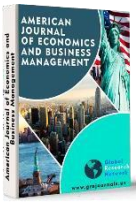

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Article

The Impact of Electronic Management on The Information Security System According to ISO:27001:2022

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Abstract: The research aims to measure the impact of e-management in its five Clauses: human resources, hardware and equipment, software, networks and communications, and organizational procedures. This measurement is based on the provisions of the international standard 27001:2022:ISO. The study was conducted in the Directorate of Civil Status, Passports, and Residence in Diyala Governorate, chosen as a distinguished location for the research. The research problem was defined in a main question: Does e-management in its Clauses affect the information security system according to the standard 27001:2022:ISO in its Clauses? The workers in the directorate center formed the research community. The sample was randomly assembled from various administrative sites in the directorate's departments. The number of participants amounted to 134 individuals recruited for the study. To answer the research question and test its hypotheses, the descriptive analytical approach was adopted. Descriptive and inferential statistical analyses were used to analyze the data obtained from the questionnaire, which we used as the main research tool. The research concluded that there is an impact of electronic management in all its Clauses on the information security system. Following this, a set of recommendations was formulated that are hoped to benefit those concerned.

Keywords: Electronic Management, Information Security System, ISO:27001:2018

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1. Introduction

The great developments that have occurred in organisations of all kinds have necessitated the transition from traditional management to electronic management. This transition aims to reduce time and effort as well as financial costs in providing services. Electronic management is one of the most decisive aspects of any organisation that seeks to achieve efficiency and effectiveness.

Because this study relies on data and information, it is necessary to design a system to protect, preserve, secure, and maintain the confidentiality of this dataset and information. Hence, the ISO 27001:2022:ISO standard was designed in response to the global trend towards business automation and electronic management. This trend motivated us to address these two vital variables for public organisations with a service environment.

We attempted to make an intellectual approach to the need to address them in an Iraqi public service environment. For all of the above, and in order to familiarise ourselves with the aspects of the topic, we divided the research into four sections.

The first section dealt with the research methodology. The second section dealt with the theoretical framing of the concepts of e-management and information security systems and their related specifications. The third section was for the practical aspect. The research concluded with the conclusions and recommendations.

2. Materials and Methods

2.1 Research Methodology and Fieldwork Procedures

2.1.1 Problem of the study:

The work of organisations that rely on technology and electronic communications and its developments faces the crimes of hacking or information theft. This issue is prominent in the Directorate of Civil Status, Passports, and Residence in Diyala Governorate.

We investigated this through preliminary interviews with a random sample of the directorate's departments. A preliminary survey on the research variables in general was also conducted. This provided an initial impression of a weakness in the application of e-management and the information security system in the directorate according to the standard 27001:2022:ISO.

To find a solution to this issue in a more in-depth manner, our research question is determined to raise a key question. The question is: Does e-management affect the information security system according to ISO 27001:2022 in the Directorate of Civil Status, Passports, and Residency in Diyala Governorate?

2.1.2 Research Objectives:

The research seeks to measure the impact of e-management in its Clauses (human resources, hardware, software, networks and communications, and organisational procedures) on the information security system according to ISO 27001:2022:ISO in the Directorate of Civil Status, Passports and Residency in Diyala Governorate.

2.1.3 Importance of the research:

The importance of the research lies in the fact that diagnosing the reality of e-management and the information security system in the Directorate of Civil Status, Passports and Residence in Diyala Governorate will constitute a new addition to address the knowledge deficit in this field, and then a strong incentive to adopt the research variables according to the latest international standards. Figure (1): Hypothesis Hypothesis diagram shows the logical relationships of the main and sub-variables as shown in the following figure 1:

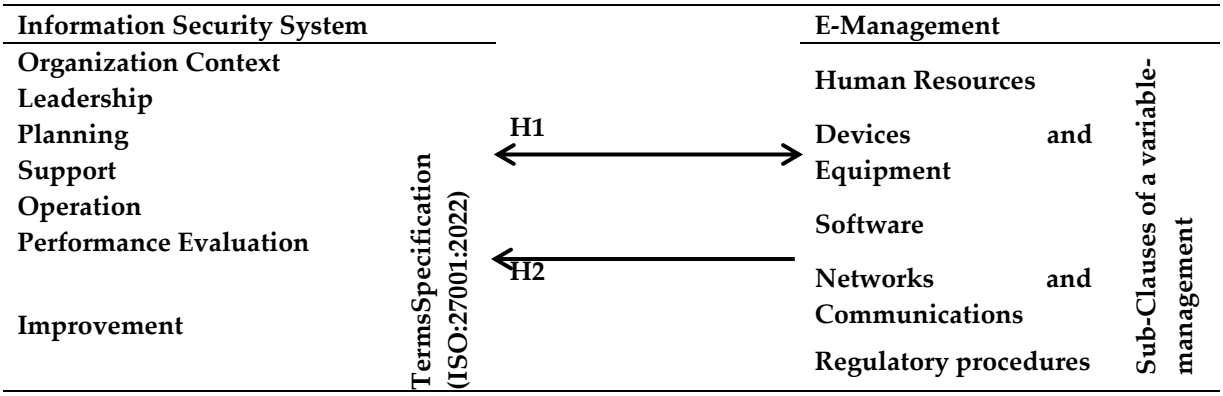

Figure 1. Procedural research diagram.

2.2 Research hypotheses:

The research seeks to establish the following:

There is a significant correlation between e-management in its dimensions and the information security system according to the international standard in the Directorate of Civil Status, Passports and Residency in Diyala Governorate with its dimensions.

There is a significant impact of e-management in its dimensions on the information security system according to ISO 27001:2022:2022 in the Directorate of Civil Status, Passports and Residency in Diyala Governorate with its dimensions.

There are no significant differences in the averages of the respondents' answers to the research variables attributed to the departments (nationality, residency, and passports) in the Directorate of Civil Status, Passports and Residency in Diyala Governorate.

Research methodology: Two items were adopted, the first was the theoretical one, in which we addressed the research variables according to the inductive and deductive methodologies. The other is the applied aspect, in which we used the descriptive-analytical approach to investigate the reality of the application of e-management with its dimensions and the information security system in accordance with ISO 27001:2022:ISO in the Directorate of Civil Status, Passports and Residence in Diyala Governorate.

Research population and sample: The Directorate of Civil Status, Passports and Residency in Diyala Governorate was chosen as the site for conducting the research, and the community was represented by all three departments of the Directorate, namely: The sample was randomly selected from the aforementioned departments where a total of (134) individuals working in the directorate were recruited as the study sample.

Data collection methods: The primary research data was collected through the electronic questionnaire, which is the main tool of the research, while the secondary data was gleaned from various sources in the literature.

Data analysis methods: To answer the research questions and achieve its objectives, we adopted descriptive and inferential statistical indicators in line with the research directions and hypothesis testing, each of which is described in the applied aspect.

2.3 Literature Review

2.3.1 Theoretical Framework

2.3.1.1 E-Management (Concept, Importance, Objectives and Clauses)

The activities of government organisations are gradually shifting from traditional to electronic, in order to facilitate the provision of administrative services. The aim is to reduce the costs of government procedures and associated administrative processes by providing these processes electronically, and from this point of view, what is known as e-management emerged, which embodies a new trend in contemporary management [1]. E-management is the main pillar on which the government rests, as it represents the internal work that is not visible to beneficiaries directly by connecting departments with each other through various systems and procedures through the automation of traditional government functions (database systems, archiving, financial and accounting systems...).

E-management is defined as "the process of planning, organising, directing, motivating, implementing and controlling through modern technological means with the aim of raising and improving performance and facing challenges within effective and efficient technical infrastructures" [2], while [3] sees it as "the process of applying information and communication technology in all management structures in the organisation to carry out work electronically using various electronic technologies such as: e-archives, e-mails, e-directories and e-messages". While [4] define it as "the adoption of modern technologies such as information systems, computer networks and communications in the implementation of administrative tasks and works within the organisation, which leads to their completion easily, easily and with high accuracy, and works to save time and effort and simplify procedures while ensuring the privacy and security of information".

Based on the above, we see that e-management is a transition in the achievement of the organisation's activities in response to the changes and developments of the environment through all kinds of electronic technologies in order to save time, effort and costs for the organisation and beneficiaries alike. E-management takes multiple forms in accordance with the nature of the organisation's business to achieve its goals, and therefore may appear with different concepts such as: (1): E-government [5]. ((2): E-business [6] and [7] believes that e-management encompasses both e-government and e-business.

The importance of e-administration is evident in its ability to keep pace with the huge qualitative and quantitative developments in the field of information technology and the emergence of the so-called information society, as e-administration represents a kind of strong reaction to the challenges of the current era summarised by globalisation, digital space, knowledge economies, the Internet revolution and global information networks and their variables and trends [8]. Its importance lies in lifting the barriers between citizens and the management of organisations, reducing the time and effort needed to accomplish work, changing citizens' interactions with organisations, enhancing decision-making in organisations, increasing transparency and reducing administrative corruption.

With regards to its objectives, Mohammed [9] believes that they seek to i) reduce the costs of administrative procedures and related processes, ii) heighten the efficiency of administrative processes by responding to citizens and organizations in order to serve more customers simultaneously, iii) eliminate or reduce direct relationships between the two parties to the transaction (employee and citizen) or reduce them to a minimum that leads to reducing the impact of personal relationships, iv) abandon the paper archive system and replace it with an electronic archive system, and v) transfer documents to multiple parties in the shortest possible time.

They also make them available at all times, eliminate bureaucratic hurdles, enhance professionalism and division of labour, and eliminate the spatial element. The aim here is multiple i.e. i) appointing and communicating with employees, ii) passing orders and instructions, iii) supervising performance, iv) organizing seminars and conferences through the electronic circuit, and v) contributing to reducing public spending by reducing costs.

The Clauses of e-management addressed by the current research in its practical aspect are as follows:

Human resources: They are the most important part of the organisation, as all e-management with its components does not constitute a valuable advantage without the human element that operates and manages it [10]. In this regard, refers to the individuals who accomplish work through the support of tools based on information technology, which facilitates the process of communication between employees and senior management in the organisation on the one hand and the organisation and external stakeholders on the other.

Agrees with (Peter Drucker) that they are characterised by knowledge, experience, intellect and mental energy and are called in management thought (knowledge workers) [11].

Devices and equipment: According to [12], it is “all material resources used to manage the processes through which data and information pass, represented by computers of all kinds, networks and media…”. Also believes that it is a basic component on which the work of the e-business system is based and includes the devices specialised in data entry, processing, output and transmission to the users [13].

Software: this is part and parcel of the process and it consists of a series of commands written according to strict rules and written by programmers in different programming languages [14]. These programmes are instructions that can be read by the machine

(computer) and consist of two types: System Programmes and Application Programmes. [15]. So, software are commands that enable the computer to perform a specific task.

Networks and communications: These refer to communication systems that connect computers and accessories through communication and long-distance communication technologies and include various types of networks such as the Internet, intranets, extranets, and extranets. According to [16], it means the movement of data and information from one point to another through electrical or electromagnetic devices, fiber optic cables, or microwave signals. Networking is a model that allows any two different computers to communicate with each other without paying attention to their architecture.

Organizational procedures: It is the ways in which duties and tasks are performed step by step to facilitate their achievement. These procedures include a set of laws and instructions to achieve the desired goals and results. Procedures mean the steps necessary to apply the rules, laws and instructions to obtain the best results by implementing system operations within a regulatory and confidential framework to preserve information. [17].

2.3.1.2 Information Security System (Concept, Importance, Objectives and Clauses)

Significant developments in communications and information technologies have contributed to the easy spread and circulation of data and information through the Internet, which has generated many issues and various risks to which information is exposed, such as hacking, attack and sabotage. This required countries or organisations to issue legislation and spread awareness in the community and users by issuing instructions and procedures and developing legislation to protect and preserve information from threats and risks.

Defines an information security system as "the nerve centre and the overall coordination and control point behind the strategic and operational work done to protect and harness valuable information". Sees information security as "the methods that seek to process, store and transmit information and is not only related to the computer environment, but concerns about everything that contains information", which shows that he is concerned about almost everything, while [18] sees it as "the measures and directives issued by the management of the organisation to protect its technical resources and the information they contain in their various forms, in order to achieve their integrity, availability and confidentiality in accordance with established powers and arrangements". Agrees that it is "a set of practices, procedures and preventive measures that will protect data, information, organisational resources and all used devices." The information security system is a set of processes carried out by those involved in working with the electronic system in the organisation, the aim of which is to preserve data and information from all kinds of damage that can be inflicted on them [19].

The importance of the information security system is to protect and secure data and information, as well as devices, equipment and networks from any threat or danger. This importance is directly related to the importance of information, which has become a vital artery and developmental tributary, whether at the level of organisations or the national economy. In addition, it is a competitive advantage and of great value in different organisations in the age of technology, which has generated a great need to preserve it [20].

According to and [21], the objectives of the information security system are to achieve confidentiality and reliability in information handling procedures, provide continuous, secure and quality service during the implementation of information system activities, eliminate any security weaknesses that may cause threats, maintain the continuity of information availability, reduce errors and risks facing the system of all kinds, verify the persons authorised to deal with information, and increase efficient and effective information used by the top management of the organisation in its decisions.

It is worth mentioning here that the elements of the ISMS mentioned in the literature are the same or derived from ISO:27001, and many researchers agree with this. The

elements of the ISMS in the Deming Integrated Cycle can be illustrated in the following figure 2:

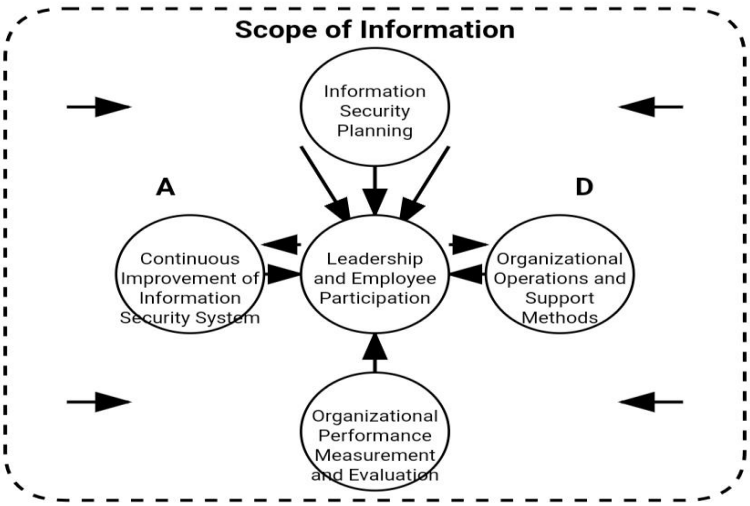

Figure 2. Elements of an information security management system. Source: Prepared by the researchers based on the literature.

The clauses of the information security system are represented by the clauses of ISO:27001:2022, which is defined by the standardisation organisation itself as "an international standard that provides the requirements for the establishment, implementation, maintenance and continuous improvement of an information security management system (ISMS)" (ISO:27001:2022:2). It is worth mentioning that one of the most important changes that occurred in the new version is changing the title of the new version to (Cybersecurity and Privacy Protection in Information) instead of the old name [22]. The provisions of the ISO/IEC 27001:2022 Information Security Management System (ISMS) addressed in this research can be described as follows, see in figure 3:

1. Clause 4 (Context of the organisation): It includes (understanding the organisation and its context, understanding the needs and expectations of stakeholders, defining the scope of the ISMS and the ISMS).
2. Clause 5 (Leadership): It includes (leadership and its commitment, the organisation's policy, defining organisational roles, responsibility and authorities).
3. Clause 6 (Planning): It includes procedures for addressing risks and opportunities, assessing information security risks, addressing information security risks, defining security objectives and planning to achieve them, and planning for changes.)
4. Clause 7 (Support). It includes (identifying resources, required competence, awareness of the organisation's work and activities related to the information security system, documented information and its control, and establishing and updating information systems).
5. Clause 8 (Process): It includes (operational planning and control, information security risk assessment, and addressing information security risks).
6. Clause 9 (Measurement, Analysis and Evaluation): It includes (monitoring, measuring, analysing and evaluating, internal audits, administrative review of the system, and the results of the administrative review).
7. Clause 10 (Improvement): It includes (continuous improvement processes, identification of deviations and correction procedures).

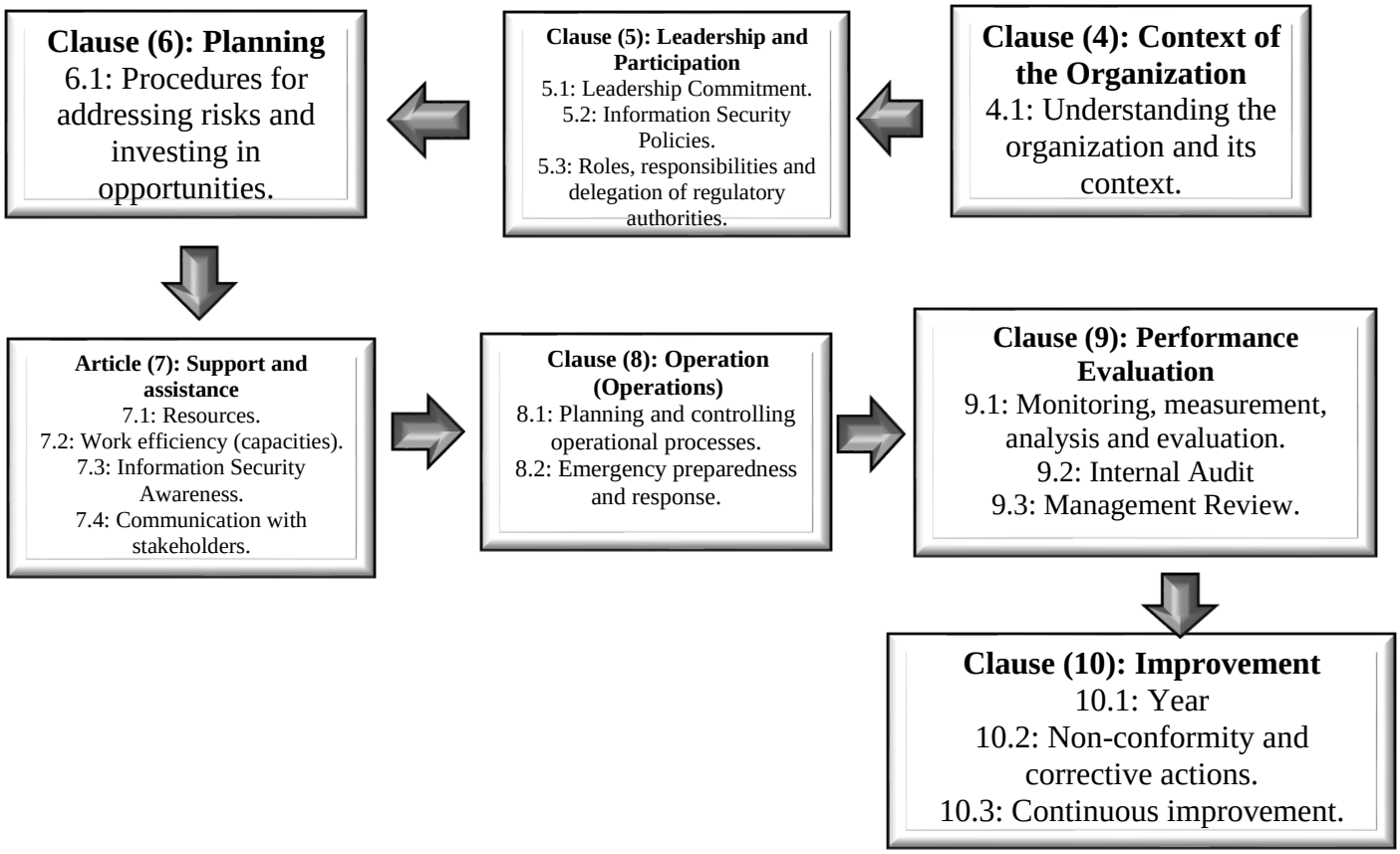

Figure 3. Clauses of iso:27001:2022 for an information security management system.

3. Results and Discussion

3. The Applied Aspect of The Research

3.1 Testing the Reliability of the measurement tool (the questionnaire)

The reliability of the research scale and its suitability for statistical analyses was assessed through two indicators, as shown in table 1 below:

1. Cronbach's Alpha: this is to indicate that the scale gives a close reading score when applied each time, where the alpha value ranges between zero and one [23].
2. McDonald's Omega: this is to estimate internal consistency and because it takes into account Clause-specific errors and unequal variances [24].

Table 1. Assessing the stability of the measurement instrument (questionnaire)

	Research Variables	Cronbach's Alpha Reliability coefficient	Number of items in the questionnaire form	McDonald Omega Reliability coefficient value
X1	**Human Resources**	**0.784**	**5**	**0.792**
X2	**Devices and Equipment**	**0.834**	**5**	**0.822**
X3	**Software**	**0.800**	**5**	**0.805**
X4	**Networks and Communications**	**0.773**	**5**	**0.758**
X5	**Regulatory procedures**	**0.803**	**5**	**0.800**
X	**e-management**	**0.937**	**25**	**0.935**
Y1	**Directorate context**	**0.845**	**6**	**0.841**
Y2	**Leadership**	**0.843**	**6**	**0.838**
Y3	**Planning**	**0.858**	**6**	**0.855**
Y4	**Support**	**0.817**	**6**	**0.813**

Y5	**Operation**	**0.809**	**6**	**0.804**
Y6	**Performance Evaluation**	**0.713**	**6**	**0.711**
Y7	**Improvement**	**0.867**	**6**	**0.866**
Y	**Information Security System**	**0.922**	**42**	**0.920**

3.2 Characteristics of the research sample and their personal qualities

The distinctive and personal characteristics of the research sample were represented in six categories, as shown in Table (2) below:

Table 2. Description of the distinctive characteristics of the research sample.

Identification information	Repetition	Percentage %	Target group
Directorate	58	43.3	Nationality
	37	27.6	Residence
	39	29.1	Passports
Total	134	100%	
Sex	104	77.6	Male
	30	22.4	Female
Total	134	100%	
Academic qualification	16	11.9	Diploma or less
	99	73.9	Bachelor's
	5	3.7	Higher Diploma
	14	10.4	Higher Education
Total	134	100%	
Years of experience	9	6.7	5 years or less
	43	32.1	From 6 to 10 years
	40	29.9	From 11 to 15 years
	42	31.3	16 years and older
Total	134	100%	
Job Duties	92	68.7	Employee
	18	13.4	Unit Officer
	18	13.4	Division Head
	6	4.5	Department Manager and above
Total	134	100%	
Training courses in research variables	11	8.2	Nothing
	47	35.1	From 1 to 2 course
	46	34.3	From 3 to 4 course
	30	22.4	5 courses or more
Total	134	100%	

3.3 Description and interpretation of the two research variables (electronic management and information security system)

In order to describe and interpret the responses of the responding individuals at the level of the Directorate of Civil Status, Passports and Residence in Diyala Governorate, the research was based on the five-rank Likert Scale and five categories, the results of which are evident in Table (3) below.

Table 3. Description of the sample answer on the variables of electronic administration and its dimensions, and the information security system (n=134).

Arrangement	The Gap	Application Level	Relative Importance	Coefficient Of Variation	Standard Deviation	Arithmetic Mean	E-Governance And Its Dimensions	T
2	0.17	high	0.83	13.54	0.562	4.15	Human Resources	1
1	0.156	high	0.844	13.54	0.622	4.22	Devices and Equipment	2
3	0.188	high	0.812	90.14	0.605	4.06	Software	3
5	0.206	high	0.794	15.94	0.633	3.97	Networks and Communications	4
4	0.192	high	0.808	14.90	0.602	4.04	Regulatory procedures	5
The first	0.182	high	0.818	12.52	0.512	4.09	Overall rate of e-governance variable	
7	0.206	high	0.794	18.49	0.734	3.97	Directorate context	1
3	0.206	high	0.79	15.06	0.595	3.95	Leadership	2
5	0.234	high	0.766	16.11	0.617	3.83	Planning	3
2	0.226	high	0.774	14.75	0.571	3.87	Support	4
1	0.22	high	0.78	14.41	0.562	3.9	Operation	5
4	0.228	high	0.772	15.93	0.615	3.86	Performance Evaluation	6
6	0.236	high	0.764	16.83	0.643	3.82	Improvement	7
The second	0.22	high	0.78	13.18	0.514	3.9	Overall Average of Information Security System	

It is clear from (Table 3) that the ranking of the dimensions of e-management according to the answers of the sample of the Directorate of Civil Status, Passports and Residency in Diyala came as follows:

a. Devices and equipment: The Directorate takes care of its devices and equipment and works to maintain and develop them for work requirements.
b. Human resources: This indicates that human resources are sufficient and qualified to work in the field of information technology.
c. Software: This indicates that the Directorate adopts general and special computer programmes to accomplish the work.
d. Organisational procedures: The directorate defines the tasks and responsibilities of employees with clear administrative procedures and instructions.
e. Networks and communications: Networks and communications contribute to reducing the completion time and increasing the effectiveness of the directorate's performance.

It is also clear from (Table 3) that the order of the dimensions of the information security system according to the answers of the sample of the Directorate of Civil Status, Passports and Residency in Diyala is as follows:

a. Operation: The directorate plans, implements and monitors the requirements of the information security system in accordance with ISO:27001:2022.
b. Support: The Directorate determines the resources required to establish, implement and maintain the ISMS.
c. Leadership: This indicates that the directorate's leadership directs individuals to contribute to the effectiveness of the ISMS.
d. Performance evaluation: The directorate evaluates the information security system based on feedback from the control and measurement processes.

e. Planning: The Directorate plans for all potential risks and opportunities in the ISMS.
f. Improvement: The Directorate reacts quickly to inconsistencies and takes corrective actions to control them.
g. Context of the Directorate: The Directorate identifies internal and external issues that are relevant to its objectives and capacity to achieve the expected results of the ISMS.

3.4 Testing The Research Hypotheses

1. Testing the correlation hypothesis: this states that there exists a significant correlation between e-management in its dimensions and the information security system according to the international standard (ISO 27001:2022:27001) in the Directorate of Civil Status, Passports and Residence in Diyala Governorate in its dimensions. The results of the sample's responses can be presented in Table (4) below.

Table 4. Pearson correlation coefficients for the relationship between e-management and information security system (n=134).

Strength and direction of the relationship	Z-test	Significance level Sig.	Simple correlation coefficient Pearson	Variables		Hypothesis	
				Dependent	Independent		
Average Direct	5.55	(0.001) >P	0 .435**	Information Security System	Human Resources	1-1	Sub
Average Direect	6.03	(0.001) >P	0.465**		Devices and Equipment	2-1	
Average Direct	8.08	(0.001) >P	0.575**		Software	3-1	
Average Direct	7.03	(0.001) >P	0.522**		Networks and Communications	4-1	
Strong Direct	9.44	(0.001) >P	0.635**		Regulatory procedures	5-1	
Strong Direct	9.15	(0.001) > P	0.623**	Information Security System	e-management	First President	
Six significant hypotheses out of six (Main + 5 sub-hypotheses)				number	Acceptable hypotheses	Correlation	

Table 4 demonstrates the existence of a strong significant correlation between the electronic administration and the information security system in accordance with the international standard (27001:2022:ISO) in the Directorate of Civil Status, Passports and Residence in Diyala Governorate, as the value of the Pearson correlation coefficient reached (0.623) at a significant level of 0.001 (> (P) and with a confidence level of more than 99%. This this is confirmed by the Z-test test, which reached its calculated value (9.15), which is greater than its tabular value of (1.96). What this result shows us is that the more directorate employed electronic management, the further increase we see in the adoption of the terms of the information security system according to the specification (27001:2022:ISO) directly and positively. This enables us to accept the first main hypothesis, as can be clearly shown in the following figure 4:

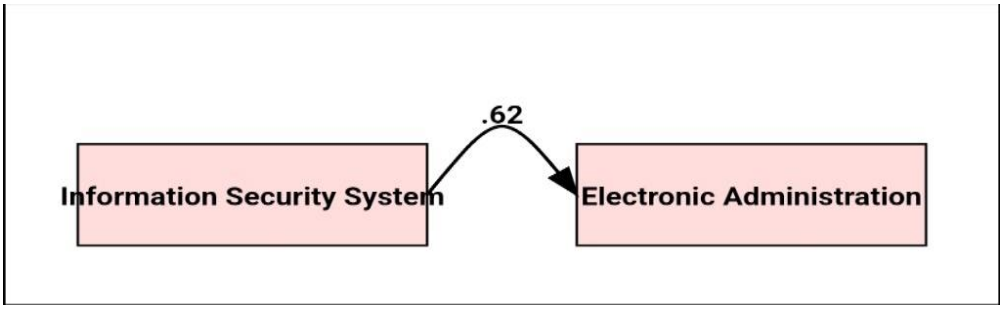

Figure 4. The relationship between e-management and the information security system.

Impact hypothesis test: this referred to the existence of a significant impact of electronic management in its dimensions in the information security system in accordance with the international standard (27001:2022:ISO) in the Directorate of Civil Status, Passports and Residence in Diyala Governorate with its dimensions. The results of the sample answers can be presented in the following table 5:

Table 5. The impact of electronic management on the information security system.

Variables		Information Security System					
Indicators	Result	Constant α	Significance level Sig	Tα	Tβ	Standard error SE	regression coefficient β
e-management		1.338	.000	4.750	9.151	.404	.625
Source of variance		P-value	coefficient of determination R2	Calculated f-value	Mean squaresMS	degree freedomDF	sum of squaresSS
Slope					13,640	1	13,640
Error		.000	.388	83,734	.163	132	21,502
Total	moral					133	35.142
		T(0.01)=2.61 T(0.05)= 1.978			F(0.01) = 6.65 F(0.05) = 4.00		

Table (5) indicates that the calculated F value of the regression model was (83.734), which is greater than its tabular value at the significance level of (0.05) and (0.01) and the significance level of (0.001) > P. This tells us that a significant effect of e-management can be observed on the information security system at a confidence level greater than (99%), while the value of the constant was (=1.338). This can testify to the presence of (e-management) by (1.338) in the Directorate of Civil Status, Passports and Residence in Diyala even if the information security system does not exist, and the value of the regression coefficient was (0.625), which is interpreted as the amount of change in the value of the dependent variable when there is a change in the amount and intensity of the value of the independent variable. This value was found to be statistically significant because the calculated t-value for it was (9.151), which is greater than the tabular value at a significance theshold of (0.05) and (0.01), i.e. increasing the value of the e-management variable by one unit will lead to a change of (0.625) in the information security system, and the coefficient of determination (R2) value of (0.388). This means that (38.8%) of the variance is accounted for.(8%) of the variance that occurs in the information security system is explained by the e-management that entered the model, and (61.2%) is explained by factors that did not enter the regression model of the current research. As such, this result supports the acceptance of the second main research hypothesis.

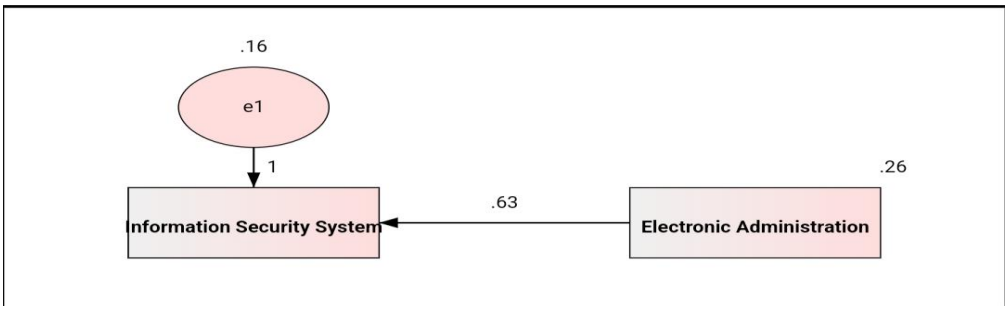

Figure 5.: The extent of impact of the electronic management variable in the information security system.

The result of the impact in figure 5 can be put into the following simple linear regression equation: $Y = \alpha + \beta (X1)$

Information Security System = 1.338 + 0.625 (e-management)

As for the impact of electronic management at the level of its dimensions in the information security system combined, all of them had significant effects at different levels, as shown in Table (6) below.

Table 6. The Effect of Dimensions of Electronic Administration Individually on the Information Security System Combined.

e-management	Security Information System	R2	Direction	Sig.	P.	SE	Calculated f-value	Calculated t-value	β	A
Human Resources		.190	←--	moral	***	.464	30.881	5.557	.398	2.243
Devices and Equipment		.216	←--	moral	***	.457	36.456	6.038	.384	2.273
Software		.331	←--	moral	***	.422	65.302	8,081	.489	1.912
Networks and Communications		.272	←--	moral	***	.440	49.310	7.022	.423	2.216
Regulatory procedures		.403	←--	moral	***	.399	89.169	9.443	.542	1.703

Table (6) tells us the following:

The impact of human resources in the information security system: There is a significant effect of human resources working in the information security system of the Directorate of Civil Status, Passports and Residence in Diyala Governorate, as the calculated value of (F = 30.881) is greater than its tabular value, and at a significance level of 0.001 > P. The value of the constant ((= 2.243) indicates that there are (human resources) by (2.243) in the Directorate of Civil Status, Passports and Residence in Diyala even if the information security system is equal to zero. The effect size of ((= .398)) Is statistically significant because the calculated value of (T = 5.557) is greater than the tabular value at a significance level (0.01) and the coefficient of determination (R2 = 0.19) means that 19% of the variance that occurs in the information security system is explained by the human resources that entered this model.

Influence of hardware and equipment on the information security system: There is a significant effect of hardware and equipment in the information security system of the Directorate of Civil Status, Passports and Residence in Diyala Governorate, as the calculated value of (F = 36.456) is greater than its tabular value, with a significance level of 0.001 > (P), while the value of the constant ((= 2.273)) indicates that there is a presence of hardware and equipment by (2.273).273) in the Directorate of Civil Status, Passports and Residence in Diyala even if the information security system is equal to zero. The effect size of ((= .384)) Is statistically significant because the calculated t-value (6.038) is greater than the tabular value at a significant level (0.01) and the value of the determination coefficient

(R2 = 0.216) means that 21.6% of the variance that occurs in the information security system is explained by the hardware and equipment variable that entered the model.

The effect of software on the information security system: There is a significant effect of software in the information security system of the Directorate of Civil Status, Passports and Residence in Diyala Governorate, as the calculated value of (F = 65.302) is greater than its tabular value, and at a significance level of 0.001 > (P), while the value of the constant (= 1.912) indicates that there is a presence of software of (1.912) in the Directorate of Civil Status, Passports and Residence in Diyala even if the information security system is equal to zero, the effect size ((= .489)) Is statistically significant because the calculated value of (T = 8.081) is greater than the tabular value at a significant level (0.01) and the value of the coefficient of determination (R2 = 0.331) means that (33%) of the variance that occurs in the information security system is explained by the software variable that entered the model.

The Impact of networks and communications on the information security system: There is a significant impact of networks and communications in the information security system of the Directorate of Civil Status, Passports and Residency in Diyala Governorate, as the calculated value of (F = 49.31) is greater than its tabular value, at a significance level of 0.001 > (P), while the value of the constant ((= 2.216) indicates that there is a presence of networks and communications of (2. 216) in the Directorate of Civil Status, Passports and Residency in Diyala.216) in the Directorate of Civil Status, Passports and Residence in Diyala even if the information security system is equal to zero, the effect size ((= .489)) is statistically significant because the calculated value of (T = 7.022) is greater than the tabular value at (0.01) significance level and the value of the coefficient of determination (R2 = 0.272) means that (27%) of the variance that occurs in the information security system is explained by the variable of networks and communications that entered the model [25].

The impact of organisational procedures on the information security system: There exists a significant impact of organizational procedures on the information security system of the Directorate of Civil Status, Passports and Residence in Diyala Governorate. This is evidenced by the calculated f-value of = 89.169), which is greater than its tabular value, and with a significance level of 0.001 > (P). The value of the constant (◎ = 1.703) indicates that there is a presence of regulatory procedures of (1.703) in the Directorate of Civil Status, Passports and Residence Diyala, even if the information security system is equal to zero, while the value of the effect (◎ = .542) is a function Statistically because the calculated value of (T = 9.443) is greater than the tabular value at a significant level (0.01) and the value of the coefficient of determination (R2 = 0.403) means that (40%) of the variance that occurs in the information security system is explained by the variable of organizational procedures that entered the model.

Testing the hypothesis of the differences between the mean responses of the sample: The hypothesis stated that (there exists no significant differences in the means of the respondents' answers to the research variables attributed to the departments (nationality, residence, and passports) in the Directorate of Civil Status, Passports and Residence in Diyala Governorate). This hypothesis was tested by a one-way ANOVA test, which is the appropriate test to compare the means of three or more groups on the research variables (e-management, information security system according to ISO:27001:2022. The results of the sample's answers can be presented in the table below.

It is clear from (Table 7) that no significant differences can be noticed between the answers of the respondents in the three groups (nationality, residency and passports). This finding is indicated by the calculated F-test value for both variables, which amounted to (1.736) and (0.331) respectively, which is smaller than its tabular value and with a significance level of (0.180) (0.719) respectively, which is greater than the significance level (0.05).

This result supports the achievement of the third main hypothesis.

Table 7. Results of one-way ANOVA for three groups (nationality, residency, passport).

Variables	F-test	Mean Square	df degrees of freedom	Sum of Squares		Sig.
e-management	1.736	.450	2	.900	Variation between groups	0.180
		.259	131	33.967	Variation within groups	
			133	34.867	Total	
Information Security System	331.	.088	2	.177	Between groups	0.719
		.267	131	34.965	Within groups	
			133	35.142	Total	

4. Conclusion

The Directorate of Civil Status, Passports and Residency in Diyala showed an overall high level of implementation of e-management, which reflected a clear perception of its importance and an indication of its seriousness to fully digitise its activities.

The e-management implementation gap in the Civil Status, Passports and Residency Directorate in Diyala is low overall, indicating that most of the requirements are in place to fully digitise the Directorate's work.

The hardware and equipment variable was ranked first among the e-management dimensions due to the nature of the directorate's work, which relies heavily on hardware and equipment, as it contributes to the speedy completion of transactions and increases the efficiency of its performance.

The level of application of the information security system was high overall in the Directorate of Civil Status, Passports and Residency in Diyala, explaining the Directorate's interest in establishing an information security system that meets international standards.

The Information security implementation gap in the Diyala Directorate of Civil Status, Passports and Residency was fairly low overall, which reflects the Directorate's keenness to keep its data and information secure.

The operation clause came first among the dimensions of the information security system due to the fact that the Directorate plans, organises and monitors its work to control and address potential internal and external risks.

4.1 Recommendations

Given the high results achieved in the Directorate of Civil Status, Passports and Residency in Diyala with regard to the Information Security System items, we recommend strengthening the clauses of the Directorate's context, planning and improvement to raise the application rate to the extent that the Directorate qualifies for ISO 27001:2022:2022.

There is also a need to emphasise to all employees in the Directorate and at various administrative levels the need to accept e-management and integrate in the collective efforts to achieve it, and train them intensively on this, as they are the basis on which the success of its implementation is built.

Switching from the traditional organisational culture of completing all work, activities and transactions to a culture based on managing the work, activities and transactions of the Directorate entirely electronically.

The Directorate must keep pace with the standards of digital transformation, especially the requirements of cybersecurity to preserve the confidentiality of customer data.

The senior management and information systems departments should do their role in preparing the full transition to e-management and information security system according to the latest international specifications. This is because they are the most capable and worthy of imposing on everyone, by creating the internal climate to accept it in all departments and divisions.

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