

## **Electronic Management Systems and their Effective Role in Supporting Employee Performance in King Fahd Medical City in Riyadh: An Empirical Study**

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### **Abstract**

This study aimed at examining and analyzing the impact of the application of the electronic management system on the performance of employees in King Fahd Medical City in Riyadh. It sought to identify the reality of the application of the electronic management system in King Fahd Medical City in Riyadh from the point of view of the working employees, and the role of this application in the development of administrative performance in King Fahd Medical City in Riyadh. As well, it tried to depict the most influential electronic management system on the performance of the working employees, the viewpoint of the employees working in King Fahd Medical City in Riyadh, and finally, the existence of a statistically significant correlation between the electronic management system used and the performance of the employees working in King Fahd City in Riyadh. To achieve the objectives of the study, the researcher opted for the descriptive approach. In this study, the researcher targeted the employees working in King Fahd Medical City, using an electronically distributed questionnaire. The number of this questionnaire respondents was (150) responses. The researcher designed the study questionnaire consisting of four main axes, including (54) phrases. The answers were subject to the Five-point Likert scale. The study reached many results, the most important of which are that the employees of King Fahd Medical City strongly agreed that the medical city has electronic systems programs in order to save and retrieve data with a mean of (4.740) and a standard deviation of (0.469). The results also indicated that the electronic management systems used in the medical city contribute to the speed of work completion with a mean of (4.413) and a standard deviation of (0.667), and that electronic management systems contribute to facilitating the process of control and follow-up with a mean of (4,393). Moreover, among the results of applying electronic management systems to employees' development in King Fahd Medical City was that paper transactions were dispensed with and the focus became on the electronic system with a mean of (4,620) and a standard deviation of (0.526). As well, electronic management systems contributed to making contact among the administrative departments with a mean of (4,440) and a standard deviation of (0.629). The study also found that there is an effectiveness of the electronic systems used, through the presence of statistical significance at the level of (0.000). The results showed that the most effective electronic management systems on the performance of employees were the electronic transactions system, followed by the performance management system (PMS). Finally, the study recommended the need to adopt the use of Electronic systems in medical institutions, abandoning paper systems and replacing them with an electronic system.

**Keywords:** electronic management systems, employee performance, King Fahd Medical City, performance management system, Likert scale

### Introduction

The current era of the first decade of the third millennium AD is witnessing tremendous and rapid developments in all fields, and scientific and technological progress has become the dominant and prevailing element in it. Information systems have witnessed radical and rapid changes, as new applications for information systems and modern standards for designing these systems have emerged. Several factors have contributed in this development. The most prominent of these factors are the huge technical revolution, especially in the field of information technologies, the explosion of knowledge, the progress of administrative and organizational thinking, the development of business organizations, and the intensification of countries' competition in motivating their governmental and private institutions to keep pace with development and electronic management applications. Therefore, electronic management is a new form of practices practiced within institutions and organizations in its various forms. Its aim is to improve the service that is provided based on documents that enable the user (the employee) to save and retrieve data electronically. Added to that the speed that characterizes the age of information technology and modernity in technology. Moreover, as the Kingdom of Saudi Arabia is one of the countries, that seeks leadership in all fields, it was one of the leading countries in applying everything that is new and serving national institutions and organizations in line with the Kingdom's 2030 vision.

Electronic management is one of the features of electronic business applications, especially after the spread of the Internet, and its uses in changing and developing the foundations of business management and its principles. In fact, it has opened many and limitless doors for continuous exploration of new fields, in addition to its many advantages such as maintaining the competitive advantage, dealing with globalization, adding new activities in the current and prospective markets, and moving beyond borders (Radwan, 2013, p. 19).

The Electronic Management is defined as the administrative process based on the distinguished capabilities of the Internet and business networks in planning, directing and controlling individuals electronically without limits in order to achieve the objectives of the organization. The electronic management aims at taking advantage of the main features of its direct application such as speed and accuracy in completing transactions, reducing time, effort and cost indirectly by ending crowdedness in front of employees' offices and eliminating the problem of paperwork and other drawbacks that will gradually disappear by applying electronic management to administrative operations. As well, it has a great importance in keeping pace with the tremendous development in information systems and the emerging technology, which has become a necessary requirement for the progress of societies and organizations (Hamza, 2019 AD, p. 1).

E-management is linked to the importance of health information technology and its effective role in raising the efficiency of performance, improving the quality and level of health services, optimizing the use of resources in the health sectors, exploring modern trends in e-health and its latest technologies, providing an opportunity to exchange information and experiences, and reviewing experiences and success stories in the field of information technologies and electronic health services. In fact, it is a link that brings together health care providers, and information technology experts. The objective of this grouping is enabling and strengthening health care service delivery, quality and continuity, as well as strengthening ties with international associations specialized in the field of health information technology and health care centers (Khawaja, 2013, p. 4879). The electronic management is related to planning to improve the quality of health care services by considering the guidelines, such as the commitment of management and planning, the involvement of employees and patients in planning to improve the quality of health care services, training in occupational safety and health, worksite analysis and prevention of danger (Khawaja, 2013, p. 4880).

Through the previous presentation, the importance of the role of electronic management in health organizations became clear, in addition to what it can provide at the level of employees in professional performance and the organization in general through the system used in electronic management. The system could be related to data preservation or patient archiving. All these systems improve the performance of the employees and save them time. As well, they help in keeping pace with the technological progress that suits the information age and the explosion of knowledge. This is achieved by making use of computers and employing them in using electronic management techniques accurately for the benefit of the organization, employees, and patients by not delaying them from their work because of using a traditional routine that contradicts keeping up with the current era. Accordingly, the health sector in the Kingdom of Saudi Arabia comes as one of the most prominent sectors activated by electronic management. It strives with great effort to achieve the main objective of the Kingdom's strategy in building an e-government that provides integrated services to citizens and residents in line with the Kingdom's vision 2030 through the application of electronic management systems. For example, the application of "Appointment", the application of "my health" (Sihaty), the application of "Distancing" (Tabaud), and the application of "We trust in God" (Tawakalna). Moreover, the health sector began to expand the circle of its electronic administrations until it became at the forefront of the sectors and government institutions that apply it. King Fahd Medical City comes as one of the largest medical institutions in the Kingdom of Saudi Arabia that seeks to implement electronic management in its various departments in order to reach the outstanding performance of its employees and thus the performance of the institution as a whole.

On this basis, the problem of the current study could be stated in the fact that electronic management in health work is the basis of public services provided to patients. The status of the patient to appear in a satisfactory health condition requires a procedural system in administrative work characterized by speed and achievement when dealing with him directly. This would be achieved only through an employee who is proficient in technical interaction and use of new systems in the health field. In fact, the nature of this field was the starting point for the researcher's realization of the importance of knowing the role of the new system of electronic management in improving and developing the employee's role in the health sector, which is reflected positively on patient service in particular. This confirms what was indicated by many of the results of administrative studies, such as the study of (Al-Aqra (2020)), the study of (Al-Mahmadi (2020)), and the studies of (Arraiz, J.-I. 2017), (Ahmad, et al. (2018)) on the impact of the application of electronic management information systems on the performance of employees in different institutions. Besides, it prompted the researcher to be curious about this study and to try to match the recommendations of previous studies in King Fahd Medical City and to know the impact of the application of an electronic management system on the performance of employees. Some studies also called for the need to develop the use of the electronic management system such as the study of Al-Hajri, S. H. N. (2019). This development makes the use of electronic management effective in improving the level of job output for employees and in improving the performance level of the organization or institution in which the application of a particular electronic management system is adopted.

Henceforth, comes the problem of the study to try to answer the questions of the study to achieve its objectives in line with the objectives of the Kingdom's 2030 vision in keeping pace with technology and using knowledge in developing national organizations and institutions in a way that benefits the individual and the country with progress and prosperity. Thus, since electronic management is one of the fruits of technical achievements in the modern era through the developments in the fields of communications and the creation of advanced communication techniques, the government opted seriously for benefiting from these achievements in an effort to provide services to

citizens in an electronic way that effectively contribute to improving the employees' performance at acceptable levels. Consequently, it was necessary for governmental and non-governmental organizations to implement an electronic system that would be administratively useful, to know the extent of its application and its impact on the performance of its employees, especially in King Fahd Medical City. In light of the above, the research problem is represented in the following essential question: ***What is the impact of the application of the electronic management system on the performance of employees in King Fahd Medical City in Riyadh?***

The current study seeks to answer the following main question: ***What is the impact of the application of the electronic management system on the performance of employees in King Fahd Medical City in Riyadh?***

The following sub-questions are derived from this main question:

- *What is the reality of the application of the electronic management system in King Fahd Medical City in Riyadh from the point of view of the working employees?*
- *What is the impact of applying the electronic management system on the development of the administrative performance in King Fahd Medical City in Riyadh?*
- *What is the most influential electronic management system on the performance of the working employees, from the viewpoint of working employees in King Fahd Medical City in Riyadh?*
- *Is there a statistically significant correlation between the implemented electronic management system and the performance of working employees in King Fahd Medical City in Riyadh?*

The importance of this study lies in that it is one of the efforts aiming at studying the impact of the application of the electronic management system on the performance of the employees in King Fahd Medical City in Riyadh from the point of view of its employees. Indeed, the issue of electronic management is one of the new administrative topics that is connected with the performance of contemporary organizations. In light of the foregoing, the importance of the current study becomes clear as follows:

***First: The theoretical significance of the study is represented in the following:***

- The current research derives its importance in that it is, to the researcher's knowledge, one of the first local studies that dealt with the impact of electronic management on the performance of employees in the health field.
- The current research contributes to directing the attention of researchers to conduct more studies in this important field, which constitutes an addition to the local and Arab library.
- The theoretical rooting of the most important systems adopted or implemented in King Fahd Medical City in Riyadh.
- Identifying the effectiveness of the administrative system and the extent of improvement in the performance level of employees in the health career, in particular, and in other administrative tasks.
- Enriching the scientific knowledge of this type of studies in the field of administrative and health sciences through what the results of the study reveal.
- The study deals with a recent administrative topic that has an impact on improving administrative performance in King Fahd Medical City in Riyadh, which is electronic management.
- The current study deals with the opinions of an important group that has a major role in the development and progress of medical services, and they are the employees working in King Fahd Medical City in Riyadh.

***Second: The scientific importance of the study is represented in the following:***

- The current research will add its contribution by presenting results that reflect the actual reality of the research variables, namely electronic management and employee performance in King Fahd Medical City in Riyadh.
- Dissemination of successful administrative systems that receive high responses and support from employees with their effectiveness on the performance of employees to spread them among other medical institutions.
  - Adding a questionnaire to be applied to the study sample and publishing it in one of the Arab journals after verifying its psychometric properties prepared by the researcher.
  - Increasing awareness of the importance of using an electronic management system by recognizing the significance of improving aspects of the performance of working employees.
  - It is expected that this study will provide many recommendations for leaders in health organizations that may contribute to developing the application of electronic management on the performance of employees in the health field.
  - This study also helps in finding solutions and suggestions for some of the difficulties facing the application of electronic management on the performance of employees in the health field from the point of view of the employees working in King Fahd Medical City in Riyadh.

### Literature Review

In this axis, the researcher deals with the most important Arab and foreign theoretical and empirical studies that are related to the application of electronic management systems to identify the most important results that were reached by its researchers, the most important approaches used in their studies, and the most important types of systems used that must be available in organizations. The studies in each axis are in descending chronological order from the most recent to the oldest as follows:

○ *Al-Hamouz study (2016) entitled “The impact of applying electronic human resources management systems on organizational performance: an applied study on the Royal Jordanian Airways Company.”*

The study aimed at investigating the impact of the application of electronic human resources management within the organization on the performance of the organization. Based on previous studies, the researcher developed a research model to investigate how the application of electronic human resources management affects organizational performance in terms of innovation, customer satisfaction, time to market, rapid adaptation, and human resource operations. This study followed the quantitative approach using the questionnaire tool. The study community was all employees of the Royal Jordanian companies. The researcher distributed (120) questionnaires to the study sample. Only (90) questionnaires were retrieved and (11) were excluded. The study results approved the positive impact of electronic human resources management on organizational performance. Therefore, the researcher recommends companies to use electronic human resources management in organizations and invest in electronic human resources management solutions because of its high impact in increasing organizational performance and efficiency. The results of the study proved that the use of electronic human resource management solutions helps organizations reduce costs and improve procedures in order to run processes and tasks faster.

○ *Al-Amoudi’s study (2017) entitled “The role of applying electronic management in improving the service delivery system.”*

The study aimed at identifying the contribution of the application of electronic management through the availability of its physical, human, financial, legal, and administrative requirements and the reliance on electronic management methods in improving the service delivery system. The theo-



retical analytical approach was used about the degree of the use of information and communication technology and the extent of the mandatory participation of the client in providing the service that contributed to the emergence of improved, complementary and new service delivery systems. The study reached a set of results, the most important of which are that the emergence of new services because of the application of electronic management such as self-services and digital services and the level of the use of information and communication technology in the organization had a significant impact on the level of manufacturing versus service.

○ ***Jibril's study (2020) entitled "Obstacles to the application of electronic management in the Health Services Department, Derna, Libya."***

The study aimed at identifying the most important obstacles that are attributed to the application of electronic management in the health services administration in the city of Derna from the point of view of the workers according to the human, financial, administrative, and technical types of obstacles. The study community represented all the employees of the Health Services Department in Derna, which consisted of (89) workers. To achieve the objectives of the study, the case study approach was followed. The study concluded that the level of obstacles to the application of electronic management in the health services administration under study was medium, and the results of the study showed that the most important obstacles to the application of electronic management were the human obstacles. Finally, the study presented a set of recommendations that are hoped to be followed to activate the application of electronic management in the health services department under study.

○ ***Al-Aqra'a's study (2020) entitled "The role of electronic administration in improving job performance among workers in government institutions operating in Qalqilya Governorate."***

The study aimed at depicting the reality of electronic management in government institutions in Qalqilya governorate and its impact on job performance as well as identifying the impact of the variables of gender, qualification, and years of experience on the role of electronic management in improving job performance among workers in government institutions operating in Qalqilya governorate. The importance of this study lies in the seriousness and vitality of its subject and its scarcity in research and studies in the field of electronic management because it is a new and vital concept that emerged as a result of the transformations and developments witnessed by the world since the period of technological and electronic development. The researcher used the analytical method and the questionnaire in addition to the relevant literature and studies. The study community consisted of (350) workers in government institutions in Qalqilya Governorate. The study sample was (190) workers in government institutions in the governorate in the year 2019. The study concluded that it is very important to enhance work efficiency, in addition to the importance of providing the financial and material requirements that support the e-management environment.

○ ***Al-Muhmadi's study (2020) entitled "The impact of the application of Oracle systems on the effectiveness of human resources management: an applied study on the General Authority of Civil Aviation in Jeddah."***

The study sought to identify the impact of the application of Oracle systems on the effectiveness of human resources in the General Authority of Civil Aviation of Saudi Arabia, to know the reality of the application of Oracle systems in the General Authority of Saudi Aviation and its impact on human resources effectiveness, and to identify the obstacles to the application of Oracle systems in the Saudi Civil Aviation Authority. The study community consisted of employees of the Civil Aviation Authority in Jeddah, and a simple random sample of (102) individuals was chosen from the community to conduct the study. The study reached a number of results, the most impor-

tant of which are that the study showed positive indicators proving that there is a large application of Oracle systems, which contributed to the development of the performance of workers. The study also indicated that there is a weakness in the qualification of workers in dealing with modern electronic technologies, including the Oracle system, and that the communication networks used are weak, which hinders the work of modern electronic technologies.

As for foreign studies, the researcher has dealt with a number of recent studies in this axis that dealt with management information systems and electronic management that can benefit researchers, and they were able to revise the studies to what is closer with the variable of electronic management and job performance, and among these studies are the following:

- ***McCarty's, A. (2012) study entitled "Measuring the effect of training in implementing project management information systems."***

The aim of the research was to create a better understanding of current industrial project management software training practices and outcomes. This research examined the use of training and outcomes in the PMIS industry, the prevalence, relative effectiveness, and efficiency of several training delivery methods commonly used in increasing PMIS outcomes, and the relationships of individual and organizational characteristics on outcomes. An extensive multidisciplinary review of the existing scientific literature was conducted to develop a framework for measuring training outcomes for project management software. Expert input from a panel of nine practitioners with an average of 16.7 years of PM-related professional experience and 15.1 years of PM-related professional experience was used to objectively select a small number of top-scoring items in the proposed framework for inclusion in the survey performed on practitioners. In total, 121 completed surveys were collected and analyzed using statistical methods. The results of the research indicated that there are statistically significant differences in consumption rates, effectiveness and efficiency among the examined training delivery methods.

- ***The study of Arraiz, J.-I. (2017) entitled "Measuring the performance of electronic management systems: a case study."***

This study dealt with the possibility of using digital technologies to improve and redefine the performance management process for employees within organizations. The review of the literature indicated that performance processes are not working. A major finding in the literature is that it is difficult to gather the right evidence for a relevant manager-employee conversation: access to sufficient data in order to make a performance measurement. The current study is used to explore two different perspectives: a technical perspective that looks for accuracy in performance appraisal and a social one for the acceptance of results among different stakeholders. Employees work to develop an algorithm that predicts individual performance, i.e. expertise compared to the job profile, behaviors compared to company values, outputs compared to budget or business plan. Moreover, the use of technology to support performance measurement, which is currently very limited, is likely to increase significantly. Using predictive models, performance can be measured and data collected at any time. Like any other new technology, the success of an electronic performance appraisal system depends on the determinants of accreditation. These complexities depend largely on the different stakeholders, the CEO (or ultimately the board of directors), executives and employees.

- ***The study of Kharrazi, H., et al. (2018) entitled "Predicting a model for electronic health records in hospitals in the United States of America."***

The study aimed at identifying the extent of maturity of the adoption of EHR functions among US hospitals until 2035.

**METHODS:** The Health Information and Management Systems Association's Electronic Medical Records Accreditation Model dataset was used to track historical uptakes of various EHR

functions and is considered essential for improving health care quality and efficiency in hospitals. The BASS model was used to predict technology penetration rates for frequent EHR adoptions as upgrades undergo rapid technological improvements. Forecasts used data from 2006 to 2014 to estimate adoption levels through 2035. **RESULTS:** In 2014, more than 5,400 hospitals completed the annual A+ of total US hospitals. In 2006, the majority of US hospitals were in stages 1 and 2. By 2014, most hospitals had achieved stages 3, 4 and 5. The overall technology diffusion model (i.e. the PASS model) reached a square rate level of 0.91. Final projections depict different trends for each stage in 2006, the first year of observation, the peaks of stages 0 and 1 were shown as the EHR was adopted before the online health information management system. By 2007, the second stage reached its climax. Stage 3 reached its full peak by 2011, while stage 4 reached its peak by 2014.

○ ***The study of Ahmad Z., et al. (2018) entitled “The Impact of the Application of Human Resources Management Information System on the Efficiency and Satisfaction of Employees.”***

The study sought to identify the impact of human resource management information systems (HRMIS) on the efficiency and satisfaction of employees after the implementation of the system. The study involved 191 employees from different departments of the Terengganu Police Unit. A simple random sample was used to collect data that was analyzed using Pearson's reliability analysis, the descriptive frequency analysis, and the correlation analysis. When these variables were tested simultaneously, the results showed that HRMIS implementation, user characteristics and organization support have a positive impact on the satisfaction of Terengganu Police Unit staff. The study also provided an insight into the various stakeholders, particularly for policy makers and organizational members, on the importance of enforcing an organization's human resource management system.

○ ***The study of Lu Lin, Z., et al. (2019) entitled “Assessment of social facilities and conditions that support the adaptation of electronic management systems in hospitals.”***

This study aimed at assessing the 'social influence' (SI) and 'facilitative conditions' (FC) that support acceptance of HEIMS standards by nurses in Ghana using the 'Unified Theory of Acceptance and Use of Technology' (UTAUT) model.

**METHODS:** This study applied an experimental survey design, the electronic platform questionnaire was used on smart phones to collect data on (660) female nurses, some statistics were made to significantly predict the results of "behavioral intention" (BI) for using HEIMS by SI. It is noteworthy that both SI and FC had an impact on the behavior of nurses using a behavioral interest (UB) as a mediator, which explains a total of 42.1% variance in nurses' intention to use HEIMS.

**Conclusion:** SI and BI affected Nurses' approval of HEIMS in terms of UB, while SI and FC had the strongest influence on BI (acting as a mediator) in UB for the adoption and use of HEIMS among nurses in Ghanaian hospitals.

○ ***Al-Hajri's, S. H. N. (2019) study entitled “Developing a Performance Appraisal System in the General Directorate of Health Services in the Sultanate of Oman.”***

The study aimed at identifying the obstacles that prevent the effective use of the performance appraisal system as a tool for professional development, in addition, to exploring the factors that prevented the appraisers from carrying out the open performance appraisal interview. Another objective of this action research is to enable stakeholders to identify the issues of the performance appraisal system. The research design consists of a combination of case study and participatory action research. The sample was purposeful. Data collection was conducted using face-to-face interviews with supervisors that included 20 managers and department heads and two homogeneous focus group interviews with subordinates consisting of six administrative staff and eight nurses. The data



was analyzed through objective analysis and ten axes of data emerged that achieved the objectives of the research and answered the research questions. The results of the study consist of actionable results that can provide a comprehensive picture of the research topic that encourages project team members to build on the results to develop a new performance appraisal system that can achieve professional development. The main conclusion of the study is that there is evidence of the lack of a clear performance appraisal management system, and that the knowledge of the stakeholders in the organization about performance appraisal has changed and now they realize the importance of using it for professional development.

○ *The study of Hassan Hadi, S., et al. (2020) entitled “The application of an electronic management system to manage graduate information in Iraqi universities.”*

The study objectives were to avoid previous errors, improve management services and student information automatically, reduce paper use, facilitate access to information, complete tasks with high accuracy, and speed up the completion of task document for student information for later use. In addition, it aimed at learning more about management, which has many benefits, including (a) streamlining operations, lowering costs, providing more quality of service, and reducing administrative transaction time; (b) Enabling communication between students and the university at home and abroad. After passing the login interface, another security interface appears for the authorized party where there are four authorized parties.

After reviewing the studies cited by the researcher, the following are the most important points that can be drawn from the analysis of those studies. The sub-objectives of the studies of electronic management systems varied at the level of employee performance. *For Arab studies:* The current study agreed with all previous studies to determine the study’s goal, which is the effectiveness or impact of applying modern electronic systems in improving the performance of teachers in all institutions, whether they are health institutions, as mentioned in the study of Jibril (2020 AD), or in other civil institutions, such as the study of Al-Muhmadi (2020 AD). Most of the previous studies also confirmed the possibility of improving the performance of workers in institutions and organizations through the application of effective electronic management that relies on modern systems.

*For foreign studies:* the current study agreed with all previous studies on the importance of using information systems as in the study of McCarty, A. (2012), and the effectiveness of applying the human resource management information system as in the study of Ahmad et al. (2018.).

### **Methodology**

In this section, the researcher presents an explanation of the methodology he followed to answer the questions of the study, as well as defining the study community and sample, describing the characteristics of the study sample members, and then showing how was the study tool (the questionnaire) built, ensuring its validity and reliability, and the statistical treatment methods that he uses in analyzing data and information statistically.

Since this study aimed at revealing “the impact of the application of electronic management systems on the performance of employees in King Fahd Medical City in Riyadh,” the researcher used the descriptive survey method. Ads, Obeidat and Abdelhak (2012, p. 96) defined this research method as “that type of research that depends on the study of the phenomenon as it is in reality. It is concerned with describing it accurately and expresses it qualitatively or quantitatively. the qualitative expression describes the phenomenon and explains its characteristics, while the quantitative expression gives us a numerical description that shows the amount or size of this phenomenon and the degrees of its connection with other various phenomena.

Thus, the descriptive survey method was employed to detect the impact of the application of electronic management systems on the performance of employees in King Fahd Medical City in Riyadh.

### Results and Discussion

*The results of the first question, their discussion and interpretation: What is the reality of the application of electronic management systems in King Fahd City in Riyadh from the point of view of working employees?*

To answer the previous question, the researcher calculated the arithmetic averages and standard deviations of the answers of the study sample members towards revealing “the reality of the application of the electronic management system in King Fahd City in Riyadh from the point of view of the working employees.” These expressions were also arranged according to the arithmetic mean of each of them, as following:

**Table 1. Frequencies, percentages, arithmetic averages and standard deviations of the answers of the study sample to the question: The reality of the application of electronic management systems in King Fahd City in Riyadh from the point of view of working employees. n = 150**

#	Expression	Q & %	Agreement Degree					Arithmetic Average	Standard Deviation	Ranking	Agreement Degree
			Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree				
1	Electronic systems programs are available at the Medical City in order to save and retrieve data.	Q	113	35	2	0	0	4.7400	0.469	1	Strongly Agree
		%	74.8	23.2	1.3	0	0				
2	The medical city relies on modern electronic management systems in order to develop work performance.	Q	105	40	5	0	0	4.666	0.539	3	Strongly Agree
		%	69.5	26.5	3.3	0	0				
3	The electronic administrative system is a prerequisite for administrative work and is highly relied upon.	Q	99	45	5	1	0	4.606	0.622	4	Strongly Agree
		%	65.6	29.8	3.3	0.7	0				
4	The medical city keeps pace with the developed countries in the application of electronic administrative systems.	Q	88	41	15	3	3	4.386	0.895	11	Strongly Agree
		%	58.3	27.2	9.9	2	2				
5	The application of the electronic system fa-	Q	106	42	2	0	0	4.693	0.490	2	Strongly Agree
		%	70.2	27.8	1.3	0	0				

#	Expression	Q & %	Agreement Degree					Arithmetic Average	Standard Deviation	Ranking	Agreement Degree
			Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree				
	cilitates the preservation and retrieval of data at the time of need.										
6	The application of electronic systems increases the ability to find solutions to administrative problems.	Q	90	54	4	0	2	4.546	0.619	8	Strongly Agree
		%	59.6	35.8	2.6	0	1.3				
7	Electronic management systems assist in the management, analysis and processing of data.	Q	91	56	3	0	0	4.586	0.533	6	Strongly Agree
		%	60.3	37.1	2	0	0				
8	The application of the electronic administrative system has become the basis for the success of the administrative system in the medical city.	Q	91	45	13	0	1	4.506	0.682	9	Strongly Agree
		%	60.3	29.8	8.6	0	0.7				
9	Obtaining patient or client data depends on the use of electronic systems.	Q	98	52	0	0	0	4.653	0.477	5	Strongly Agree
		%	64.9	34.4	0	0	0				
10	The electronic administrative system for the user in the job actions represents 50% of the work.	Q	39	19	49	27	16	3.180	1.405	17	Strongly Agree
		%	25.8	12.6	32.5	17.9	10.6				
11	The Medical City does not depend on the traditional records that contain patient and customer data.	Q	38	16	22	49	25	2.793	1.602	18	Strongly Agree
		%	25.2	10.6	14.6	32.5	16.6				
12	King Fahd Medical City updates the used electronic administrative systems on a reg-	Q	72	50	26	0	2	4.266	0.840	12	Strongly Agree
		%	47.7	33.1	17.2	0	1.3				

#	Expression	Q & %	Agreement Degree				Arithmetic Average	Standard Deviation	Ranking	Agreement Degree
			Strongly Agree	Agree	Neutral	Disagree				
	ular basis.									
13	The electronic system is constantly changing	Q	37	30	58	13	3.440	1.195	16	Strongly Agree
		%	24.5	19.9	38.4	8.6				
14	The necessary financial support is available for the use of trainers to train employees to implement the mechanisms of the existing administrative systems.	Q	51	29	59	2	3.786	1.027	15	Strongly Agree
		%	33.8	19.2	39.1	1.3				
15	The medical city has financial allocations for the purchase of equipment and the infrastructure for electronic management.	Q	49	38	59	1	3.885	0.911	14	Strongly Agree
		%	32.5	25.5	39.1	0.7				
16	Specialized training courses are offered to workers in the field of electronic management.	Q	84	48	16	1	4.420	0.762	10	Strongly Agree
		%	55.6	31.8	10.6	0.7				
17	King Fahd City has plans and mechanisms to protect information security and confidentiality.	Q	95	45	10	0	4.566	0.617	7	Strongly Agree
		%	62.9	29.8	6.6	0				
18	The medical city uses consulting bodies specialized in the application of electronic management systems.	Q	54	39	49	4	3.900	1.014	13	Strongly Agree
		%	35.8	25.8	32.5	2.6				
The overall average for the first question							75.573	9.181		

It is clear from Table 1 that:

The electronic management system in King Fahd Medical City in Riyadh represented a great importance in job performance due to its importance in management. This appeared in the results of the previous question in terms of arranging the phrases according to the importance of each employee system in King Fahd Medical City, and this is shown by calculating the averages and extract-

ing the highest ranking for the employees. The researcher was able to extract the first ranked five phrases in order to assist him in extracting the recommendations, which are as follows:

- In the order of phrases in terms of the importance of the electronic system in King Fahd Medical City phrase No (1) entitled "electronic systems programs are available in the Medical City in order to carry out data preservation and retrieval" ranked first. This rank was in terms of its importance to employees and the extent to which electronic systems programs are provided in the Medical City for the purpose of preservation and retrieval, with an average of (4.7400), which indicates the importance of the availability of electronic programs, whatever type of program, for the purpose of saving and retrieving information. This is consistent with the study of Al-Muhmadi (2020) and the study of Kharrazi, H., et al. (2018), which aimed at the importance of the impact of the application of systems on the effectiveness of management, and it agreed with the statement on the impact of the systems used in the effectiveness of data preservation and retrieval.

- The phrase No (5) came in the second rank in terms of importance for the employees of King Fahd Medical City. Its title is "The application of the electronic system is easy to save and retrieve data at the time of need" with an average of (4.693), and this indicates the ease of use of the program or system used at the time the employee needs it and relates it to the nature of the work. The phrase agrees with the study of both Al-Muhmadi (2020 AD) and the study of Arraiz, J.-I. (2017) in terms of the use of electronic management performance systems in all kinds of institutions.

- The phrase No. (2) entitled "The Medical City depends on modern electronic management systems with the aim of developing work performance" came in the third rank with an average of (4.666). This confirms the keenness of King Fahd Medical City, according to the employees' responses, to use modern systems that keep pace with the electronic systems that are consistent with the quality system in job performance. This result agrees with the study of Ahmad Z., et al. (2018) in terms of the use of a management information system in human resource development.

- The phrase No. (3) entitled "The electronic administrative system is a prerequisite for administrative work and is highly relied upon" came in the fourth rank, with an arithmetic average of (4.606). This confirms that the system that will be mentioned later on is one of the foundations that are considered important in the management of work in order to adopt quality in the medical institution, which is what King Fahd Medical City is keen on. This result is in agreement with Al-Hajri's, S. H. N. (2019) study, which aimed at identifying the obstacles to the performance development using systems in electronic management. Finally, in the fifth rank, came phrase No. (9) entitled "Acquiring patient or customer data depends on the use of electronic systems." Its arithmetic average is (4.653). This indicates that dealing with the employee in saving and recalling his data depends more on the electronic aspect using different systems. This agrees with the study of (Hassan Hadi, S., et al. (2020) in terms of collecting information about patients in hospitals or graduates' information in universities, as in his study, to achieve the common goal of collecting information.

***The results of the second question, their discussion and interpretation: What is the impact of the application of electronic management systems on the performance of employees in King Fahd Medical City in Riyadh?***

To answer this question, the researcher calculated the arithmetic averages and standard deviations of the responses of the study sample members towards revealing "the impact of the application of electronic management systems on the performance of employees." These expressions were also arranged according to the arithmetic mean of each, as shown in Table 2.



**Table 2. Frequencies, percentages, arithmetic averages and standard deviations of the answers of the study sample to the question: The effect of applying electronic management systems on the performance of employees in King Fahd Medical City in Riyadh. n = 150**

#	Expression	Q & %	Agreement Degree					Arithmetic Average	Standard Deviation	Ranking	Agreement Degree
			Strongly	Agree	Neutral	Disagree	Strongly Disagree				
1	Electronic management systems contribute to increasing the desire of employees to attend daily.	Q	63	29	34	14	10	3.806	1.262	9	Strongly Agree
		%	41.7	19.2	22.5	9.3	6.6				
2	Electronic management systems contribute to increasing employee knowledge of work tasks.	Q	62	54	21	8	5	4.066	1.034	8	Strongly Agree
		%	41.1	35.8	13.9	5.3	3.3				
3	Electronic management systems contribute to a decrease in the percentage of errors at work.	Q	71	55	19	5	0	4.280	0.811	3	Strongly Agree
		%	47	36.4	12.6	3.3	0				
4	Electronic management systems contribute to increasing employee's productivity.	Q	56	57	30	7	0	4.080	0.871	7	Agree
		%	37.1	37.7	19.9	4.6	0				
5	Electronic management systems contribute to achieving transparency and information availability.	Q	59	67	20	4	0	4.206	0.771	5	Agree
		%	39.1	44.4	13.2	2.6	0				
6	Electronic management systems contribute to facilitating the process of monitoring and follow-up.	Q	73	64	12	1	0	4.393	0.664	2	Strongly Agree
		%	48.3	42.4	7.9	0.7	0				
7	Electronic management systems contribute to stimulating creativity and self-development among employees.	Q	58	57	28	5	2	4.093	0.907	6	Strongly Agree
		%	38.4	37.7	18.5	3.3	1.3				
8	Electronic management systems contribute to training employees on new tasks.	Q	68	58	19	5	0	4.260	0.806	4	Strongly Agree
		%	45	38.4	12.6	3.3	0				
9	Electronic management systems contribute to employee participation in decision-making.	Q	46	52	24	15	13	3.686	1.248	10	Agree
		%	30.5	34.4	15.9	9.9	8.6				

#	Expression	Q & %	Agreement Degree					Arithmetic Average	Standard Deviation	Ranking	Agreement Degree
			Strongly	Agree	Neutral	Disagree	Strongly Disagree				
10	Electronic management systems contribute to the speed of work completion.	Q	76	61	12	1	0	4.413	0.667	1	Strongly Agree
		%	50.3	40.4	7.9	0.7	0				
The overall average for the second question							41.286	7.160			

It is clear from Table 2 that:

- By presenting the responses of the employees to know the impact of the application of electronic management systems on the performance of employees in King Fahd Medical City in Riyadh, the researcher was able first to extract the order of the impact of the systems from the point of view of the employees in the city to see the extent of the impact of electronic management systems on their performance. Second, he could know the impact of the systems by measuring the effect size by measuring the variance group and the P-value. Thus, the most important terms affecting the use of electronic management systems in King Fahd Medical City can be presented from the employees' point of view, as follows:

- The phrase No (10) entitled "Electronic management systems contribute to the speed of work completion" came in the first rank, where its arithmetic average was (4.413). This indicates that electronic management systems and their speed of performance in completing work are among the most influencing factors that affect job performance change in King Fahd Medical City in Riyadh. This is similar to the study of Al-Hajri, S. H. N. (2019) in developing and contributing to the speed of work completion.

- The phrase No. (6) entitled "electronic management systems contribute to facilitating the process of control and follow-up" came in the second rank, where its arithmetic average was (4.393), which indicates that the electronic management systems used facilitate control and follow-up, and this is one of the impacts on job performance from the point of view of the employees. This result is similar to the study of Al-Hamouzi (2016 AD) in the effectiveness of applying systems to organizational performance in general.

- The phrase No (3) entitled "Electronic management systems contribute to the decrease in the percentage of errors at work" came in the third rank with an arithmetic average of (4.280). The electronic management systems affect the decrease in the percentage of errors at work, and this is considered a part of the quality of job performance in relation to the impact of electronic management systems at work. This result agrees with Al-Amoudi's study (2017) in terms of reducing errors and increasing the service delivery system.

- The phrase No (8) entitled "Electronic management systems contribute to training employees for new tasks" came in the fourth rank with an arithmetic average of (4.260), which indicates the extent to which employees benefit from training them in their performance of new tasks that benefit work. This is consistent with the study of Arraiz, J.-I. (2017).

- Finally, phrase No (5) entitled "Electronic management systems contribute to achieving transparency and making information available" came in the fifth rank with an arithmetic average of (4.206), which indicates the contribution of electronic systems to making information available

when required in addition to transparency. The impact of the application of systems on employees' performance can be clarified by calculating the value of P, as well as the size of the effect through the value of B, as shown in the following table:

**Table 3. The impact of electronic systems on employees' performance n = 150**

The impact of electronic systems on employees' performance	Variance Group	Degree of freedom	Contrast Average	P-Value	B-Value	T-Value	Significance Level
	3190.085	10	319.008	10.064	15.887	4.477	0.000
	4374.157	138	31.607				
	7564.242	148					

- It is clear from the previous table, from calculating the value of (T) for the expressions of the axis of the impact of electronic systems on the performance of employees and the total degree of the axis and extracting the P-value, that there is a statistically significant effect as a result of the use of electronic management systems in King Fahd Medical City on job performance, which is evident from the calculation of the effect value. Where the value of P was (10.064), while the value of B was (15.887), which is statistically significant.

***The results of the third question, their discussion and interpretation: What is the impact of the application of electronic management systems on the development of administrative work in King Fahd Medical City in Riyadh?***

To answer the previous question, the researcher calculated the arithmetic averages and standard deviations of the responses of the study sample members towards revealing "the impact of the application of electronic management systems on employees' development." These expressions were also arranged according to the arithmetic mean of each of them, as follows:

**Table 4. Frequencies, percentages, arithmetic averages and standard deviations of the answers of the study sample to the question: The impact of the application of electronic management systems on the development of administrative work in King Fahd Medical City in Riyadh n = 150**

#	Expression	Q & %	Agreement Degree					Arithmetic Average	Standard Deviation	Ranking	Agreement Degree
			Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree				
1	Administrative work procedures within King Fahd Medical City have become developed and clear to all.	Q	77	56	13	4	0	4.373	0.755	4	Strongly Agree
		%	51	37.1	8.6	2.6	0				
2	The administrative work of King Fahd Medical City has turned into a decentralized adminis-	Q	56	60	24	8	2	4.066	0.931	8	Agree
		%	37.1	39.7	15.9	5.3	1.3				

#	Expression	Q & %	Agreement Degree					Arithmetic Average	Standard Deviation	Ranking	Agreement Degree
			Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree				
3	The systems have simplified administrative procedures.	Q	66	67	15	2	0	4.313	0.706	5	Agree
		%	43.7	44.4	9.9	1.3	0				
4	Paper transactions were dispensed with and the electronic system became the focus.	Q	96	51	3	0	0	4.620	0.526	1	Strongly Agree
		%	63.6	33.8	2	0	0				
5	Contributed and assisted in the conduct of communication between the administrative departm.	Q	77	62	11	0	0	4.440	0.629	2	Strongly Agree
		%	51	41.1	7.3	0	0				
6	There is no quarrel and conflict between employees in the administrative departments at work.	Q	37	48	35	14	16	3.506	1.257	11	Strongly Agree
		%	24.5	31.8	23.2	9.3	10.6				
7	The service provided to the patient has become compatible with international quality standards.	Q	54	48	31	14	3	3.906	1.057	10	Strongly Agree
		%	35.8	31.8	20.5	9.3	2				
8	The rates of rigidity in the administrative work of all working employees increased.	Q	40	26	34	36	14	3.280	1.336	12	Strongly Agree
		%	26.5	17.2	22.5	23.5	9.3				
9	Overcome all previously existing negatives or that may be linked to administrative overreach.	Q	76	48	17	9	0	4.273	0.889	6	Strongly Agree
		%	50.3	31.8	11.3	6	0				
10	The administrative procedure now takes a little time to complete.	Q	82	53	11	4	0	4.420	0.744	3	Strongly Agree
		%	54.3	35.1	7.3	2.6	0				
11	Increase the leaders' knowledge of the administrative employees than before.	Q	58	56	23	11	2	4.046	0.978	9	Strongly Agree
		%	38.4	37.1	15.2	7.3	1.3				
12	The employee's level was upgraded and it was reflected in the nature of	Q	61	55	21	12	1	4.086	0.961	7	Strongly Agree
		%	40.4	36.9	13.9	7.9	0.7				

#	Expression	Q & %	Agreement Degree					Arithmetic Average	Standard Deviation	Ranking	Agreement Degree
			Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree				
	his job specialization and the medical city.										
13	The resources and costs used to complete the administrative work were available.	Q %	56 37.1	45 29.8	42 27.8	6 4	1 0.7	3.993	0.937	1	Strongly Agree
The overall average for the third question								53.286	8.728		

It is clear from Table 4 that:

The results of the previous question can be presented to know the impact of the application of electronic management systems on the development of administrative work in King Fahd Medical City in Riyadh by extracting the highest arithmetic averages in order to benefit from them in the study recommendations. Among the highest expressions in arithmetic average, which recorded an impact in the application of electronic management systems on the employees' development are the following:

-The phrase No (4) entitled "Paper transactions have been dispensed with and the focus has become on the electronic system" came in the first rank with an arithmetic average of (4,620), which indicates that the electronic system has replaced the paper system because of its speed in dealing with and completing tasks symbolizing the impact of development using electronic systems. This agrees with (Kharrazi, H., et al. (2018) in terms of the availability of electronic health records and the dispensation of paper transactions, which is confirmed by the current study.

-The phrase No (5) entitled "contributed and helped to make communication between the administrative departments" ranked second with an average of (4.440), which indicates the impact of the electronic system in developing the communication process between and within the administrative departments. This phrase was in agreement with Lu's study Lin, Z., et al. (2019) in terms of using internal adaptation in the work environment among employees because of the use of electronic systems in health institutions.

-The phrase No (10) entitled "The administrative procedure has become taking a little time to complete" ranked third with an arithmetic average of (4,420). This shows the extent of development in achieving time using the electronic system in King Fahd Medical City in Riyadh. This is similar to the study of Ahmad Z., et al. (2018) in terms of speed and good performance shown on employee performance.

-The phrase No (1) entitled "The administrative work procedures within King Fahd Medical City have become developed and clear to all" ranked fourth with an arithmetic average (4.373). The development appears in the use of the electronic administrative system in King Fahd Medical City, which is consistent with the study of Kharrazi, H. , et al. (2018).

-Finally, the phrase No (3) entitled "The systems contributed to simplifying administrative procedures" ranked fifth with an arithmetic average of (4.313), which indicates the change of the old administrative systems that were used before for the purpose of development and modernization within King Fahd Medical City as a result of the use of electronic administrative systems. The im-



fact of the systems used can be clarified through the employees' responses to the overall axis statements, and the size of the impact on employees' performance development can be measured, as follows:

**Table 5. The impact of the application of electronic systems on the development of administrative work n = 150**

The impact of electronic systems on developing the administrative work	Variance Group	Degree of freedom	Contrast Average	P-Value	B-Value	T-Value	Significance Level
	11334.712	13	871.901	6.602E	13.532	0.178	0.000
	17.962	136	0.132				
	11352.673	149					

It is clear from the previous table, from calculating the value of (T) for the expressions of the axis of the impact of electronic systems on employee development and the total degree of the axis, and from extracting the P-value, that there is a statistically significant effect as a result of the use of electronic management systems in King Fahd Medical City on career development. This is evident from the calculation of the effect value, where the value of P was (6026.), while the value of B was (13.532), which is statistically significant.

*The results of the fourth question, their discussion and interpretation: What is the impact of the effectiveness of electronic management systems in King Fahd Medical City in Riyadh from the point of view of employees?*

To answer the previous question, the researcher calculated the arithmetic averages and standard deviations of the responses of the study sample members towards revealing "the impact of the effectiveness of electronic management systems in King Fahd Medical City in Riyadh." These expressions were arranged according to the arithmetic mean of each of them, as follows:

**Table 6. Frequencies, percentages, arithmetic averages and standard deviation of the responses of the study sample to the question: The impact of the effectiveness of electronic management systems in King Fahd Medical City in Riyadh from the point of view of employees. n = 150**

#	Expression	Q & %	Agreement Degree					Arithmetic Average	Standard Deviation	Ranking	Agreement Degree
			Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree				
1	My access to electronic management systems is easy and smooth.	Q	93	53	4	0	0	4.593	0.544	1	Strongly Agree
		%	61.6	35.1	2.6	0	0				
2	Systems interfaces clearly describe all the services they provide.	Q	82	59	8	1	0	4.480	0.631	7	Strongly Agree
		%	54.3	39.1	5.3	0.7	0				
3	Some tasks and work	Q	33	22	9	29	57	2.633	1.619	10	Strongly

#	Expression	Q & %	Agreement Degree					Arithmetic Average	Standard Deviation	Ranking	Agreement Degree
			Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree				
	procedures are still done on paper due to shortcomings in electronic systems.	%	21.9	14.6	6	19.2	37.7				Disagree
4	Electronic management systems are characterized by being easy to navigate and use.	Q	82	59	8	0	1	4.473	0.662	8	Strongly Agree
		%	54.3	39.1	5.3	0	0.7				
5	Electronic management systems are characterized by the speed of responding to the required commands.	Q	92	51	7	0	0	4.566	0.584	3	Strongly Agree
		%	60.9	33.8	4.6	0	0				
6	Any information can be easily accessed and retrieved.	Q	88	55	7	0	0	4.540	0.586	6	Strongly Agree
		%	58.3	36.4	4.6	0	0				
7	The information retrieved from electronic management systems is recent.	Q	88	56	6	0	0	4.546	0.574	5	Strongly Agree
		%	58.3	37.1	4	0	0				
8	The information retrieved from electronic management systems is accurate and reliable.	Q	95	49	6	0	0	4.593	0.568	1 bis	Strongly Agree
		%	62.9	32.5	4	0	0				
9	The information retrieved from electronic management systems is appropriate to business needs.	Q	93	51	6	0	0	4.580	0.570	2	Strongly Agree
		%	61.6	33.8	4	0	0				
10	Electronic management systems provide security and privacy for its users.	Q	91	54	3	2	0	4.560	0.607	4	Strongly Agree
		%	60.3	35.8	2	1.3	0				
11	There are backup copies of data and information in case of loss.	Q	49	32	46	13	10	3.646	1.210	9 bis	Strongly Agree
		%	32.5	21.2	30.5	8.6	6.6				

#	Expression	Q & %	Agreement Degree					Arithmetic Average	Standard Deviation	Ranking	Agreement Degree
			Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree				
12	Electronic management systems allow accurate follow-up of workflow.	Q	91	54	3	2	0	4.560	0.607	4 bis	Strongly Agree
		%	60.3	35.8	2	1.3	0				
13	The electronic management systems currently applied need to be developed and improved to suit business needs.	Q	49	32	46	13	10	3.646	1.210	9	Strongly Agree
		%	32.5	21.2	30.5	8.6	6.6				
The overall average for the fourth question							56.1800	6.456			

It is clear from Table 6 that:

Some of the phrases are higher in ranking which helps in finding out the effectiveness of benefiting from the used electronic management systems and in measuring the effect of effectiveness in using them within King Fahd Medical City in Riyadh. The most used phrases within King Fahd Medical City in terms of their averages ranking according to the responses of the study sample (employees) are:

-The phrase No (1) entitled "My access to electronic management systems is easy and smooth" ranked first with an arithmetic average of (4.593). This indicates that the electronic management system is used in a simplified and easy way, which comes because of qualified training in accordance with the quality standards for the extent of benefit from the system. This indicates continuity and effectiveness, which agreed with the study of Al-Aqra' (2020) in improving performance in terms of ease and smoothness.

-The phrase No (9) entitled "The information retrieved from electronic management systems is appropriate to business needs" came in the second rank with an arithmetic average of (4.580). This indicates that the used systems always apply administrative programs that help development and give administrative work continuity and programs effectiveness in King Fahd Medical City, which is related to the effectiveness of the systems and was similar to the study of Al-Muhmadi (2020).

-The phrase No (5) entitled "Electronic management systems are characterized by the speed of responding to the required commands" ranked third with an arithmetic average of (4.566). This indicates that the electronic management system operates quickly according to the commands given by the employee for the purpose of development and performance. This result is similar to the study of Al-Aqra' (2020).

-The phrase No (10) entitled "Electronic management systems provide security and privacy for its users" ranked fourth with an arithmetic average of (4.560). The employees' responses in this phrase appear to indicate the importance of the system in providing security and privacy, which is consistent with Al-Amoudi's study (2017) in terms of performance improvement ability.

-Finally, the phrase No (7) entitled "The information retrieved from electronic management systems is up-to-date" ranked fifth with an arithmetic average of (4.546), which shows that the effectiveness of performance appears in the ability to retrieve the required information through the system used. The study could measure the effectiveness of the performance in measuring the size of the effect to find out the statistical significance as well as the P-value.

**Table 7. The impact of the extent of effectiveness of electronic systems in King Fahd Medical City n = 150**

The impact of the extent of effectiveness of electronic systems in King Fahd Medical City	Variance Group	Degree of freedom	Contrast Average	P-Value	B-Value	T-Value	Significance Level
	6143.446	11	558.495	1.122E	-209	-0368	0.000
	68.694	138	0.498				
	6212.140	149					

It is clear from the previous table, from calculating the value of (T) for the expressions of the axis of the effectiveness of electronic systems on employee development and the total degree of the axis and extracting P-value, that there is a statistically significant effect as a result of the use of electronic management systems in King Fahd Medical City on career development. This is evident from the calculation of the effect value, where the value of P is (1.122E), while the value of B is (.209), which is statistically significant.

*The results of the fifth question, its discussion and interpretation: What is the most influential electronic management system on the performance of employees in King Fahd Medical City in Riyadh from the point of view of the employees?*

To answer the previous question, the researcher calculated the arithmetic averages and standard deviations of the responses of the study sample members towards revealing "the most influential electronic management system on the performance of employees." These terms were also arranged according to the arithmetic average of each, as follows:

**Table 8. Frequencies and percentages of the study sample's responses to the question: The most effective electronic management system on employees' performance, n = 150**

#	The management system implemented	Frequency	Percentage	Ranking
1	Performance Management System (PMS)	41	27.2	2
2	Electronic transactions system	46	30.5	1
3	The system of circulars and administrative decisions	23	15.2	3
4	e-mail	32	21.2	4
5	Web site Control System(Marz)	4	2.6	5
	Other	4	2.6	5 bis

The previous table shows the ranking of the most influential implemented systems on the performance of employees in King Fahd Medical City in Riyadh according to the opinions of employees in Riyadh. The Electronic Transactions System occupied the first place. The Performance Management System (PMS) came second. The system of circulars and administrative decisions came third, and in the fourth place came e-mail, while in the fifth place came the MARZ site control system and (other) systems. The latter is dealt with in the following table:

**Table 9. Frequencies and percentages of the study sample's responses to the question: The type of other systems that most affect the performance of employees, n = 150**

#	The other management system used	Frequency	Percentage
1	attendance system	1	0.7
2	Order Management System(ITSM)/ Project Management System/ ERP system	1	0.7
3	Clinic System	1	0.7
4	HIS	1	0.7
5	HER	1	0.7
6	IKFMC	1	0.7

Through the table, the most important other electronic systems used in King Fahd Medical City can be clarified as follows:

Attendance system, Order Management System (ITSM), Project Management System, ERP system, Clinic System, HIS, IKFMC

Therefore, the current study is distinguished from the studies of Jibril (2020 AD), and the study of Arraiz, J.-I. (2017) and the study of (Ahmad Z., et al. (2018) in the use of the current study for a group of systems that the mentioned studies did not refer to in terms of the quality of the systems used with different effectiveness and performance in achieving quality and good output. Hence, the current study is characterized by the quality of the electronic systems used in King Fahd Medical City, as it keeps pace with quality standards in medical centers and international hospitals in improving job performance through its electronic programs.

### Conclusions and Recommendations

In this section, we will analyze, discuss and interpret the data and study results. The questions of the study were answered through a detailed presentation of each of its fields separately and the presentation of those results supported by the statistical tables with a comment on the results of the data and an attempt to interpret and link them to previous studies.

***Regarding the answer, discussion and interpretation of the first question: The reality of the application of electronic management systems in King Fahd Medical City in Riyadh from the point of view of employees?***

The most statistically prominent results out of the responses of the study sample, which came with the highest arithmetic averages, are:

In the ranking of phrases in terms of the importance of the electronic system in King Fahd Medical City, phrase No (1) entitled "Electronic systems programs are available in the Medical City with the aim of saving and retrieving data" ranked first in terms of its importance to employees and the extent to which electronic systems programs are provided in the Medical City for the purpose of preservation and retrieval with an average of (4.7400). This indicates the importance of the availa-



bility of electronic programs, whatever type of program, for the purpose of saving and retrieving information.

The phrase No (5) entitled “the application of the electronic system is easy to save and retrieve data at the required time” came in the second place in terms of importance for the employees of King Fahd Medical City with an average of (4.693). This indicates the ease of use of the program or system used at the employee’s required time and linking it to the nature of work.

The phrase No (2) came in the third rank, entitled "The Medical City relies on modern electronic management systems with the aim of developing work performance" with an average of (4,666). This confirms the keenness of King Fahd Medical City, according to the employees' responses, to use modern systems that keep pace with electronic systems that are consistent with the quality system in job performance.

In the fourth rank, came phrase No (3) entitled “The electronic administrative system is a prerequisite for administrative work and is highly relied upon” with an average of (4.606). This confirms that the system, which will be mentioned later, is one of the foundations that are considered important in managing work in order to get Quality accreditation in the medical institution, which is what King Fahd Medical City is keen on.

Finally, in the fifth position, came phrase No (9) entitled "Getting patient or customer data depends on the use of electronic systems" with an arithmetic average of (4.653). This indicates that dealing with the employee in saving and recalling his data depends more on the electronic aspect through the different systems.

***The answer to the second question: What is the impact of the application of electronic management systems on the performance of employees in King Fahd Medical City in Riyadh?***

The most prominent results out of the responses of the study sample towards identifying the impact of the application of electronic management systems on the performance of employees, were as follows:

The phrase No (10) entitled "Electronic management systems contribute to the speed of work completion", came in the first rank with an arithmetic average of (4.413). This indicates that electronic management systems and their speed in completing work are among the most influential influences on changing job performance in King Fahd Medical City in Riyadh.

The phrase No (6) entitled "Electronic management systems contribute to facilitating the process of control and follow-up" came in the second place with an arithmetic average of (4,393), which indicates that the used electronic management systems facilitate control and follow-up and this is one of the influences on job performance from the staff point of view.

The phrase No (3) entitled "Electronic management systems contribute to the decrease in the percentage of errors at work" came in the third rank with an arithmetic average of (4.280), as the electronic management systems affect the decrease in the percentage of errors at work. This is considered one of the qualities of job performance in terms of the impact of electronic management systems at work.

The phrase No (8) entitled "Electronic management systems contribute to training employees on new tasks" came in the fourth position with an arithmetic average of (4,260), and this indicates the extent of the employees’ benefit through training in their performance of new tasks for the benefit of work in general.

Finally, the phrase No (5) entitled “Electronic management systems contribute to achieving transparency and making information available” came in the fifth place with an arithmetic average of (4.206), and this indicates the contribution of electronic systems to transparency and to making information available when requested.

***The answer, discussion and interpretation of the third question: What is the impact of the application of electronic management systems on the development of administrative work in King Fahd Medical City in Riyadh?***

The most prominent result is that all the differences in the responses of the study sample members were not statistically significant about the impact of the application of electronic management systems on employee development. This result was due to the following: The phrase No (4) entitled "paper transactions were dispensed with and the focus became on the electronic system" came in first place with an arithmetic average of (4,620). This indicates that the electronic system has replaced the paper system because of its speed in dealing with and accomplishing tasks, and this has the effect of developing the use of systems.

The phrase No (5) entitled " Contributed and assisted in the conduct of communication between the administrative departments" came in the second position with an arithmetic average of (4.440), and this indicates the impact of the electronic system in developing the communication process between and within the administrative departments.

The phrase No (10) entitled "The administrative procedure has become taking a little time to complete" came in the third place with an arithmetic average of (4.420). This shows the extent of development in job achievement time through the use of the electronic system in King Fahd Medical City in Riyadh.

The phrase No. (1) entitled "The administrative work procedures within King Fahd City have become developed and clear to all" came in the fourth place, with an arithmetic average (4.373), and the development appears in the actual use of the electronic administrative system in King Fahd Medical City.

The phrase No. (3) entitled "The systems contributed to simplifying administrative procedures." came in the fifth rank, with an arithmetic average of (4.313), and this indicates the change of the previously-used administrative systems towards development and modernization within King Fahd Medical City as a result of the use of electronic administrative systems.

***The answer, discussion and interpretation of the fourth question: What is the impact of the effectiveness of electronic management systems in King Fahd Medical City in Riyadh from the point of view of employees?***

The most prominent results were that all differences were not statistically significant in the responses of the study sample members about the impact of the effectiveness of electronic management systems, due to the following:

The phrase No (1) entitled "My access to electronic management systems is done in an easy and smooth way" was ranked first with an arithmetic average of (4.593). This indicates that the electronic management system is used in a simplified and easy way and this comes because of qualified training in accordance with quality standards for the extent of benefit from the system, and this indicates continuity and effectiveness.

The phrase No. (9) entitled "The information retrieved from the electronic management systems suits the work needs" came in the second place with an arithmetic average of (4.580), and this indicates that the implemented systems always use administrative programs that help development and give continuity in administrative work and in the effectiveness of programs in King Fahd Medical City.

The phrase No. (5) entitled "Electronic management systems are characterized by the speed of responding to the required orders" came in the third rank with an arithmetic average of (4.566), and this indicates that the electronic management system works fast according to the orders given by the employee with the aim of development and performance.

The phrase No. (10) entitled "Electronic management systems provide security and privacy for its users" came in the fourth rank, with an arithmetic average of (4.560), and the responses of employees related to this phrase indicated the importance of the system in providing security and privacy.

Finally, the phrase No. (7) entitled "The information retrieved from modern electronic management systems is recent" came in the fifth rank, with an arithmetic average of (4.546). This shows that the effectiveness of performance appears in the ability to retrieve the required information through the system used.

***The answer, discussion and interpretation of the fifth question: What is the most influential used electronic management system on the performance of employees in King Fahd Medical City in Riyadh from the point of view of employees?***

The most prominent result was that all the differences were not statistically significant in the responses of the study sample members about the most influential electronic management system on employee performance, due to the following:

The first place was occupied by the electronic transactions system, while the performance management system (PMS) came second. The third place was occupied by the system of circulars and administrative decisions, while e-mail came in the fourth place. The MARZ site control system came in the fifth place with the most important other electronic systems used in King Fahd Medical City, which are as follows: Attendance system, Order Management System (ITSM), Project Management System, ERP system, Clinic System, HIS, IKFMC

### References

- Abu Maghaid, Yahya Muhammad Ali (2004). E-Government in Public Institutions in the Kingdom of Saudi Arabia, (Master's Thesis), King Saud University, Riyadh.
- Ahmad Suffian Mohd, Z., et al. (2018). The influence of Human Resource Management Information System (HRMIS) Application towards Employees Efficiency and Satisfaction. Journal of Physics: Conference Series
- Al-Awamleh, Nael Abdel Hafez (2003). The quality of administration and e-government in the digital world: an exploratory study, King Saud Journal, 5, 249.
- Al-Assali, Muhammad Adib (2006). The Reality and Requirements of Developing the Health Reality, The National Conference for Scientific Research and Cultural Development, Damascus, Syria.
- Al-Allag, Bashir Abbas Mahmoud (2006). Measuring the quality of services from the beneficiaries' point of view as an indicator of the successful performance of administrative leadership in service organizations "The Case of Medical Laboratories and Radiology Centers in Jordan", the Arab Organization for Administrative Development: Contemporary Challenges to Arab Management "Creative Leadership".
- Al-Amoudi, Mina (2017). The role of applying electronic management in improving the service delivery system, Journal of Human Sciences, 48, 221-234.
- Al-Aqra', Noor. (2020). The role of electronic administration in improving job performance among workers in government institutions operating in Qalqilya Governorate. Journal of the Islamic University of Economic and Administrative Studies, 28 (2), 133-164
- Al-Awamleh, Nael Abdel Hafez (2003). The quality of administration and e-government in the digital world: an exploratory study, King Saud Journal, 5, 249.

- Al-Diwaji, Abi Saeed, and Abdullah, Adel Muhammad (2003). Type and Quality in Health Services. An Analytical Study of Patients' Opinions in a Sample of Public Hospitals, *Al-Rafidain Development Journal*, 25 (73)
- Al-Fayez, Haila, (2017) Alternative future scenarios for the transformation of electronic administration in Saudi universities, *Specialized International Educational Journal*, International Consulting and Training Group, Jordan Psychological Association, Amman, Jordan
- Al-Ghamdi, Muhammad Fawzi, (2021) *Electronic Administration*, King Fahd National Library, Riyadh, Saudi Arabia
- Al-Hajri, S. H. N. (2019). Developing a Performance Appraisal System in the Directorate of General Health Services, the Sultanate of Oman: A Participatory Action Research Project. *Ann Arbor, The University of Liverpool (United Kingdom)*. 27794791: 273.
- Al-Hamouz, Lubna Hussein (2016). The impact of applying electronic human resources management systems on organizational performance: An applied study in Royal Jordanian, (Master's thesis), Middle East University
- Al-Hassan, Hussein Muhammad (2011). *Electronic management: concepts, characteristics, requirements*, Oman: Al-Warraq Publishing and Distribution Corporation.
- Al-Lami, Ghassan Qassem Daoud, and Al-Bayati, Amira Shukr Wali (2008). *Production and Operations Management: Quantitative and Cognitive Foundations*, Al-Yazuri Scientific Publishing House, Amman, Jordan.
- Al-Muhmadi, Ghali Ali (2020). The impact of the application of Oracle systems on the effectiveness of human resources: An empirical study on the Civil Aviation Authority, *King Abdulaziz University Journal*, 34(2), 37-65.
- Al-Najjar, Fayez Jumaa Saleh (2007), *Management Information Systems*, Dar Al-Haamid for Publishing and Distribution, Amman, Jordan
- Al-Nimr, Saud, Mahmoud Muhammad, Hamzawi, Muhammad (2006) *Public Administration: Foundations, Functions and Modern Trends*, Al-Shukry Library, Riyadh, Saudi Arabia
- Al-Qarala, Ismat Selim (2008). The impact of judgmental characteristics on job performance from the point of view of workers in the Jordanian Ministry of Interior, (unpublished master's thesis), Mu'tah University, Karak, Jordan.
- Al- Salmi, Alaa Abdul-Razzaq, Al-Sulaiti, Khaled Ibrahim (2009), *Electronic Administration*, Wael House for Printing, Publishing and Distribution
- Al- Shamimary, Ahmed Abdel-Rahman (2001), *The Quality of Postal Services in the Kingdom of Saudi Arabia*, *Journal of Public Administration*, Vol. 41, No. (2)
- Al-Taaminah, Muhammad and Al-Alush, Tariq (2004). *E-Government and its Applications in the Arab World*, Cairo: The Arab Organization for Administrative Sciences.
- Al-Taii, Raad Abdullah, and Qadara, Issa (2008). *Total Quality Management*, Al-Yazuri Scientific Publishing House, Amman, Jordan.
- Al-Taweel, Akram Ahmed (2010) *The Possibility of Establishing Dimensions of Quality of Health Services*, *Tikrit Journal of Administrative Sciences*, 6(19)
- Arraiz, J.-I. (2017). *Electronic Performance Measurement Systems: Feasibility of Electronic Performance Measurement Systems: A Case Study*. Ann Arbor, Nottingham Trent University (United Kingdom). 27767445: 106.
- Chia-Ming Chang , Chin-Tsuchen, and Cin-Hsien (2002), *A Review of Service Quality in Corporate and Recreational Sport : Fitness Programs* , *The sport Journal* , Vol:5, No.3, [www.thesportjournal.org](http://www.thesportjournal.org)

- Cronin , Jr & Tylor. S (1992), Measuring Service Quality: Areexamination & Extension , Journal of marketing, No.56
- Dyoub, Muhammad Abbas, and Attia, Hani Ramadan (2005), Management of Marketing Medical Services applied on Al-Assad University Hospital in Latakia and Al-Basel Hospital in Tartous, Tishreen University Journal for Studies and Scientific Research, 27(2), [www.tishreen.shern.net](http://www.tishreen.shern.net).
- Evans, James R ., & Collier David A.(2007), Operations Management, Thomson South Western , Boston.
- Goncalves K.P (1998), Services Marketing : Astrategic Approach , prentice –Hall, New Jeresy
- Haamed Saeed Shaaban (2002). The impact of internal marketing as an entrance to human resources management on the level of health services quality in hospitals affiliated with the General Authority for Health Insurance in Great Cairo (2002) [www.faculty.ksa.ed.sal](http://www.faculty.ksa.ed.sal)
- Hamza, Jahra (2019). The role of electronic administration in improving job performance (unpublished master's thesis), University of Mohamed Khider, Biskra, Algeria.
- Hassan Hadi, S., et al. (2020). Implementing an Electronic Management System for Managing Graduate Students' Information in Iraqi Universities. IOP Conference Series. Materials Science and Engineering, 928(3).
- Hsing –yun Chang, Chien-Ting Chen, Cho-pu Lin , Yu-Jui Hsu (2008) , Determinants of Customer – Perceived Service Quality in Senior- Care Industry & Their Relationship to Customer Satisfaction & Behavioral Internations: Research Findings From Taiwan , Eight Annual IBER & TLC Conference Proceedings , [www.clnteinstitute.com](http://www.clnteinstitute.com).
- Jibril, Wael Muhammad (2020). Obstacles to the application of electronic management in the Department of Health Services, Derna, Libya, The Scientific Journal of the Economic Future, 8(1), 73-94.
- Jill K. Maher, Robert M0rris , John Clark (2005) , Variations in the Perceived Importance of SERVQUAL Dimensions :A Comparison Between Retail Banking and Museum , Proceeding of the Annual Meeting of the Association of Collegiate Marketing Educators , [www.sbaer,uca.edu](http://www.sbaer,uca.edu).
- Kafi, Mustafa Youssef (2011). Electronic Administration: A Paperless Administration - A Timeless Administration, Damascus, Raslan House for Printing, Publishing and Distribution.
- Katouah, Hisham Saleh (2004). Management Information Systems, Jeddah.
- Kharrazi, H., et al. (2018). Forecasting the Maturation of Electronic Health Record Functions Among US Hospitals: Retrospective Analysis and Predictive Model. Journal of Medical Internet Research, 20(8).
- Khawaja, Zeinhom Mashhout (2013). Requirements for applying electronic management to improve the quality of health care services in Egypt, Journal of Studies in Social Work, 13 (34), 4877-4965.
- Khoja, Tawfiq (2003). Introduction to Quality Improvement for Primary Health Care, Dar Al-Shorouk for Publishing and Distribution, Amman, Jordan.
- Khurma, Imad Muhammad (2000). The Administration of Health Services in Jordan: A Case Study of the Radiology Department Services in Jerash Central Hospital, Administrative, No. 83, Jordan.
- Khosrov, Ayman Muhammad Kamal (2008). Marketing of Health Services, Research Specialized Diploma in Hospital Management, International Consultative Center for Administrative Development, Britain.



- Koch, Hu (2002), Total Quality Management (2002). The application of total quality management in health care and ensuring the continuity of commitment to it, translated by Al-Ahmadi, Talal bin Abed, Institute of Public Administration, Riyadh, Saudi Arabia
- Kotler, Philip and Armstrong Gory (1994) , Marketing Management Analysis, planning, Implementation and Control , Hall Engle wood cliffs , New Jersey
- Lovelock C. (1996), Service Marketing, 3rd., Prentice-Hall, International Edition, New York
- Lu Lin, Z., et al. (2019). Assessment of the social influence and facilitating conditions that support nurses' adoption of hospital electronic information management systems (HEIMS) in Ghana using the unified theory of acceptance and use of technology (UTAUT) model. BMC Medical Informatics and Decision Making 19: 1-9.
- McCarty, A. (2012). Measuring the impact of training in the implementation of project management information systems. Ann Arbor, University of Maryland, College Park. 3553152: 275.
- Najm, Abboud Najm (2009). Electronic Administration, United Arab Emirates, International Journal of Administrative Sciences, 9(4), International Institute of Administrative Sciences.
- Nakijima, Hiroshi (1997). Better Health: Through better life of Recourses, World Health, The Magazine of (WHO), 50(5), 9-10
- Parasuraman A.,Zeithaml, Valarie A., & Berry Leonard (1988) , SERVQUAL: A multiple-Item Scale Measuring –Customer Perceptions of Service Quality , Journal of Retailing, 64(1)
- Radwan, Mahmoud. (2013). Electronic management and its functional applications. Cairo: The Arab Training and Publishing group.
- Rushoud, Abdullah bin Saleh (2008). Measuring service quality in Saudi commercial banks: a survey study of the opinions of Al Rajhi Bank customers in Riyadh, Master of Administrative Sciences, Naif Arab University for Security Sciences, Saudi Arabia.
- Saad, Khaled (2002). Total Quality: Applications to the Health Sector, Dar Waeel for Publishing and Distribution, Amman, Jordan.
- Shaahril Shafie , Dr. Wan Nursofiza , SudinHaron (2004). Adopting & Measuring Customer Service Quality In Islamic Banks: A case Study of Bank Islam Malaysia Berhad, Journal of Management & Islamic Finance Research, 1(1), www.KLbs.com
- Shaikh B.T., &Rabbani (2005). Health Management Information System: A tool to gauge patient satisfaction& Quality of Care, Eastern Mediterranean Health, 11(1-2)
- Shaikh, Baber T.(2005), Quality of Health Care: An absolute for Patient Satisfaction, Journal of View Point, 55(11), www.Jpma.org.pk.
- Slack, Nigel & Chambers, Stuart & Johnston, Robert (2004). Operations Management, 4th.ed., Prentice –Hill, New York
- Stevenson, William J. (2005). Operations Management, 8th.ed., McGraw –Hill, New York
- Yassin, Saad Ghaleb (2008). Management Information Systems, Dar Al-Yazuri for Publishing and Distribution, Amman, pp. 116-117.
- Yassin, Saad Ghaleb (2005). Electronic administration and the prospects for its Arab applications, Riyadh, Institute of Public Administration.
- Zeithaml, Valarie A., and Britner, M. (2003). Services Marketing Integrating Customer, Focus across the Firm, International Edition, McGraw-Hill, New York