should have significant attention to manage Intellectual Capital and its components. And they should take necessary actions for the elimination of deficiencies. The importance of human factor in effective implementation of the police missions causes Human Capital management, employees' skills and

capabilities of the organization play an important role in the organizational innovation and performance; indeed, they are a strong basis for the creation of Intellectual Capital and Organizational Innovation.

In this regard, law enforcement officials can provide an innovation background in the organization for their own staff through creating an intimate atmosphere among human, structural, and relational capitals of the employees. To succeed in a complex world and also by increasing competition in police forces, it is not just enough to have knowledge management, but it should have the identification of human assets (Intellectual Capital) leading to innovation in the organization. Of the most important duties of military organizations is to manage these assets well in addition to their identification.

Based on the allocated duties, military organizations have to select, recruit and keep capable human resources. Naturally, their identification, measurement, and management are difficult and contemplative; on the other hand, every organization needs innovative ideas for its survival. Innovation can be defined as an organizational change to respond to the external environment. Therefore, Intellectual Capital is regarded as the most important factor to produce and determine the organizational innovation. Furthermore, Islamic Republic of Iran's police force, which is the largest leading organizations providing security and order in the country, has to precede exploiting internal and external knowledge management and Intellectual Capital (Human) for organizational innovation in its own organization.

Generally, using intellectual capital management strategy, all organizations including the police have to take action on the identification of the deficiencies in organizational knowledge, greater productivity of human capitals, employees' more effective learning, clients and staff's satisfaction, prevention the frequency of the mistakes, reduction of reinventing, saving time, infusing motivation for creativity and innovation in the personnel.

Having all these in mind, it can be concluded that Intellectual Capital is increasingly linked with Organizational Innovation and it is important for the military organizations to understand the guidelines usage for knowledge resources management and providing appropriate access facilities to this information in military background and also to employ it in the appropriate backgrounds for job.

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