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# Studying the Effect of Using Information Technology on the Explicit Knowledge Transfer and Empowering the Employees in Oil Company of Ardabil Province

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### ABSTRACT

The aim of this research is to study the effect of using information technology on the transferring explicit knowledge and empowering the employees of Oil Company in Ardabil province. This study is a field research and is based on applied, descriptive methods. The subjects of this study are 420 staff of the oil company in Ardabil province that 201 of them are included in the statistical sample selected by using random and stratified sampling method. In this study, the questionnaires of applying information technology, organizational empowering and transferring the explicit knowledge is used. The questionnaire is a researcher-made one. The data was analyzed using the software spss16 and to explore the relationship among the data and the degree of relationship, the test of regression and correlation coefficient were used. Generally the results show that there is meaningful relationship between applying information technology and empowering the employees and also between the use of information technology and transferring explicit knowledge.

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### Introduction

Studies show that one of the main reasons that organizations are distinguished from one another is the rate of using IT by their organizational activities. SO the organizations that have used information technology widely and efficiently have sustainable competitive advantages over other organizations and from the viewpoints of beneficiaries, they are more different from other organizations (Tsiknakis, 2014). The use of information technology has changed the nature of work, work environment and the competition of organizations. IT has developed and optimized the internal operations of organizations, reduced costs and expedited domestic productions. It has also created profitability opportunities for the productions even in low prices. By accelerating the processes of getting products to markets, the process of accessing to benefits occurs faster. IT helps marketing and sales processes and also improves the speed of marketing, especially in cases where new products are reducing the prices and violating the chances (Zarghar, 2015). Information technology in a short time has managed to be one of the components of modern societies, in a way that in many countries along with reading, writing and counting, perception of IT and mastering the skills and basic concepts of IT, it is considered as a part of the core of the communities (Daniel, quoted by December, 2015). Because a world which is linked together by means of information networks and also is applicant for capable human and organizational resources, should know how to use information technology as a tool for the development, promotion, progress and productivity of the organizations (Aarabi, 2015).

An organization that does not use information technology or uses it less, drop behind the organizations that moves along with science and technology (ibid, p. 30). Policy makers and experts believe that the use of empowering the employees and the use of IT can have a greater and vital impact on the processes and outcomes of the organization. Because of this, over the past decades, most of the organizations put much more pressure on their staff so that they would use the strengths and talents of information technology in their working processes (Derent and Meelissen, 2014). Leightner & Warden (2013) believe that societies move towards a knowledge-based economy in which knowledge is the most important element to create value in organizations. By using information technology and rapid advances in technology the pattern of global economic growth have changed. Today's, due to the competitive situations, the knowledge as the most important capital is replaced the financial and physical capitals (quoted from Chen and others, 2014). Therefore, for many developed countries, the knowledge transfer is considered as the symbol of competition and the factor to access the power and development (Drucker, 2011). Studies show that organizations which haven't taken any action in the field of rapid knowledge transfer to employees are slower in terms of speed of developing their products or getting competitive advantages (Nonaka, 2012). In fact, in such condition, the explicit knowledge transfer finds special place in companies and organizations and its importance and role increasingly increase. Researches done in this field indicate that 80 percent of large organizations in the UK have made profit from explicit knowledge transfer and 96 percent from

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remained 20 percent, will run explicit knowledge transfer over the next 5 years (Shaw, 2011). Through analyzing the explicit knowledge transfer and its significance in the field of organizational performance, we can understand that enjoying knowledge and updated information is an undeniable necessity for survival of organizations especially if the process of transformation of knowledge in society is evaluated carefully. So today's post-industrial countries are information societies in which amplifier technologies are gradually replaced by the knowledge .increasing technology (Hari Haran, 2013). Researches done in the US over 200 major companies' show that 82 percent of these companies have benefited from explicit knowledge transfer, 50% of their budget and personnel's are allocated to explicit knowledge transfer and 27 percent of them have knowledge managing posts (Shaw, 2011). Today, organizations are facing explicit and unpredictable changes in the environment. Increasing global competition, the development of information technology and changes in the demographic characteristics of human resources and customers are located at the heart of these changes. Managers do not have much time to control employees and they should spend most of their own time and energy identifying the internal and external environments of the organization and delegate the other duties on their employees. Therefore, today empowered, committed, motivated and responsible employees are the most important source of competitive advantage in organizations, (Abtahi, 2013). But unfortunately, the most potential talents of employees in organizations aren't used. Because of this, empowerment is mentioned as the most important challenge at present. According to these challenges, managers must provide organizational conditions in which each individual can be more capable because a committed and capable workforce is one of the necessary conditions for effective performance in the modern organizations (Abdollahi, 2013). The process of empowering the staff is a tool for giving the employees the authorities so that they can be able to do what they believe is the best without fear of being disapproved by their bosses (Abtahi, 2013). By using empowering dimensions, The capable employees will be able to save the organization from the crisis and also they can show their royalty to the organization by creating golden opportunities in their business (Zarghar., 2015). Blasco(1998 ) In his research cites four stages in using information and knowledge : "readiness, creating the true pictures of people ,visualization of the future, and change". He has also emphasized on the strong relationship between empowerment and use of information technologies (quoted from Alvany and Danaee Fard, 2016). Bolger and Somech (2004) declare that there is a meaningful relationship between empowering an organization and using information technology (quoted from Bigani2016). Environmental challenges of the present era have forced the organizations to find a way to survive in the terms of explicit developing the information technology, increasing expectations of customers and the need for flexibility. So, many organizations are concentrating on performing the empowering programs and are trying not only to modify the variables affecting people's feelings about empowering individuals but also to overcome the inner and outer barriers. Empowering the employees has led to specific attitudinal and behavioral outcomes and increased the employee's abilities in the field of domestic and foreign competition. Empowering process is an important strategy for adapting to external changes and is one of the main issues of organizations (Babaei, 2015).

This process has made the successful organizations try to provide empowering programs of employees by using tools and different mechanisms. According to the potentiality of information and communication technologies in managing the needs of organizations in this field, the successful managers of these technologies are using these technologies to develop the capabilities of employees along with achieving the organizational goals (Jahani, 2015). So in this research, the researcher intends to specify the impact of using information technology on the transfer of explicit knowledge and empowering the employees. Its overall aim is to determine the impact of information technology on explicit knowledge transfer and empowering the staff. Two hypotheses were tested as following: -using IT affects on empowering employees. Using IT affects the transfer of explicit knowledge.

### **Materials and Methods**

Due to the nature and objectives of the present study, this research is in the category of descriptive studies and was done by using correlation.

### **Population, Sample and Sampling Method**

The population in this study is all employees of the oil company of Ardabil province in the years 2017-2016. According to statistics received from the General Administration, the total number of employees working in this organization is 420 (N=420). Sampling method is stratified - random. Due to the number of population, 201 people were identified with respect to the ratio of employees in subsidiary offices by using Morgan table.

### **Tools**

In the present study due to the nature of subject and research method the tool "questionnaire" was used to collect data.

### **The Questionnaire of Using Information Technology**

This researcher - made questionnaire was prepared with respect to variables and by using previous researches and information needed to examine research hypotheses. The questionnaire includes 28 questions in Likert scale and contains five options (very high, high, moderate, low and very low). In this study, the validity was determined by using visions of experts on related field and its reliability was specified with the help of Cronbach's alpha test by running it on 30 people in the research environment before the final implementation.

### **The Questionnaire of Empowering the Staff**

In this study to evaluate the process of empowering the employees, we used the questionnaire of Spreitzer (PEQ). This questionnaire includes four sub-scales as follows:

Competence, the right to choice, to be meaningful and to be effective. Many studies have been conducted on the validity and reliability of this questionnaire that all of them show the reliability and validity of this test. In a study conducted on the staff of Tarbiat Modarres University , Cronbach's alpha of the questionnaire have been reported 0.83 (Khan Alizadeh et al., 2010). Also in the present study, its validity has been specified by the expert's points of view and its reliability has been evaluated by running it over 30 people in the research environment with the help of Cranach's alpha test.

### **The Questionnaire of Explicit Knowledge Transfer:**

In order to examine the research hypothesis, this researcher- made questionnaire will be prepared with respect to variables and using previous research and needed information. This questionnaire consisted of 15 questions in five-degree scales.

In the present study, its validity was specified with respect to expert's points of view and its reliability was specified by performing it over 30 people in research environment before the final running and with the help of Cronbach's alpha test.

**Table 1. Stability of the Questionnaires in the Present Study.**

Variables	IT	Empowering the Staff	Explicit Knowledge Transfer
Reliability Coefficient	0.89	0.87	0.84

#### Methods of Analysis

In this study to analyze the data, descriptive and inferential statistics were used. In the descriptive part of data collected by asking questions, some of the indicators of descriptive statistics such as mean, variance, and standard deviation were used. In the analytical part of this study to test the questions, multiple regressions were used.

#### Findings

The subjects were 201 employees of Oil Company in Ardabil province that were selected by using stratified sampling method and considering the Chris and Morgan table of determining the number of samples. . Of these, 130 people (65%) were male and 71 people (35%) were female of different age groups from 20 to 50 ages working in various working posts. Studied variable in this research is the use of information technology. Its predictability was studied by the transfer of explicit knowledge and empowering the employees. Obtained descriptive information and findings have been listed in the table below.

**Table 2. The factors under the study.**

Row	Variables	Mean	Std Deviation
1	Using IT	73.43	4.35
2	Explicit Knowledge Transfer	56.72	3.11
3	Empowering	97.79	6.2

#### Studying the normality

To verify the normality of distribution of data, Z Kolmogorov-Smirnov was used

**Table 3. Studying the Normality of Data.**

Variables	Explicit Knowledge Transfer	Using IT	Empowering the Staff
Z Kolmogorov-Smirnov	1.35	1.54	2.65
Sig	0.09	0.142	0.08

Since the values of Z Kolmogorov-Smirnov for the variables are more than 0.05. Thus, we can conclude that distribution of data is normal. As a result, there are all

conditions to use regression. Utilizing information technology has a significant impact on empowering staff.

#### Hypothesis 1: The use of information technology has a meaningful effect on empowering the staff

The regression results in Table 4 show that the variables predicting information technology (the value of business, tendency to the customers, future orientation, and operational excellence) altogether explain 78.0 percent of variance of empowering the staff. The results of ANOVA used for checking meaningfulness of predictive model of total score of empowering the staff indicate that the coefficients of variables are meaningful. ( $F(15.335)P=0.001$ )

Information obtained on the relationship between the use of information technology and empowering the staff is given in Table 5. It Shows that the predictor variables (separately business value  $P = 0.029$ , client orientation  $P = 0.001$ , future orientation  $P = 0.001$ , operational excellence  $P = 0.000$ ) have the power of predicting the meaningfulness of staff empowering. Among the above variables, the prediction power of the future orientation (standardized coefficient 0.438) is greater than the other dimensions.

#### Hypothesis 2: The use of information technology has a meaningful effect on explicit knowledge transfer

The results of regression in Table 6 show that the variables predicting information technology (the value of business, tendency to the customers, future orientation, and operational excellence) altogether explain 0.71 percent of variance of explicit knowledge transfer. The results of ANOVA used for checking meaningfulness of predictive model of total score of explicit knowledge transfer indicate that the coefficients of variables are meaningful. ( $F(13.649)P=0.000$ )

Information obtained on the relationship between the use of information technology and explicit knowledge transfer is given in Table 7. It Shows that the predictor variables (separately business value  $P = 0.001$ , client orientation  $P = 0.001$ , future orientation  $P = 0.002$ , operational excellence  $P = 0.003$ ) have the power of predicting the meaningfulness of explicit knowledge transfer. Among the above variables, the prediction power of the operational excellence (standardized coefficient 0.452) is greater than the other dimensions.

#### Conclusion

In studying hypothesis 1 the results indicated that according to participants in the study, there is significant impact between the using information technology and empowering employees.

**Table 4. The Results of Analyzing the Regression.**

	Sum of Squares	df	Mean Square	F	Sig.
Regression	868.1453	3	489.23	335.15	0.001
Residual	575.574	197	452.2		
Total	437.2028	201			
	R Square	Adjusted R Square	Std. Error of the Estimate		
	0.78	0.778	83.1		

**Table 5. The Coefficients Related to the Dimensions of Using IT & Empowering the Staff.**

Model 1	Unstandardized Coefficients			Standardized Coefficients	T	Sig.
	B	Std. Error	Beta			
Constant	4.651	0.387		8.131	0.000	
The value of business	0.087	0.032	0.118	3.164	0.029	
tendency to the customers	0.061	0.059	0.247	3.521	0.001	
future orientation	0.029	0.018	0.438	5.523	0.002	
operational excellence	0.0241	0.436	0.411	2.453	0.003	

**Table 6. The Results of Analyzing the Regression.**

	Sum of Squares	Df	Mean Square	F	Sig.
Regression	2121.311	3	23.489	13.649	0.000
Residual	740.623	197	2.452		
Total	2861.934	201			
	R Square	Adjusted R Square	Std. Error of the Estimate		
	0.71	0.689	1.23		

**Table 7. The Coefficients Related to the Dimentions of Using IT & Empowering the Staff.**

Model 1	Unstandardized Coefficients		Standardized Coefficients	T	Sig.
	B	Std. Error	Beta		
Constant	3.549	0.387		6.629	0.000
the value of business	0.046	0.012	0.228	4.452	0.001
tendency to the customers	0.054	0.043	0.197	4.521	0.001
future orientation	0.032	0.039	0.398	5.401	0.002
operational excellence	0.047	0.392	0.452	3.619	0.003

So according to the participants in this study, the use of information technology has impact on empowering the employees. And it can help managers use updated and strategic technologies by planning properly. The results also show positive and significant impact of all aspects of the use of information technologies on empowering the employees. The results of the present study are in harmony with the research findings of Gholamzadeh (2014). In his research, he concludes that information technology has effect on empowering. The employees and this finding help the managers to recognize the effects of information technology on empowering their staff and help them to solve their problems. . As a result, the use of information technology has affected empowering the employees. It means that there is a significant relationship between the use of information technology and empowering the employees. Also these results have meaningful relationship with the findings of Belfield (2012) who states that there is a significant relationship between the use of technology and empowering the employees. And findings of Hardy Vlybayv (2013) who conclude that empowering the employees can give them autonomy, provide the staff with variety and challenges in working environment and it also makes the control process easier and increases the opportunities for individual initiatives, are along with the solutions offered by Mazidabad (2015) . He expresses that one of the main reasons that organizations are distinguished from one another is the use of IT in their organizational activities. The findings of hypothesis 2 show that according to the participants in this research, using information technology has meaningful impact on explicit knowledge transfer. So the participants in this study believe that utilizing the information technology affects the transfer of explicit knowledge. The results also show a significant positive impact of all aspects of using information technology on the transfer of explicit knowledge. The results of the research are in accordance with findings of Pourhossein 'research (2015). He concluded that utilizing the information technology leads to explicit knowledge transfer and organizational effectiveness. These results are also in harmony with findings of Gorbany Zadeh (2014). He expresses that there is a meaningful and positive relationship between using the information technology and explicit knowledge transfer and between technology dimensions and dimensions of explicit knowledge transfer and also the need to apply knowledge in the organizations is undeniable. These results are along with the research findings of Hayshayn (2012), Askay Rym (2012). Researches related to humanities usually have limitations And also in the present study the limitations associated with the norms and validity of the test in the study population, motivation of participants to respond to questions, are emphasized to be considered in generalizing . In addition, research has been done on the staff. According to the findings, it can be suggested that one solution is to give the employees the opportunities to do some harder work that leads to desired goals.

By breaking down the large tasks into their components and then leaving just one part of it to employees at any time, workers can do the job successfully .we can empower the employees by giving the feedback of results to the staff . It also is recommended managers to support education and training new information technologies at all levels (users, system specialists, and staff) in order to get them more familiar with techniques, new technology equipments. The managers are recommended to support the programs of knowledge management and explicit knowledge transfer. In this regard to transfer knowledge between different wards, forming teams including managers, assistants, specialists and staff who identify problems and offer solutions through persuasion is necessary. Taking these effective actions make the transfer of knowledge between individuals and teams possible and developed and empower the staff.

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