

Study effects of office automation on human resource performance (Case study: Health organization of Abhar)

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ABSTRACT: Advancement in information and communication technology (ICT) and its related field, provide different ways for business environment. In these fields, management information systems as an ICT tool, are one of the most important and applied solution to control and monitor information circulation in organizations and office automation systems are one the common system for information circulation in organizations. In this systems paper circulation is under attention and has different tools to forward and receive papers, comments, orders, personal messages, immediate messaging and ... inside and outside of organizations. Then this research aim to study effects of office automation on personnel's productivity. To achieve this goal a questionnaire with 24 items distributed between 103 staff of Abhar's health organization and support office of Emdadi hospital and finally 88 completed questionnaire used to test hypotheses of research. Because variables of research are normal then one variable regression used to test hypotheses with SPSS19.0. Results showed office automation has positive effect on productivity, performance, and effectiveness of Abhar's Health Organization's stuff.

Key words: office automation, productivity, performance, effectiveness, Health organization of Abhar (HOA).

INTRODUCTION

Currently communication and official correspondence in organizations and economical institutions, because of development of ICT in all over the world and rising in environmental changes and necessity of on time and proper answering to these changed, completely transformed. Used of office automation as new method, not only speed up work process but by gathering data of organization activities and classifying them, provide a proper base to speed up daily activities. Surly by easing process and activities, one of the most important goal of all organizations that is customers' satisfaction and enhancing productivity, provided. Then use of office automation not only affect human resource productivity, but affect performance criteria and effectiveness in other hand and as productivity it is a mix of performance (right doing) and efficiency (doing right), mean assurance performance and efficiency (Sarafi zadeh and Alipour, 2010). Use of new technologies and ICT in governmental and public sectors to making efficient organizations and providing fast, easy, and proper services become popular in most of countries. Understanding importance of ICT in governmental sector and role of IT in public sector, stimulated policy makers to provide proper infrastructure for it. Of course between mechanized systems, office systems are so common that pervasively used in organizations and their client are rising and in another hand proper software and hardware structures wait for paperless offices to develop affairs between organizations (Shikh Bakloo et al, 2013).

Based on important role of office automation, this research look for effects of office automation on human resource productivity in Health organization of Abhar and need to analyze effects of office automation on productivity and efficiency.

Hypotheses

Based on subject and target society, following hypotheses provided:

Main hypothesis:

Use of office automation has effect on productivity of human resource.

Sub hypotheses:

- 1) Use of office automation has effect on performance of human resource.
- 2) Use of office automation has effect on effectiveness of human resource.

Literature review **office automation**

Management on office correspondence and time management completely changed in organizations and use of slow and problematic methods aren't acceptable. High volume of information and office correspondence and slow access forces managers to use office automation in different aspects.

Office automation is best tool to achieve proper ways to save time and optimum use of time in organizations. Mechanized methods speed up office correspondence circulation and enable managing on affairs. In this process paper less correspondence, save and optimum use of time become realized and office automation is a mechanism to enhance productivity of organization by effective management and used of electronic based data circulation in the organization, search and answer on time to them, vanishing papers from office correspondence, use proper control on clients and better keeping and recording data, and enhancing inside organization communications. Another benefits of office automation is reducing activities such as document archiving, keeping records in low volume, higher immunity and ease access, providing proper reports with charts, reducing work load of secretaries and typist, tracing and doing works by telephone in every place and time, control on classified information, accuracy in doing works and registering all activities, removing paper from process of all activities, ease and fast process of activities, high immunity in document keeping and fast access to them (Shiri, 2007).

productivity

In management view, productivity is level of success in use of resources to achieve goals. Productivity has meaning of performance and effectiveness simultaneously then it differ than concepts such as output, production, profitability, production volume, operation, cost reduction, or extra work (Zahedi and Najari, 2007).

productivity of human resource

Productivity is fundamental factor in production and its management has determinant role in productivity. Each action to enhancing productivity has to include personnel affairs because humans do organizations activities. Of course first emphasize of human resource management relate to triggering incentives to rise productivity, use evaluation tools and pay based on competency (Zahedi and Najari, 2007).

effectiveness

In effectiveness, individuals try to do activities is right way to lead organization to its goal. Effectiveness is about properly realization of organization's goal. Effectiveness has high relationship with quality. Main goal in effectiveness is doing right activities (Soltani, 2004).

3-5. performance

In performance, individuals and organizations try to right activities and this mean organization's resources can work properly with performance. Performance has close relationship with process control and use of resources during process implementation (Soltani, 2004).

METHODOLOGY

Based on research orientation, identity, and goal, this research is applied. Applied research mean development, providing new methods or skills, and solving problems that directly relate to smaller groups (Saei Arasi, 2009, p47).

Based on subject's properties, this research is descriptive. Researchers in this type of research try to investigate existence situation or phenomena (Saei Arasi, 2009, p47).

Based on time of data gathering, this research is cross sectional. Cross sectional research investigates identity of properties and understanding of humans (intentions, believes, ideas, and interests) by analyzing answered question that designed properly (Saei Arasi, 2009, p47).

Briefly can say this research based on goal is applied, based on subject properties is descriptive, and based on implementations is cross sectional and survey.

Statistical society

Statistical society of research composes to two groups:

All stuff of Health organization of Abhar

All personnel of support office of Emdadi hospital of Abhar

Based on achieved data from administrative part of Abhar's health organization in 11 August 2013, all stuff of Abhar's health organization include 54 and all personnel of support office of Emdadi hospital of Abhar

includes 49 individuals, then volume of statistical society is 103. A questionnaire distributed in statistical society (sample volume and statistical society volume is equal (N=n)). Finally 88 completed questionnaires used to data analyze (return rate of questionnaire is about 86%).

Data gathering tool

A questionnaire with 30 items with 6 general (demographic) and 24 technical items used to data gathering. Lycer scale with five options used to answer to each technical question (completely agree, agree, natural, disagree, completely disagree).

Validity of questionnaire approved by thesis advisor and consultant, and manager of health organization of Abhar. Reliability tested by Cronbach's alpha. Designed questionnaire tested on 20 respondent and calculated Cronbach's alpha with SPSS software reported in table 1 as followings:

Table 1. calculation Cronbach's alpha

Variables	Items	Alpha coefficient
Performance	9 questions	0.8691
Effectiveness	9 questions	0.8360
Productivity	18 questions	0.9165
Office automation	6 questions	0.8222
Questionnaire	24 questions	0.9298

Because Coronbach's alpha for each variable of questionnaire is higher than 0.7, then questionnaire has proper reliability.

Data analyzing

Because in each hypothesis this research look for effects of independent variable on dependent variable, then regression used to test hypotheses. To investigate effect of independent variable on dependent variable, single variable or multi variable regression can be used but because there is one independent variable in each of hypotheses, then one variable regression used.

To implement each regression it is needed to some establish some hypotheses and if these hypotheses not realized, regression can't be acceptable. One of these hypotheses is independent error and another is normal variable. Durbin- Watson test used to investigate error be independent and Kolmogorov-Smirnov (K.S) test used to investigate variables be normal.

Default of regression

Kolmogorov- Smirnov test

Kolmogorov-Smirnov test used to investigate whether variables are normal or not and results are as following:

Table 2. results of K.S test

Variables	K.S statistics	Significance
Performance	1.002	0.268
Productivity	0.868	0.439
Effectiveness	0.781	0.575
Office automation	0.785	0.568

Based on table 2, level of significance for all variables is higher than acceptable error ($\alpha=0.05$), then all variable are abnormal and parametric tests has to be used.

testing independence of variable

Another default of regression is variables independence from each other (error is difference between real value and predicted values by regression). If errors not be independent from each other, use of regression is impossible. To investigate variables independence from each other, Durbin-Watson test used.

In this test H0 mean there is no correlation between errors and H1 mean there is correlation between errors. If statistics of Durbin-Watson places between [1.5, 2.5], H0 will be approved and else it will reject. Results of this test illustrated in table 3.

Table 3. results of Durbin-Watson test

Hypothesis	Durbin-Watson statistics	Result of test
First: office automation – productivity	1.699	No correlation
Second: office automation- performance	1.792	No correlation
third: office automation – effectiveness	1.720	No correlation

As illustrated in table 3, because statistics of Durbin-Watson test places between [1.5, 2.5], then there is no correlation between errors and because all variables are normal then one variable regression can be used to test hypotheses of research.

Hypotheses testing

Main hypothesis of research

Main hypothesis of research aim to investigate effects on independent variable (office automation) on dependent variable (productivity of human resources). Based on normal variables and independent errors, one variable regression used to testing this hypothesis and results showed in following tables.

Table 4. summary of model

Model	Correlation coefficient	Determination coefficient	Decreased coefficient
	0.674	0.454	0.448

Table 5. variance analyze

Model	Sum of squares	df	Mean of squares	F	sig
regression	13.967	1	13.967	71.504	0.00
Reminded	16.798	86	0.195		
Total	30.765	87			

Table 6. regression model

Model	Estimation of parameters	t	sig
Distance from reference β_0	1.759	6.932	0.000
Office automation β_1	0.563	8.456	0.000

As seen in table 4, correlation coefficient is 0.674 that shows level of relationship between office automation and productivity and determination coefficient is 0.674 that shows independent variable (office automation) lonely determine about 0.454 of total dependent variable changes (personnel productivity) and other changes relate to other variables. In table 5 significance of regression (H_0) will investigated. Because significance level in this table is 0.000 and is less than level of acceptable error ($\alpha=0.05$), therefore significance of regression approved. In table 6 $H_0: \beta_0\beta_1=0$ will investigate versus $H_1: \beta_0\beta_1\neq 0$. H_0 hypothesis will reject because significance level is less than level of acceptable error ($\alpha=0.05$). As another word it can say that office automation has effects on productivity of human resources. Based on value of β_1 (0.563) that is a positive, it cans say office automation has direct and positive effects on productivity of human resources.

first sub-hypothesis

This hypotheses tries to investigate effects of independent variable (office automation) on dependent variable (performance of human resource) and based on that hypotheses of research are normal, one variable regression used to test first sub-hypothesis and results shown in table 7.

Table 7. summary of model

Model	Correlation coefficient	Determination coefficient	Decreased coefficient
	0.579	0.335	0.579

Table 8. variance analyze

Model	Sum of squares	df	Mean of squares	F	sig
regression	12.556	1	12.556	43.362	0.00
Reminded	24.902	86	0.290		
Total	37.458	87			

Table 9. regression model

Model	Estimation of parameters	t	sig
Distance from reference β_0	1.862	6.027	0.000
Office automation β_1	0.534	6.585	0.000

As shown in table 7, correlation coefficient (R) is 0.579 that shows level of relationship between office automation with human resource performance and determination coefficient (R^2) is 0.335 that shows independent variable (office automation) lonely has 0.335 of changes of dependent variable (performance of human resource) and remained of changes relate to other variables. Table 8 shows investigation significance of regression (H_1) and because significance level is 0.000 and acceptable error is less than 0.05 then H_1 approved and regression is significant. In table 9 $H_0: \beta_0\beta_1=0$ will investigate versus $H_1: \beta_0\beta_1\neq 0$. H_0 hypothesis will reject because significance level is less than level of acceptable error ($\alpha=0.05$). As another word it can say that office automation has effects on productivity of human resources. Based on value of β_1 (0.534) that is a

positive value, it can say office automation has direct and positive effects on performance of human resources.

Second sub-hypothesis

This hypotheses tries to investigate effects of independent variable (office automation) on dependent variable (effectiveness of human resource) and based on that hypotheses of research are normal, one variable regression used to test second sub-hypothesis and results shown in table 10.

Table 10. summary of model

Model	Correlation coefficient	Determination coefficient	Decreased coefficient
	0.703	0.495	0.489

Table 11. variance analyze

Model	Sum of squares	df	Mean of squares	F	sig
regression	15.453	1	15.453	84.123	0.00
Reminded	15.796	86	0.184		
Total	31.248	87			

Table 12. regression model

Model	Estimation of parameters	t	sig
Distance from reference β_0	1.656	6.730	0.000
Office automation β_1	0.592	9.172	0.000

As shown in table 10, correlation coefficient (R) is 0.703 that shows level of relationship between office automation with human resource effectiveness and determination coefficient (R^2) is 0.495 that shows independent variable (office automation) lonely has 0.495 of changes of dependent variable (effectiveness of human resource) and remained of changes relate to other variables. Table 11 shows investigation significance of regression (H1) and because significance level is 0.000 and acceptable error is less than 0.05 then H1 approved and regression is significant. In table 12 $H_0: \beta_0\beta_1=0$ will investigate versus $H_1: \beta_0\beta_1\neq 0$. H_0 hypothesis will reject because significance level is less than level of acceptable error ($\alpha=0.05$). As another word it can say that office automation has effects on effectiveness of human resources. Based on value of β_1 (0.592) that is a positive value, it can say office automation has direct and positive effects on effectiveness of human resources.

Table 13. summary of research hypotheses

Hypotheses	Type of scale	Type of test	Result of test
Main hypothesis- productivity of HR	Ordinal	One variable regression	approved
First sub hypothesis- performance of HR	Ordinal	One variable regression	approved
Second sub hypothesis- effectiveness of HR	Ordinal	One variable regression	approved

CONCLUSION

This research aim to answer following questions

- Has office automation effects on productivity of HR?
- Has office automation effects on performance of HR?
- Has office automation effects on effectiveness of HR?

These question integrated in frame of three hypotheses and to investigate them, a questionnaire distributed between 88 staff of Health organization and support office of Emdadi hospital of Abhar city. This questionnaire composed of 24 technical items and 6 demographic items (totally 30 questions). Each hypothesis investigate effects of independent variable on dependent variable therefore one variable regression used. To implement each regression some defaults needed that without them validity of regression can't be acceptable, therefor Kolmogorov-Smirnov (K.S) test used to determine normality of variables and Durbin-Watson test used to determine errors are independent from each other. Finally one variable regression used to test hypotheses and results showed office automation has direct and positive effects on productivity, performance, and effectiveness of staff of Abhar's health organization. It is recommended organizations can provide proper training to their staff to decrease mistake in office automation implementation. Also providing an alarm system to control level of access to classified information and determine maximum needed time to answering to it. It is suggested to use additional plugins to office automation systems to measure performance then managers and personnel can see their performance daily and be aware of doing right and accurate activities.

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