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# Evaluating the Human Resources Information System Efficiency

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### ABSTRACT

The present research dealt with evaluating the Human Resources Information System (HRIS) efficiency employing effective factors on users' satisfaction such as system quality, information quality, and system application. The research sample included all staff in the Bureau of Prisons in Markazi province, Iran. The sample data were analyzed based on four factors including age, gender, education level, and years of service. Hypotheses testing revealed that there is a significant correlation between all of the considered variables. Results indicated that the ease of use of information system, authorized access to information system, integrated reports provided by information system, timely response of information system to individuals' needs, information system variability and flexibility under different settings and continuity and uniformity of information system programming, information accuracy, security, completeness, newness, coordination and simplicity as well as correct information volume and understandability of information, information use in job performance improvement, feasibility of objectives and information system excellence, task simplification, transparency, clarity and understandability of information system, easy use, and output and productivity excellence of information system have a relatively significant impact on users' satisfaction improvement.

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### 1. Introduction

The main function of Human Resources Information System (HRIS) has been documented in helping organization managers to solve problems and to make contingent decisions. In fact, the HRIS plays an important role in collecting, classifying, up to dating, self-explaining, analyzing, and providing the required information for managers in various fields in relation to organization's activities, work force, capital resources, etc. so that they can use such information in their decision makings. The importance of HRIS in organization leadership becomes apparent when we assume that a correct decision needs 95% accurate and up-to-date information its other 5% relays on inference. Information explosion is considered as the most important industrial event in the twentieth century with outstanding impact on all industrial sectors. In today's competitive world, information is as valuable as capital and manpower and serves as one of the production factors; it also acts as a paramount comparative advantage for various enterprises. Ensuring the system and its information efficiency has been always one of the managers' concerns, particularly the human resources managers. This also makes the focal point of the present research.

### 2. Literature review

The users' assessments of an information system are based on their inferential attitudes about the system. This attitude-based assessment is true for systems, thus, features such as accuracy and up-to-dating, usefulness, and ease of use are evaluated through attitude-based assessments. Since that there are diverse and different structures in information systems, it may be impossible to develop a general theoretical basis for users' assessment. However, it is necessary to determine a theoretical view relating the pertinent systems to their relative effects and generating a special structure for users' assessments.

Masses of data stored in companies' databases are usually so huge that sometimes it seems meaningless (and useless) to managers. This chaos and confusion in the high volume of information needs an information system for its classification and categorization for further use. Information systems stem from pictorial impressions in caves through which the tribe members did their transactions. When the volume of transactions is small and the number of people who are communicating with each other is few, the works can be handled using these primitive systems, but with increased volume of transactions and more involved people in such activities, the systems should be far more advanced (Behan, 1999, p.6).

The management information system (MIS) is an integrated system comprising user and machine for providing information in support of operations, management and decision making processes in organization. The system uses computer hardware and software, manuals and instructions as well as analysis, planning, control and decision making models, and database (Davis and Olson, 1985, p. 6). The management information system collects environmental data and records the transactions and organizational operations data, and then it filters, organizes and selects them to make them available as information for managers. It provides a tool for managers to generate their required information (Mordik and Manson, 1986, p.6).

The management information system is an integrated and computer-based system with user-machine interface which provides the information needed to support the operations and decision making processes. The main elements of the system are: (1) an integrated system to serve a large number of users, (2) a computerized system connecting and relating a number of information software to each other through a database, (3) a user-machine interface responding to immediate and ad hoc

searches, (4) a tool providing information to all managerial levels, and (5) a tool supporting operations and decision makings. Organization's MIS is not a separated part from other information systems, but it provides a general framework for streamlining other information systems. Over time, it was revealed that the concept of implementing a fully integrated and unified system is very difficult. The fact is that an integrated system does not mean a single and homogeneous structure, but it refers to diverse components with a unified plan. Today, the management information system is considered as a federation of subsystems designed and implemented as needed in accordance with the unified plan, standards and procedures of the MIS. Therefore, instead of a general and singular management information system, an organization creates numerous related information systems that meet managerial needs at different levels and in various forms. Previous experiences show that creating a fully integrated system is impossible because there are many factors that must be considered simultaneously, and also, the maintenance of such system is very intricate.

For this reason, the management information systems are often designed in part-wise manner and their integration is undertaken if necessary. In summary, the management information systems provide a basis for integration of processing organizational information (Davis and Olson, 1985, pp.6-53).

The expansion of information systems lessens the management bureaucratic nature and moves the management toward "Infocracy". Some professionals believe that devolving decision-making to information technology weakens the basics of management democracy.

It is because the nature of information technology inclines toward technocratic tendencies rather than democratic orientations. On the other hand, some believe that information technology reinforces democratic values such as pluralism, freedom of expression, etc. In the communications world, direct control gives way to indirect tools such as standardization and education. Information is the source of power, and the power monopoly in any kind reveals its negative costs in long term because it both harms the community and brings the total governance into question (Zahedi, 2002, p. 125).

The main function of HRIS is discovered in helping organization managers to solve problems and to make contingent decisions. In fact, the HRIS plays an important role in collecting, classifying, up to dating, self-explaining, analyzing, and providing the required information for managers in various fields in relation to organization's activities including environmental settings, competitors, citizens, vendors, work force, capital resources, etc. so that they can use such information in their decision makings. The importance of the HRIS in organization leadership becomes apparent when we assume that a correct decision needs 95% accurate and up-to-date information with 5% inference (Erfani, 1998, p.43).

Information systems have numerous applications in organizations. Today, many organizational activities are performed using information technologies. This increases the speed, accuracy, and assurance level of activities. The growth of using information technology is so high that in its absence, performing many tasks would be impossible or would face to numerous difficulties, and even with striking efficiency impairment.

According to researchers, the information technology's functions are classified into three major types: (1) operational functions; (2) information functions; and (3) educational

functions. Each organization can use a combination of these three functions based on its activity.

At present, organizations have an access to the large reserves of basic information which are provided in completely different and diverse forms, and can be stored in places such as file cupboards, database information program, library shelves and even the Internet. However, the huge growth in information quality brings about increasing problems associated with the quality of information which subsequently become more complicated due to organizational efforts for improving systems in the organizational memory and information management. Failure in information management or information inaccuracy is translated to countless dollars expenditure each year by commercial organizations. The information quality forecasts mostly focus on production process through a system and the usefulness or relative importance assigned to it by users. Therefore, most of forecasts are conceptual in nature. Based on Bailey and Pearson's definition, nine attributes of information quality include: accuracy, precision, up-to-datedness, output correctness, reliability, integrity, briefness, form, and relatedness. This is the start point for mass of researches and studies in the field of user's satisfaction. Other researchers added other criteria such as understandability, sufficiency, independency to source, comparability, and quantification.

In their study on executive ISs, Watson and Rainer described five attributes of information quality including accuracy, appropriateness, briefness, convenience, and relevance (Hasnavi, 2011, p.31).

The information system's scales mostly focus on functional characteristics of the studied system. Some researchers have dealt with the deployment of resources and investments, accuracy, processing speed, response time, accessibility, ease of use, friendly working environment and the state-of-art technologies in hardware and software fields.

The list of system quality measures may include the most well-known features such as up-to-date data, response time, return time (setup), data accuracy, reliability, integrity, system flexibility and ease of use. Recently, Seddon's research showed that regarding the system quality it is necessary to consider programming problems in the system (system reliability), processor compatibility, ease of use, documentation quality, quality and maintenance of the programs (Hasnavi, 2011, p. 32).

It is a very common practice to consider user's satisfaction in management information systems researches measuring IS success, and a number of standardized instruments have also tested and improved in this regard. The measure of users' information satisfaction originates from the studies conducted by Bailey and Pearson during the 1980s, who presented a list of 39 main factors influencing the computerized calculations about users' satisfaction.

In their succeeding research, Ives, Olson, and Baroudi tried to improve the reliability and internal contingency of the measure and provided an abstract survey instrument through eliminating some factors with lower dependency. Later, Orlikowski and Baroudi reaffirmed the validity and accuracy of Ives, Olson, and Baroudi's abstract survey instrument as an effective measure of users' satisfaction. Although, most of such measures tend to evaluate a specific application instead of end-user satisfaction's computations, Doll and Torkzadeh introduced another measure of users' satisfaction in the late of 1980s which was called "Computational method of end users' satisfaction".

According to Melone's theory, although the previous measures produce valid assessments of system efficiency, they fail to reveal an obvious relationship between system efficiency and users' satisfaction. Recently, Seddon has defined the users' satisfaction as a subjective evaluation of different individuals, organizations and societies based on IS application. He argues that users' satisfaction measure is obviously a way of determining the net profits received by SI shareholders (individuals, special groups, organization management and society). Seddon claims that the previous measurement methods of users' satisfaction (e.g., Ives, Olson, and Baroudi) fail to measure this preferred structure adequately (Hasnavi, 2011, p. 33).

Because of fierce competition along with huge human resources development methods, the organizations try to keep their talented employees and empower them to achieve a high level performance. However, organizations are always concerned with losing their human capitals and its accompanied costs. And they spend much expenditure for education, training and preparation of their staff to achieve their optimal efficiency and performance level. But the loss of these valuable forces incurs skills and experiences costs to organizations. Employees' turnover is associated with the following costs:

1. Costs of job vacancies: including costs related to turnover interview, administrative costs of salary cut and resignation, costs related to the lost knowledge and skills,
2. Costs of hiring new employees: including costs of advertising, costs of finding new employee (evaluating job records, employment interviews, employment tests for skills and talents) and costs of new comers (employment files and ID cards issuance),
3. Training costs: including presentation and briefing costs for newcomers, costs of training required skills (pamphlets, books, and instructors' wages), salary and benefits of newcomer until she/he gets ready to work, the cost for hours expended to describe job requirements and job descriptions,
4. Costs of productivity loss: including cost of low productivity of new staff, costs of new personnel's probable mistakes, costs of completing the unfinished projects started by key staff after their resignation and cost of department's low productivity.

Inner organization transfer is considered as important factor in job satisfaction and organizational commitment. If such a transfer is consistent with morale, expectations and skills of employees, it may serve as one of the significant factors in reducing leaving rate of staff.

In general, the inner organization transfer through promotion, job rotation, and job transfer changes the responsibility, independence, supervision style, colleagues and workplace environment of employees. If these changes are in balance with employee's expectations, it will lead to the improved organizational commitment and job satisfaction.

In this way, through a right transfer planning organizations can reinforce the employees' positive attitudes towards their jobs and organization, and also reduce undesirable organizational behaviors (such as turnover, absenteeism, and evasion) besides resolving other human resources problems (Majidi, 1999, p.62).

### 3. Research methodology

A survey research method is used to examine the distribution characteristics of a sample. This type of research can be used to answer the following research questions:

- What is the nature of the current situation?

- What is the relationship between events?
- What is the current situation?

Based on the studied population, the survey can be divided into small-scale or large-scale survey.

Survey is the best method for social researchers interesting in collecting main data to describe large populations which cannot be directly observed. Using an accurate random sampling method, a group of respondents is considered as representative of a larger population. The method is also an excellent instrument for measuring attitudes and directions. The survey method meets descriptive, explanatory and heuristic purposes. The present research uses survey method and is based on field research framework. Data analysis is undertaken using correlation analysis.

The research hypotheses are divided into two groups: general and secondary hypotheses.

A) General hypothesis: There is a significant relationship between human resources information system and users' satisfaction.

B) Secondary hypotheses:

*H1*: There is a significant relationship between the quality of human resources information system and users' satisfaction.

*H2*: There is a significant relationship between the information quality of human resources information system and users' satisfaction.

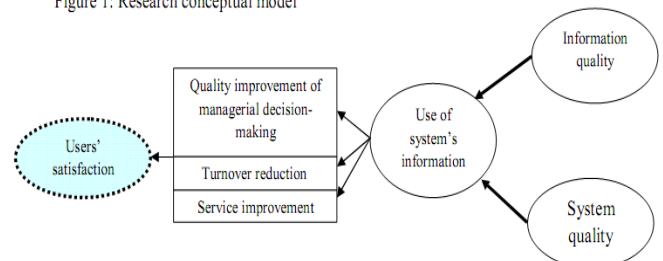
*H3*: There is a significant relationship between the ease of use of system's information and users' satisfaction.

*H4*: There is a significant relationship between the ease of use of human resources information system and quality improvement of managerial decision-making.

*H5*: There is a significant relationship between the ease of use of human resources information system and turnover reduction.

*H6*: There is a significant relationship the ease of use of human resources information system and service improvement.

Figure 1: Research conceptual model



### 4. Data analysis

Inferential statistics (correlation method) is employed to analyze the research questionnaire's data in relation to the proposed variables.

The research hypotheses are examined at significance level of  $\alpha = 0.05$  using Pearson correlation coefficient. The correlation coefficient ( $r_{xy}$ ) measures the strength of the relationship between  $X$  and  $Y$ . The more the absolute value of  $r_{xy}$ , the stronger the relationship between  $X$  and  $Y$ . If the  $r_{xy}$  is squared, the value obtained is interpreted as follows: The variability value of  $Y$  that is explained by knowing the value of  $X$ .

The research first hypothesis is as follows:

There is a significant correlation between the quality of human resources information system and users' satisfaction.

In this regard,  $H_0$  and  $H_1$  are formulated as following:

Statistic hypothesis:

$H_0$  : There is not any significant relationship between the quality of human resource information system and users' satisfaction.

$H_1$  : There is a significant relationship between the quality of human resource information system and users' satisfaction.

Test statistic:

$H_0 : \rho \leq 0$

$H_1 : \rho > 0$

Pearson correlation test results for the first hypothesis

Significance level	r	n	Correlation coefficient
0.002	0.211	186	Quality of human resources information system and users' satisfaction

Because the correlation coefficient is equal to 0.211 and the significance level is less than 0.5% (0.5% >0.002),  $H_1$  is accepted and  $H_0$  is rejected. The relationship is significant at 95% level. Thus, the correlation between the quality of human resources information system and users' satisfaction is significant i.e.  $0 < r < 1$ , and also the correlation is partial and direct. Calculating the absolute value of  $rxy$ , it is determined that the variability ratio between the two variables i.e. the quality of human resources information system and users' satisfaction is equal to 0.211. This means that the quality of human resources information system explains up to 0.21% of users' satisfaction variability. This indicates that with the increase of X (quality of human resources information systems), the value of Y (users' satisfaction) increases partially.

The research second hypothesis is as follows:

The correlation between the information quality of human resources information system and users' satisfaction is significant.

$H_0$  and  $H_1$  are formulated as follows:

Statistic hypothesis:

$H_0$  : There is not any significant relationship between the information quality of human resource information system and users' satisfaction.

$H_1$  : There is a significant relationship between the information quality of human resource information system and users' satisfaction.

Test statistic:

$H_0 : \rho \leq 0$

$H_1 : \rho > 0$

**Table (1) Pearson correlation test results for the second hypothesis**

Significance level	r	n	Correlation coefficient
0.005	0.27	186	Information quality of human resources information system and users' satisfaction with user satisfaction

Here,  $H_1$  is accepted and  $H_0$  is rejected because the correlation coefficient is equal to 0.27 and the significance level is less than 0.5% (0.5% >0.0005). Thus, the relationship is significant at 95% level. As a result, the correlation between the information quality of human resources information system and users'

satisfaction is significant i.e.  $0 < r < 1$ , and the correlation is partial and direct. Calculating the absolute value of  $rxy$ , it is obvious that the variability ratio between the two variables i.e. the information quality of human resources information system and users' satisfaction is equal to 0.27. This means that the information quality of human resources information system explains up to 0.27% of users' satisfaction variability. Therefore, the increase of X (the information quality of human resources information systems) is associated with partial increase of Y (users' satisfaction).

The research third hypothesis is as follows:

The correlation between the ease of use of system's information (information use) and users' satisfaction is significant.

Based on this, the assumptions of  $H_0$  and  $H_1$  are formulated as following:

Statistic hypothesis:

$H_0$  : There is not any significant relationship between the ease of use of system's information (information use) and users' satisfaction.

$H_1$  : There is a significant relationship between the ease of use of system's information (information use) and users' satisfaction.

Test statistic:

$H_0 : \rho \leq 0$

$H_1 : \rho > 0$

**Table (2) Pearson correlation test results for the third hypothesis**

Significance level	r	n	Correlation coefficient
0.0002	0.15	186	Ease of use of system's information and users' satisfaction

Because the correlation coefficient is equal to 0.15 and the significance level is less than 0.5% (0.5% >0.000),  $H_1$  is accepted and  $H_0$  is rejected. The relationship is significant at

95% level. Thus, the correlation between the ease of use of system's information (information use) and users' satisfaction is significant i.e.  $0 < r < 1$ . In this case, the correlation is partial and direct. Calculation of the absolute value of  $rxy$  shows that the variability ratio between the two variables i.e. eases of use of system's information (information use) and users' satisfaction is 0.15. This means that the ease of use of system's information (information use) explains up to 0.25% of users' satisfaction variability such that the increase of X (ease of use of system's information) is associated with partial increase of Y (users' satisfaction).

The research fourth hypothesis is as follows:

The correlation between the ease of use of system information (information use) and quality improvement of managerial decision-making is significant.

$H_0$  and  $H_1$  are formulated as follows:

Statistic hypothesis:

$H_0$  : There is not any significant relationship the ease of use of system information (information use) and quality improvement of managerial decision-making.

$H_1$  : There is a significant relationship the ease of use of system information (information use) and quality improvement of managerial decision-making.

Test statistic:

$$H_0 : \rho \leq 0$$

$$H_1 : \rho > 0$$

**Table (3) Pearson correlation test results for the fourth hypothesis**

Significance level	r	n	Correlation coefficient
0.0002	0.56	186	Ease of use of system information (information use) and quality improvement of managerial decision-making

Based on the statistic test,  $H_1$  is accepted and  $H_0$  is rejected because the correlation coefficient is equal to 0.56 and its significance level is less than 0.5% ( $0.5\% > 0.0002$ ). Thus the relationship is significant at 95%. The correlation between the system information ease of use (information use) and quality improvement of managerial decision-making is significant i.e.  $0 < r < 1$ , and the correlation is partial and direct. Calculating the absolute value of  $r_{xy}$ , it is indicated that the variability ratio between the two variables i.e. system information ease of use (information use) and improvement in managerial decision-making quality equals to 0.56. This means that system information ease of use (information use) explains up to 0.56% of variability in the improvement in managerial decision-making quality. In this way, the increase of X (system information ease of use) is associated with partial increase of Y (improvement in managerial decision-making quality).

The research fifth hypothesis is as follows:

There is a positive relationship between human resources information system ease of use (information use) and turnover reduction.

In this regard,  $H_0$  and  $H_1$  are formulated as follows:

Statistic hypothesis:

$H_0$  : There is not any significant relationship between human resources information system ease of use (information use) and turnover reduction.

$H_1$  : There is a significant relationship between human resources information system ease of use (information use) and turnover reduction.

Test statistic:

$$H_0 : \rho \leq 0$$

$$H_1 : \rho > 0$$

**Table (4) Pearson correlation test results for the fifth hypothesis**

Significance level	r	n	Correlation coefficient
0.637	-0.20	186	Human resources information system ease of use (information use) and turnover reduction

Accordingly,  $H_1$  is accepted and  $H_0$  is rejected because the correlation coefficient is equal to -0.20 and the significance level is larger than 0.5% ( $0.5\% < 0.637$ ), so the relationship is significant at 95%. As a result, the correlation between human resources information system ease of use (information use) and turnover reduction is significant i.e.  $0 < r < -1$ ; the correlation is partial and inverse. Calculating the absolute value of  $r_{xy}$ , it is evident that the variability ratio between the two variables i.e. human resources information system ease of use (information

use) and turnover reduction is -0.20. This means that human resources information system ease of use (information use) explains up to -20% of variability in turnover reduction. In this way, the increase of X (human resources information system ease of use (information use)) partially increases Y (turnover reduction).

The research sixth hypothesis is as follows:

The correlation between human resources information system ease of use (information use) and service improvement is significant.

$H_0$  and  $H_1$  are formulated as following:

Statistic hypothesis:

$H_0$  : There is not any significant relationship between human resources information system ease of use (information use) and service improvement.

$H_1$  : There is a significant relationship between human resources information system ease of use (information use) and service improvement.

Test statistic:

$$H_0 : \rho \leq 0$$

$$H_1 : \rho > 0$$

**Table (5) Pearson correlation test results for the sixth hypothesis**

Significance level	r	N	Correlation coefficient
0.002	0.16	186	Human resources information system ease of use (information use) and service improvement

As the analysis indicates,  $H_1$  is accepted and  $H_0$  is

rejected because the correlation coefficient is equal to 0.16 and the significance level is less than 0.5% ( $0.5\% > 0.0002$ ). Thus, the relationship is significant at 95%. Therefore, the correlation between human resources information system ease of use (information use) and service improvement is significant i.e.  $0 < r < 1$  the correlation is partial and direct. Calculating the absolute value of  $r_{xy}$  reveals that the variability ratio between the two variables i.e. human resources information system ease of use (information use) and service improvement is 0.16. This means that human resources information system ease of use (information use) explains up to 0.16% of service improvement. Accordingly, the increase of X (human resources information system ease of use (information use)) is associated with partial increase of Y (service improvement).

The general hypothesis testing:

The research proposed general hypothesis is as follows:

The correlation between human resources information system and users' satisfaction is significant.

Accordingly,  $H_0$  and  $H_1$  are formulated as follows:

Statistic hypothesis:

$H_0$  : There is not any significant relationship between human resources information system and users' satisfaction.

$H_1$  : There is a significant relationship between human resources information system and users' satisfaction.

Test statistic:

$$H_0 : \rho \leq 0$$

$$H_1 : \rho > 0$$



**Table (6) Pearson correlation test results for the general hypothesis**

Significance level	R	N	Correlation coefficient
0.002	0.26	186	Human resources information system and users' satisfaction

Based on the analysis,  $H_1$  is accepted and  $H_0$  is rejected because the correlation coefficient is equal to 0.26 and the significance level is less than 0.5% (0.5% > 0.0002) i.e. the relationship is significant at 95%. Thus, the correlation between human resources information system and users' satisfaction is significant i.e.  $0 < r < 1$ , and the correlation is partial and direct. Calculating the absolute value of  $r_{xy}$ , it is evident that the variability ratio between the two variables, human resources information system and users' satisfaction, is 0.26. This means that human resources information system explains up to 0.26% of variability in users' satisfaction. As such, the increase of X (human resources information system) is associated with the increase of Y (users' satisfaction).

After determining the correlation coefficient between the "dependent variable" and the "independent variables", mathematical or regression relationship between the dependent variable and independent variables is clarified accordingly. If we assume  $y = a + bx$  as the regression equation between two variables, the regression line equation will be determined, in this way the sum of error squares between the observations and estimated values is minimized. If we assume that  $a = \bar{y} - b\bar{x}$  and  $b = \frac{\sum xy - n\bar{x}\bar{y}}{\sum x^2 - n\bar{x}^2}$ , then the sum of error squares will be

minimized. Based on one dependent variable and three independent variables proposed in the research, the regression relation is determined as follows:

$$y = a + b_1x_1 + b_2x_2 + b_3x_3$$

Where,

$a$  is the estimator of intercept and  $b_1$  to  $b_3$  are the estimators of the lines' slopes.

The mathematical or regression equation for the research hypotheses is as follows: In sum, the relationship between the dependent variable and independent variables is 0.39, and the dependent variable takes 39.4% of its variability from the independent variables. Overall, these factors show 15% correlation with users' satisfaction.

**Table (7) Relationship between the dependent variable and independent variables**

Model	R	R-square	Adjusted square	R-Error	Standard Estimate
1	0.349(a)	0.155	0.146		0.5635

a: Predictor: constant, (system quality, information quality, information use)

**Table (8) ANOVA<sup>b</sup>**

Model	Sum of squares	Freedom degree	Mean square	F-value	Significance level
1 Regression	10.876	2	5.339	16.836	0.000a
Residual	58.036	183	0.317		
Total	68.714	185			

a: Predictor: constant, (system quality, information quality, information use)

b: Dependent variable: users' satisfaction

The above table shows the linear relationship between the dependent and independent variables. Based on the significance level minimum (0.000<sup>a</sup>) presented in the table, there is no reason to reject the linear relationship between the dependent and independent variables. It means that the proposed model is expressed as follows:

$$Y = A_0 + A_1(x_1) + A_2(x_2) + A_3(x_3)$$

$$\text{Users' satisfaction} = 2.059 + 0.374(\text{System quality}) + 0.529(\text{Information quality}) + 0.204(\text{Information use})$$

Where,

Y: Users' Satisfaction

X1: System quality

X2: Information quality

X3: Information use

$A_0, A_1, A_2,$  and  $A_3$  are regression line coefficients.

**Table (9) Regression line coefficients**

Coefficients						
Model		Non-standardized coefficients		Standardized coefficients	t-value	Significance Level
		B	Std. Error	Beta		
1	Constant	2.056	0.211		9.761	0.000
	Information quality	0.529	0.108	0.549	4.900	0.000
	Information use	0.204	0.101	0.225	1.011	0.002
	System quality	0.374	0.105	0.381	3.261	0.002

Dependent variable: users' satisfaction

**5. Discussion and conclusion**

The research aim was evaluating Human Resources Information System efficiency in the Bureau of Prisons in Markazi province, Iran. It also tried to delineate employees' (users') satisfaction and its influencing factors.

The research results provide important implications for human resources and IT managers who use the IT-based systems, and also for those who design and support such systems.

The research findings may help the systems' users to take an approach more suitable to their specialized and comprehensive human resources system with higher efficiency.

The present research is classified as an applied research and so it considers the following objectives:

1. Increasing the human resource information system efficiency,
2. Improving the efficiency and quality of human resource information system,
3. Increasing the system ease of use.

The research sample included 360 employees of Bureau of Prisons in Markazi province, Iran during 2011. The sample data analysis was undertaken considering four factors i.e. gender, age, years of service and education. All hypotheses were analyzed using Pearson correlation test.

In this section, deductive findings about each of the proposed hypotheses are analyzed. With regard to  $H1$ , the results indicate that there is a significant relationship between the information quality of human resources information system and users' satisfaction. Since that the correlation coefficient is relatively large (0.211), the relationship is deemed significant. Thus, the correlation between the information quality of human

resources information system and users' satisfaction is significant.

It means that the information system ease of use, authorized access to information system, information system integrated reports, timely response of information system, variability and flexibility of information system under different settings, and continuity and integration of information system programs are effective on users' satisfaction improvement. This indicates that with the increase of  $X$  (quality of human resources information systems), the value of  $Y$  (users' satisfaction) increases partially.

Based on testing  $H2$ , the results indicate that there is a significant relationship between the information quality of human resources information system and users' satisfaction. Since, the correlation coefficient is relatively large (0.27), so the relationship is considered as a significant relationship. Therefore, the correlation between the information quality of human resources information system and users' satisfaction is significant.

The result indicates that the information accuracy, safety, completeness, up-to-dating, coordination and simplicity, volume appropriateness and understandability have important impact on users' satisfaction improvement. Therefore, the increase of  $X$  (the information quality of human resources information systems) is associated with partial increase of  $Y$  (users' satisfaction).

For  $H3$ , the results indicate that there is a significant relationship between the ease of use of the information provided by human resources information system (information use) and users' satisfaction. Because the obtained correlation coefficient is relatively large (0.15), it can be said that the relationship is significant. Thus, the correlation between the ease of use of the information provided by human resources information system (information use) and users' satisfaction is significant.

It means that there is an effective impact of information use in improving users' job performance, objectives feasibility, information system excellence, information system flexibility, tasks facilitation, transparency, clarity and understandability of information system, the ease of working with information system, efficiency and productivity on users' satisfaction. Thus, the increase of  $X$  (ease of use of system's information), is associated with partial increase of  $Y$  (users' satisfaction).

According to  $H4$ , the results reveal that there is a significant relationship between the ease of use of the information provided by human resources information system (information use) and quality improvement of managerial decision-making. Since that the correlation coefficient is large (0.56), the relationship is deemed significant. Thus, the correlation between the ease of use of the information provided by human resources information system (information use) and quality improvement of the managerial decision-making is significant. Accordingly, the increase of  $X$  (ease of use of system information) is associated with partial increase of  $Y$  (improvement in managerial decision-making quality).

The finding shows that information use in improving users' job performance, objectives feasibility, information system excellence, information system flexibility, tasks facilitation, transparency, clarity and understandability of information system, the ease of working with information system, efficiency and productivity has an important effect on improvement of managerial decision-making quality. In other words, the mentioned factors will result in decisions which are rely on inner organization information and reports with significant role of

management information systems in organizational decision-makings. In addition, the ease of use of information systems causes the improvement of coordinating, organizing, controlling, monitoring and planning functions.

For  $H5$ , the Pearson correlation test results indicate that there is an inverse and significant relationship between the ease of use of the information provided by human resources information system (information use) and employees' turnover reduction. As the correlation coefficient obtained is negative and relatively large (-0.20), the relationship is considered significant. Consequently, the correlation between the ease of use of the information provided by human resources information system (information use) and employees' turnover reduction is significant. Thus, the increase of  $X$  (human resources information system ease of use (information use)) partially increases  $Y$  (turnover reduction).

As it can be seen, information use in improving users' job performance, objectives feasibility, information system excellence, information system flexibility, tasks facilitation, transparency, clarity and understandability of information system, the ease of working with information system, efficiency and productivity has an important effect on employees' turnover reduction. Put into another way, the above mentioned factors cause the improvement of employees' belongingness sense to organization, their job commitment, their perceived job security, their interest to their work, and their tendency to continue working in organization. Such factors also pave the way for employees to use their maximum potential and skills toward promotion and job progress.

Regarding  $H6$ , the results indicate that there is a significant relationship between the ease of use of the information provided by human resources information system and services improvement. Since, the correlation coefficient is relatively large (0.16), the relationship is considered significant. Thus, the correlation between the ease of use of the information provided by human resources information system and services improvement is significant. Hence, the increase of  $X$  (human resources information system ease of use (information use)) is associated with partial increase of  $Y$  (service improvement).

As indicated, the information use in improving users' job performance, objectives feasibility, information system excellence, information system flexibility, tasks facilitation, transparency, clarity and understandability of information system, the ease of working with information system, efficiency and productivity has an important effect on service improvement. In other words, the above mentioned factors increase the coordination between the units in providing the organization's service, transparency and confidence in service providing; thus, using the system information improves the quality of the organization services.

The general hypothesis testing results indicate that there is a significant relationship between human resources information system and the users' satisfaction. Since, the correlation coefficient is relatively large (0.26), the relationship is considered significant. Thus, the correlation between human resources information system and users' satisfaction is significant. Therefore, the increase of  $X$  (human resources information system improvement) is associated with the increase of  $Y$  (users' satisfaction).

The ease of information system application, authorized access to information system, integrated reports provided by information system, timely response of information system to

individuals' needs, information system variability and flexibility under different settings and continuity and uniformity of information system programming, information accuracy, security, completeness, newness, coordination and simplicity as well as correct information volume and understandability of information, information use in job performance improvement, feasibility of objectives and information system excellence, task simplification, transparency, clarity and understandability of information system, easy application, and output and productivity excellence of information system have a relatively significant impact on users' satisfaction improvement.

#### 6. Recommendations for further researches

Due to the importance and role of information systems in achievement of organizational goals, some suggestions are provided for other researchers who are interested in this field:

- a) Future researchers need to determine whether the results reported here can be generalized to more extensive groups. In addition, they should use more resources in their research work.
- b) Given the importance of arguments about information systems' role and their impacts on productivity, more in-depth researches are needed in this field considering other important factors.
- c) Due to the limitations in data collection method using the questionnaire, it is recommended to use other methods and measuring instruments such as interview for the purpose.
- d) Because of the fact that some other factors other than studied factors in this research may influence the users' satisfaction with information systems, it is recommended to study these important factors in similar organizations and to compare the effects of here reported results with other findings.

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