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EVALUATING THE EFFECTS OF EMPLOYMENT OF NEW INFORMATION AND COMMUNICATION TECHNOLOGY (ICT) SYSTEMS ON FORMATION OF ORGANIZATIONAL TRANSFORMATION (CASE STUDY: PNU UNIVERSITIES OF THE SOUTH OF WEST AZERBAIJAN PROVINCE)

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ABSTRACT
The purpose of this research is to evaluate the effects of employment of new ICT systems on formation of organizational transformation in PNU universities of the south of West Azerbaijan province. This research is performed under descriptive-correlative and field methods. The population includes the entire experts of PNU universities of south of West Azerbaijan province as 85 individuals. The entire population was selected as the sample. For collection of data, a researcher made questionnaire of information technology including 25 questions in addition to John Carter and Peter Draker's questionnaire of organizational transformation with 42 questions and eight items was used. Validity of these questionnaires was determined by expert instructors and their reliability was also approved by Cronbach's alpha. Results indicated that employment of new ICT systems is effective on organizational transformation and its related dimensions.

Keywords: *Technology, Information, Data, Information Systems, Information Technology, Organizational Transformation*

INTRODUCTION
The current era, is the period of accelerated and unexpected changes and transformations. The organization's manager; in order to be able to obtain organizational goals in this highly competitive world, should accommodate the structure of his or her organization with the environmental situations and obtain required information. One of this elements which is rapidly changing and transforming, is the organization's applied technology. Information technology is referred to technologies which provide us with sufficient facilities for collecting, storing, processing and distributing information (Dastranj, 2000). The necessity of technology for obtaining every organization's goals in the era of communications is undeniable. Different organizations should implement these instruments according to the nature and essence of their goals in a way that; they are able to obtain their goals as fast as possible. On the other hand the speed of transformations and changes has made the application or employment of this instrument necessary for survival of the organization. In other words, today's organizations are obliged to implement information technology because otherwise, they will be eliminated from the field of activities in an environment which is entangled with increasing transformations and changes (Saadatmandi, 2005).
Today's changing environment has forced every organization for changing and transforming their internal and external functions; in a way that, organizations should have sufficient preparation for exploitation of the environment and its changes and also to overcome their weaknesses as well as development of their advantages and by making changes in structures, processes and their culture, they should try to improve their accommodation capacity (Kinner *et al.,* 2002). On this basis, organizational transformation is an undeniable necessity which leads to preservation of efficiency and organizational effectiveness through adjustment of corrective measures and improvement of actions and organizational operations (Hlliot *et al.,* 2004). Beckhard (1969) considers organizational transformation as an organized and organization wide effort or activity which is operated by the C.E.O of the organization and improves organizational effectiveness and organizational health through changes in organization's processes with the application

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of behavioral sciences. Bennis (1969) considers organizational transformation as a response to changes and a type of complex educational strategy for changing believes perspectives, values and the organization's structure; in a way that these elements are able to accommodate themselves with new technologies, markets and challenges with the speed of changes in situations and the environment.

In the current dynamic and changing environment, organizations are forced to transform in order to survive and maintain their situation. Management based changes emphasizes on increase of capabilities or change and learning and includes strategy, business processes, structure, culture, information technology and management systems. In general, it can be stated that in organization's transformation, all the related dimensions should be considered.

Application of aforementioned managerial technics can each help with a correct comprehension of transformation. The transformation management creates a feeling of needing and necessity for transformation among employees and involves them with the process of transformation. It also determines perspectives and values and plans for reaching them and also corrects the existing communications and transactions and opposes the formed opposition against changing and also improves individuals' commitment towards transformation. Also, the technology management technics could be used for guidance and management of infrastructures including analysis and design, coordination of related systems, Customization, selection of software and installation and other technical activities regarding technologic and information systems. With respect to the importance of organizational transformation in the current era and also the necessity for equipment of organizations with the most up to date technologies, organizations are required to identify the effective elements in implementation of new information systems on formation of transformation within an organization and also they should identify required infrastructures for this type of transformation with emphasis on new technologies. Therefore, with respect to the importance of the subject matter and since there are no previous researches regarding the PNU universities of the southern part of West Azerbaijan province, the necessity of this research project was formed. In this regard, the present research is performed aimed at evaluation of effects of employment of new ICT systems on formation of organizational transformation in PNU universities of south of West Azerbaijan province and while doing so, the researchers have endeavored to answer these questions that if new information technologies are effective on formation of organizational transformation in PNU universities of south of West Azerbaijan province? And, is there a relation between employment of new ICT systems and organizational transformation in PNU universities of south of West Azerbaijan province?

MATERIALS AND METHODS
Methods
This research was performed under descriptive-correlative methods. The population includes the entire experts of PNU universities of the south of West Azerbaijan province as 85 individuals. With respect to the limited size of the population, the entire population was selected as the sample. For the purpose of data collection, the researcher made questionnaire of information technology with 25 questions and John Carter and Peter Draker's questionnaire of organizational transformation with 42 questions and 8 items (creation of feeling of necessity (5 questions), formation of conductor coalition (5 questions), development of the perspective and strategy (3 questions), transferring the perspective of transformation to other people (5 questions), enabling employees for performance of pervasive actions (5 questions), creation of short-term victories (5 questions), summarization of successes and creation of more changes (5 questions), institutionalization of new perspectives in culture (9 questions)) were used. Validity of these questionnaires were approved by expert instructors and for evaluation of the reliability, the Cronbach's alpha was used. The value of Cronbach's alpha for the questionnaire of information and communications technology was calculated as 0.82 and the reliability of the questionnaire of organizational transformation was also calculated as 0.87. For analysis of data, the descriptive statistics such as standard deviation, means, abundance and percentages were used. Also for testing the research hypotheses, the Kolmogorov-Smirnoff and Pearson's correlation and the regression tests were used.

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RESULTS AND DISCUSSION
Results
In this section, the research hypotheses are exposed to tests of Kolmogorov-Smirnoff, Pearson's correlation coefficient and linear regression. First, before performance of Pearson's correlation test, the Kolmogorov-Smirnoff test is performed for determining the normality of data distribution. Results of this test indicated the normal distribution of data for studied variables (Table 1).

Table 1: Results of Kolmogorov-Smirnov test

Significance	Sig	Z	Statistical indexes of variables
0/05	0/09	1/24	ICT
0/05	0/51	0/83	Organizational transformation
0/05	0/09	1/22	Development of feeling of necessity
0/05	0/32	0/95	Development of guiding coalition
0/05	0/39	0/97	Development of perspective
0/05	0/13	1/11	Transferring perspective
0/05	0/09	1/24	enabling
0/05	0/19	1/07	Creation of short-term successes
0/05	0/11	1/21	Summarization of successes
0/05	0/09	1/25	Institutionalization of new perspectives in culture

With respect to table 1, since the significance level of all studied variables is equal to 0.05, it is concluded that the entire variables feature a normal distribution. Therefore, the linear regression test and the Pearson's correlation test are used for testing hypotheses.

With respect to the fact that the value of significance level for the entire research variables is equal to 0.05, therefore the linear regression test and the Pearson's correlation test are used for testing research hypotheses.

In table 2, results of Linear regression test for research variables are shown

Table 2: Results of Pearson's correlation test for research variables

Significance	Correlation coefficient	Dependent variable	Independent variable
0/000	0/855	Organizational transformation	
0/000	0/944	Feeling of necessity	
0/000	0/809	Guiding coalition	
0/000	0/691	Development of perspective and strategy	
0/000	0/733	Transferring transformation perspective	ICT
0/000	0/660	Enabling employees	
0/000	0/766	Creation of short-term successes	
0/000	0/740	Summarization of successes	
0/000	0/766	Institutionalization of new perspective	

With respect to table 2, we conclude that under a 0.99 confidence level and error value of less than 0.01, there is a positive and significant relation between information technology and organizational transformation and its dimensions. Results of linear regression test for research variables are shown in table 3.

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Table 3: Results of linear regression test for research variables

ρ	t	β	R^2	R	F	Dependent variable	Independent variable
./000	29/413	0/855	0/731	0/855	865/096	Organizational transformation	
./000	51/067	0/944	0/891	0/944	2607/873	Feeling of necessity	
./000	24/583	0/809	0/655	0/809	604/319	Guiding coalition	
./000	17/040	0/691	0/677	0/691	290/347	Development of perspective and strategy	
./000	19/242	0/733	0/538	0/733	370/258	Transferring transformation perspective	ICT
./000	15/654	0/660	0/435	0/660	245/039	Enabling employees	
./000	21/269	0/766	0/587	0/766	452/353	Creation of short-term successes	
./000	19/643	0/740	0/548	0/740	385/830	Summarization of successes	
./000	21/241	0/766	0/587	0/766	451/195	Institutionalization of new perspectives	

With respect to the results of table 3, and with respect to the value of F and the value of calculated t, it can be seen that the relation between ICT and organizational transformation and its dimensions is linear, also with respect to the calculated significance level it can be stated that ICT has a significant and positive effect on organizational transformation and its dimensions.

Discussion and Conclusions

Results indicated that there is a significant relation between employment of new systems of ICT and formation of organizational transformation with the confidence level of 0.99 and error value of less than 0.01. On the other hand, the value of this relation is equal to 0.855 and is positive, linear and strong. It means that employment of new ICT systems leads to increase of organizational transformation. Mataei *et al.,* (2013) conducted a research and claimed that the most difficult process in every organization might be the process of transformation because the present century is filled with transformation and change and it had never been exposed to such a high value of changes in past years; organizations must also react according to changes of the transformed environment, otherwise they are exposed to deterioration danger because the environment and surrounding of organizations are more dynamic compared to past and organizations are obliged to move towards transformation in order to be successful. With respect to the positive and meaningful relation between employment of ICT systems and creation of organizational transformation in PNU universities of the southern part of West Azerbaijan province, and these universities' employment of ICT systems such as Golestan and the fact that PNU universities are considered as virtual universities in terms of some specific sciences, it is revealed that these universities have made a significant transformation in their organization through employment of new ICT systems.

Results indicated that there is a significant relation between employment of new systems of ICT and formation of feeling of necessity with the confidence level of 0.99 and error value of less than 0.01. On the other hand, the value of this relation is equal to 0.944 and is positive, linear and strong. It means that employment of new ICT systems leads to increase of level of necessities. As quoted by Sarafi (2007), information technology is one of the most infrastructures of development for most countries. With respect to the fact that the present era is the era of information technology and the whole world is rapidly moving towards being mechanical and electronic, and since PNU universities have been equipped with IT systems for a long time, it can be stated that these organizations have been leading in creation of feeling of necessity as well as being equipped with up to date technologies; and through the application of new

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systems, they have made a great change in providing services and optimization of their status. In PNU universities, information technology can help recognize and discuss challenges as well as aiding management of crises for formation of more changes and transformations.

Results indicated that there is a significant relation between employment of new systems of ICT and formation of guiding coalition with the confidence level of 0.99 and error value of less than 0.01. On the other hand, the value of this relation is equal to 0.809 and is positive, linear and strong. It means that employment of new ICT systems leads to increase of guiding coalitions. Khorasani (2015) claimed that investigation of Iran's governmental organizations reveals that a type of stability has been established in them which have resulted in decrease of their efficiency. Therefore, the need for change and transformation is felt for them. In this regard, identification of obstacles on organizations' way towards transformation seems necessary and with removal of these obstacles, organizations can gain more acceleration regarding their transformational plans. An efficient monitoring on organization's activities and description of legal criterions for evaluation of their performance can be an effective step towards orienting governmental organizations towards advancement and development. Employment of information technology can be effective in formation of different bureaucratic teams in PNU universities with the task of change management and also guiding the team and facilitating it for team works.

Results indicated that there is a significant relation between employment of new systems of ICT and development of the perspective and strategy with the confidence level of 0.99 and error value of less than 0.01. On the other hand, the value of this relation is equal to 0.691 and is positive, linear and strong. It means that employment of new ICT systems leads to increase of development of perspectives and strategies. Hassan (2008) conducted a research and claimed that information technology imposes significant effects on all dimensions of organizations and organization managers are required to consider for issues related to information technology and otherwise, they are sentenced to deterioration. With respect to employment and utilization of new ICT systems in PNU universities of the south of West Azerbaijan province, it can be stated that application of these systems can provide these universities with a faster means of development and becoming a national virtual university in long term.

Results indicated that there is a significant relation between employment of new systems of ICT and transferring transformation perspective with the confidence level of 0.99 and error value of less than 0.01. On the other hand, the value of this relation is equal to 0.733 and is positive, linear and suitable. It means that employment of new ICT systems leads to increase of transferring transformation perspective. With the application of ICT systems in PNU universities, the utilization of every possible device for permanent transfer of perspectives and new strategies to other people and existence of the guiding coalition which expects a uniform pattern for behavior of employees becomes feasible and doing so will lead to transformation in universities.

Results indicated that there is a significant relation between employment of new systems of ICT and enabling employees with the confidence level of 0.99 and error value of less than 0.01. On the other hand, the value of this relation is equal to 0.660 and is positive, linear and strong. It means that employment of new ICT systems leads to increased enabling and empowerment of employees. Gholipour (2010) investigated the effects of IT on organizational behavior and concluded that there exists a highly powerful and strong relation between IT and organizational behaviors. Implementation of ICT systems in PNU universities leads to independence from obstacles, change of systems and structures, persuasion towards taking risks, welcoming new ideas and non-traditional operations and obtaining these factors leads to organizational transformation at universities.

Results indicated that there is a significant relation between employment of new systems of ICT and creation of short term successes with the confidence level of 0.99 and error value of less than 0.01. On the other hand, the value of this relation is equal to 0.691 and is positive, linear and strong. It means that employment of new ICT systems leads to increase creation of short-term successes. Rahmani and Haiti (2008) studied ICT as an element of growth of efficiency in 69 developed and non-developed countries. They concluded that investing on ICT has a significant relation with growth of efficiency in both developed and non-developed countries. Implementation of ICT in PNU universities leads to planning for

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observable improvements in performance and successes, creation of short-term successes and rewarding people who have contributed in successes and performance of these factors can provide the context for a great transformation in PNU universities.

Results indicated that there is a significant relation between employment of new systems of ICT and summarization of successes and more transformations with the confidence level of 0.99 and error value of less than 0.01. On the other hand, the value of this relation is equal to 0.740 and is positive, linear and strong. It means that employment of new ICT systems leads to increased summarization of successes and more transformations.

As quoted by Sarafi (2007), information technology is one of the most infrastructures of development for most countries. The application of Information Technology in PNU universities, leads to more credits for change of all systems and implementation of development and deployment of people and individuals who are able to perform or execute the perspective of transformation. It also leads to reinforcement of processes, plans, goals and elements of changes.

Results indicated that there is a significant relation between employment of new systems of ICT and institutionalization of new perspectives in culture with the confidence level of 0.99 and error value of less than 0.01. On the other hand, the value of this relation is equal to 0.766 and is positive, linear and strong. It means that employment of new ICT systems leads to increased institutionalization of new perspectives in culture.

Hadi and Aasaar (2009) have regarded the national culture as the effective element on acceptance of new technologies. National culture is defined as people's collaboration sense in publicizing an innovation. In this publication, interest and increase of skills are two elements that are important and grow together. The application and utilization of ICT in PNU universities, the establishment of a better performance through customer oriented behavior and better leadership and effective management becomes possible. Performance of these factors leads to improved organizational culture in application of new information technologies and it also removes employees' opposition against changes which itself leads to organizational transformation in universities. Existence of a strong culture compatible with application of up to date technologies leads to facilitation and improvement of affairs and finally organizational change.

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