

# The Effects of Information Technology Infrastructures on Knowledge Management in Social Security Organization Insurance

(Case study: social security organization insurance, Shiraz branch, Iran)

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**Abstract:** the purpose of this study was to investigate the effects of information technology infrastructures on knowledge management in social security organization Insurance of Shiraz branch, Iran. This study was an applied descriptive-survey study. The target population of the study was all of the employees of social security organization Insurance in Shiraz branch, Iran (approximately 500 individuals). Using Cochran formula, the sample size was calculated as 210 individuals. A questionnaire was used in this study as the research instrument the validity of which was confirmed by specialists and associate professors. The reliability of the questionnaire was examined and confirmed using Cronbach's alpha formula (0.72). To examine and approve the main hypothesis of the study, all of the information technology infrastructures (information technology staff competency, information technology adjustability, information technology compatibility, information technology installation, information technology speed, information technology classification, information technology capabilities and facilities and novelty of information technology) and all aspects of knowledge management (acquiring knowledge, creating knowledge, storing knowledge, distributing the knowledge and maintenance of the knowledge) were investigated. To examine the hypotheses of the study, Kolmogorov-Smirnov and regression tests were used. The results indicated that there was a high and positive significant relationship between all information technology infrastructures and all aspects of knowledge management.

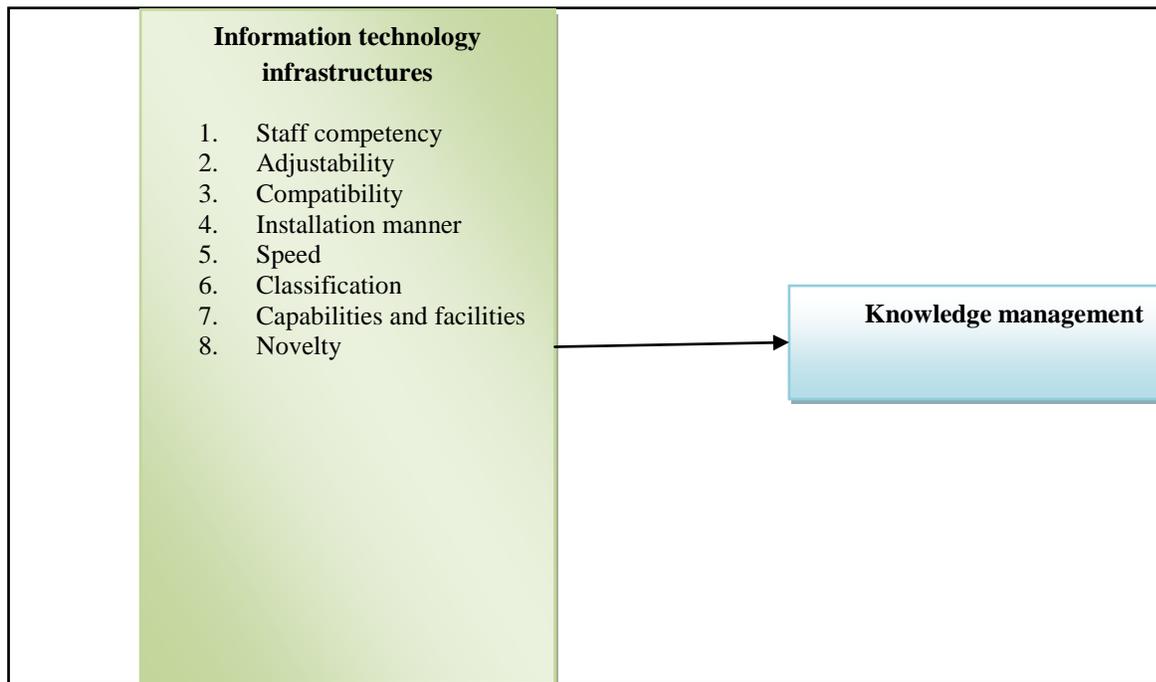
**Keywords:** Knowledge Management, Information Technology Infrastructures, social security organization Insurance.

## Introduction

Regarding the developments in information and communication technologies, human society, in general and commercial-industrial organizations, in particular are forced to find new instruments and approaches that are appropriate for the current situation. In the past, the organizations sought to acquire information and knowledge while today, they are faced with large amounts of information and different kinds of data and to classify, summarize and utilize them, they need to take appropriate measures and obtain related mind ware, software and hardware facilities. This may be the reason for the prominent position of knowledge management in management literature and why it attracted the specialists to develop and improve the related techniques and approaches (Fatahi, 2011).

Nowadays, organizations cannot reach a desired level of standard production and services without having enough information and knowledge in their field. Provision, organization and presentation of organizational knowledge must be in a direct relation with its production and evaluation. Though employees play the major role in organizational knowledge creation, the life of organizational knowledge is dependent on the cooperation of all employees and efficient use of technology (Doroudi, 2005). Knowledge management states that nowadays, almost all works need to be knowledge based and thus all employees must turn to knowledge based employees. That is, creating, sharing and using the knowledge is one of the most important activities of the individuals in any organization (Kouchaki et al., 2012). Thus, knowledge management is a process in which organizations create capitals from their knowledge or intellectual assets. Knowledge management is an inevitable factor that organization and companies must utilize to stay in the competition and be successful. Since 1990, knowledge management has become the mode in management styles. Knowledge management is a systematic and coherent process of synchronizing the extensive activities of the organization including acquisition, creation, saving, sharing and applying the knowledge for the sake achieving the organizational goals (Kheirandish et al., 2011).

Information technology can play a major role in knowledge management processes. There are many technologies that help organizations in using intellectual assets (Azadi, 2009). Knowledge management systems are developed with the help of three types of technologies; communications, cooperation and saving and marketing (Norouzian, 2005). In addition, the purpose of most of the information technology tools is to distribute the experimental knowledge but they do little for the application of the knowledge (Sharifzade et al., 2011). Thus, this study investigated the effects of information technology infrastructures on knowledge management in social security organization Insurance in Shiraz branch, Iran.



**Figure 1.** Conceptual model of the research

### Materials and Methods

The study was a descriptive-survey study. The target population of this study was all of the employees of social security organization insurance in Shiraz branch who were 500 individuals. Using Cochran formula the sample size was calculated 210 individuals. A questionnaire was given to all of the individuals.

**Research Hypotheses:**

- ✓ There is a significant relationship between information technology staff competency and knowledge management in social security organization insurance.
- ✓ There is a significant relationship between information technology adjustability and knowledge management in social security organization insurance.
- ✓ There is a significant relationship between information technology compatibility and knowledge management in social security organization insurance.
- ✓ There is a significant relationship between manner of installation of information technology and knowledge management in social security organization insurance.
- ✓ There is a significant relationship between information technology speed and knowledge management in social security organization insurance.
- ✓ There is a significant relationship between information technology classification and knowledge management in social security organization insurance.
- ✓ There is a significant relationship between information technology capabilities and facilities and knowledge management in social security organization insurance.
- ✓ There is a significant relationship between information technology novelty and knowledge management in social security organization insurance.
- ✓ Information technology infrastructures can predict knowledge management in social security organization insurance.

**Results**

**First Hypothesis:** According to table 1, the calculated Pearson correlation coefficient was 0.696 that means there was a positive and significant relationship between information technology staff competency and knowledge management of the organization. The calculated determination coefficient was 0.484 that indicates 48% of the total changes in knowledge management can be explained by information technology.

**Table 1.** Model summary.

Statistic	Values
Pearson correlation coefficient	0.696
Determination coefficient	0.484
Adjusted determination coefficient	0.482

**Table 2.** Variance Analysis.

Model	Sum of squares	Degree of freedom	Average of squares	F statistic	Significance level
Regression	11.114	1	11.114	108.74	0.000
Residuals	21.257	208	0.102		
Total	32.370	209			

Since the significance level of the test was 0.00 which was lower than the acceptance error (0.05), the null hypothesis was rejected and the regression was statistically significant.

**Table 3.** Regression coefficient.

Variable	Parameter assessment	T statistic	Significance level
$\beta_0$ intercept	0.274	1.21	0.263

According to the results, the significance level of intercept coefficient was 0.00 which was lower than 0.05. In addition, the significance level market research variable coefficient was also 0.00 which is lower than 0.05. Thus it can be concluded that information technology staff competency affects knowledge management of the organization

and also because the assessed coefficient was 0.942 which is positive it can be said that staff competency had a positive and direct effect on knowledge management of the organization and the regression equation will be as follows:

$$\text{Knowledge management} = 0.274 + 0.942 \text{ information technology staff competency of the organization}$$

**Second Hypothesis:** in table 4 Pearson correlation coefficient is 0.586 that indicates a positive and significant relationship between information technology adjustability and knowledge management of the organization. Determination coefficient is calculated 0.696 that indicates 34% of the total changes of the organization can be explained by the information technology adjustability.

**Table 4.** Model summary

Statistic	Values
Pearson correlation coefficient	0.586
Determination coefficient	0.343
Adjusted determination coefficient	0.340

**Table 5.** Variance Analysis.

Model	Sum of squares	Degree of freedom	Average of squares	F statistic	Significance level
Regression	11.114	1	11.114	108.74	0.000
Residuals	21.257	208	0.102		
Total	32.370	209			

Since the significance level of the test was 0.00 and is lower than acceptance error (0.05), the null hypothesis was rejected and the regression was statistically significant.

**Table 6.** Regression coefficient.

Variable	Parameter assessment	T statistic	Significance level
$\beta_0$ Interception	1.360	6.497	0.000
$\beta_1$ Technology adjustability	0.602	10.428	0.000

According to the results, the significance level of interception coefficient was 0.00 which was lower than 0.05. The significance level of market research variable coefficient was also 0.00 which is lower than 0.05 and thus information technology adjustability affects knowledge management. Besides, because the assessed parameter value was positive (0.602) it can be concluded that there is a positive and direct relationship between adjustability and knowledge management and the regression equation will be as follows:

$$\text{Knowledge management} = 1.360 + 0.602 \text{ information technology adjustability of the organization.}$$

**Third Hypothesis:** The Pearson correlation coefficient presented in table 7 was 0.7 that indicates a positive and significant relationship between information technology compatibility and knowledge management in the organization. Determination coefficient was reported 0.49 which indicates that 48 % of the total changes of the knowledge management can be explained by information technology compatibility.

**Table 7.** Model summary.

Variable	Values
Pearson correlation coefficient	0.700
Determination coefficient	0.490
Adjusted determination coefficient	0.487

**Table 8.** Variance analysis.

Model	Sum of squares	Degree of freedom	Average of squares	F statistic	Significance level
Regression	38.276	1	38.276	199.504	0.000
Residuals	39.906	208	0.192		
Total	78.183	209			

Since the significance level of the test was 0.00 and was lower than acceptance error (0.05), the null hypothesis was rejected and the regression was statistically significant.

**Table 9.** Regression coefficients

Variable	Assessed parameter	T statistic	Significance level
$\beta_0$ interception	-0.727	-2.536	0.012
$\beta_1$ Information technology compatibility	1.118	14.125	0.000

According to the results of the analysis, the significance level of interception coefficient was 0.00 which was lower than 0.05. The significance level of knowledge management variable coefficient was also 0.00 which was lower than 0.05. Thus it can be concluded that information technology compatibility affects the knowledge management. The assessed parameter value (1.118) also indicates that the effect was positive and the regression equation will be as follows:

$$\text{Knowledge management} = -0.727 + 1.118 \text{ information technology compatibility}$$

**Fourth Hypothesis:** the calculated value of Pearson correlation coefficient was 0.551 which indicates a positive and significant relationship between installation manner of information technology and knowledge management in the organization. The calculated value of determination coefficient was 0.304. That is, 30% of the total changes in the knowledge management can be explained by the manner of installation of information technology.

**Table 10.** Model Summary.

Statistic	Values
Pearson correlation coefficient	0.551
Determination coefficient	0.304
Adjusted determination coefficient	0.301

**Table 11.** Variance Analysis.

Model	Sum of squares	Degree of freedom	Average of squares	F statistic	Significance level
Regression	17.516	1	17.516	90.798	0.000
Residuals	40.125	208	0.193		
Total	57.641	209			

Since the significance level of the test was 0.00 and was lower than acceptance error (0.05), the null hypothesis was rejected and the regression was statistically significant.

**Table 12.** Regression Coefficients.

Variable	Assessed parameter	T statistic	Significance level
$\beta_0$ interception	0.715	2.485	0.014
$\beta_1$ installation manner	0.756	9.529	0.000

According to the results of the analysis, the significance level of interception coefficient was 0.00 which was lower than 0.05. The significance level of knowledge management variable coefficient was also 0.00 which was lower than 0.05. Thus it can be concluded that installation manner of information technology affects the knowledge management. The positive assessed parameter value (0.756) also indicates that the effect was positive and the regression equation will be as follows:

$$\text{Knowledge management} = 0.715 + 0.756 \text{ installation manner of information technology}$$

**Fifth Hypothesis:** the calculated value of Pearson correlation coefficient was 0.641 which indicates a positive and significant relationship between installation manner of information technology and knowledge management in the organization. The calculated value of determination coefficient was 0.410. That is, 40% of the total changes in the knowledge management can be explained by information technology speed.

**Table 13.** Model Summary.

Statistic	Values
Pearson correlation coefficient	0.641
Determination coefficient	0.410
Adjusted determination coefficient	0.407

**Table 14.** Variance analysis.

Model	Sum of squares	Degree of freedom	Average of squares	F statistic	Significance level
Regression	46.678	1	46.678	144.698	0.000
Residuals	67.099	208	0.323		
Total	113.77	209			

Since the significance level of the test was 0.00 and is lower than acceptance error (0.05), the null hypothesis is rejected and the regression is statistically significant.

**Table 15.** Regression Coefficients.

Variable	Assessed parameter	T statistic	Significance level
$\beta_0$ interception	-0.662	-1.780	0.037
$\beta_1$ information technology speed	1.234	12.029	0.000

According to the results of the analysis, the significance level of interception coefficient was 0.00 which was lower than 0.05. The significance level of knowledge management variable coefficient was also 0.00 which was lower than 0.05. Thus it can be concluded that information technology speed affects the knowledge management. The assessed parameter value (1.234) also indicates that the effect is positive and the regression equation will be as follows:

$$\text{Knowledge management} = -0.0662 + 1.234 \text{ information technology speed}$$

**Sixth Hypothesis:**

**Table 16.** Analysis of Sixth hypothesis.

Knowledge management indicators	Pearson correlation coefficient	Significance level	Number
acquiring Knowledge	0.568	0.000	210
creating Knowledge	0.263	0.000	210
Storing knowledge	0.4552	0.000	210
Knowledge distribution	0.526	0.000	210

Maintenance of knowledge	0.159	0.021	210
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According to the results the null hypothesis was rejected. Thus, there was a high correlation between information technology classification and different aspects of knowledge management in social security organization insurance.

**Table 17.** Model Summary.

Statistic	Values
Pearson correlation coefficient	0.551
Determination coefficient	0.304
Adjusted determination coefficient	0.301

The calculated value of Pearson correlation coefficient was 0.551 which indicates a positive and significant relationship between information technology classification and knowledge management in the organization. The calculated value of determination coefficient was 0.304. That is, 30% of the total changes in the knowledge management can be explained by information technology classification

**Table 18.** Variance Analysis.

Model	Sum of squares	Degree of freedom	Average of squares	F statistic	Significance level
Regression	23.070	1	23.070	90.799	0.000
Residuals	0.254	208	0.245		
Total	75.917	209			

Since the significance level of the test was 0.00 and was lower than acceptance error (0.05), the null hypothesis is rejected and the regression is statistically significant.

**Table 19.** Regression coefficients.

Variable	Assessed parameter	T statistic	Significance level
$\beta_0$ interception	0.373	1.129	0.260
$\beta_1$ information technology classification	0.868	9.529	0.000

According to the results of the analysis, the significance level of interception coefficient was 0.00 which was lower than 0.05. The significance level of knowledge management variable coefficient was also 0.00 which was lower than 0.05. Thus it can be concluded that information technology classification affects the knowledge management. The assessed parameter value (0.373) also indicates that the effect is positive and the regression equation will be as follows:

$$\text{Knowledge management} = 0.373 + 0.868 \text{ information technology classification}$$

**Seventh Hypothesis:** The calculated value of Pearson correlation coefficient was 0.467 which indicates a positive and significant relationship between information technology capabilities and facilities and knowledge management in the organization. The calculated value of determination coefficient was 0.218. That is, 21% of the total changes in the knowledge management can be explained by information technology capabilities and facilities.

**Table 20.** Model Summary.

Statistic	Values
Pearson correlation coefficient	0.467
Determination coefficient	0.218
Adjusted determination coefficient	0.214

**Table 21.** Variance Analysis.

Model	Sum of squares	Degree of freedom	Average of squares	F statistic	Significance level
Regression	19.263	1	19.263	57.874	0.000
Residuals	69.232	208	0.333		
Total	88.495	209			

Since the significance level of the test was 0.00 and was lower than acceptance error (0.05), the null hypothesis was rejected and the regression was statistically significant.

**Table 22.** Regression Coefficients.

Variable	Assessed parameter	T statistic	Significance level
$\beta_0$ interception	0.959	2.537	0.012
$\beta_1$ information technology capabilities and facilities	0.793	7.607	0.000

According to the results of the analysis, the significance level of interception coefficient was 0.00 which was lower than 0.05. The significance level of knowledge management variable coefficient was also 0.00 which is lower than 0.05. Thus it can be concluded that information technology capabilities and facilities affects the knowledge management. The assessed parameter value (0.793) also indicates that the effect is positive and the regression equation will be as follows:

$$\text{Knowledge management} = 0.959 + 0.793 \text{ information technology capabilities and facilities}$$

**Eighth Hypothesis:** The calculated value of Pearson correlation coefficient was 0.435 which indicates a positive and significant relationship information technology novelty and knowledge management in the organization. The calculated value of determination coefficient was 0.190. That is, 18% of the total changes in the knowledge management can be explained by the information technology novelty.

**Table 23.** Model Summary.

Statistic	Values
Pearson correlation coefficient	0.435
Determination coefficient	0.190
Adjusted determination coefficient	0.186

**Table 24.** Variance Analysis.

Model	Sum of squares	Degree of freedom	Average of squares	F statistic	Significance level
Regression	22.899	1	22.899	48.463	0.000
Residuals	97.917	208	0.471		
Total	120.816	209			

Since the significance level of the test was 0.00 and was lower than acceptance error (0.05), the null hypothesis was rejected and the regression was statistically significant.

**Table 25.** Regression Coefficients.

Variable	Assessed parameter	T statistic	Significance level
$\beta_0$ interception	0.458	1.020	0.309
$\beta_1$ information technology novelty	0.865	6.974	0.000

According to the results of the analysis, the significance level of interception coefficient was 0.00 which was lower than 0.05. The significance level of knowledge management variable coefficient was also 0.00 which was lower than 0.05. Thus it can be concluded that information technology novelty affects the knowledge management. The assessed parameter value (0.865) also indicates that the effect was positive and the regression equation will be as follows:

$$\text{Knowledge management} = 0.458 + 0.865 \text{ information technology novelty}$$

**Ninth Hypothesis:**

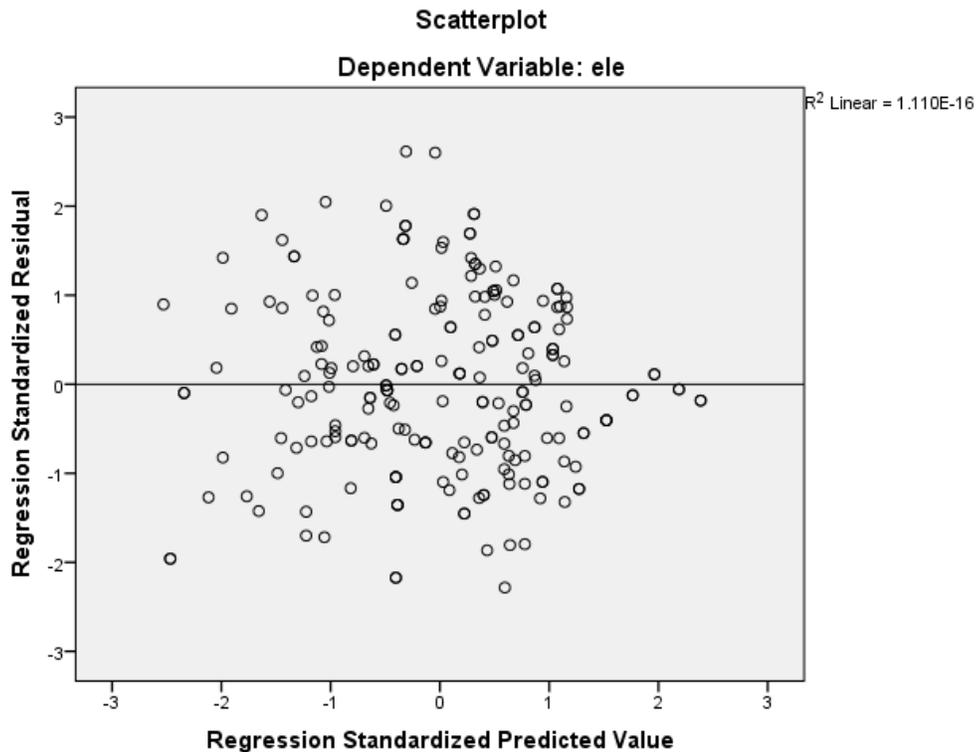
**Table 26.** The regression of the effects of information technology infrastructures on knowledge management.

Predictor variables	Criterion variable	F	P	R	R <sup>2</sup>	β	t	p
Information technology infrastructures	Knowledge management	598.51	0.000	0.860	0.738	0.3450 0.897	2.573	0.000

The ratio of F (F= 2.554) and statistical area (p<0.0001) was approved in this result. Thus the ninth Hypothesis is approved. The regression equation will be as follows:

$$Z = 0.345 + 0.897 (\text{information technology infrastructures})$$

The scatter plot of standardized residuals in comparison with standardized predicted values is presented in the figure below.



**Figure 2.** The scatter plot of standardized residuals in comparison with standardized predicted values.

### Conclusion

The purpose of the study was to investigate the relationship between the infrastructures of information technology and knowledge management in social security organization insurance, Shiraz branch, Iran. To do so, all of the infrastructures of the information technology and all aspects of knowledge management were examined in the form of 9 hypotheses. The examination was done using Pearson correlation test and simple regression. Results indicated that there is positive and significant relationship between all infrastructures of information technology and all aspects of knowledge management and information technology infrastructures can predict knowledge management in social security organization insurance, Shiraz branch, Iran. The results of this study can be explained by the results of the study titled as “implementing knowledge management system and presenting an applied model for Municipality” (Rabii and khajavi, 2010). The results of the study can also be explained by the study titled as “a model for implementing information technology in knowledge management of the Law Enforcement Force of Islamic Republic of Iran (Police of Iran)” (Rajabi and Shahmohammadi, 2013) because in the mentioned study, by investigating the different cycles of knowledge management and the methods of its application in organizations, the position of information technology was taken into account and particularly, surveying the facilities of police for implementation of knowledge management, the requirements of appropriate knowledge for Police were introduced and a model for implementation in Police organization was presented.

### Conflict of interest

The authors declare no conflict of interest.

### References

- Doroudi F, 2005. The effect of information technology and communications on organizational knowledge management. Center of Islamic sciences computer researches.
- Fatahi Z, 2011. Knowledge management; concepts, principles and models. Risk research and control organization of Sepah bank.
- Kheirandish M, Doustkam K, Hosenaie Y, 2011. The role of technological factors in knowledge management success in organization. The Scientific-Research quarterly of military management. 44.
- Kouchaki M, Qaumi A, Hasanmoradi N, 2012. The determine of the relationship between organizational culture (Quinn Model) and feasibility of implementation of knowledge management in Iranian Gas Transmission Corporation. Quarterly Journal of Career & Organizational Counseling. 12.
- Norouzian M, 2005. Application of knowledge management in public section. Tadbir journal. 156.
- Rabii A, Khajavi Z, 2010. Establishing a knowledge management system and presenting an applied model for Municipality’. professional Quarterly journal of Technology development . 24: 70-83
- Rajabi A, Shahmohammadi Q, 2013. a model for implementing information technology in knowledge management of the Law Enforcement Force of Islamic Republic of Iran. Military education management studies.21: 27-35.