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The Level of Electronic Management Application in Private Jordanian Universities

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ABSTRACT

This study aimed to reveal the level of application of electronic management in private Jordanian universities by surveying the views of a sample of faculty members from Al-Zaytoonah Jordanian University and the Applied Sciences University in Jordan. To achieve this aim, a sample of faculty members was selected, amounting to (130) faculty members for the academic year (2019/2020). A questionnaire consisting of (23) items was developed and its validity and reliability were verified. The study found that the reality of applying electronic management in private Jordanian universities was high. The results also indicated that there were no statistically significant differences at the level of significance ($\alpha \leq 0.05$) in all areas of the reality of applying electronic management in private Jordanian universities which can be attributed to the impact of gender and years of experience, while differences appeared due to academic rank.

Keywords: Electronic management, Private Jordanian universities.

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مستوى تطبيق الإدارة الإلكترونية في الجامعات الأردنية الخاصة

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ملخص

هدفت هذه الدراسة إلى الكشف عن مستوى تطبيق الإدارة الإلكترونية في الجامعات الأردنية الخاصة من خلال استطلاع وجهات نظر عينة من أعضاء هيئة التدريس في جامعة الزيتونة الأردنية وجامعة العلوم التطبيقية في الأردن. ولتحقيق هذا الهدف، تم اختيار عينة من أعضاء هيئة التدريس بلغت (130) عضو هيئة تدريس للعام الجامعي (2020/2019). وتم تطوير استبانة مكونة من (23) فقرة، والتأكد من صدقها وثباتها. وقد توصلت الدراسة إلى أن واقع تطبيق الإدارة الإلكترونية في الجامعات الأردنية الخاصة كان مرتفعاً. كذلك أشارت النتائج إلى عدم وجود فروق ذات دلالة إحصائية عند مستوى الدلالة ($\alpha \leq 0.05$) في جميع مجالات واقع تطبيق الإدارة الإلكترونية في الجامعات الأردنية الخاصة تعزى لأثر النوع الاجتماعي وسنوات الخبرة، في حين ظهرت فروق تعزى لمتغير الرتبة الأكاديمية.

الكلمات الدالة: الإدارة الإلكترونية، الجامعات الأردنية الخاصة.

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INTRODUCTION

The current era has witnessed many administrative styles and models that have contributed to the adoption of structural and behavioral changes in administrative processes related to programs, procedures, bureaucratic work methods, organizational structures, employment patterns and the quality of employees to achieve organizational goals with high effectiveness.

According to Olufemi (2012), technological development has led to fundamental changes in public administration. Thus, it has become necessary to create an efficient electronic infrastructure in each institution. Integrated electronic management has been found essential as a means to ensure the electronic flow of administrative work for the purposes of administrative processes in order to improve the efficiency of public administration. Albalawi (2020) affirmed that electronic management seeks to move from the traditional style of business implementation to a more flexible style that adopts modern technologies to achieve a higher level of quality, speed and accuracy in completing administrative work.

Abdullah et al. (2019) confirmed that the application of electronic management in various institutions leads to the completion of administrative and academic work at a higher level of accuracy, efficiency and speed. In the same context, Al-Dais and Al-Dais (2020) emphasized that employing electronic management contributes to facilitating administrative processes, reduces costs and allows storage and processing of data quickly, which leads to raising the level of productivity of the institution.

Problem Statement

The technological developments witnessed by the world have led to a decrease in the need to use paper included, as well as to the adoption of modern administrative methods based on the investment of technologies in administrative work. Thus, modern management has become dependent on the use of modern technology in the completion of administrative work, including planning, organizing, directing and electronic control. In order to resolve this study's issue, the following questions must be addressed:

1. To what extent are private Jordanian universities using electronic management?
2. Are there statistically significant differences in the level of electronic management application at private Jordanian universities at the level of significance ($\alpha \leq 0.05$) which can be attributable to the factors of gender, years of experience and academic level?

Study Objectives and Importance

The study aims to reveal the reality of applying electronic management in private Jordanian universities, in addition to revealing the differences in the viewpoint of the sample members about the reality of applying electronic management in those universities according to variables of gender, years of experience and academic level. It is hoped that the results of this study will help reveal the reality of electronic-management application in the preparation for enhancing work and spreading electronic management in educational institutions. It is also hoped that this study will contribute to providing information that may help officials in those universities to be alert to the shortcomings in the reality of the application of electronic management, as well as expanding the field of application of electronic data management in those institutions, which will positively reflect on the performance of those universities and facilitate the achievement of their goals.

Literature Review

The Concept of Electronic Management

Basu (2004: 110) defines electronic management as “the use of information and communication

technology to increase the access to governmental services and their dissemination across the network to benefit citizens, private business owners and workers. Heeks (1998) emphasized that the concept of electronic management is e-citizenship based on practicing the management process, developing the electronic network and providing services electronically, all of which will make the society in general and the individual in particular act electronically. Vrhovšek & Spalević (2011: 124) defined it as the use of information and communication technology to improve management processes, performance and production. According to Tayo & Abass (2014.), electronic management means moving from traditional office work to electronic operations, such as electronic planning, implementation and monitoring of all logistical aspects of the organization, where electronic management can control the business climate, available resources and expenditures.

Elements of Electronic Management

E-management is based on the effective employment of electronic technologies in all management processes (planning, implementation and evaluation), as it is not restricted to a specific time or place, which facilitates the process of administrative communication at any time and helps greatly in overcoming bureaucratic problems. Alrahahle (2014) and Abdalkrim (2012) confirmed that electronic management is characterized by flexibility and promptness being considered one of the most prominent foundations of the philosophy of electronic management, as it accepts change and deals with changes as soon as they occur on the one hand and works to predict change and prepare for it on the other. Moreover, electronic management is based on making change and preceding the effects on the events.

Many management literature (Al-Salmi, 2006; Al-Arishm, 2008; Taher, 2010) indicated that the elements of electronic management include:

1. Paperless administration: in terms of electronic archiving, e-mail and other electronic tools.
2. An administration without a certain place: taking advantage of modern technologies, cell phones, virtual rooms, electronic conferences and remote work through virtual institutions over the Internet.
3. Management without a specific time: as it can be implemented at any time without being restricted to a specific time as is the case in traditional management.
4. An administration without rigid organizations; as it works through networked institutions and smart institutions that depend on the knowledge industry.

In light of the above, the basic differences between electronic management and traditional management can be summarized as follows:

Traditional management	Electronic management
Paper management that depends on paper documentation of all its records	Paperless management
Difficulty in obtaining information from transactions	Ease and quickness of information
Possibility of losing some paper transactions	Ability to keep more than one copy of the files
Requiring large rooms to save paperwork	Does not require much space to save data

Given the characteristics of electronic management, it is required to prepare the appropriate infrastructure for organized planning and accuracy of implementation. Electronic management also requires follow-up and supervision, in order to ensure the best level of services, which in truth requires the presence of

competencies and effective management to reach the best level of administrative outputs (Abu-Ashour and Al-Nimty, 2013).

The Importance of Electronic Management in Universities

The use of electronic management contributes to achieving many benefits for universities, including: lowering the cost of administrative procedures, lowering the time needed to complete administrative transactions, providing accurately and objectively completed operations, having the ability to quickly fix mistakes and share documents with other departments and lowering the administrative workload (Seydo, 2015). In addition, electronic management contributes to reducing costs for establishing and equipping the operation of facilities at the university to accommodate paper files compared to saving the same files in electronic form. Al-Nimr and Fashqji (2011) argued that electronic management supports the competitive advantage of universities on the one hand and contributes to reducing the level of waste on the other.

Almahamid, Sleihat and Abbady (2012) emphasized that organizations of all kinds have begun to introduce electronic systems to implement their various activities, with the aim of achieving better efficiency and effectiveness, which contributes to improving the quality of their services and products and thus achieving a higher level of profitability.

For his part, Al-Thunaibat (2014) emphasized that the effective application of electronic management is due to institutions, whether academic or business, with many advantages, the most prominent of which are improving the decision-making process, achieving effective communication within the institution's internal structure, achieving optimal investment of resources, reducing costs and achieving a higher level of competitiveness.

Electronic management also contributes to the development of the administrative career in universities at the level of human-resource management. It is planned to attract these resources electronically, which allows for a large number of candidates to apply for jobs offered by the university and thus the opportunities for universities to choose competencies are better under electronic management compared to traditional management. Electronic management contributes to good recruitment and appointment of manpower by attracting and selecting suitable individuals for the university. Finally, the application of management contributes to achieving effective evaluation through the application of objectivity criteria and freedom from the factors of bias (Torrington, Taylor and Atkinson, 2011).

Previous Studies

Due to the importance of electronic management, many studies have been conducted on this topic. Albalawi (2020) conducted a study that aimed at uncovering the reality of electronic management at the University of Tabuk, KSA through the application on a sample of electronic management (115) administrative workers at the University. The results showed that the level of application was average.

Al-Dais and Al-Dais (2020) aimed to identify the need of Yemeni universities to apply electronic management. To achieve this goal, a sample of (78) vice-deans was employed. The results showed that the need of Yemeni universities to apply electronic management was high.

Abdulrahman and Tadros (2020) aimed to uncover the obstacles to the application of electronic management from the point of view of administrators at Al-Balqa Applied University. A sample consisting of (522) administrators was chosen and the findings revealed that the most significant barrier preventing the application of electronic management is that the use of electronic management necessitates the presence of skilled human workers, which is the human factor. Another barrier is the absence of

excellent financial capabilities.

Waswas and Jwaifell (2019) aimed to demonstrate Al-Hussein bin Talal University's institutional excellence and extent of use of electronic management. At Al-Hussein bin Talal University in Jordan, a sample of (249) people (faculty members and administrators) was chosen and the findings indicated that the level of application of electronic management was moderate.

Jarrah (2018) conducted his research on a sample of (703) administrative staff members in the center of the Jordanian Ministry of Education, where the author aimed to determine the level of application of electronic management in Jordanian educational institutions. The findings demonstrated a very high level of electronic management application. Statistically significant differences due to scientific qualification appeared in favor of graduate studies and due to experience in favor of those with less experience. There were no statistically significant differences in the degree of application of electronic management due to the gender variable.

As for the study of Osakede et al. (2017), it aimed to reveal the effect of the application of electronic management on the quality of services provided by universities in Nigeria, through a case study of the University on Adekunle Ajasin. A sample consisting of (350) workers at the studied university was selected and the results showed that the application of electronic management improves the efficiency and accuracy of the services provided by the university, as it contributes to saving time and effort to accomplish administrative work.

Abu-Ashour and Al-Nimty (2013) aimed to reveal the effectiveness of the application of electronic management at Yarmouk University, where the study population consisted of all the faculty and administration members at the university, amounting to (2410), of whom (683) are faculty and (1727) administrative staff for the academic year 2010/2011. The study sample amounted to (647) faculty and administrative members at Yarmouk University, of whom (320) are faculty members, chosen by the random stratified method from the total faculty community, as well as (327) administrative members, selected randomly from the total governing body community. After applying the tool to the sample members, the results of the study showed that the degree of effectiveness of the application of electronic management at Yarmouk University from the faculty members' point of view was high. The study sample included (36) male department heads working in different administrative departments and a questionnaire consisting of (60) paragraphs was distributed on computer knowledge, the use of attached programs and the desire to apply. The study results showed that 67% of department heads possess adequate computer knowledge. The study's findings also showed a correlation between computer proficiency and the degree of electronic management use. The study's findings further demonstrated that electronic management lightens the workload for department heads, increases productivity and minimizes errors.

Looking at the results of previous studies, it is noticed that there is a variation in the practical results of the application of electronic management, where some studies showed that the degree of electronic management application was medium, while others showed that the degree of application was high. In view of this disparity and in view of the transformation program, private universities apply electronic management to achieve competitive advantage and reduce time, effort and cost through being involved in applying electronic management. This study is a complementary step to previous effort to achieve competitive advantage for private Jordanian universities.

Procedures

The descriptive analytical approach was used in the current study, which entails examining a

phenomenon, event or current issue from which information can be drawn without the researcher's intervention, providing answers to the study's questions.

Methodology

The descriptive approach was used, due to its suitability to the purposes of the study. This approach is based on obtaining information related to the studied phenomenon or the subject of the study, to determine the nature of that phenomenon and to identify the interrelationships in the occurrence of that phenomenon, describe it, portray it and analyze the variables affecting it. The employment of the descriptive approach is evident in this study by collecting data through a questionnaire to detect the level of electronic-management application in private Jordanian universities.

Study Population

The study population consisted of all workers from various administrative and academic levels at Al-Zaytoonah Jordanian University and the Applied Sciences University, who were on duty in the first semester of the academic year 2019/2020.

Study Sample

An important tool for research studies is sample selection, which is a systematic procedure that involves choosing a statistically representative sample from the study population in question, because it is difficult to reach the entire population of the study, so that no research project can include the entire population, especially when the study population is large. The researcher therefore chooses the sample such that it constitutes a statistical representation of the population, which helps in answering the study questions in a scientifically sound manner (Majid, 2018: 3). For the purpose of this study, the sample was chosen randomly from the study population, to give all members of the study population equal opportunities to participate in the sample without affecting the selection of the individual. The sample amounted to (145) faculty members and (15) questionnaire forms were excluded, because they were not valid for analysis. Consequently, the final sample consisted of (130) individuals. The distribution of the sample's participants in relation to the study's variables is shown in Table 1.

Table (1)

Frequencies and percentages of the study sample according to the variables of the study

		Frequency	**Percentage**
Gender	Male	100	77.3
	Female	30	22.7
Experience	6 years or less	80	61.4
	More than 6 years	50	38.6
Academic rank	Assistant Professor	71	55.3
	Associate Professor.	59	44.7
Total		130	100.0

The Study Tool (Questionnaire)

The questionnaire represents the main means of collecting quantitative primary data through asking a set of questions designed to arrive at facts that the research aims to achieve. Always, a specific purpose is linked to the research objectives and is thus observable and quantifiable (Roopa and Rani, 2017: 273). A questionnaire was developed based on some previous

studies, such as (Albalawi, 2020), (Waswas and Jwaifell, 2019) and (Abu-Ashou and Al-Nimty, 2013). The questionnaire consisted of two parts; the first part includes general information about the members of the study sample, while the second part is a questionnaire to reveal the reality of the application of electronic management in higher-education institutions in Jordan. The questions consist of (23) paragraphs, divided into three areas; planning consisting of (8) paragraphs, efficient selection and appointment consisting of (8) paragraphs and evaluation consisting of (7) paragraphs.

Validity

Before applying the study tool to the study sample, the validity of the tool was confirmed in two different ways; namely, as follows.

Content validity means the extent to which the general appearance of the questionnaire is indicative of its ability to measure what it has been designed to measure. Consequently, apparent validity is a form of validity that is usually evaluated qualitatively by presenting the questionnaire to a group of experts (Roopa and Rani, 2017: 273). The study tool was initially presented to a group of referees, who are experts in educational administration, education fundamentals, measurement, evaluation and public administration in Jordanian universities in order to verify the content. They were asked for their thoughts on linguistic clarity, meaning clarity, readability and any additional observations or modifications they felt necessary. The questionnaire has been modified in light of the judges' feedback. Following arbitration, the questionnaire had a total of (23) paragraphs.

Validity Construct

An exploratory sample from outside the study sample, consisting of (20) staff members of the Applied Sciences University and Al-Zaytoonah Jordanian University was used to test the study tool's construct validity indicators. Both the values of the paragraph correlation coefficients with the tool as a whole and the values of the paragraph correlation coefficients with the field to which they belong were extracted. The values of the correlation coefficients between the paragraphs and the tool as a whole ranged between (0.63-0.86), while the correlation coefficients between the paragraphs and the fields to which they belong ranged between (0.70-0.83). It should be noted that a standard for determining whether to accept or reject any paragraph was that its coefficient of correlation with the field to which it belongs and with the tool as a whole must not be less than (0.25), All of the paragraphs have been approved as a result. The values of the inter-correlation coefficients between the study tool's fields and between the fields and the tool as a whole were extracted. It was discovered that the tool fields' inter-connection coefficients had high values, ranging between (0.79-0.84). The correlation coefficients between the fields and the entire tool ranged from (0.85-0.93).

Study Tool's Reliability

The degree to which a questionnaire can produce accurate results each time it is used is referred to as the test-retest reliability (Campbell and Stanley, 1991: 44). To test the reliability of the study tool, the scale was given twice to a group of (20) employees who were not a part of the study sample. Between the estimates, the Pearson correlation coefficient was calculated twice. Additionally, the Cronbach's alpha equation's internal consistency method was used to calculate the stability coefficient. The internal consistency coefficients for the Cronbach's alpha equation and the return stability of the axes are shown in Table (2) and these values were deemed suitable for the objectives of this study.

Table (2)
Internal consistency of Cronbach's coefficients for the study fields' consistency, repetition and overall grade

Domain	Number of items	Test-retest reliability	Cronbach's alpha
Planning	8	0.93	0.75
Efficient selection and appointment	8	0.91	0.73
Evaluation	7	0.89	0.89
TOTAL		0.90	0.81

Correction of the Study Tool

In order to evaluate the sample responses to the study tool, a five-point Likert scale was used to grade the responses according to the following degrees: (very high: five degrees, high: four degrees; medium: three degrees; low: two degrees; very low: one degree). To ascertain the reality of implementing electronic management in higher-education institutions in Jordan, the arithmetic averages have been categorized as follows:

1.00 - 2.33: low.

2.34 - 3.66: average.

3.67 - 5.00: high.

Study Variables

The following variables were included in the study:

Independent Variables

Gender: There are two groups (male and female).

Expertise: Possesses two levels (6 years or less and more than 6 years).

Academic level: There are two levels (Assistant Professor, Associate Professor and above).

The Dependent Variable: The perceptions of the sample members about "the level of application of electronic management in private Jordanian universities, measured by the five-point scale (very high, high, medium, low and very low).

Results

This part of the study deals with a presentation of its results as follows:

The first question: **What is the "level of application of electronic management in private Jordanian universities**?

To answer this question, the arithmetic means and standard deviations were extracted and Table (3) illustrates the results.

Table (3)
Means and standard deviations of the level of application of electronic management in private Jordanian universities arranged in descending order according to the arithmetic means

R	N	Field	Mean	Std. Deviation	Degree
1	1	Planning	3.9237	0.80828	high
2	3	Evaluation	3.9062	0.80431	high
3	2	Efficient selection and appointment	3.9006	0.85372	high
		TOTAL	3.9102	0.76529	high

According to Table 3, the arithmetic means were between (3.9102 and 3.9237), with the "planning" field having the highest arithmetic mean at (3.9237) and the "efficient selection and appointment" field having the lowest arithmetic mean at (3.9006). The fields' overall arithmetic mean, which equates to a high degree, was (3.9102).

For each paragraph in each domain separately, the arithmetic means and standard deviations of the estimates of the study-sample members were calculated and they were as follows:

Planning

Table (4)

The planning-field paragraphs' means and standard deviations arranged in descending order according to arithmetic means

R	N	Field	Mean	Std. Deviation	Degree
1	1	Electronic management allows all parties to participate in the human-resource planning process	4.04	1.041	high
2	8	Electronic management contributes to the development of administrative-planning systems for how to attract people	4.04	0.976	high
3	4	Electronic management provides an opportunity to forecast the educational institution’s needs in terms of quantity and quality of manpower	4.03	0.942	high
4	2	Electronic administration provides the possibility of reaching a large number of people with immediate feedback	3.93	0.936	high
5	6	Electronic management reduces the cost of administrative-planning procedures	3.92	1.119	high
6	7	Electronic management contributes to providing alternative administrative plans when needed	3.92	0.895	high
7	5	Electronic management helps in obtaining information related to human resources quickly	3.91	1.106	high
8	3	Electronic management helps in reducing planning problems	3.89	1.071	high

The means in Table (4) ranged from (3.89-4.04), with paragraph no. (3), which reads, "Electronic management helps in reducing planning problems" coming last with a mean of (3.89), while paragraph no. (1), which reads, "Electronic management allows all parties to participate in the human-resource planning process" coming first with a mean of (4.04), with paragraph no. (8) having the same arithmetic mean.

Selection and Appointment

Table (5)

Effective selection and appointment-field means and standard deviations listed in descending order by arithmetic means

R	N	Field	Mean	Std. Deviation	Degree
1	4	The application of electronic management contributes to the detection of qualified people to fill the positions	4.00	0.935	high
2	2	E-management application helps archive job applicants' applications for use when needed	3.99	1.013	high
3	8	The application of electronic management contributes to attracting efficient human resources	3.99	0.910	high
4	1	E-management application helps differentiate between applicants based on their competencies	3.94	1.011	high
5	3	The application of electronic management reinforces the principle of selection based on efficiency	3.84	1.113	high
6	5	The application of electronic management helps in building a scientific basis for selecting human resources	3.84	1.064	high
6	7	Electronic management contributes to better human and material resource recruitment plans	3.83	1.090	high
8	6	Electronic management helps in accommodating the largest possible number of job applicants at one time	3.82	1.019	high

Table (5) shows that the means ranged between (3.82-4.00), where paragraph no. (4), which states that "The application of electronic management contributes to the detection of qualified people to fill positions "came in the first place, with an arithmetic mean of (4.00), while paragraph no. (6) which reads "Electronic management helps in accommodating the largest possible number of job applicants at one time" ranked last, with a mean of (3.82).

Evaluation

Table (6)

Means and standard deviations of the evaluation-field paragraphs arranged in descending order according to arithmetic means

R	N	Field	Mean	Std. Deviation	Degree
1	5	Electronic management helps in following-up plans and daily business	4.13	0.874	high
2	3	Electronic management provides the university administration with statistical reports and data	3.98	0.924	high
3	2	The application of electronic management saves time and effort on evaluation	3.97	0.963	high

4	7	Electronic management contributes to the use of the scientific method in evaluation processes	3.97	0.952	high
5	6	The application of electronic management allows the evaluation of human resources on an accurate scientific basis	3.91	0.894	high
6	1	The implementation of electronic management leads to a reduction in favoritism when evaluating human resources	3.91	1.038	high
7	4	The application of electronic evaluation system leads to achieving justice among workers in educational institutions	3.89	0.971	high

Table (6) shows that the arithmetic means ranged between (3.89-4.13), where paragraph no. (5) which states that "Electronic management helps in following-up plans and daily business" came in the first place with an arithmetic mean of (4.13), while paragraph no. (4) which reads "The application of electronic evaluation system leads to achieving justice among workers in educational institutions" came in the last place, with a mean of (3.89).

The second question

Are there statistically significant differences in the level of application of electronic management in private Jordanian universities due to the variables of gender, years of experience and academic level?

In order to find out the answer to this question, the arithmetic means and standard deviations for "the level of application of electronic management in private Jordanian universities" were extracted. This was done in order to look for any statistically significant differences that might be attributed to the variables of gender, years of experience and academic level.

Table (7)

Means and standard deviations of the level of application of electronic management in private Jordanian universities due to variables of gender, years of experience and academic level

			Planning	**Efficient selection and appointment**	**Evaluation**	**Total**
Gender	Male	Mean	3.22	3.17	3.05	3.15
		Standard deviation	0.76	0.75	0.70	0.69
	Female	Mean	3.23	3.19	2.96	3.13
		Standard deviation	0.51	0.58	0.48	0.47
Experience	6 years or less	Mean	3.20	3.16	3.05	3.14
		Standard	0.71	0.69	0.65	0.64

			Planning	Efficient selection and appointment	Evaluation	Total
		deviation				
	More than 6 years	Mean	3.23	3.19	3.01	3.15
		Standard deviations	0.71	0.73	0.66	0.66
Academic level	Assistant Professor	Mean	3.29	3.26	3.12	3.23
		Standard deviation	0.70	0.73	0.61	0.62
	Associate Professor	Mean	3.16	3.10	2.95	3.08
		Standard deviation	0.72	0.70	0.68	0.67

According to Table (7), the level of application of electronic management in private Jordanian universities, attributable to the variables of gender, years of experience and academic level, appears to vary in terms of arithmetic means and standard deviations. Three-way analysis of variance was applied to the fields to show the importance of statistical variances between the arithmetic means (Table 8).

Table (8)

The effects of gender, years of experience and academic level on the areas of "e-management application in private Jordanian universities" examined using a three-way analysis of variance

Source of the contrast	Level	Sum of squares	Degrees of freedom	Average of squares	F-value	Statistical significance
Gender	Planning	0.006	1	0.006	0.012	0.914
Hoteling = 0.014	Efficient selection and appointment	0.021	1	0.021	0.041	0.841
Probability= 0.620	Evaluation	0.188	1	0.188	0.440	0.508
Experience	Planning	0.002	1	0.002	0.005	0.946
Hoteling = 0.012	Efficient selection and appointment	0.002	1	0.002	0.004	0.950
Probability=0.659	Evaluation	0.183	1	0.183	0.426	0.515
Academic level	Planning	0.862	1	0.862	1.717	0.192

Source of the contrast	Level	Sum of squares	Degrees of freedom	Average of squares	F-value	Statistical significance
Hoteling = 0.025	Efficient selection and appointment	1.118	1	1.118	2.168	0.143
Probability=0.375	Evaluation	1.241	1	1.241	2.895	0.91
Total		65.741	129			
		67.108	129			
		56.402	129			

Table (8) showed that:

- The impact of gender on all fields did not result in any statistically significant differences ($a \leq 0.05$).
- There were no statistically significant differences ($a \leq 0.05$) as a result of the influence of years of experience across all fields. There were no statistically significant differences ($a \leq 0.05$) due to the impact of academic level in all fields. The results are summarized in Table (9).

Table (9)

The effects of gender, years of experience and academic level on the fields of "e-management application level in private Jordanian universities as a whole" examined using multiple triple variances

Source of contrast	Sum of squares	Degrees of freedom	Average of squares	F-value	Statistical significance
Gender	0.004	1	0.004	0.009	0.923
Years of experience	0.010	1	0.010	0.025	0.875
Academic level	1.055	1	1.055	2.512	0.115
Error	53.340	127	0.420		
Total	55.086	129			

It can be seen from Table (9) that:

- The effect of gender did not result in any statistically significant differences ($\alpha \leq 0.05$), as the F-value was 0.009 and the statistical significance was 0.923.
- The effect of experience did not result in any statistically significant differences ($\alpha \leq 0.05$), with an F-value of 0.025 and a statistical significance of 0.875.
- The effect of academic level, with an F-value of 2.512 and a statistical significance of 0.115, did not result in any statistically significant differences ($\alpha \leq 0.05$).

Conclusion

The results of the first question showed that the level of electronic-management application in private Jordanian universities was high in all fields. This result reflects the seriousness of the steps that private universities have taken to promote the application of electronic management, because this would contribute to improving the performance of these universities at the administrative and academic levels and contribute to reducing the problems resulting from the application of traditional management, especially red

tape and bureaucracy, as well as delaying the completion of tasks. The administrative literature emphasizes that the transition to electronic management has become an important requirement for universities due to the complexity of procedures and processes provided by the traditional administration and the resulting increase in labor costs, the inability to integrate data throughout the institution and the difficulty of increasing competition. Universities are required to search for new mechanisms to facilitate procedures and provide a higher quality of services in order to remain in the circle of competition. Therefore, universities were keen to adopt the electronic management approach. In their endeavor to achieve competitive advantage, private universities tended to adopt the electronic management approach. The reason for the Jordanian universities' keenness to apply electronic management is due to the great advantages that electronic management achieves, the most important of which are the possibility of implementing remote business and enhancing competitiveness (Waswas & Jwaifell, 2019).

This result is consistent with most of the previous studies, which confirmed the shift towards electronic management in educational institutions, such as the studies of Jarrah (2018), Abu-Ashou and Al-Nimty (2013) and Felck (2010), where these studies showed that the level of application of electronic management in educational institutions was high.

The findings also revealed that the variables of gender, experience and academic level had no statistically significant impact on the level of electronic-management application in private Jordanian universities ($\alpha \leq 0.05$). This result may be attributed to the fact that employees in the university environment are almost similar in their administrative aspects; so, there was agreement between the members of the study sample despite their differences in gender, experience and academic level. As a result, there are no variations in the electronic-management components from one college to another. Additionally, the infrastructure and equipment provided for the use of electronic management are nearly identical. All of these factors helped the sample members' opinions to coincide, so there were no differences based on the variables of gender, experience or academic level. Studies conducted by Jarrah (2018) and Abu-Ashour and Al-Nimty (2013) found that there are no statistically significant differences in the degree of e-management application attributable to the gender variable. The produced results are somewhat consistent with the current study.

Limits and Limitations of the Study

Only a sample of employees at Zaytounia Jordanian University and the University of Applied Sciences for the academic year 2019/2020 was included in the study.

The tool that was used in this study to reveal the reality of applying electronic management in higher-education institutions in Jordan also limited how broadly the results of the study can be generalized.

Recommendations

In light of the previous results, the researchers recommend the following:

1- Developing legislations and laws related to electronic management to ensure that electronic-management systems in universities are constantly updated, which enhances the effectiveness of the application.
2- Encouraging university workers to continue the approach of transition to electronic management and giving the distinguished among them more incentives.
3- Conducting more studies on the availability of electronic-management requirements.

REFERENCES

Abdalkrim, Gaafar Mohamed. 2012. The Impact of Human Resource Management Practices on Organizational Performance in Saudi Banking Sector. ***European Journal of Business and Management***, 4 (21): 188-196.

Abdullah, Faraj, Mohammed, Ali, Maatuk, Abdelsalam, & Elberkawi, Ebitisam. 2019. Application of Electronic Management System in Governmental Institutions: An Empirical Study on the Libyan Civil Registration. ***The International Conference on Data Science, E-learning and Information Systems 2019 (Data'19)***. American University of Dubai, Dubai, United Arab Emirates.

Abdulrahman, Eman, & Tadros, Ibrahem. 2020. Obstacles of E-management and the Future Expectations to Overcome These Obstacles As Perceived by Al-Balqa Applied University Administrators. ***Scientific Journal of King Faisal University, Basic and Applied Sciences***, 21 (1): 287-303.

Abu-Ashour, K., & Al-Nimty, D. 2013. The Level of Applying Electronic Administration at Yarmouk University As Percived by Administrators and Faculty Members. ***The Jordan Journal of Educational Sciences***, 9 (2): 199- 220.

Al-Arishi, M. 2008. ***Possibility of Applying Electronic Management in the General Directorate of Education in Holy Makkah.*** Master Thesis, Umm Al-Qura University, Saudi Arabia.

Albalawi, Marzouqah. 2020. The Reality of Electronic Management for Academic Administrators at the University of Tabuk. ***Journal of Educational and Psychological Sciences***, 4 (1): 30, 75-90.

Al-Dais, Mohamed, & Al-Dais, Ibrahim. 2020. The Degree of Need of Yemeni Universities to Employ Computer Technology in Administrative Tasks. ***Journal of Arabian Peninsula Centre for Educational and Humanity Researches***, 1 (5): 69-93.

Almahamid, Soud, Sleihat, Nimer, & Abbady, Haitham. 2014. The Impact of E-business System Quality on Its Actual Usage. ***Jordan Journal of Business Administration (JJBA)***, 8 (4): 762-787.

Alrahahle, Abdelrazaq. 2014. The Impact of E-management and the Role of Human-resource Development in Improving the Performance of the Organization. ***International Journal of Business and Social Science***, 5 (10): 264-272.

Al-Salmi, A. 2006. ***Electronic Management***. Amman: Wael Publishing House.

Al-Thunaibat, Mo'ath. 2014. The Extent of Effective E-business Technologies Adoption in Saudi Hospitals: An Applied Study on Hospitals in Mecca Region. ***Jordan Journal of Business Administration (JJBA)***, 10 (4): 533-568.

Basu, S. 2004. E-government and Developing Countries: An Overview. ***International Review of Law, Computers and Technology***, 18 (1): 109-132.

Brown, D. 2005. Electronic Government and Public Administration. ***International Review of Administrative Sciences***, 71 (2): 241-254.

Campbell, D., & Stanley. 1991. ***Experimental and Quasi-experimental Designs for Research***. Geneva, III. Hopewell, N.J., Palo Alto, London.

Felck, C. 2010. Using Computers in Croatia National University Divisions. ***Journal of Research in Higher Education***, 2 (1): 111-169.

Heeks, R.B. 1998. ***Information Systems and Public-sector Accountability***. Institute for Development Policy and Management, University of Manchester.

Jarrah, H. 2018. The Degree of Applying Electronic Administration in Departments of the Jordanian Educational Ministry. ***International Journal of Economics and Business Research***, 15 (4): 490-510.

Majid, U. 2018. Research Fundamentals: Study Design, Population and Sample Size. ***URNCST Journal***, 2 (1): 1-9.

Olufemi, F. 2012. Electronic Governance: Myth or

Opportunity for Nigerian Public Administration? ***International Journal of Academic Research in Business and Social Sciences***, 2 (9): 2222-6990.

Osakede, K., Ijimakinwa, S., Arijeniwa, W., Adesanya, T., & Ojo, A. 2017. The Impact of E-administration on Service Delivery in Adekunle Ajasin University Akungba-Akoko, (AAUA), Ondo State, Nigeria. ***Management Studies and Economic Systems (MSES)***, 3 (3): 173-182.

Roopa, S., & Rani, M.S. 2017. Questionnaire Designing for a Survey. ***The Journal of Indian Orthodontic Society***, 46 (4): 273-277.

Taher, A. 2010. ***Electronic Management between Theory and Practice***. Amman: Al-Raya Publishing House.

Taherdoost, Hamed. 2016. Validity and Reliability of the Research Instrument; How to Test the Validation of a Questionnaire Survey in a Research. ***International Journal of Academic Research in Management (IJARM)***, 5 (3): 28-36.

Tayo, S., & Abass, B. 2014. Information Communication Technology and Public-school Administration in Osun State, Nigeria. ***International J. Soc. Sci. & Education***, 4 (4): 782-791.

Torrington, D., Taylor, S., & Atkinson, C. 2011. ***Human Resource Management***. 9th edn., Pearson Education, Limited.

Vrhovsek, E.M., & Spalevic, Z. 2011. The Perspectives of Development of Electronic Government in Serbia and EU Experience. ***Mega Trend Review***, 115-140.

Waswas, D., & Jwaifell, M. 2019. The Role of Universities' Electronic Management in Achieving Organizational Excellence: Example of Al-Hussein bin Talal University. ***World Journal of Education***, 9 (3): 53-66.