

# Evaluation of Management Information Systems Currently In the Human Resources Department of Five Universities in Iraq

Talib M. Jawad Abbas Al-Talib, Mustafa S. Mahmood

**Abstract**— It is vital that the human resource function in the higher education is supported by information system to be able to deliver services and improve operations. HRMS (Human Resource Management System) enable improvement in traditional processes and enhance strategic decision making. This paper aims to evaluate the information systems currently operating in the human resources department of five universities within the geographical region of Iraq, in order to reach the weaknesses and strengths of the current systems. Questionnaires have been used to evaluate these criteria. Data were collected from many users of the system; all of them are highly educated and have the experience of using the current system. Gap analysis was used to analyze the data to find the strength and weakness. Major analysis had performed on the collected data in terms of its importance and satisfaction to the users. A number of statistical tools have been used such as mean, standard deviation and Cronbach's alpha to accomplish the objective of this work. Moreover, performance attributes that need to be improved or that were "undervalued" by the users were identified. Findings can be used to address the shortcomings of system and improve the service quality.

**Index Terms**— Information systems, Evaluation, Questionnaire, Likert scale, Cronbach's alpha, Gap analysis, Mean, Standard deviation

## 1 INTRODUCTION

At present and with the development of technology that opened many prospects for progress and provides an electronic environment make firms to strive to develop and improve existing information systems and improvements in themselves cannot be implemented without knowledge and understanding the current system therefore, there was a need to evaluate the performance of existing systems to know and understand its performance.

Information systems are the backbone of any firm because of its importance, since that information is the primary source of any firm that can help this information when properly managed in improving processes and satisfying customer needs better. Therefore, information systems were used in order to help firms in achieve two goals are improve efficiency and operational efficiency [1]. Information systems are primarily related to information technology and that ensures data collection and processing in order to provide the necessary information in time for the company and facilitates the task of management in decision-making and achieves the best possible use of this information [2]. The information system can be defined as a series of interrelated operations that combines (or recover), processing, collection, and distribute information form the firm to support decision-making processes [3].

## 2 EVALUATION HUMAN RESOURCE MANAGEMENT SYSTEMS

Today, information systems assessments are becoming increasingly important due to the widespread use of information systems especially in modern firms so that the researchers developed specific methodologies to assess the performance of information systems continuously [4]. Moreover, information systems evaluation can be useful in three different ways are to judge the value of the system, to progress the system and generate knowledge about what is needed [5]. The main objective of the evaluation process is to know the performance of the existing system and identify the weaknesses they face, briefly the evaluation process can be described as a systematic method that use to follow, learn and understand performance of the existing system for improvements and updates making it transparent and flexible better than the former within the organization [6].

## 3 THE STUDY TOOL

The researchers collect data and information based on a tool called the questionnaire [7], the questionnaire can be defined as a collection of questions that aims of getting information from people. This technique is used when the system analyst wants to obtain information on a large number of people [8]. Questionnaires should be easy and understandable to people and facilitate data analysis later. In the questionnaires uses a scale called the Likert scale and can be defined as a measure to determine the opinion of a person or group of persons around events [8]. Likert scale consist of paragraphs on the subject of

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- Dr.Talib M.Jawad Abbas Al-Talib is Assistant Professor, Information and Communications Department, Al-Nahrain University, Baghdad, Iraq (e-mail: talib\_atalib@yahoo.com)
  - Mustafa S. Mahmood is currently pursuing master degree Computer Science in Iraqi Commission for Computers and Informatics, Informatics Institute for Postgraduate Studies, Baghdad, Iraq. (e-mail: mustafasabah830@gmail.com)

the study a standard answer was written for each paragraph according to Likert scale Quintet where it has identified five levels: Very good (5 degrees), good (4 degrees), average (3 degrees), acceptable (2 degrees) and unacceptable (one degree) [7]. In order to verify the validity of the questionnaire, a scale called Cronbach's alpha was used, it can be defined as a scale that is used to determine the degree of consistency of the questionnaire [9]. To analyze of the data was used a tool called Gap analysis, it can be defined as a tool that is used for data analysis which interested reasons the occurrence of gaps and the development of measures to reduce or remove them [10]. To measure of central tendency of the data was used a tool called the arithmetic mean (Mean), it can be defined as a one of the measures of central tendency, which is the typical value that represents a set of data and gives certain indications for that data. The resulting value is often used in most statistical assessments. Where it was calculated by collecting all the values and dividing it by total numbers of values [11], [12]. To measure of dispersion of the data was used a tool called Standard deviation, it can be defined as a one of the measures of dispersion, which depends on the dispersion of data from the arithmetic mean [11].

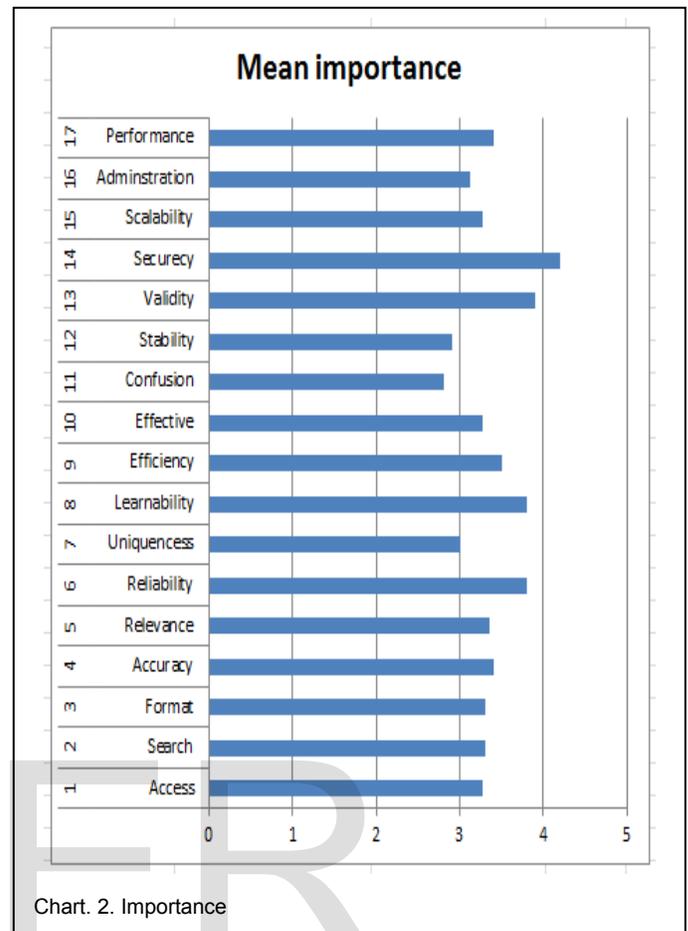
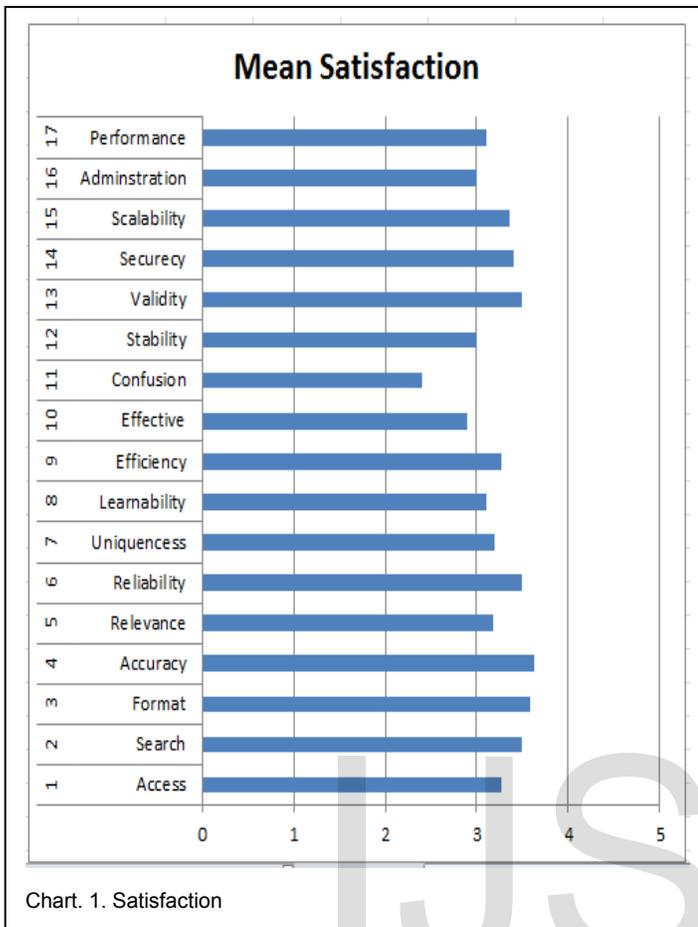
#### 4 DISCUSS THE RESULTS

It also mentioned previously the importance of information systems and their role in the institutions and the process of evaluating the systems of the important processes to identify the strengths and weaknesses of the existing information system and to make it work better so a questionnaire was conducted for five information systems for the Department of Human Resources of five Iraqi universities distributed within the geographical area of Iraq which include (University of Baghdad, University of Nahrain, University of Tikrit, University of Karbala and University of Dhi Qar) an analytical study was then carried out using statistical tools which included (Mean and Standard Deviation). Use a scale (3) as a criterion for judging, if the score is higher than (3) refers to the result is good, and vice versa if the score is lower than (3) refers to the result is not good As shown in the following table (1)

TABLE 1  
EVALUATION RESULTS OF EXISTING SYSTEMS

Q	Attribute	Criteria	Mean Satisfaction	S.D Satisfaction	Mean Importance	S.D Importance
1	Is the information within the Information system easy to reach?	Access	3.277	0.827	3.272	0.702
2	Is it easy to find a specific desired piece of information?	Search	3.5	0.912	3.318	0.567
3	Is the information within the Information system available in an appropriate format?	Format	3.59	0.908	3.318	0.716
4	How accurate is the information within the information system?	Accuracy	3.63	0.953	3.409	1.007
5	How relevant is the information within the information system?	Relevance	3.18	1.006	3.363	0.657
6	How reliable is the information within the information system?	Reliability	3.5	1.144	3.818	0.957
7	How often does redundant information flow in the information system?	Uniqueness	3.2	1.279	3	0.75
8	How easy is it to understand how to act in the system?	Learnability	3.1	1.2	3.8	0.9
9	How much energy does a user need to put into the system to produce a desired result?	Efficiency	3.27	1.03	3.5	0.9
10	How well does the system support solving the problems of user?	Effectiveness	2.9	0.84	3.27	1.07
11	How often does confusion within the system cause user error?	Confusion	2.4	0.66	2.8	0.79
12	How stable is the system in the sense of in what rate it breaks down and becomes inaccessible or losses data?	Stability	3	1	2.9	0.971
13	To what extent does the system ensure that information within it is correct?	Validity	3.5	0.91	3.9	0.971
14	How well does the system protect the information from being seen by outsider?	Secrecy	3.4	1.05	4.2	1.03
15	How well the hardware can be thought to support future needs?	Scalability	3.36	1.46	3.27	1.07
16	How easy it is to manage the hardware?	Administration	3	1.26	3.13	0.94
17	How well the hardware supports the current needs of the system?	Performance	3.1	1.42	3.4	1

The results show the satisfaction and importance of the existing systems for users where the value ranges the arithmetic mean for user satisfaction between (2.4 and 3.63) based on these results can be considered the extent to which users are satisfied with the existing systems is average. While the results indicate the importance of the current systems for users where they range between (2.8 and 4.2) based on these results can be considered the extent to which users are importance with the existing system is also average. See chart (1),(2)



The chart (1) illustrates user satisfaction criteria for their use of the existing information system where users were satisfied with the criteria's (Search, Format, Accuracy, Reliability, Validity, Secrecy and Scalability) while users were less satisfied with the criteria's (Access, Relevance, Uniqueness, Learnability, Efficiency, Effective, Confusion, Stability, Administration, Performance).

The chart (2) illustrates the criteria for the importance of the information system in users where users referred to the most important criteria for the information system (Reliability, Learnability, Efficiency, Validity, Secrecy, Performance) while users pointed to the less important criteria of the information system (Access, Search, Format, Accuracy, Relevance, Uniqueness, Effective, Confusion, Stability, Scalability, Administration).

In order to analyze the data must be applied Gap Analysis. It is a tool that is used to analyze data in order to evaluate the performance of the information system. Gaps between satisfaction and importance are determined by Gap Analysis. Large gaps between satisfaction and importance indicate problems that need to be processed while small gaps between satisfaction and importance indicate the strengths. See chart (3)

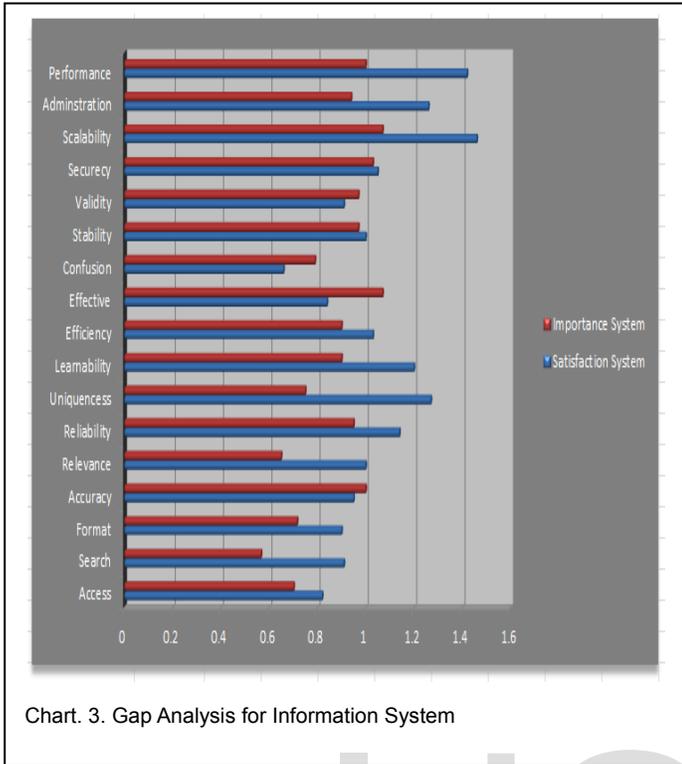


Chart. 3. Gap Analysis for Information System

The chart (3) indicates a large gap between satisfaction and importance to criteria (Access, Search, Format, Relevance, Reliability, Uniqueness, Learnability, Efficiency, Effective Confusion, Scalability, Administration, and Performance) this large difference between the standard deviation values indicates a problems that needs to be processed while the criteria (Accuracy, Stability, Validity, Secrecy) indicate a small gap between satisfaction and importance this little difference between standard deviation values represents the strengths.

The table (2) presents reliability statistics for each of the satisfaction and Importance measures for a sample of 44 employees working in the HR department. Where the Cronbach’s alpha of satisfaction is 0.87 and Cronbach’s alpha of importance is 0.90. Therefore, all measure of satisfaction and importance can be relied upon because any value for Cronbach’s alpha above 0.80 is considered very well.

TABLE 2

RELIABILITY STATISTICS FOR SATISFACTION AND IMPORTANCE

Measure	Cronbach’s alpha
Satisfaction	0.87
Importance	0.90

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### 5 The Limits of the Study

Temporal: This study was conducted in 2018.

Spatial: human resource departments in five universities.

Human: The questionnaire tool was distributed to a sample of staff working in the HR department in order to achieve objectives of the paper.

### 6 CONCLUSION

This paper proposes an evaluation of human resources information systems for five universities distributed within the geographical region of Iraq. The evaluation process has been applied successfully to existing information systems, the following results were reached is a questionnaire was designed to survey user opinions regarding universities HRMS in respect to their quality to inform users by considering the major criteria. The interest in the questionnaire was quite good. The target group of the questionnaire is the employees of different human resources departments of five universities within the geographical region of Iraq, which was 44 employees but it gave good answers.

### REFERENCES

- [1] Bach, C., et al., “Factor analysis in measuring information systems effectiveness”, ASEE, 2011.
- [2] Reddy, G.S., Srinivasu, R., Rikkula, S.R. and Rao, V.S., “Management information system to help managers for providing decision making in an organization”. International Journal of Reviews in Computing”, pp.1-6, 2009.
- [3] K. Laudon, J. Laudon, “Management Information Systems: Manage the Digital Firm”, Fifteenth Edition, Pearson Education, Inc., United States of America, 2018.
- [4] Chen, S., et al. “Information systems evaluation methodologies”, in Proceedings of the IADIS International Workshop on Information Systems Research Trends, Approaches and Methodologies: Sheffield, 2011.
- [5] Danes, S.M., Huddleston-Casas, C. and Boyce, L. “Financial planning curriculum for teens: Impact evaluation”. Journal of Financial Counseling and Planning, 10(1), p.26, 1999.
- [6] Platasa, G. and N. Balaban, “Methodological approach to evaluation of information system functionality performances and importance of successfulness factor analysis”. The International Scientific Journal of Management Information System, 4(2): p. 11-17, 2009.

- [7] Afandi, Waleed S. "Management information systems and their impact on job performance among employees in the private sector: SAUDI Telecommunications companies." *International Journal of Computer Applications* 164.11 (2017).
- [8] Dennis, Wixom, Roth, "SYSTEM ANALYSIS AND DESIGN", Fifth Edition, John Wiley & Sons, Inc., United States of America, 2012.
- [9] Tavakol, Mohsen, and Reg Dennick. "Making sense of Cronbach's alpha", *International journal of medical education* 2: 53, 2011.
- [10] F. Channon, Derek & Sammut-Bonnici, Tanya. , "Gap Analysis". 10.1002/9781118785317.weom120109, 2015.
- [11] Deshpande, S., Gogtay, N. J., & Thatte, U. M., "Measures of central tendency and dispersion", *Journal of the Association of Physicians of India*, 64, 64-66, 2016.
- [12] McCluskey, A., & Lalkhen, A. G., "Statistics II: Central tendency and spread of data". *Continuing Education in Anaesthesia, Critical Care & Pain*, 7(4), 127-130, 2007.

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