

# Usage Degree of the Capabilities of DSS in Al-Aqsa University of Gaza

Mazen J. Al-Shobaki<sup>1</sup>, Samy S. Abu-Naser<sup>2</sup>  
<sup>1,2</sup>Department of Information Technology,  
Faculty of Engineering and Information Technology,  
Al-Azhar University, Gaza, Palestine  
<sup>1</sup>mazen.alshobaki@gmail.com, <sup>2</sup>abunaser@alazhar.edu.ps

**Abstract:** This study aimed to identify the degree of use of the capabilities of decision-support systems in Palestinian institutions higher education, Aqsa University in Gaza - a case study. The study used an analytical descriptive approach, and the researchers used the questionnaire tool to collect the data, the researchers using stratified random sample distributed (150) questionnaires to the study population and (126) was obtained back with a rate of 84%.

The study showed that the most important results are: that senior management supports the existence of decision support systems and that there is approval by the respondents on the paragraphs of the use of the capabilities of decision support systems in general. And that there are no significant differences between the averages of the answers of respondents' differences about the degree of use of decision support systems' capabilities attributed to personal data.

The study also concluded a series of recommendations including: increasing the adoption of the senior management decision support in their decision-making systems. And increased regulatory attention to the potential available to decision support systems directly to the senior management in the Palestinian universities in the Gaza Strip. There is an increased interest in the physical and technical possibilities available for the use of decision support systems. There is an increased interest in human potential available for the use of decision support systems. Investment of information available to universities in building the capacities of integration techniques and other information technology capabilities. The empowerment of human resources in universities and participating in making decisions concerning the construction of the capabilities of information technology.

**Keywords**— Decision-support systems, Al-Aqsa University, Gaza.

## 1. INTRODUCTION

The twentieth first century management should accommodate communication and information technologies in the design of organizational structures in the light of the flow of information traffic between the organizational levels. Those techniques should not be considered an added element, but it is an organic element integrated in the organization essentially and is a part of it. Management should add to their interest element of time and investment of techniques employed for communications and information (Al-Selmy, 2006).

Therefore, the adoption of a sound scientific approach to get this information and organizing process to be used is one of the first and the most important duties of a modern public administration to rationalize their decisions, especially when this administration faces a tremendous amount of data and information on various areas of the daily work (Jaafar, 2000).

Some of the organizations tended recently to the application of information systems that are different from traditional management information systems. Within these systems that were used is decision support systems that are based on computers that were designed in order to improve productivity and increase efficiency through the support of decision-makers, policy makers, and applying these systems in the areas long-term strategic planning, policy development and to facilitate the work of the team, shorten distances, reduce the costs and burdens (AL-Kurdi, and Al-Abed, 2003).

## 2. STUDY PROBLEM

Palestinian universities in the Gaza Strip are facing many difficulties and problems, particularly the presence of deficiencies in the use of technology in various administrative and educational activities, weakness in the circulation of information and communication to decision makers accurately, quickly, and at the right time (Al-Attar, 2006). The weak capacity of workers in employing effective information technology in the decision-making process in the Palestinian universities in Gaza Strip (Al-Masry, 2007). The need to take advantage of the types of computerized MIS such as decision support systems. The decision support systems have effects on the increase in the speed of decision-making, improve the quality of regulation, supervision, improve the quality of service, speed of submission, diversity, and its plurality (Al-Chentv, 2000). Based on the above, the study problem can be formulated through the following question:

**What is the usage degree of the capabilities of the decision support systems of Al-Aqsa University in Gaza?**

### 3. THE STUDY HYPOTHESIS

There are statistically significant differences at the level of significance ( $\alpha \leq 0.05$ ) between the mean responses of the respondents about the usage degree of decision support systems capabilities attributed to demographic variables (gender, age, educational qualification, and years of service).

### 4. OBJECTIVES OF THE STUDY

- To highlight the importance of the decision support systems in the Palestinian universities in the Gaza Strip and in Al-Aqsa University in Gaza in particular and the Palestinian universities in general.
- To identify the essential components of decision support systems.
- To state the importance of top management support for the use of decision support systems in Al-Aqsa University of Gaza.
- To know the potential (physical, human, technical, and organizational) available for the use of decision support systems in Al-Aqsa University of Gaza.
- To state the decision support systems type used in Al-Aqsa University of Gaza.
- To stand on the impact of the Demographic variables (gender, age, educational qualification, and years of service) in the implementation of the decision support systems in Al-Aqsa University of Gaza.
- To submit suggestions that will help in promoting the use of decision support systems in the Palestinian universities.

### 5. IMPORTANCE OF THE STUDY

- To draw the attention of the Palestinian universities to the importance of the use of decision support systems, and to highlight the strengths and weaknesses resulting from its use.
- Universities urgently need to raise their levels of performance and improve their services in line with the requirements of the phase.
- This study may help the leaders of Al-Aqsa University of Gaza to keep up with modern technology that can be applied as decision support systems.
- This study may add something new to the scientific research through what will be reached by the findings and recommendations, and draws the attention of those in charge in Al-Aqsa University of Gaza on the subject of decision support systems.
- This study serves as an invitation to interact with modern information technologies, as it works to enhance performance efficiency, which reflected positively on the decision makers in universities.
- The importance of the study of the urgent need for the Al-Aqsa University of Gaza and Palestinian universities to raise their level of performance and improve their services and to treat the imbalanced situation in line with the requirements of the age.

### 6. DECISION SUPPORT SYSTEMS

The main concept of decision support systems is to provide a system that allows direct interaction between the computer and the decision-maker without the mediation of information experts during the process of use, which specializes in decision support systems that aid decision makers by providing the data needed to solve problems of unstructured and semi-structured models (AL-Moghraby, 2002).

There are many definitions of decision support systems such as: (Yassin, 2006) defined it as an interactive computerized systems which provide the end user with useful tools for data analysis using models, databases, and provide possible solutions to the problems presented. (Sultan, 2007) defined it as one of the types of information systems based on the computer where these systems facilitate the process of interaction between the human element and information technology for the production of appropriate information to users' needs. (Haider, 2002) defined it as one of the types of systems that support decision-making activities within the administrative organization, where the decision-making process is the basis of the administrative process. (AL-Moghraby, 2002) defined it as an information system based on computer technology and traditional methods of quantitative and smart to support the decision-maker in dealing with semi-structural and non-structural problems, to gain access to a single decision or a range of alternatives.

Both (AL-Kurdi, and Al-Abed, 2003) defined it as an interactive information systems to provide managers with information, forms, and data tools that will help them in the decision-making semi-structured and unstructured treatment in those circumstances that no one knows exactly what is a decision to be made . (Al-Omari and al-Samarrai, 2008) defined it as a system capable of supporting the data analysis and special models of specific topics, and it is directed towards the strategic and long-term planning, and it can be used at irregular intervals.

## 7. OBJECTIVES AND PRINCIPLES OF DECISION SUPPORT SYSTEMS

Decision support systems were designed to solve semi-structured and non-structured problems, to assist managers in dividing the problem into parts to be able to use their experience and judgment to be resolved through the basic components, namely: data management systems, models, and knowledge, and facing users (Al-Omari And al -Samarrai, 2008). Goals can be set which must be achieved by the decision support system described by (Al-Salmi, 2003) and (AL-Moghraby, 2002) and (Srou, 2000) as follows:

- Assist managers in making decisions to solve semi-structured (composite) problems.
- Support decisions by managers rather than change them.
- Improve the effectiveness of decision-making, not just its efficiency.

## 8. DECISION SUPPORT SYSTEMS COMPONENTS

Decision support systems consist of: Inputs, Processing, Outputs, Feedback, and we'll explain each of these components as follows (Al-Hassania, 1998):

- **Inputs:** according to the data entry of the systems, the organization is an open system that takes input from the surrounding environment and then gives them back to the same environment after processing. These inputs are natural resources such as information and data about the environment. In a University the inputs can be the students as materials, classrooms, libraries, books, instructional media and laboratory equipment, faculty and administrative as individuals, fees paid by students, government grants, investment returns as money, knowing the market needs of skilled manpower and skills as information.
- **Processing:** Any system performs processing operations on the input coming from the environment to be converted into outputs; the university operations are as received by the students of lectures, seminars and exams in order to give students enough skills needed by society.
- **Outputs:** After the entry process and processing, the system extended the surrounding environment with its output which was input before processes it. In the university, the students and their education skills make up the university outputs.
- **Feedback:** the system provides access to information about the previous three stages so that they can make desirable changes in any of them. In the university, for example, management may decide to establish a new laboratory because the information indicates that the current number of laboratories is not enough.

## 9. THE CAPABILITIES OF DECISION SUPPORT SYSTEMS

There are several capabilities of decision support systems and we will briefly explain some of them also mentioned by (Al-Salmi, 2003) as follows:

- Supports the decisions that occur once or repeated in rare cases.
- It harnesses the analytical model, the means, and databases to support the decision-making process.
- Assistance in the scenario planning process by taking advantage of the potential of answering questions: (What - If)
- Confirmation on graphical presentation, and usually offered in color.
- Emphasis on building reports that serve the decision-maker, in terms of presentation, and also in terms of time schedule that fits the decision-maker such reports upon request.

## 10. PROPERTIES OF DECISION SUPPORT SYSTEMS

It specializes in decision support systems aiding decision makers by providing the data needed to solve problems of unstructured and semi-structured models, and in the light of the above some of the key features that distinguish decision support from the other information systems based on Computer systems (AL-Moghraby, 2002) can be outlined as follows:

- Focus on making the semi or unstructured, to be taken in the upper levels of management.
- Focus on interaction property, flexibility and ability to adapt to the requirements of the decision-maker, and rapid response to their needs.
- The possibility of startup and control of operations, by the end user.
- Support operations of both individual decisions, and organizational decision-making.
- Focus on the quality and effectiveness of the decision.

## **11. THE DIMENSIONS OF DECISION SUPPORT SYSTEMS**

Decision support systems are affected by a range of variables that make up those systems. These systems affect and are affected by, and we will outline them as follows:

### **11.1 Top management support**

Effectiveness of the system depends on the support of the top management of the organization served by the system, whether at the level of the input data, or the level of output from the policies, and without support at the level whichever the system does not required do from it (AL-Moghraby, 2002). The increase in the size of the organizations, complications of administrative activities, and the development of the means of decision-making at the present time to increase the interest of managers at different organizational levels, and functional access to accurate and appropriate information in a timely manner, in order to carry out tasks of planning, control, take decisions efficiently, and effectively; therefore, information and systems responsible for producing it became an essential resource of the organizations resources of its different kinds (Abu Rahma, 2005).

Top management support should be clear for all through its willingness to take concrete action, including: quality policy drafting, building an organizational structure for quality, total involvement of employees, dissemination of information about the quality, change management processes, and organize a day of quality (Zaher, 2005).

### **11.2 Feasible capabilities:**

Third Millennium is witnessing rapid development in data, information and knowledge, the proliferation of the Internet and web sites, has become with successive developments and changes in the technical means one of the characteristics of the times (Hamdi, 2008). In the light of this scientific progress, technological development, and the emergence of what is known as digital technology, it was necessary for organizations in the entire world to take advantage of these technologies in all fields, including administrative areas (Al-Qahtani, 2006). We can divide the capabilities into: physical capabilities available, human capabilities, technical capabilities available, and organizational capabilities.

#### **11.2.1 physical capabilities available:**

Physical capabilities include all physical devices and materials used in the operation of the information. They include computers, peripherals and multimedia (AL-Kurdi, and Al-Abed, 2003). Where the amount of funding required depends on the extent of the problems quality that the system is dealing with, but certainly it is as much financial support the efficiency of the system will be, and in light of its dependence on expensive high-tech equipment and qualified staff, high dynamic to keep pace with change, constant update on all system components (AL- Moghraby, 2002).

#### **11.2.2 the human capabilities available:**

The human element is the most important resource in any organization, and the search for the human element that is outstanding and creative to deal with them and gain their loyalty and dedication to work has become a difficult requirement for each institution, so that topped the main objectives of most organizations and companies (Press, 2005). The human element is the most important resource of any organization whether it is private or governmental, big or small, its type productive or service, where the efficiency and effectiveness of the organization depends on the efficiency of this resource, and therefore any institution management keen on investment of this resource and benefit from optimizing it (Darwish, 2000). Therefore, university management should run smart minds successfully and effectively, and create an atmosphere that stresses the importance of change and development and stimulate innovation, and develop Human Resources (Ahmed, 2005). There are two basic types of necessary human resources (AL-Kurdi, and Al-Abed, 2003):

- **End users:** They are individuals who use the system directly or using outputs processed by others.
- **Specialists in information systems:** Persons who develop and operate the system such as systems analysts, software developers, and operators of the system.

#### **11.2.3 Technical capabilities available:**

The most important of these capabilities: Information systems techniques and the most important of these techniques is computer and communications system, where these technologies provide necessary information and data, and this affects the work of the institution in terms of: increasing efficiency, saving time, effort, accuracy, speed of delivery process, reduce costs, simplify procedures, and increase administrative productivity, in addition to the reported importance of traditional information technology of computers, software, telecommunications and the internet to help in decision-making processes (Al-Salmi, 2003).

#### **11.2.4 Organizational capabilities:**

Organizational capabilities and of the inherited powers of the administrative position, administrative communication, authority and administrative decentralization and scope of empowerment (Al-Masry, 2001). Decision-making process is continuous and daily, and includes all the administrative stages from planning through the organization, direction and control, there is no planning without

the decision to do so, whether for long or short-term, and so on for the rest of the jobs. In our daily lives in administrative work or other, we take a number of decisions automatically, or as a result of prior studies in the case of right or wrong (Mashreky, 1997).

### 11.3 Types of decision support systems

(AL-Moghraby, 2002) classified decision support systems into two types, namely:

- Decision support institutional systems: The systems that deal with the recurrent decisions, which are used for relatively long periods of time, to resolve problems of similar nature.
- Decision support systems for specific topics: This type of systems deals with non-recurring problems periodically, and may occur for a limited number of times in the life of the organization such as strategic decisions planning and the decisions of the merger.

(AL-Moghraby, 2002) divided decision support systems into three groups according to the user of the system:

- Individual decision support systems: focuses on the existence of an individual user, and performs the same activities in the decision-making, and may be repeated at various intervals.
- Collective decision systems: that focuses on the presence of a group of individuals as users of the systems, where each of them will be responsible for separate tasks from others, but they are linked by a very high degree.
- Organizational decision support systems: focuses on the performance of organizational functions, including operations sequence, and belong to different functional fields, such as decisions concerning the long-term planning.

### 12 PREVIOUS STUDIES

The study of (Abu Naser and Al Shobaki, 2016) results highlighted that there is a statistically significant effect on the impact of decision support user systems type to promote the use of decision support systems in Re-engineering of Operations and Business at Palestinian universities in the Gaza Strip, and that there are statistically significant differences between the mean study sample estimates of the impact of the decision support systems Re-engineering of Operations and Business in Palestinian universities in Gaza due to the variable Gender in favor of males, and the existence of differences for the age variable relative to the field of "senior management support for the use of decision support systems" by the respondents, aged (45-55 years) and (55) years and over, and the presence of differences for the variable level of education relative to the field of "senior management support for the use of decision support" by the respondents, who hold master's degrees, and the existence of differences for the variable years for service to the field of "senior management support for the use of decision support systems" by the respondents, who have service between (15-20) years and 21 years and over.

The study of (Abu Naser and Al Shobaki, 2016) results showed that the most important ones are: there exists statistically significant impact at the level of significance ( $\alpha \leq 0.05$ ) for physical requirements, human requirements. Technical requirements and regulatory requirements. The results showed also, the presence of statistically significant differences between the averages of the study sample estimates on the use of decision support systems as an entry point for operations of re-engineering in the Palestinian universities in Gaza Strip due to the variable sex in favor of males requirements.

The study of (Kashada et al., 2016) aimed to discuss and assess the impact of user awareness to the successful adoption of this technology in developing countries. The sample was distributed among many developing countries in the world. The results of the study showed that user awareness is low and that contributed in the decline in the adoption of the decision support systems in developing countries.

The study of (Abu-Taim, 2015) aimed to identify the decisions support systems and their relationship to effective administrative decision in universities of Gaza. The results of the study showed that the senior management recognize the importance of the use of decision support systems, and physical requirements available fit with business requirements, and Palestinian universities have the organizational structure and clearly reinforce the decision support systems, and ease of processes and communication between the different departments, and there were statistically significant differences on the reality decision support systems in the Palestinian universities of Gaza attributed to the variable gender in favor of males.

The study of (Malkawi, 2014) aimed to identify the decision-support systems and business intelligence systems and their impact in improving the decision-making process in Jordanian hospitals. The results of the study showed the existence of a high positive correlation to some extent between decision support and business intelligence systems with the decision-making process. And the presence of the impact of the decision-support systems and business intelligence systems to the decision-making process. From all of the above, the study was able to show the presence of a statistically significant impact at the level of ( $\alpha \leq 0.05$ ) for decision support systems and business intelligence on the decision-making process.

The study of (Al-Awadi and Al-Awadi, 2013) aimed to test the impact of the collection of individual, functional and organizational variables, in the intentions of the managers in the use of decision support systems to determine the reliability of these variables, in the interpretation of the differences in the intentions of use. The results of the study showed the presence of a difference from the perspective of managers (administrative knowledge, attitudes towards the use of quantitative methods, prior use, and administrative level) in their intentions in the use of decision support systems.

The study of (Al-Hayali et al., 2012) aimed to identify the enormous development in the field of information technology. The results of the study showed a need to provide all requirements of applying decision support system because of its importance in the decision taken by the managers in the field of continuous improvement of the work of the organization.

The study of (Ramadan, 2009) aimed to investigate the effect of the use of decision support systems on performance development, an empirical study on the ministry of education in Gaza Strip, one of the results of the study was the presence of impact of decision support systems to improve performance (the human potential in the Ministry of Education is available with a good degree, and that the material available to the potential for the use of decision support systems at the Ministry of Education is available, and the need to use decision support systems to support all decisions taken by the ministry, and organizational capabilities that assist in the use of decision support at the Ministry of Education is available with a good degree).

The study of (Arafat, 2007) aimed to assess the administrative requirements towards the optimal use of the decision support systems in the ministries of the Palestinian Authority - Gaza, from the perspective of managers. One of the most important results was inadequate human resources system in the public sector institutions in the Gaza Strip with regard to facilitating the use of optimized decision support system. The administrative and organizational structure in public sector institutions is appropriate and acceptable, although there are differences in attitudes towards managers evaluating administrative requirements towards the optimal use of decision support systems with respect to age, experience and qualification in the public sector institutions is appropriate.

### 13 THE METHODOLOGY AND PROCEDURES

#### 13.1 Population and the study sample:

The study population is the staff working in the Al-Aqsa University of Gaza. The researchers used a random sampling method, where they distributed (150) questionnaires on the study population, (126) questionnaires were obtained back with rate of 84%. Table 1 illustrates the distribution of the study sample according to the demographic variables of individuals in it:

**Table 1:** Distribution of members of the study population according to the demographic variables (n = 126)

	Personal data	the number	percentage %
<b>Gender</b>	Male	83	65.9
	female	43	34.1
<b>Age</b>	Less than 25 years	25	19.8
	From 25 years - less than 35 years	54	42.9
	From 35 years - less than 45 years	33	26.2
	From 45 - less than 55 years	11	8.7
	From 55 years and over	3	2.4
<b>Qualification</b>	High school or less	9	7.1
	Intermediate Diploma	8	6.3
	BA	84	66.7
	MA	10	7.9
	Doctorate	15	11.9
<b>Years of service</b>	Less than 5 years	36	28.6
	5 years-less than 10 years	52	41.3
	10 years -less than 15 years	23	18.3
	15 years - 20 years	8	6.3
	21 years and over	7	5.6

It is evident from Table 1 that the percentage of (65.9%) of study a sample was males, while 34.1% was females. The researchers attribute that to the fact that the proportion of males are the largest percentage among university staff and this is due to the nature of the Arab societies in general, and the labor market in the Gaza Strip in particular. In terms of the low percentage of working women

compared to men, this is consistent with all the studies that have been done in the Arab Environment, which showed that the proportion of male workers is higher than in females.

The rate of (88.9%) of the study sample aged was less than 45 years old. The rate (86.6%) of the study sample are a Bachelor's degree or higher. It is necessary to obtain the first university degree at least to assume a management position in the Palestinian universities in the Gaza Strip, and this indicates the keenness of universities to choose qualified scientific cadres and able to keep up with development of technology and management.

The rate (69.9%) of the study sample has a number of years of service less than 10 years. The researchers attribute that to the fact that Al-Aqsa University is a new university.

**13.2 The study tool:**

A questionnaire was preparing about "usage degree of the capabilities of decision support system in Al-Aqsa University of Gaza" and five-Likert scale was used to measure respondents' responses to the questionnaire paragraphs as shown in Table 2:

**Table 2:** Five-Likert scale

Response	OK very much	OK substantially	OK moderately	OK a low degree.	OK very low degree.
Degree	5	4	3	2	1

**13.3 Questionnaire validity:** the researchers ascertain the validity of the questionnaire in two ways:

- **Experts Validity:** the researchers presented the questionnaire to a group of specialists in decision support system in the Palestinian universities to give their opinions on it. The researchers took the comments of the specialist and performed the necessary modification needed, and thus the questionnaire was finalized.
- **Instrument Validity:**  
**First: Content Validity:** mean the consistency of each paragraph of the questionnaire with the domain it belongs to, the researchers have calculated the content validity of the questionnaire through the correlation coefficients between each paragraph of the areas of the questionnaire with the total score of the field itself .  
**Second, Construct Validity:** a structural tool that measures the extent to which the goals that you want the tool to fulfill, and shows the relevance of each area of the research with total degree of paragraphs of the questionnaire.

**13.4 The reliability of the questionnaire:**

Among the most famous tests used to measure the stability of a questionnaire is Cronbach alpha coefficient, where the value of the questionnaire as a whole was (0.954), and this value is high and reassuring to the extent of the reliability study tool.

As the validity and reliability test results of the measurement tool (questionnaire) is valid to what it was developed to measure, and it is steady very much, which qualifies it as a measuring tool that is suitable and effective for this study and can be applied with confidence.

**13.5 Normality Distribution Test:**

Kolmogorov-Smirnov (KS) test was used to test whether the data follow a normal distribution or not, it was found that the test value equal to (1.056) and the p-value (Sig.) equal to (0.215) which is greater than the significance level of 0.05 and thus the data distribution follows a normal distribution, where parametric tests were used to analyze the data and test hypotheses.

**13.6 Statistical tools used:**

The questionnaire was analyzed through statistical analysis software Statistical Package for the Social Sciences (SPSS), where it was used the following statistical tests:

- Percentages and duplicates.
- SMA and the relative standard deviation
- Alpha Cronbach's test.
- Kolmgeorov - Smirnov (K-S) test.
- T-test in one sample case.
- T-test in the case of two independent samples.
- ANOVA test of variance analysis.

## 14 DATA ANALYSIS AND TEST HYPOTHESES

### 14.1 Analysis of the paragraphs of the questionnaire:

T test was used to see if the mean value of the response has reached a degree of medium approval, 3 or not, as in the following table:

**Table (3):** the arithmetic mean, standard deviation and the value of t test for all the paragraphs of the questionnaire

M	The field	SMA	Standard deviation	SMA relative	Test the value of t	Probability value (Sig.)	Ranking
1.	Senior management supports the existence of decision support systems.	3.32	1.06	66.45	3.40	0.000	1
2.	Senior management bases its decision making on the decision support systems.	3.16	1.03	63.20	1.73	0.043	3
3.	Senior management encourages employees to use decision support systems.	3.16	1.09	63.20	1.64	0.051	3
4.	Senior management provides the hardware and software necessary for the use of decision support systems	3.03	1.04	60.65	0.35	0.365	7
5.	Senior management cares about decision support systems as part of the overall organizational development process.	3.17	0.95	63.44	2.00	0.024	2
6.	Senior management is interested diagnosing the problems that hinder the performance of decision support systems.	3.12	1.01	62.42	1.34	0.092	5
7.	Senior management is working to overcome the obstacles that hinder the development of decision support systems.	3.03	0.93	60.64	0.38	0.351	8
8.	Senior management provides the necessary staff to carry out the process of decision support systems.	3.04	1.10	60.80	0.41	0.342	6
	<b>Senior management supports the use of decision support systems</b>	3.13	0.91	62.60	1.64	0.051	
1.	There is a computer for each staff at the university.	3.89	1.14	77.78	8.75	0.000	1
2.	The University provides the appropriate means to the needs of business data entry.	3.85	0.95	76.94	9.97	0.000	2
3.	Output means (such as printers) proportional with work requirements.	3.56	1.08	71.27	5.83	0.000	6
4.	University computer network is recent and commensurate with the business needs.	3.65	1.03	73.06	7.07	0.000	4
5.	Maintenance done quickly in the event of failures in hardware or in a computer network in the university.	3.38	1.18	67.58	3.58	0.000	15

6.	There is an official technical department for decision support systems.	3.34	1.09	66.88	3.54	0.000	16
7.	Specialized members with high degrees work in department of information technology.	3.48	1.09	69.52	4.92	0.000	11
8.	Specialized technical department resolve the problems and questions faced by workers in the use of software and the network.	3.55	1.06	70.95	5.78	0.000	8
9.	The technical department responsible for the system and programs is contacted directly.	3.71	0.98	74.13	8.09	0.000	3
10.	Technical department staff understands personnel needs of these software systems.	3.56	0.98	71.27	6.43	0.000	6
11.	There are specialized programs for decision support systems in the university.	3.27	1.00	65.44	3.03	0.001	19
12.	Programs used in the university help the staff in the decision-making process.	3.40	0.96	68.10	4.71	0.000	14
13.	Programs used are modern and easy to learn and fit with business requirements.	3.60	0.90	72.06	7.49	0.000	5
14.	The evaluation of the effectiveness of programs by users helps in performance progress.	3.30	0.97	66.03	3.48	0.000	18
15.	Programs used are compatible with devices that are being used.	3.53	0.97	70.63	6.16	0.000	9
16.	Programs used are characterized by the ability to exchange of information between users of the system.	3.47	0.91	69.44	5.79	0.000	12
17.	Programs used enable more than one beneficiary to connect together at one time.	3.53	0.89	70.56	6.60	0.000	10
18.	Information available from decision support systems fit the with business needs.	3.45	0.91	68.94	5.47	0.000	13
19.	Management care with views and suggestions of employees on the use of decision support systems.	2.94	1.10	58.89	-0.56	0.287	22
20.	Administration provides training programs on the use of decision support systems.	2.96	0.95	59.21	-0.47	0.320	21
21.	The organizational structure allows information to flow easily.	3.20	0.94	64.00	2.37	0.010	20
22.	Decision support systems facilitate the use of administrative communications between the departments.	3.30	0.99	66.08	3.42	0.000	17
	The feasible capabilities for the use of decision support systems	3.45	0.91	69.03	4.92	0.000	

1.	Software are used to accomplish repetitive operations.	3.51	0.94	70.16	6.09	0.000	2
2.	Programs used have the ability to retrieve information quickly.	3.51	0.97	70.16	5.88	0.000	2
3.	Programs used have the ability to prepare special reports.	3.55	0.88	70.95	6.97	0.000	1
4.	Programs used submit periodic reports covering aspects of the work.	3.44	0.96	68.80	5.11	0.000	4
5.	Programs used are modern.	3.43	0.99	68.57	4.85	0.000	5
	The type of decision support systems used	3.49	0.87	69.73	6.09	0.000	
	<b>The degree of use of the capabilities of decision support systems in general</b>	3.39	0.62	67.71	7.00	0.000	

From Table 3, the arithmetic average of all the paragraphs of the degree of use of the capabilities of decision support systems is equal to 3.39, and the relative arithmetic average is equal to 67.71%, the test value is equal to 7.00, and the probability (Sig) value is equal to 0.000 and this means that there is approval by the respondents on paragraphs of the degree of use of the capabilities of decision support systems in general. The degree of approval for the field of "senior management support for the use of decision support systems is equal to " 62.60%, while the approval on the field, " The feasible capabilities for the use of decision support systems" is equal to 69.03%, and finally the degree of approval on the field "type of decision support systems used" is equal to 69.73%.

It has already seen from the table above senior management at Al-Aqsa University in Gaza support the use of decision support systems, and it is attributed to the fact that senior management at Al-Aqsa University in Gaza consists of qualified staff academically and their experience enables them to understand and recognize the importance of using modern technology and tools to assist in decision-making. Al-Aqsa University in Gaza feasible capabilities are good, reflecting the support of senior management to the needs of colleges, departments and sections allowing them to provide the necessary equipment. It is easy to use decision support and administrative communications between departments, divisions, and various colleges in the Al-Aqsa University in Gaza. The organizational architecture of these universities allows information to flow easily and senior management at Al-Aqsa University in Gaza provides somewhat of training programs on the use of decision support systems, and care as well as workers views and suggestions to some extent on the use of decision support systems.

These findings are consistent with some studies as the study of (Abu Naser and Al Shobaki, 2016), which recommended an increase of interest in decision support systems through continuity; keep pace with technological means and modern techniques. It agreed with the study of (Abu Naser and Al Shobaki, 2016), which aimed to identify the use of decision support systems as an entry point for re-engineering operations in the Palestinian universities in the Gaza Strip, which concluded with a set of recommendations, including: the need for the Palestinian universities in the Gaza Strip to develop infrastructure for information technology in general, and decision support systems, in particular. There is a need for a separate unit for decision support systems.

It agreed with (Abu-Taim study, 2015) study, which was one of its results the realization of senior management of the importance of the use of decision support systems, and physical requirements available fit with business requirements, the Palestinian universities have the organizational structure and clearly supports the decision support systems, and ease of procedures and communication between different departments. It agreed with the study of (Al-Hayali and others, 2012), which confirmed the results of the study the need to provide all the requirements for the application of decision support system because of its importance in the decision taken by the managers in the field of continuous improvement of the work of the organization. It agreed with the study of (Ramadan, 2009), which was one of its results the need to use decisions support systems in all decisions taken by the ministry, and organizational capabilities that assist in the use of decision support systems at the Ministry of Education is available with a good degree of. Also agreed with the study of (2007, Arafat), which confirmed that the administrative and organizational structure in public sector institutions is acceptably appropriate.

While this result vary with the study of (Arafat, 2007), which confirmed the results of inadequate human resources system in the public sector institutions in the Gaza Strip with regard to facilitating the optimal use of decision support system.

## 14.2 Testing the hypothesis of study

There are statistically significant differences at the level of significance ( $\alpha \leq 0.05$ ) between the mean responses of the respondents about the degree of use of decision support systems capabilities attributed to demographic variables (gender, age, educational qualification, years of service).

To test this hypothesis, the researchers been used "T test for two independent samples" and test "variance", and the results are shown in the following table.

**Table 4:** Study hypothesis test results

Personal data	Test name	The value of the test	Probability value (Sig.)
<b>Gender</b>	T for two independent samples	0.134	0.894
<b>Age</b>	Variance	1.262	0.289
<b>Qualification</b>	Variance	2.172	0.076
<b>Years of service</b>	Variance	1.603	0.178

From the results shown in Table 4, the probability value (Sig.) is greater than the significance level ( $\alpha \leq 0.05$ ) for all variables and thus it can be concluded that there are no statistically significant differences between the averages of the answers of respondents about the degree of use of decision support systems capabilities attributed to demographic variables.

The researcher attribute the not affected answers of respondents in terms of gender variable to the similarity of working conditions in which both genders work, as well as the non-discrimination in the treatment by their officials, that they are subject to the same treatment and the same conditions, the researchers believe that the harmony of the sample in the overwhelming age wise they are all in one generation, so their responses was not affected by age, and that most of the jobs are requiring first university degree as a minimum scientific qualification to accept them on the job, and the respondents are subject to the same conditions, in addition to many of the business is a routine procedure, and this led to the absence of differences between people over time at the university.

These findings are consistent with some studies as the study of (Abu Naser and Al Shobaki, 2016), which highlighted the findings that there were no statistically significant differences between the average sample estimates of differences in the impact of decision support systems re-engineering operations and business at universities in the Gaza Strip due to the variable gender, while this result is at disagreement with some studies such as the study of (Abu Naser and Al Shobaki, 2016), which their results highlighted the existence of differences to the level of age variable in the field of "senior management support for the use of decision support systems" by the participants, aged between (45-55 years) and (55) years and above, and the existence of differences in the level of education variable for the field of "senior management support for the use of decision support systems" by the participants, who hold master's degrees, and there are differences in years of service in the field of "senior management support for the use of decision support systems" by participants, who have years of service between (15-20) and 21 years and older.

The current study also vary with the study (Abu Naser and Al Shobaki, 2016), which showed a statistically significant differences between the averages of the study sample estimates on the use of decision support systems as an entry point for re-engineering operations in the Palestinian universities in the Gaza Strip because of the gender variable in favor of males. And also vary with the study of (Abu-Taim ,2015)), which confirmed that there were statistically significant differences on the reality of decision support systems in the Palestinian universities in the Gaza Strip due to the variable gender in favor of males. And also vary with the study of (2007, Arafat) which confirmed that there are differences in the attitudes of managers towards assessing the administrative requirements towards the optimal use of decision support systems with respect to age, experience and qualification in the public sector institutions is appropriate.

## 15 RESULTS

- The results showed that senior management supports the existence of decision support systems, and rely on the decision support systems in decision-making, and encourages employees to use decision support systems, as well as care in the diagnosis of problems that hinder the performance of decision support systems to some extent, and is working to overcome the obstacles that hinder the development of decision support systems to some extent, senior management provides the necessary staff to carry out the process of decision support systems to some extent.
- Results revealed that there is approval by the respondents on the paragraphs of the use of the capabilities of decision support systems in general.

- Results concluded that there are no statistically significant differences between the averages of the answers of respondents about the degree of use of decision support systems capabilities attributed to demographic variables.

## 16 RECOMMENDATIONS

- There is an increase in the adoption of senior management of decision support in their decision-making systems, and encourage workers through providing the necessary staff to carry out the process of decision support systems and encouraging employees to use decision support and diagnose problems and overcome the obstacles that hinder the development of decision support systems.
- There is an increased interest in organizational capabilities available through the necessity of a separate unit for decision support systems that is directed by the senior management in the Palestinian universities in the Gaza Strip.
- There is an increased attention to the physical and technical capabilities available for the use of decision support systems through continuity and keep up with the technological means of modern techniques and work on the training of personnel to use those systems.
- There is an increased interest in human potential available for the use of decision support systems by working to provide specialized training programs on the use of decision support systems programs.
- Investment in information technologies available at universities in building integrated capabilities, and other information technology capabilities.
- Empowerment of human resources at the universities by giving them the freedom to act, and to participate in decisions making concerning the construction of information technology capabilities.

## References

- [1] Abu Amuna, Y. M., Al Shobaki, M. J., & Abu Naser, S. S. (2017). Crowdfunding as One of the Recent Trends in Financing Emerging and Small Projects in the Arab World. *International Journal of Business Engineering and Management Systems*, 1(1).
- [2] Abu Naser, S. S., & Al Shobaki, M. J. (2016). Computerized Management Information Systems Resources and their Relationship to the Development of Performance in the Electricity Distribution Company in Gaza. *EUROPEAN ACADEMIC RESEARCH*, 9(8), 6969-7002.
- [3] Abu Naser, S. S., Al Shobaki, M. J., & Abu Amuna, Y. M. (2016). KM Factors Affecting High Performance in Intermediate Colleges and its Impact on High Performance-Comparative Study. *Computational Research Progress in Applied Science & Engineering*, 2(4), 158-167.
- [4] Abu Naser, S. S., Al Shobaki, M. J., & Abu Amuna, Y. M. (2016). Knowledge Management Maturity in Universities and its Impact on Performance Excellence" Comparative study". *Journal of Scientific and Engineering Research*, 3(4), 4-14.
- [5] Abu Naser, S. S., Al Shobaki, M. J., & Abu Amuna, Y. M. (2016). KMM Factors Affecting High Performance in Universities' Case Study on Al-Quds Open University in Gaza-Strip'. *International Journal of Information Technology and Electrical Engineering*, 5(5), 46-56.
- [6] Abu Naser, S. S., Al Shobaki, M. J., & Abu Amuna, Y. M. (2016). Measuring knowledge management maturity at HEI to enhance performance-an empirical study at Al-Azhar University in Palestine. *International Journal of Commerce and Management Research*, 2(5), 55-62.
- [7] Abu Naser, S. S., Al Shobaki, M. J., & Abu Amuna, Y. M. (2016). Promoting Knowledge Management Components in the Palestinian Higher Education Institutions - A Comparative Study. *International Letters of Social and Humanistic Sciences*, 73, 42-53.
- [8] Abu Rahma, Amal. (2005). Human resources information systems and their impact on the effectiveness of the performance of employees in the affairs ministries of the Palestinian National Authority in the Gaza Strip, Master Thesis (unpublished), the Islamic University of Gaza.
- [9] Abu-Taim, Mohammad Omar Suleiman. (2015). "Decision-support and their relationship to effective management decision - field research on the administrative staff at universities Palestinian-Gaza governorates systems", Unpublished Master Thesis, Al-Azhar University in Gaza, Faculty of Economics and administrative Sciences, Gaza, Palestine
- [10] Ahmed, Shaker. (2005). Total quality management and excellence University, Fifth Educational Conference, the quality of university education, Bahrain April 11 to 13, 2005, Volume I, Kingdom of Bahrain.

- [11] Al hila, A. A., Al Shobaki, M. J., Abu Naser, S. S., & Abu Amuna, Y. M. (2017). Proposed Model for Learning Organization as an Entry to Organizational Excellence from the Standpoint of Teaching Staff in Palestinian Higher Educational Institutions in Gaza Strip. *International Journal of Education and Learning*, 6(1), 39-66.
- [12] Al Shobaki, M. J., Abu Amuna, Y. M., & Abu Naser, S. S. (2016). The impact of top management support for strategic planning on crisis management: Case study on UNRWA-Gaza Strip. *International Journal of Academic Research and Development*, 1(10), 20-25.
- [13] Al Shobaki, M. J., Abu Amuna, Y. M., & Abu Naser, S. S. (2017). Strategic and Operational Planning As Approach for Crises Management Field Study on UNRWA. *International Journal of Information Technology and Electrical Engineering*, 5(6), 43-47.
- [14] Al Shobaki, M. J., Abu Naser, S. S., & Ammar, T. M. (2017). The Degree of Administrative Transparency in the Palestinian Higher Educational Institutions. *International Journal of Engineering and Information Systems*, 1(2), 15-32.
- [15] Al Shobaki, M. J., Abu Naser, S. S., & Kassab, M. K. I. (2017). The Reality of the Application of Electronic Document Management System in Governmental Institutions-an Empirical Study on the Palestinian Pension Agency. *International Journal of Engineering and Information Systems*, 1(2), 1-14.
- [16] Al Shobaki, M. J., Abu Naser, S. S., Abu Amuna, Y. M., & Al hila, A. A. (2017). LEARNING ORGANIZATIONS AND THEIR ROLE IN ACHIEVING ORGANIZATIONAL EXCELLENCE IN THE PALESTINIAN UNIVERSITIES. *International Journal of Digital Publication Technology*, 2(1), 40-85.
- [17] Al Shobaki, M. J., Abu Naser, S. S., Abu Amuna, Y. M., & El Talla, S. A. (2017). Impact of Electronic Human Resources Management on the Development of Electronic Educational Services in the Universities. *International Journal of Engineering and Information Systems*, 1(1), 1-19.
- [18] Al Shobaki, M.J., Abu Naser, S.S., & Bedair, R.A. (2010). The Relationship between Decision-Support Systems and Re-Engineering in the Palestinian Universities in Gaza Strip, Al-Azhar University.
- [19] Al-Attar, Ibrahim. (2006). The reality of total quality management in the Palestinian universities, and ways to develop it from the standpoint of the heads of academic departments at universities Gaza Strip, Master Thesis (unpublished), the Islamic University of Gaza.
- [20] Al-Awadi, Adel bin Abdullah, and Al-Awadi, Faiza bin Abdullah. (2013). "Factors influencing the direction of managers towards the use of decision support systems", the Public Authority for Applied Education and Training in Kuwait, the scientific journal of the trade sector colleges, Kuwait, p: (291).
- [21] Al-Chentv, Yousef. (2000). The role of computerized management information systems in decision-making field study on commercial banks operating in the Gaza Strip in Palestine process, Master Thesis, University of Queen Arwa Academy of Sciences, Yemen.
- [22] Al-Hassania, Salim. (1998). *Management Information Systems*, the first edition and the second, Warraq Foundation, Amman, Jordan.
- [23] Al-Hayali, Ahmed Moayed, Attia, El Jarjari, Ahmed Hussein Hassan. (2012). "The extent of contributions to decision support in the implementation of the continuous improvement of Nizat- survey of the views of a sample of employees of ready-made clothes factory in the city of Mosul system," *College of Management and Economics, University of Mosel, Two Rivers development*, No. 110, Vol. 34, p: (217-236), Iraq.
- [24] AL-Kurdi, Manal Mohammed, and Al-Abed, Jalal Ibrahim. (2003). *Introduction to Management Information Systems) the basic concepts and applications* (new University House, Alexandria, Egypt.
- [25] Al-Masry, Ahmed Mohamed. (2001). *Modern Management (Alatsalat- decisions)*, University Youth Foundation, Alexandria, Egypt.
- [26] AL-Masry, Marwan. (2007). administrative performance of the heads of academic departments to develop the Palestinian universities in the light of the principles of Total Quality Management, Master Thesis (unpublished), the Islamic University, Gaza, Palestine.
- [27] AL-Moghraby, Abdel-Hamid. (2002). *Information Management -foundations and principles systems*, Mansoura University, modern library, Egypt.
- [28] Al-Omari, Ghassan al-Samarrai, Salwa. (2008). *Strategic Information Systems - strategic entrance to the contemporary*, Faculty of Administrative and Financial Sciences, the first edition, Isra University, Dar maserah, Jordan.

- [29] Al-Qahtani, shaea. (2006). fields and the requirements and constraints of the application of electronic management in prisons (Case Study on the Directorate General of Prisons in the Kingdom of Saudi Arabia), Master Thesis, Naif Arab University for Security Sciences, Riyadh, Saudi Arabia.
- [30] Al-Salmi, Alaa Abdul Razzaq. (2003). Information management systems, the Arab Organization for Administrative Development publications, Cairo, Arab Republic of Egypt.
- [31] Al-Selmy, Ali. (2006). The new administration, (harvest of years of evolution and renewal) working paper submitted Eighth Annual Conference (Future Leaders in the Arab world of knowledge and high-tech), Ismailia (6-8 December), Mercure Hotel, Egypt.
- [32] Ammar, T. M., Al Shobaki, M. J., & Abu Naser, S. S. (2017). THE EFFICIENCY EXTENT OF THE INTERNAL CONTROL ENVIRONMENT IN THE PALESTINIAN HIGHER EDUCATIONAL INSTITUTIONS IN GAZA STRIP. *International Journal of Digital Publication Technology*, 2(1), 107-126.
- [33] Arafat Mohammad. (2007). Requirements Specifications and Obstacles that Forbidden Development Decision Support System (DSS) in Palestinian Authority Ministries - (Gaza ), Master Thesis Unpublished, Palestine.
- [34] Badwan, J. J., Al Shobaki, M. J., Abu Naser, S. S., & Abu Amuna, Y. M. (2017). Adopting Technology for Customer Relationship Management in Higher Educational Institutions. *International Journal of Engineering and Information Systems*, 1(1), 20-28.
- [35] Buhisi, N. I., & Abu Naser, S. S. (2009). Dynamic programming as a tool of decision supporting. *Journal of Applied Sciences Research*; [www.aensiweb.com/JASR/](http://www.aensiweb.com/JASR/), 5(6), 671-676.
- [36] El Talla, S. A., Al Shobaki, M. J., Abu Naser, S. S., & Abu Amuna, Y. M. (2017). The effectiveness of a training program in increasing crowd funding awareness. *International Journal of Advanced Educational Research*, 2(1), 31-37.
- [37] Haider, Malye Fahmi. (2002). Information Systems entrance to achieve competitive advantage, University House, Alexandria, Egypt.
- [38] Hamdi, Mosa. (2008). the difficulties faced by the use of electronic administration in secondary schools for boys City Department of Mecca from the viewpoint of principals and agents, Master Thesis (unpublished), Umm Al Qura University, Riyadh, Saudi Arabia.
- [39] Jaafar, Abdul Elah. (2000). accounting information systems and its impact on the function of decision-making in the health services sector, prospects, cultural magazine published by Zarqa Private University, the number (3), the first year.
- [40] Kashada, Abubaker, and Li, Hongguang, and Kashadah, Osama. (2016). "The impact of user awareness on successful adoption of decision support System DSS in Developing Countries: THE Context of Libyan Higher Education Ministry", *American Scientific Journal*, article, Vol 16, No 1.
- [41] Kassab, M. K. I., Abu Naser, S. S., & Al Shobaki, M. J. (2017). An Analytical Study of the Reality of Electronic Documents and Electronic Archiving in the Management of Electronic Documents in the Palestinian Pension Agency (PPA). *EUROPEAN ACADEMIC RESEARCH*, 4(12), 10052-10102.
- [42] Malkawi, Nazem Mahmoud. (2014). "decision support systems and business intelligence and its impact in improving the decision-making process in hospitals Alordnah- state hospital King Abdullah university founder of the study of systems", Faculty of Economics and Business, University of wall, *Journal of Economic Studies*, Issue (1) , p: (143-168), Irbid, Jordan.
- [43] Mashreky, Hassan Ali. (1997). administrative decisions Theory -Quantitative Approach in management, the first edition, Dar march Amman, Jordan.
- [44] Press, York. (2005). Human Resource Management, the first edition, Lebanon Library Publishers, Lebanon.