

# The Role of Information Systems in Enhancing the Implementation of Administrative Decisions

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## Abstract

Information systems are currently used in all organizations due to their effectiveness in the implementation of administrative decisions. This study attempted to examine availability of information systems infrastructure, the impact of information systems on enhancing the procedures of the implementation of administrative decisions, and the obstacles that hinder the use of information systems to implement administrative decisions at Tabuk University in Saudi Arabia. In order to achieve these goals, the researcher used the descriptive analytical approach and used the questionnaire instrument in order to collect the data from the research sample. Population of the study comprised all the administrative employees at Tabuk University. The researcher distributed (325) questionnaires on the research sample and (252) questionnaires were put for study. The findings of the study showed that Tabuk University have a good infrastructure of information system that fit the work requirements and that help the employees to get accurate and timely reports. Also, the findings showed that the information systems have a robust role in enhancing the procedures of the implementation of the administrative decisions in terms of the availability of accurate, correct, and timely data to implement the administrative decisions properly. On the other hand, it was shown that there are obstacles for the use of information systems to implement administrative decisions such as the inappropriate organizational structures, lack of training, routine procedures, lack of funds to update the systems regularly, and employees' resistance. Based on these results, the researcher recommended having a proper organizational structure that support information systems, holding regular training courses for the employees, motivating employees to avoid resistance, and ensuring the allocation of resources to get the new modern systems.

**Keywords:** information systems, management information system, management, administrative decisions, technology infrastructure

## 1. Introduction

Over the past few years, the interest in information systems and their uses in advanced societies has increased to a degree that all organizations are now using information systems in their operations. This era of information and communication revolution depends directly on the association between advanced technology and how to manage its uses. Information systems have entered into every aspect of operation and organization so that automated operations have become essentials in organizations of all kinds, whether public or private (Aboulola et al., 2021).

Where information technology plays a critical role in contemporary government administrative bodies, it is a tool of modern management and necessary for the conduct of communication, coordination and control, and participation in information is an important factor for decision-making (Dong et al., 2021). Information technology and its systems have become necessary to carry out the various operations and activities within those administrative institutions (Vooberg et al, 2021).

Information systems have greatly affected the work of organizations and have a major role in achieving the goals for which they were established (Benbya et al., 2020). They have had a positive impact on organizations in several aspects, including the organization's productivity, job creation, human resource development, product development and marketing (Beynon-Davies, 2019). There is no aspect of work that has not been affected by technical systems, so technical systems have become an essential part of the ingredients for the success of any organization as they contribute to improving the operations and performance of all types and sizes of organizations (Janssen et al., 2017).

For the past few years, the world has witnessed a tremendous development in information technology on several levels which necessitates its adoption, use and application in government administrative agencies in the Arab countries as it is considered one of the basic resources of these devices and their strategic weapon in dealing with the current conditions that are characterized by rapid change and intensification of its severity (Albadri, 2019). Information systems can overcome all routine obstacles on the one hand and help the managers and employees take proper decisions on the other hand (Stair & Reynolds, 2017).

Information is the basis of all decisions. Information technology provides a means of transmitting information quickly and inexpensively to all levels of an organization at the same time (Prasad, 2020). As we move forward through the "information age", our ability to gather, synthesize, organize, monitor and disseminate information is increased dramatically (Beynon-Davies, 2019, P.15). Many of the problems of centralization and communication within the organizational hierarchy may be removed (Al-Azzeh, 2018).

Decision-making processes can be thought of as the brain and nervous system of an organization. In the rapidly changing world nowadays, information technology has become an indispensable part of every organization (Duffield et al., 2020).

Employees must have access to accurate, opportune and complete information before participation in decision-making can be meaningful (Byrne, 2018). Information technology enables employees at all levels to participate in making quality decisions and offers real potential for employees to influence the organization (Kavanagh & Johnson, 2017).

Information technology offers important opportunities to humanize work by decentralizing information and decision-making (Keller et al., 2021). Information technology can affect the balance of power within the organizational structure by redistributing information (Grownwald, 2020). Information technology makes traditional top-down management virtually impossible because it frees up so many communication channels, gives workers access to abundant data and permits a tremendous increase in the amount of feedback which can change decision-making processes (Ahoa et al., 2020). Researchers such as (Martin-Navarro et al., 2021; Mohamed & Hanoune, 2021) suggest that participative decision-making and job autonomy are linked to perceived control and enhanced job quality.

The Kingdom of Saudi Arabia is experiencing a stage of development and launch imposed by scientific and technological progress and social development, which is reflected in all its activities that have extended to the fields and sectors of the state's work, and the steady growth in its activities that have extended to multiple fields and sectors such as industry, trade, labor, housing and other services (AlBar & Hoque, 2019). The Saudi Vision 2030 has stressed on the use of information systems and creating a technology-based work environment in order to enhance work productivity, deliver high-quality services, and help take proper decisions (Alshuaibi, 2017).

The rapid development experienced by the Saudi organizations and the expansion of its role under Vision 2030 has led to an increase in its need for a dynamic, flexible administration capable of facing challenges, and for a type of individuals who have the art of managing the administrative institutions to be able to carry out their duties with acumen, knowledge and high efficiency (Alshumaimri et al., 2017). Hamdan et al (2019) concluded that the use of information technology improves the performance of Saudi employees as this technology contributes greatly to the development of employees and improve their level of performance. There is also an urgent need to increase the participation of the national workforce in the field of information technology, and the lack of national competencies in this field is a problem that must be resolved (Al-Shammari & El-Sawy, 2020).

The educational sector in Saudi Arabia is one of the vital sectors that depends heavily on information systems and this was evident during Covid-19 pandemic that entailed the use of virtual modes of learning, especially the virtual classes and distance learning. Information systems allowed the educational authorities to take proper decision towards the educational process and the alternatives that should be in place (Alshehri et al., 2020). Also, information systems helped the employees and academics and assume their roles remotely and will the due efficiency (Hoq, 2020).

This critical role for information systems in the educational sector is well recognized. However, certain challenges are encountered whether human, financial, or organizational which should be well dealt with in order for information systems to be fully effective and beneficial for both the employees and for the organizations (Banawi, 2017).

Although the information systems are now available for communicating extensively throughout the Saudi educational organizations and sharing information and decision-making, is this the practice? Have information systems had an impact on how and why decisions are made in the workplace? This study was intended to explore

these questions in a currently existing educational workplace.

### *1.1 Statement of the Problem*

Effective information systems support all administrative levels in making their decisions and managing their activities. Information systems provide the strategists and administrators with tactical information, provide the technicians with information that serve the technical activity, and provide information on the regulations and laws of the institution and other parties (Duffield et al., 2020).

Despite the importance of information systems in implementing decisions properly and effectively, several studies have indicated the lack of benefit from information systems in the public institutions in the Kingdom of Saudi Arabia through the presence of some obstacles that prevent the use of information systems (Albadri, 2019; AlBar & Hoque, 2019). These obstacles lie in the lack of trained manpower capable of dealing with modern technology, the availability of appropriate software and systems for management, the lack of sufficient equipment, the absence of a computer network for the site, the lack of permanent maintenance, and the lack of training programs that carry out the process of qualifying and training these cadres (Alshuaibi, 2017; Alshumaimri et al., 2017; Hamdan et al., 2019).

For the Saudi public institutions, especially the educational ones, to contribute well to the achievement of Vision 2030 goals, they must have an infrastructure of high-quality systems that help implement decisions in a timely manner. Information systems have become an aid in the planning process and implementation of administrative decisions due to the fact that they provide accurate information and correct and up-to-date data in order to support decision and crisis management. So, the examination of this connection between information systems and implementation of decisions is a key towards enhancing the work environment and in booming the employees' outcomes.

Focusing on Tabuk University as one of the leading public universities in Saudi Arabia, the current research attempts to investigate the reality of information systems in the university, the challenges faced by the employees with regard to information systems, and how information systems help them implement administrative decisions.

### *1.2 Research Objectives*

This research attempts to achieve the following objectives:

1. To explore the status-quo of the information systems infrastructure at Tabuk University.
2. To identify the impact of information systems on the implementation of administrative decisions at Tabuk University.
3. To explore the obstacles of using information systems in the implementation of administrative decisions at Tabuk University.

### *1.3 Research Questions*

This research is set to answer the following questions:

1. To what extent does Tabuk University have the required the information systems infrastructure?
2. What is the impact of information systems on the implementation of administrative decisions at Tabuk University?
3. What are the obstacles of using information systems in the implementation of administrative decisions at Tabuk University?

### *1.4 Research Significance*

The issue of the quality of educational services at the present time is the focus of attention of those in charge of the educational sector in Saudi Arabia, especially in light of the changes that this sector is undergoing today under the goals of Vision 2030 and the national educational development plans. Using information systems at the university allows the delivery of accurate, quick, and comprehensive services for the beneficiaries of the university (students, academics, and all stakeholders), thus raising the levels of productivity and quality. This study presents a new vision about the usefulness of information systems in enhancing the implementation of administrative decisions and its impact on the extent of improving and developing the service to serve all elements of the system.

This study also contributes to drawing the attention of those in charge of the educational sector in general and Tabuk University in particular of the need to use information systems in the implementation of administrative decisions, trace the challenges, and provide the necessary solutions. Moreover, this study opens the way for searching for the latest research and studies in the field of information systems in educational in order to be used

and benefit from its services. Practically, the results of the study can provide the officials and decision-makers in the educational field with useful insights about the role of information systems and their applications in the public universities which can lead to the activation of information systems and their various applications.

## 2. Literature Review

Information technology is one of the most important phenomena of modern management and has become one of the basic necessities to assist in the implementation of various works and the interest in providing good, integrated and continuous service in the administrative field is the most important pillar required in this era (Nezirai & Berisha Shaqiri, 2018).

Beynon-Davies (2019, P. 3) defines management information systems as "an integrated system consisting of a group of individuals, devices, procedures and information sub-systems, with the aim of providing the organization's management with all it needs of accurate and sufficient information about the precise activities and in order to accomplish the administrative functions of planning, organizing, leadership, control, and semi-structured and non-structural decision-making in an efficient and effective manner". This definition focused on a number of features that are available in information systems such as:

- The basic components of information systems (people - devices - procedures).
- It also focused on the components of management information systems as it consists of a set of information subsystems.
- It referred to the role of information systems in supporting management functions and making structured and semi-structured decisions.

Also, Stair & Reynolds (2017) defined management information systems as "a type of information system designed to provide the organization's administrators with the necessary information to plan, organize, lead and control the organization's activities and help make decisions" (P.6).

Furthermore, management information systems can be defined as "formal systems consisting of a group of sub-systems that work in an integrated framework and based on the computer and its modern software in order to process all types of data from various sources with the aim of providing high-quality information quickly and accurately to support the functions and operations of institution, especially the decision-making processes" (Prasad, 2020, P.47).

Various researchers (e.g. Ahoa et al., 2020; Gronwald, 2020; Keller et al., 2021) have introduced reasons for the use of information systems in the organizational operations, especially in the processes of the planning and implementation of administrative decisions. The reasons for relying on information technology can be identified as follows:

- **Increasing the efficiency and facing the expected demand for the organization's services:** The organization may resort to change to increase its operational efficiency due to the increased demand for the organization's services.
- **Reducing costs:** the organization may work to reduce manpower by replacing technology with individuals as well as the use of technology leads to reducing waste.
- **Improving quality:** the reason for technological change may be to improve the quality of services provided.
- **Improving services:** the organizations seek to deliver and quick and accurate services together with enhancing capabilities to deliver services in a timely manner
- **Distinguishing the organization's services from competitors' products:** this is made through sufficient flexibility in performing work in a manner that achieves maximum levels of customer satisfaction with the diversity of services.

The organizational structure in business organizations consists of several administrative levels, thus, creating a need to develop and apply various types of technology systems and their functions. Al-Azzeh (2018) says that in medium and large business organizations, the highest administrative level represents the strategic level which is concerned with the activities and processes of formulating, applying and evaluating the organization's comprehensive business strategies and analyzing the competition structure in the industry. Kavanagh & Johnson (2017) stressed that this requires a systematic analysis of the elements of strength and weakness that exist in the internal environment of the organization and comparing them with the current and expected opportunities and threats in the external business environment. Therefore, strategic information systems are developed in a way that ensures meeting the information needs of senior management.

According to Martin-Navarro et al (2021), information systems provide adequate analytical information about the internal and external environment and in the same direction, we find that some organizations undertake the development of international management information systems that are oriented towards the international business environment, data analysis, information production and information reporting when these organizations decide to integrate with international business activities.

There is also what is known in the organizations as the organizational (tactical) level or the middle management level, which is represented by the management of production, marketing and finance (Guo, 2008). According to Kotusev (2020), this functional level requires the existence of administrative technical systems that depend on the resources of the database management system to achieve the required integration in the administrative information related to operations, marketing, human resources, and accounting and financial affairs. It also provides comprehensive and in-depth summaries of the results of business activities to senior management to assist them in making administrative decisions. Management information systems represent the best picture of the integration of the functional structure with information technology to achieve this purpose, in addition to the presence of decision support systems and collective decision support systems that are also useful in supporting the activities and operations of middle departments at the tactical organizational level (Darioshi & Lahav, 2021).

The support of senior management and their adoption of information technology in general plays a key role in the establishment of these systems and the success of their use as the management support creates the necessary incentive and efforts required to create and implement the new technology with the aim of improving performance and achieving appropriate benefits for the beneficiaries and enhancing the competitive capabilities of the facility since it ensures the allocation of resources required to establish modern technology and the promotion of its uses and applications (Dong et al., 2021).

Many researches have confirmed the effectiveness of expert systems in organizations in improving the performance of individuals and their employees. Byrne (2018) confirmed the existence of a positive relationship between the areas of development in (organizational structure, technology, people) and the performance of workers. Ahoa et al. (2020) also concluded that the role of the expert systems in carrying out the development process whether in clarity of vision, setting priorities, or the presence of a leadership that believes in bringing about the development process. Vooberg et al. (2021) also found that there is a positive direct relationship between the organization's ability to manage development and the information systems it uses.

Organizational theorists have focused on the need for organizational learning (Reed, 2000). They proposed that it is not enough for organizations to design appropriate organization structures and continue to make well-reasoned decisions; instead, organizations must be characterized at all levels by attentiveness to changing conditions (Banawi, 2017). The enormous potential of new information technology has a large impact on people and their ability to work and learn. Using information technology in an optimal way (for example, accessing all the information required to make informed decisions on the job through an on-line centralized database) increases the social and organizational capacity within the system (Kotusev, 2020). The increasing complexity of the workplace makes top-down control very difficult and fails to capitalize on the ability of the organization and individuals to learn, adapt and change (Guo, 2008).

Many models in the literature address the question of whether to adopt a technology in terms of innovation, its acceptance by users or employees, and task integration, but the main weakness of these models is that they do not analyze the biases that may be caused in the decision-making process when technology is used (Lai, 2017; Oliveira & Martins, 2011). Darioshi & Lahav (2021) presented a model that is based on the assumption that awareness of possible decision-making biases contribute greatly to their prevention and can therefore bring the decision maker closer to optimal choice. Decision makers should be well aware of the various biases as well as when they occur (i.e., at what stages of decision making), to “place question marks” on every piece of information and for every decision that arises. Figure 1 shows the various factors and where (i.e., at what stage or stages) they affect the process by introducing biases.

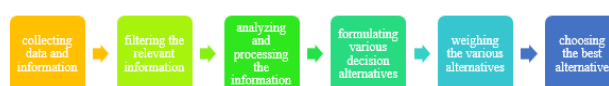


Figure 1. The impact of technology on the human decision-making process

Note. Adapted from Darioshi & Lahav (2021).

However, the administrative decision-making process faces many challenges and difficulties, due to the fact that the volume of information and knowledge that decision-makers the organizations must deal with on an ongoing

basis. Knowledge has increased and expanded to the point where it has become difficult to deal with it in purely traditional ways (Nezirai & Berisha Shaqiri, 2018).

Traditional forms of organizational structures are no longer functional. Sociotechnical tenets state that well designed and fully trained teams that are kept informed are capable of responsible self-direction and decision-making (Keller et al., 2021). With the introduction of "quality of work-life" programs, "total quality management" and "continuous process improvement" there is evidence of some support in today's workplace for project oriented work teams that are responsible and accountable for completing the job from start to finish, including quality control and decision-making (Janssen et al., 2017).

Although many government agencies have been able to acquire advanced devices and systems in the field of information technology, most of them are still unable to fully benefit from the potential of these devices and systems, and employ them as an effective tool in the development of information resources for society (Alshuaibi, 2017). Studies and research conducted in the field of using this technology in many Arab countries unanimously agree that these countries face a set of constraints and obstacles that impede the effective transfer of this advanced technology and its use in bringing about real development.

In the Saudi context, some researchers found that the use of information systems in the public institutions still encounter some challenges. Below are the challenges reported by (Al-Aqeel, 2018; Al-Shammari & El-Sawy, 2020; Hamdan et al., 2019):

- **Organizational and administrative obstacles:** the most important obstacles associated with the use of information systems technology is the lack of planning, coordination and control of activities related to the use of this technology as a result of the absence of a unified technical policy at the state level in this field.
- **Human obstacles:** the scarcity of technical cadres specialized in this field, especially for development cadres such as analysts, programmers, maintenance engineers and others. The use of information systems in government administrative agencies faces problems of a social nature due to what causes to reduce job opportunities and cancel many jobs which leads to workers' resistance to any new technology.
- **Technical obstacles:** the lack of appropriate infrastructure that ensures the provision of these information services in a good manner. There is a difficulty of choosing the appropriate devices due to the large number of different types and systems. The matter is further complicated by the intensity of competition in the computer market which makes the choice difficult. Also, there are problems related to the operation of equipment such as malfunctions, speed of repair, carrying out preventive maintenance operations, and the responsibility of the supplier companies and their commitment to implement the various undertakings. Furthermore, it has become important to maintain information security with its three main elements: confidentiality, validity and continuity. At the global level, the ISO 27001 accreditation, evaluation and standardization system stands out to ensure information security. There is also the HIPAA system in the United States of America to ensure the security of health information and the COBIT system from ISACA for information security.

Many empirical researches have investigated the impact of information systems on the decisions planning and implementation. For example, Abd Rahman et al (2021) analyzed the use of machine learning systems in Malaysia's upstream capital projects which may improve business decisions via the use of statistical models and machine learning algorithms. Incorporating ML algorithms and statistical models were shown to produce better business decision-making by enhancing efficiency and productivity besides fast monetisation and minimizing risk and returns. Overall, with the use of mixed analysis elements, machine learning systems can produce better decision support for stakeholders and company owners before making crucial business decisions.

Merendino et al (2018) investigated the impact of big data on board level decision-making. It was concluded that big data impacts on responsibility/control within senior teams, there is a shortfall in directors' capabilities for dealing with Big Data, board cohesion can be disrupted by Big Data, compromising the decision-making process and that big Data provides firms with opportunities to enhance their adaptive capabilities.

Al Shereef (2016) examined the impact of health information systems on the performance of medical service at King Fahad for Armed Forces Hospital in Jeddah. The study examined the effect of (software – devices – human forces) on the performance of medical service in the hospital. The findings of the study showed that there is a statistically significant relationship between health information systems and the performance of medical service at King Fahad for Armed Forces Hospital in Jeddah. The study recommended holding specialized courses in the technological systems for the staff in the hospital and to maintain such courses in the manner that matches with the continuous technological developments and changes. The study recommended the need to update the current

information system by using the recent expert systems in this field. Furthermore, the study recommended using the expert systems in the hospital that provide a set of control procedures to ensure the soundness of decisions and to find out the errors that occur.

Marri (2009) examined the role of modern technology in raising the performance of workers in the General Administration of Medical Services in the Saudi Armed Forces. The findings showed that the modern technology is available in the public administration of medical services of the armed forces at a medium degree. The obstacles that prevent the use of modern technologies are: lack of training courses in the use of modern technologies, and the lack of a plan of action, and the inappropriateness of the training courses to activate the use of modern technologies.

Reed (2000), examined the impact of information technology on decision-making in a Canadian customs brokerage company. It is concluded that information technology offers the potential to provide more job autonomy and responsibility for decision-making for individuals in their job but cannot determine the social, psychological or organizational changes of its introduction. This depends on how management chooses to incorporate the technology into the organizational structure.

Bouchet et al (1998) aimed to measure the impact of using information in decision-making in pharmaceutical companies in the United Kingdom. The study was applied to 24 companies operating in this area. The study concluded that information have a specific impact on decision-making if they are characterized by continuity. The study also confirmed that the information systems added to the existing knowledge of managers as they have updated their memories and about some of the facts and enabled them of making many of the decisions, and shortened the time needed to develop the project and removed the ambiguity and lack of understanding in some theories concerning matters of medical as well as made managers more aware of what's happening around them. The information also contributed to the improvement of the relationship with customers and improve the company's image and that the greatest impact was that information enabled the administrators to avoid the negative effects of the weak decisions and the waste of time.

The literature shows that the degree to which employees with efficiency largely depends on the amount of control they perceive in doing the job, including participation in and implementation of decision-making in the organization (Molly & Schwenk, 1995). A critical aspect of making work-related decisions is having access to accurate and current information. Information technology and related communication technologies provide a mechanism for sharing information quickly and easily with all workers (Nezirai & Bersha Shaqiri, 2018). However, the literature seems deficient in this area. Empirical evidence of the overall impact of information systems on the implementation of decisions is relatively sparse (Aboulola et al., 2021). Although extensive literature exists on information systems, little attempt has been made to address how managers or employees perceive the introduction of information systems and its direct impact on the implementations of decisions (Dong et al., 2021; Voorberg et al., 2021). In addition, many researchers (e.g. Benbya et al., 2020; Janssen et al., 2017; Al-Azeeh, 2018) have studied electronic communication processes, particularly electronic mail and group dynamics, but information is limited about information systems and decision-making within educational environments.

### **3. Research Methodology**

#### *3.1 Research Method*

The present study used the descriptive analytical approach. Descriptive research involves gathering data that describe events and then organizes, tabulates, depicts, and describes the data collection (Crowder et al., 2017). It often uses visual aids such as graphs and charts to aid the reader in understanding the data distribution. Because the human mind cannot extract the full import of a large mass of raw data, descriptive statistics are very important in reducing the data to manageable form. When in-depth, narrative descriptions of small numbers of cases are involved, the research uses description as a tool to organize data into patterns that emerge during analysis. Those patterns aid the mind in comprehending a qualitative study and its implications.

Analytical research takes descriptive research one stage further by seeking to explain the reasons behind a particular occurrence by discovering causal relationships (Robson, 1993). Once causal relationships have been established, the search then shifts to factors that can be changed (variables) in order to influence the chain of causality.

The current research is a descriptive analytical research that describes and analyses the role of information systems in enhancing the implementation of administrative decisions. The research design constructed here is based on the questions formulated. These questions were raised from the researcher's observation and from the literature.

### 3.2 Participants

An accurate determination of the research population is vital in order to collect the required data for the research problem. While population is the entire set of participants of interest, sample is a representative subset of the population. The population of this research consists of all the administrative staff at Tabuk University in Saudi Arabia.

According to the statistics of Tabuk University, the research population consists of approximately (650) administrative employees. The target sample is (50%) of the research population. So, the sample size is (325) administrative employees. Those who responded to the data collection tool with valid responses is (252) participants with a response rate reaching to (77.5%).

### 3.3 Instrument

The questionnaire is used in this study as the main data collection tool. The research questionnaire is designed based on previous studies and researches. The researcher has drafted the questionnaire items based on the empirical research related to the role of information systems in enhancing the implementation of administrative decisions. The researcher used the questionnaire tool because it is fit to collect data from a large sample and can be responded easily by the participants without time and place restrictions (Girko, 2018).

This questionnaire consists of parts. The first part included questions about the demographic data of the participants. The second part of the questionnaire tackled the role of information systems in enhancing the implementation of administrative decisions. The second part of the questionnaire consisted of three sub-sections as follows:

- *The availability of Information systems infrastructure.*
- *The impact of information systems on the procedures of the implementation of administrative decisions.*
- *The obstacles of using information systems in the implementation of administrative decisions.*

The rating scale used in this questionnaire is Likert scale that has five ratings "strongly agree", "agree", "undecided", "disagree", and "strongly disagree". The questionnaire was written in the Arabic language. The questionnaire was self-administered and distributed personally to the participants.

The participants of the research were made aware of the research objectives and their approval to participate in the study was ensured. Also, the participants were informed that their responses will be used for the research purposes only and will not affect them in any aspect. Furthermore, the confidentiality of the data is ensured. On the other hand, the researcher obtained the ethical committee approval and official approval for data collection.

### 3.4 Research Variables

The research variables consisted of the following variables:

- A. Independent variables (Information systems).*
- B. Dependent variable (Implementation of administrative decisions).*

### 3.5 Validity & Reliability

Validity refers to the degree to which a study accurately reflects or assesses the specific concept that the researcher is attempting to measure (Crowder et al., 2017). While reliability is concerned with the accuracy of the actual measuring instrument or procedure, validity is concerned with the study's success at measuring what the researchers set out to measure.

The researcher achieved the face validity of the questionnaire by verifying that the questionnaire measures what it is intended to measure. The questionnaire has been made available to a number of judges who are majored in the field. In light of the comments and remarks provided by the judges, the researcher has modified the questionnaire and rephrased the items that need more clarity and relevance to the intended goal.

Reliability is the extent to which an experiment, test, or any measuring procedure yields the same result on repeated trials (Girko, 2018). Without the agreement of independent observers able to replicate research procedures, or the ability to use research tools and procedures that yield consistent measurements, researchers would be unable to satisfactorily draw conclusions, formulate theories, or make claims about the generalize ability of their research.

In this research, the researcher has used Cronbach's Alpha coefficient to assess the reliability of the questionnaire sections. Table 1 presents the results of Cronbach's Alpha coefficient for the questionnaire:



Table 1. Reliability Statistics

Cronbach's Alpha	No of Items
.856	30

From the above table, Cronbach's Alpha for all the items of the questionnaire is (.856) and it is a high reliability value. The questionnaire is then considered a reliable tool.

### 3.7 Statistical Tools

Selecting the right statistical methods depends on the nature of the data and the relationship between the method and the research objective (Girko, 2018). As such, this study used what is relevant to the research question and framework. The main data analysis techniques used in the research are as follows: mean, percentage, standard deviation, Chi-square, p. value, relative weight, and significance value.

## 4. Results and Discussion

This part presents the findings of the study and a discussion of these findings. As the main data collection tool in this research is the questionnaire, this research seeks present the participants' responses to the sections of the questionnaire. In the below part, the findings related to the demographic data of the respondents and the findings related to questionnaire sections are also presented. The presentation of findings is followed by a discussion of these findings.

### 4.1 The Respondents' Demographics

Table 2 shows the findings related to the respondents' demographics:

Table 2. The participants' characteristics

Variable	Frequency	Percentage
<b>Gender</b>		
Male	155	61.5%
Female	97	38.5%
<b>Total</b>	<b>252</b>	<b>100%</b>
<b>Years of Experience</b>		
Less than 5 years	51	20.2%
From 5- 9 years	75	29.7%
From 10 – 15 years	86	34.1%
From 16 – 20 years	20	7.9%
From 21 – 30 years	16	6.3%
More than 30 years	4	1.58%
<b>Total</b>	<b>252</b>	<b>100%</b>
<b>Age</b>		
From 20 – 29 years	55	21.8%
From 30 – 39 years	142	56.3%
From 40 – 49 years	45	17.8%
More than 50 years	10	3.96%
<b>Total</b>	<b>252</b>	<b>100%</b>
<b>Education</b>		
Diploma	117	46.4%
Bachelor	106	42.06%
Master	22	8.7%
Doctoral	7	2.77%
<b>Total</b>	<b>252</b>	<b>100%</b>
<b>Job</b>		
Manager/vice-manager	35	13.8%
Employee	93	36.9%
Supervisor	67	26.58%
Department heads	57	22.6%
<b>Total</b>	<b>252</b>	<b>100%</b>

The above-mentioned table shows the participants' responses to the demographic data. Regarding the *gender* variable, the results showed that the male participants represent (61.5%) of the overall research participants, and the female participants represent (38.5%) of the overall research participants. Regarding the *years of experience* variable, those who are (less than 5 years) represent (20.2%) of the overall research participants, those who are

(from 5- 9 years) represent (29.7%) of the overall research participants, those who are (from 10- 15 years) represent (34.1%) of the overall research participants, those who are (from 16- 20 years) represent (7.9%) of the overall research participants, those who are (from 21- 30 years) represent (6.3%) of the overall research participants, and those who are (more than 30 years) represent (1.58%) of the overall research participants.

As for the *age* variable, the results showed that the participants who are (20-29 years old) represent (22.8%) of the overall research participants, those who are (30-39 years old) represent (56.3%) of the overall research participants, those who are (40-49 years old) represent (17.8%) of the overall research participants, and those who are (more than 50 years old) represent (3.96%) of the overall research participants.

With regard to the *education* variable, those who hold *diploma* represent (46.4%) of the overall research participants, those who hold *bachelor* represent (42.06%) of the overall research participants, those who hold *master* represent (8.7%) of the overall research participants, and those who hold *doctoral* represent (2.77%) of the overall research participants. And finally regarding the *job* variable, the percentage of *managers/vice-managers* is (13.8%), the percentage of *employees* is (36.9%), the percentage of *supervisors* (26.58%), and the percentage of *departments heads* is (22.6%).

#### 4.2 Responses Related to the First Question

Table 3 shows the participants' responses to the availability of information systems infrastructure at Tabuk University:

Table 3. The Availability of information systems infrastructure

S	Statements	Chi-square $\chi^2$	Relative Weight	Mean	Standard Deviation	Sig.
1	Work at the university depends mainly on computerized information systems.	9.006**	79.22	4.12	1.065	0.001
2	The technologies used in the university fit work requirements.	*21.756	77.21	3.75	0.702	0.022
3	There is a robust network that links all the university departments.	*16.391	78.23	3.22	0.674	0.012
4	The university has modern high-tech programs.	**9.501	77,11	3.63	0.821	0.000
5	The programs used can analyze, tabulate and summarize data and extract information.	**6.050	76.98	3.44	1.065	0.000
6	The systems used are able to give the required reports.	10.394**	74.23	3.74	1.246	0.000
7	The university has databases that fit the workload.	*16.861	71.66	3.64	1.365	0.005
8	Electronic archiving is available to save documents.	**0.995	71.33	4.02	0.246	0.000
9	Technical support is available all the time.	3.125**	78.00	3.98	0.791	0.000
10	The information systems in the university fulfil all what the employees need.	3.594**	74.11	3.43	0.597	0.000
<b>Total Mean</b>		<b>3.69</b>				

Table 3 shows that mean of the participants' responses to the availability of information systems infrastructure at Tabuk University is (3.69) which is a high mean, indicating that the participants see that the university has a good information systems infrastructure. The participants highly agreed to the statements of this part of the questionnaire with mean scores ranging from (4.12) to (3.22).

As per the findings of table 3, the order of the statements that inquired about the availability of information systems, from the highest to the lowest mean, are as follows: "*Work at the university depends mainly on computerized information systems*" with a mean (4.12), "*Electronic archiving is available to save documents*" with a mean (4.02), "*Technical support is available all the time*" with a mean (3.98), "*The technologies used in the university fit work requirements*" with a mean (3.75), "*The systems used are able to give the required reports*" with a mean (3.74), "*The university has databases that fit the workload*" with a mean (3.64), "*The university has modern high-tech programs*" with a mean (3.63), "*The programs used can analyze, tabulate and summarize data and extract information*" with a mean (3.44), and "*The information systems in the university fulfil all what the employees need*" with a mean (3.43). However, the participants reacted moderately to "*There is a robust network that links all the university departments*" with a mean (3.22).

It is clear from the results shown above that the most prominent features of the availability of the information infrastructure at Tabuk University is the adoption of the information system in the department mainly on the computer. The results show that the University have modern information systems, the programs that the employees need for their work, the available information systems fit the work requirements, and that the university has a central database. Also, it is shown that the university has a robust network, but it still needs more activation to be fully utilized and benefited from.

The above results are consistent with the results of Aboulola et al (2021) and Dong et al (2021) that organizations should adopt information systems in the manner that fit the work requirements. Also, the information systems should be centralized to archive and store all the information (Voorberg et al., 2021). Furthermore, this finding is supported by Benbya et al (2020) and Janssen et al (2017) that the information systems should be able to output the reports, sheets, and diagrams that fit the employees' daily needs and that facilitate the workflow. Employees' use of information systems should be monitored to ensure their proper use of information systems and that the system workers should have the administrative experience that commensurate with the tasks entrusted to them.

#### 4.3 Responses Related to the Second Question

Table 4 shows the responses to the impact of information systems on the procedures of the implementation of administrative decisions at Tabuk university.

Table 4. The impact of information systems on the procedures of the implementation of administrative decisions

S	Statements	Chi-square $\chi^2$	Relative Weight	Mea n	Standard Deviation	Sig.
1	Information systems help in the speed of completion of emergency decisions.	2.126**	70.96	4.16	0.154	0.000
2	Information systems help in carrying out many tasks in a timely manner.	2.075	78.33	4.19	0.468	0.000
3	Information systems provide data directly related to the subject to ensure accurate decision-making.	9.772*	74.11	4.34	0.793	0.047
4	Information systems provide real-time data to ensure rapid administrative decision-making.	*3.125	73.96	4.25	0.461	0.028
5	The information systems used give the university complete details to help make the right decision.	9.772	78.96	4.21	1.241	0.000
6	The information systems contribute to improving communication and information exchange among the administrative units with ease.	2.327	77.44	4.17	2.346	0.000
7	The systems provide correct and error-free information and are arranged so that it is easy to understand.	2.075	78.33	4.51	1.256	0.000
8	The system outputs clear reports that are free from distortion and can be quickly understood.	9.772*	74.11	4.45	1.554	0.047
9	The speed of extracting information from the system does not affect the accuracy and validity of the information.	*3.125	73.96	4.15	0.975	0.028
10	Information systems help provide alternatives for administrative decision-making.	15.861**	75.23	4.18	1.256	0.000
<b>Total Mean</b>		<b>4.26</b>				

Table 4 shows that mean of the participants' responses to the impact of information systems on the procedures of the implementation of administrative decisions at Tabuk University is (4.26) which is a very high mean, indicating that the participants see that the information systems have a major positive impact on the procedures of the implementation of administrative decisions. The participants very highly agreed to the statements of this part of the questionnaire with mean scores ranging from (4.51) to (4.15).

As per the findings of table 4, the order of the statements that inquired about the impact of information systems on the procedures of the implementation of administrative decisions, from the highest to the lowest mean, are as follows: "The systems provide correct and error-free information and are arranged so that it is easy to understand" with a mean (4.51), "The system outputs clear reports that are free from distortion and can be quickly understood" with a mean (4.45), "Information systems provide data directly related to the subject to ensure accurate decision-making" with a mean (4.34), "Information systems provide real-time data to ensure rapid administrative decision-making" with a mean (4.25), "The information systems used give the university complete details to help make the

right decision” with a mean (4.21).

Also, the findings highly underpinned the positive impact of information systems on the procedures of the implementation of administrative decisions and this is shown in these statements: “Information systems help in carrying out many tasks in a timely manner” with a mean (4.19), “Information systems help provide alternatives for administrative decision-making” with a mean (4.18), “The information systems contribute to improving communication and information exchange among the administrative units with ease” with a mean (4.17), “Information systems help in the speed of completion of emergency decisions” with a mean (4.16), and “The speed of extracting information from the system does not affect the accuracy and validity of the information” with a mean (4.15).

It is clear from the results shown above that the most prominent features of knowing the impact of information systems on the procedures for implementing administrative decisions is to assist carrying out many tasks in a timely manner which supports the procedures for implementing administrative decisions. With expert data and accurate reports being available all the time, decisions are taken correctly and implemented effectively. This result is consistent with the result of Ahoa et al (2020) and Al-Azzeh (2018) which stressed the importance of management information systems to rationalize the decision-making process during the crisis. Decisions are implemented effectively since information systems contribute to facilitating work procedures and carrying out a greater number of transactions daily (Byrne, 2018; Keller et al., 2021; Gronwald, 2020). The system affects the decision-making process and this is consistent with the result of Kavanagh & Johnson (2017) which showed that the effectiveness of the use of computers in planning and organizing was great in saving data, speed of retrieval, organization and development of methods and work procedures.

#### 4.4 Responses Related to the Third Question

Table 5 shows the participants’ responses to the obstacles of using information systems in the implementation of administrative decisions at Tabuk University:

Table 5. The Obstacles of using information systems in the implementation of administrative decisions

S	Statements	Chi-square $\chi^2$	Relative Weight	Mean	Standard Deviation	Sig.
1	Lack of proper planning for the transition process towards the use of information systems.	13.683	74.23	2.32	1.368	0.028
2	Routine procedures prevent the use of information systems.	2.075	78.33	3.67	1.654	0.000
3	Lack of financial allocations to get the state-of-the-art information systems.	9.772*	79.11	3.74	0.154	0.000
4	The current organizational structures are incompatible with modern information systems.	*3.125	78.96	3.79	0.324	0.000
5	Lack of support from the top management.	15.861**	75.23	2.21	0.971	0.001
6	Change resistance from some employees.	*0.992	73.96	3.45	0.154	0.000
7	The employees are not sufficiently qualified to use information systems.	**21.658	74.23	3.79	0.101	0.000
8	Lack of security controls.	**0.995	71.33	2.41	1.654	0.000
9	The speed of change in information systems and the difficulty of keeping pace with them.	3.125**	78.00	3.51	1.978	0.000
10	Poor maintenance and usage guidelines/instructions.	*11.354	74.11	2.97	1.137	0.000
<b>Total Mean</b>		<b>3.18</b>				

Table 5 shows that mean of the participants’ responses to the obstacles of using information systems in the implementation of administrative decisions at Tabuk University is (3.18) which is a moderate mean, indicating that the participants see that there are obstacles of using information systems in the implementation of administrative decisions. The participants varied in the agreement to the statements of this part of the questionnaire with mean scores ranging from (3.79) to (2.21).

As per the findings of table 5, the order of the statements that inquired about the obstacles of using information systems in the implementation of administrative decisions, from the highest to the lowest mean, are as follows: “The current organizational structures are incompatible with modern information systems” with a mean (3.79), “The employees are not sufficiently qualified to use information systems” with a mean (3.79), “Lack of financial

*allocations to get the state-of-the-art information systems*” with a mean (3.74), *“Routine procedures prevent the use of information systems”* with a mean (3.67), *“The speed of change in information systems and the difficulty of keeping pace with them”* with a mean (3.51), and *“Change resistance from some employees”* with a mean (3.45).

On the other hand, the participants were less agreeable with these statements: *“Poor maintenance and usage guidelines/instructions”* with a mean (2.97), *“Lack of security controls”* with a mean (2.41), *“Lack of proper planning for the transition process towards the use of information systems”* with a mean (2.32), and *“Lack of support from the top management”* with a mean (2.21).

It is clear from the results shown above that the most prominent obstacles in the use of information systems at Tabuk University are the unsuitability of the organizational structures to the information systems, lack of employees’ qualification, lack of financial allocations to get the modern systems, routine procedures, speed of technological changes, and resistance from some employees. These findings match with the results of Albadri (2019), Alshumaimri et al. (2017) and Hamdan et al. (2019) who reported that the lack of trained and qualified employees as well as the routine procedures and employees’ resistance are the major obstacles of using information systems in Saudi public organizations. In a similar vein, Al-Aqeel (2018) concluded that the improper organizational structure lead to the failure of technology application in public organization. Moreover, as supported by Banawi (2017), the lack of financial funds cause problems in the regular updating of information systems and lack of maintenance and follow-up activities.

## 5. Conclusion

Since information systems play a major role in the decision-taking and implementation process, this study tried to fill a research gap by focusing on the connection between information system and implementation of decisions at Tabuk University. The study focused on examining the availability of information systems infrastructure, the impact of information systems on enhancing the procedures of the implementation of administrative decisions, and the obstacles that hinder the use of information systems to implement administrative decisions at Tabuk University. The sample of the study consisted of the administrative employees working in the university who were given a questionnaire to respond to.

The findings of the study showed that Tabuk University have a good infrastructure of information system that fit the work requirements and that help the employees to get accurate and timely reports. Also, the findings showed that the information systems have a robust role in enhancing the procedures of the implementation of the administrative decisions in terms of the availability of accurate, correct, and timely data to implement the administrative decisions properly. On the other hand, it was shown that there are obstacles for the use of information systems to implement administrative decisions such as the inappropriate organizational structures, lack of training, routine procedures, lack of funds to update the systems regularly, and employees’ resistance. These findings bear Significant implications for the need to have controls and policies that ensure that all the organizational, human, and technical resources are available in the University for the Optimal Benefit from information systems in implementing administrative decisions.

## 6. Research Limitations

This research focused on the study the role of information systems in enhancing the implementation of administrative decisions at Tabuk University in Saudi Arabia. The samples of study is limited to the administrative employees of the university in order to survey their perspectives of the status-quo of information systems in the university, the impact of information systems on the implementation of administrative decisions, and the challenges that face the employees in using information systems to implement administrative decisions. Questionnaire is used as the main data collection tool. The study was conducted on the first academic semester of 2021-2022.

## 7. Recommendations

In light of the findings of the study, the researcher recommends the following:

1. Working to reduce routine procedures in the university in order to enhance the use of information systems.
2. Conducting regular training courses for the employees to well benefit from the information systems in the implementation of decisions.
3. Attention to proper planning of the transformation process towards the use of information systems in the university.
4. Raising awareness of senior management in the university of using the department's information systems.
5. Providing incentives that reduce resistance from employees to change.

6. Providing guidelines for the application and use of information systems in the university.
7. Working on redesigning the current organizational structures in line with modern information systems.

### 7. Suggestions for Future Studies

Since this study focused on the role of information system in enhancing the procedures of the implementation of administrative procedures from the perspective of administrative employees at Tabuk University, another study can focus on the perspectives of the academics. Also, other future studies can focus on the reality of using information systems in government agencies and the appropriate means to support the use of information systems in government agencies.

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