THE IMPACT OF INFORMATION AND INFORMATION SYSTEMS ON MENGERAIL DECISION MAKING: THE CASE OF TELECOMMUNCATION SECTOR IN JORDAN

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ABSTRACT

The study investigates relationship between management information systems, information technology systems and managerial decision making in the telecommunication sector in Jordan. A survey questionnaire was sent to IS mangers, IS directors, IS professionals and staff in private company based in Jordan. The findings of the study reveal that there is a positive relationship between management information systems and managerial decision making. The study also found that there is a positive relationship between information technology systems and managerial decision making. On other hand in this study there are two types of statistical analyses that were carried out on the data obtained from the respondent. First, descriptive analysis was used to analyze the background of the respondent and the private companies; second, correlation analysis was used to analyze the relationship between management information systems, Information Technology systems and managerial decision making. And the Data were collected through questionnaires from the respondents of telecommunication sector in Jordan and the data were collected from the respondent by using structured questionnaires. A total 150 questionnaires for the study were distributed to the respondents by e-mail and also by hand.Out of 150 the questionnaires distributed, 135 were returned on 8 January 2010. The data of 150 participants are potentially available for analysis. Analyses were conducted using descriptive statistics and correlation analysis.

Key words: Decisions making, Information Technology, Management Information Systems

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CHAPTER ONE

1.1 Introduction

This century is different from the previous centuries because rapid and development in various fields of life and work within different economic sectors, the last of these developments, the so-called information revolution, which resulted as one of the important resources in different organizations. And management information systems are systems by which access to information, organization and processed as required and maintained. However, information technology is the reliable mean in information systems and its function. Information systems have become vital and important to all organizations, public and private sectors. This importance in information systems have recently increased as a result of the increasing complexity in the tasks of management organizations, and this complexity in the tasks refers to the affected organizations by environmental variables, whether economic, political or social, in which it operates, not only within the community, but also across communities and different state. And the successive, continuous and rapid methods and tools in the production of technological developments and transferring of information have increased the severity of complexity. Furthermore, the emergence of organizational forms like new giant corporations, international organizations, and multinational companies, have intensified competition and gravity, which may be necessary to take decisions quickly and effectively to enable the organization to continue in the competition and maintain its distinctive in the market.

The exploitation of opportunities and avoidance of threats and solving problems often begin through the decision-making processes, it has made efforts to improve the decision-making process and required for the collection, sorting, tabulating and analyzing the data,

as well as methods of presentation and dissemination of information. I have recently seen the Administrative Sciences as a remarkable development in the tools and means of improving decision-making processes managerial. The emergence of management science focused on providing modules to guide the decision-making processes, as well as operations research, which relied on the use of quantitative methods and mathematical models in problem solving and decision-making. Moreover, the data processing systems has recently emerged after the emergence of computers and its development to form information systems.

The development of the methods of decision making has taken into account the methods of processing, analyzing and summarizing and presenting and disseminating information. As well as the emergence of successive generations of computing characterized by the speed high-accuracy finite in the operation and display the information, and tended devices, means of communication and supply several of integration among them, which outcome the multi-media. The efficient information systems operate as a mean to get necessary information and appropriate in time through collecting data that describe the activities of the internal work. Also, work in processing, preparing and providing the outputs from the used information in planning, organizing and controlling the operations of the organization and support the decision-making processes. In addition to, they make effective communication between decision-making centers in different organization and exchange information among themselves. The challenge facing organizations in the current period is how to use information technology in order to design systems to enable them to compete and to pursuit of environmental variables constant. And to achieve high efficiency and effectiveness of the desired so it is very difficult to manage modern organizations and contemporary without being available to managers and staff knowledge. On other hand the system managerial it is very important that they perceive the

information system as user, friendly, accessible, responsive and above all, as making a contribution to higher productivity on the part of the decision making (lando and Wilson, 1994). Finally, According to Mutula (2002) cited in Karim et al(2006), telecommunication technology is Developing in such a rapid speed and wireless communication standards and capabilities Are evolving rapidly across the spectrum.

1.2 Problem statement

Majority of the studies have focused on the status of the use of information and information systems on managerial decision-making which integrated as a part of management information system. That awareness of the problem begins when the discovery of deviations due to few studies on the subject of management information systems and their impact on decision-making in the private sector communications and other sectors in general, not only in Jordan but also in various Arab countries (Sultan ,2000).

This gave the definition of the problem in the area of decision making as a deviation in performance from the target specified in advance (logenecker and pringle, 1984). For that, then the maker of administrative decisions to identify normal and the essence of the problem and its dimensions and characteristics and the degree of frequency and severity, not the symptoms arising from them and that could suggest that the administration is the real problem, because it requires the decision makers to answer a number of questions including: What type of problem? How did the problem? Why to be resolved? And when should it be resolved? What are the problems resulting from non-solved? What are the problems that may result to solve It? (skyuner,1999;noorderhaven,1995;heracleous,1994).

Therefore, the researcher believes that there are few studies in Jordan especially in the private sectors (telecommunication) and he thinks that there is a need to conduct a study in the impact of information systems on managerial decision making in Jordanian telecommunication.

1.3 Research question:

This study seeks to answer the following questions:

Q1: What types of management information systems based on the computer used in the telecommunications sector in Jordan?

Q2: What types of information technology used in the telecommunications sector in Jordan?

Q3: What are the tools and means of security and control over the information used in the telecommunications sector in Jordan?

1.4 Research objective:

This study aims to:

1. Identify the types and stages of the process of decision making and requirements of the information and management information systems

2. Identify both the information technology and management information systems used in the telecommunications sector in Jordan.

3. Identify the means of security and control of information and management information systems based on the computer used in the telecommunications sector in Jordan.

1.5 Significance of the study

The importance of the information gained in this day and age, where it is known era of speed and the information revolution, becoming an important element and a strategic resource depend upon organizations in the decision-making process, in light of rapidly changing environmental conditions and in light of fierce competition and growing. In addition, the importance of the use of information technology and management information systems in the availability of information required to increase the effectiveness of decisions that represent the backbone of any organization, including communications systems, and the present study is significant as the process of decision-making core of the administrative process and the main theme effectively in the telecommunications sector, as it the basic process on which they depend various processes and other administrative activities and the extent of its importance in the security and control of information and positive impact on the effectiveness of decisions . And this is a study of studies of the few studies on the subject of management information systems and their impact on decision-making in the private sector communications and other sectors in general, not only in Jordan but also in various Arab countries.

1.6 Scope of study

This study attempts to find the solution for this issue widely and address the aspects of management information systems that would affect the decision making. Thus, the scope of this research emphasis on management of information systems that use information technology to support and coordinate organizational activities.

In Jordan there are three telecommunication companies which this research will cover it, which combine Zain, Orange, Omnia, more specific focus on top and middle managers.

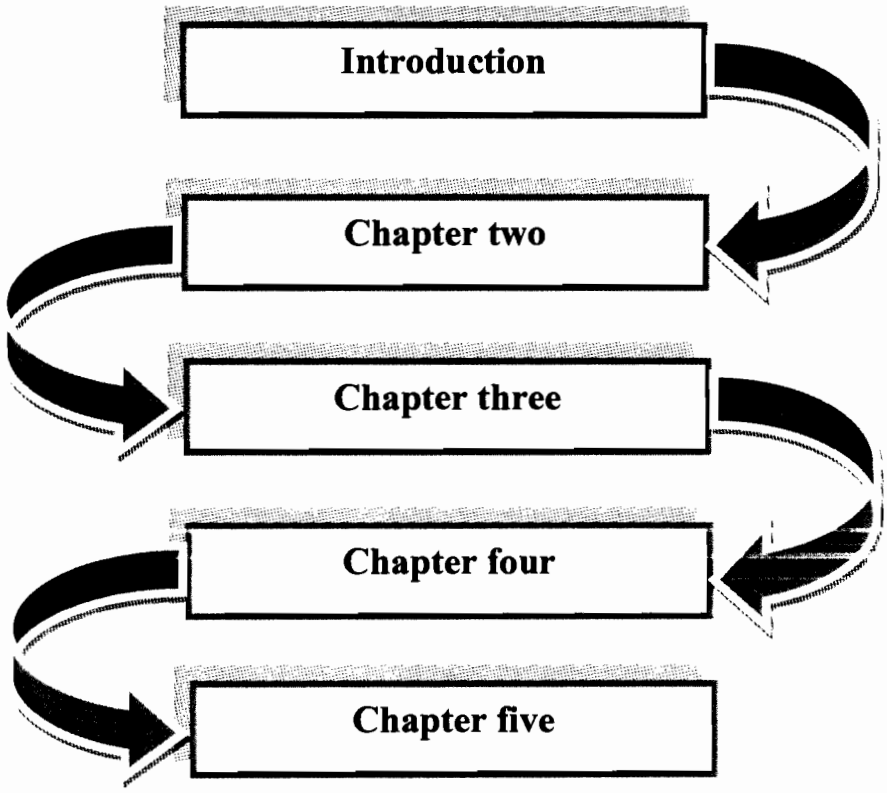
1.7 Definition of term:

Decisions making: an activity undertaken intellectually and substantively to seek a solution or to choose the alternative best suited to the problem based on a set of practical steps sequence used by the decision maker in order to access the best and most appropriate decision. (Hreim ,1998)

Management Information Systems: the systems that deal with all the activities of information and decision-making associated with the organization in order to increase the effectiveness of the organization by providing information and support management decisions. (Dickson, 1981)

Information Technology: consists of a set of software and hardware that would help decision makers at all levels of management to find appropriate solutions to the problems facing decision-makers (Ageel, 1996).

1.8 Study Structure:



1.9 Conclusion

This chapter highlights the introduction related to the study. This chapter discusses problem statement, research question, and research objective, significance of the study, scope of study and the definition of study such as management information systems, information technology systems and managerial decision making.

Chapter Two

Literature Review

2.1 Introduction

This chapter reviews the theoretical foundation and literatures relating to decision making, decision typologies, and addresses the concept of information, typologies of information and their sources. It explains the concept of technology and various types of management information systems. Then the discussion goes on various means of security and control over the information, clarifying the relationship among information systems administration, information technology and effective decisions.

2.2 The Concept of Decision

The adoption of decision is the core for the work of administrative leadership which represents the central framework for the organization and the starting point for all activities and actions within the organization. Different authors define the concept of decision in different ways depending on the various views and philosophies, trends and perspectives. In defining the decision some authors given emphasis on the fact that it is a tool through which power can be exercised throughout the organization. In fact it is not only a tool rather director uses it to exercise his legal right by which concrete results can be achieved for him and the workers in the organization.

According to Alsalmi, (2000) the concepts of decision refer to choose the path and the way of the ways and means to reach a desirable goal. .Farid and Al aljoundy (1999) opine that decision is the choosing of alternative course of actions in order to achieve a goal or several specific targets.

The process of decision-making involves several stages which are collectively called decision-making. The process starts with the sense of the problem and ends at the decision-making and implementation. Collective participation of the members of the firms is ensured here so that each member can contribute to some extend according to his/her position in the organization. Decision-making is the process by which problem for a particular phenomenon is identified and also a solution is provided. It includes two phases. The first phase includes the process of identifying the problem and compilation and monitoring of information on environmental conditions and organizational aspect. The purpose of identifying problem areas is to identify its causes. The second phase of the decision making process includes providing the solution to the problem through identifying and evaluating alternatives and choosing the best alternative among them (Musalam, 1996).

According to Hreim (1998) decision-making is:

"an activity undertaken intellectually and substantively to seek a solution or to choose the alternative best suited to the problem based on a set of practical steps sequence used by the decision maker in order to access the best and most appropriate decision".

According to Alsalmi (1991) decision-making is the informed choice among a number of alternatives, in terms of its ability to achieve the largest collection of the desired results, and the lowest number of unwanted results. A number of researchers agreed that decision-making process is "the process of selecting an alternative from a range of possible alternatives to achieve a single goal or set of goals over a certain period of time in the light of internal and external environmental factors and the resources available to the organization"(Al Burhan and Roho, 1998 and Silver and Kapur, 1994).

According to Simon (1962) decision is "the selection of an alternative from among the available alternatives for finding a suitable solution to the problem resulting from the new changing world, and represent the essence of operational activity in the business."

According to Harrison (1987) decision is the "moment within a continuous process of evaluating alternatives in order to achieve a goal, which imposes certain expectations for the course of the work on the decision maker to choose that course of action in which the probability of achieving the overriding goal". The definitions seem the most obvious expression of the decision-making process as the process by which to identify and solve problems (Daft, 1989). While the definition of decision-making process is considered as a technical process which requires sufficient knowledge of the technical aspects and accurate information relating to the subject, it also requires high skills in organization, analysis and trade-offs between alternatives and the selection of a suitable alternative (Morton ,1978).

2.2.1 Stages of Decision-Making Process

There are still controversies, debates and difference among various writers and researchers interested in the subject of administrative decisions making and about the number of stages in decision-making process and the content of each phase. These differences are due to the differing circumstances and the environment in which a decision is made.

According to Simon (1962) stages of decision-making process begins with the definition of the problem and then develop alternatives, diagnosis them that leading to the selection. The stages of decision-making process start from the recognition of the problem, diagnose, and then collect information on the problem, development of alternatives,

evaluating alternatives, choosing appropriate alternatives, and then follow-up (Mintezebrg et al., 1967).

It was noted in many previous studies that there is no certain stages of the process of decision-making. According to Ross (1977) the phases of decision-making process start from identifying the target, and a measure of the resolution and the development of alternatives, decision making and access to screening and selection of resolution. The stages of decision-making process are the follow-up and monitoring of the resolution and determine the problem, determine the objectives of the resolution, diagnose the problem, identify alternatives to solve the problem, evaluate alternatives, and choose the best alternative and access to the application of alternative optimization (Archer, 1980).

According to Moore (1982) the phases of the decision process begins with the problem, then investigation and collection of information, search for alternatives and arrived at the process of implementing decision. Decision process starts from the goal-setting and the definition of the problem and the development of alternatives leading to the selection process (Bridge, 1989).

The process of decision-making including the development of the goals, search and gather information and to evaluate alternatives and the selection and implementation of the resolution along to the follow-up resolution (Harrison, 2000).

The stage of decision-making, which was agreed by a number of writers and researchers, encompasses the following aspects.

Definition of decision making deals with the stages that include a range of activities designed to identify the problem under consideration, precisely makes it easy to handle and

response, where the problem has been defined as a deviation from the target in advance or is a state of imbalance between what an object must be (Al masri , 2000).

Logenecker and Pringle (1984) stated problem in the area of decision-making as a "deviation in performance from the target specified in advance". Moreover; that awareness of the problem begins when the discovery of deviations take place due to the comparison of the targeted performance agreement with the actual performance (Al sultan , 2000).

On other hand, the problem analysis and formulation of alternatives at this stage follows the decision maker movement for problem analysis and evaluation, classification of the problem and identifying data and information needed to solve it, which in turn involves analysis of the problem, follow-up of environmental externalities that affect the organization's activities, and identification of opportunities and risks prevailing at the operational level. It also includes analysis of the problem, assessment of internal environmental factors which impact on the activities of the organization. This activities help to identify the strengths and weaknesses of the organization and determine the size of the gap, identifies the strategic opportunities and risks prevailing in the external environmental and the strengths and weaknesses available in the organization as a whole and state the statement of the objectives of the organization and all other activities practiced (Pelletier and Smion, 1998).

According to Straub (1999) after identifying the real problem, the major tasks are to place the largest possible number of alternatives to solve it. In this stage decision involves others within the process of isolating the alternatives course of actions or solutions that help to minimize the difference between what is really happening and what needs to be, and placing the alternative ways in front of the administration to resolve the problem and achieve the required goals. This effort must be characterized by its ability to achieve the

alternative results sought by decision makers through utilizing the available physical and human resources of the organization (Ayoub, 2000).

According to Alkharabsheh (2000) in spite of the importance of identifying a large number of alternatives, developing the innovative and unusual alternatives are vital because this would enrich the decision-making process as a whole. In this regard, it requires the use of skills, innovative thinking and development because it would help decision makers to imagine new possible alternatives.

The composition of alternatives depends on several factors which are confirmed by a number of researchers and writers. These are: the willingness of decision makers to innovate, expectations from the resolution, the situation of the organization and its philosophy, structure and leadership style, background and trends (Abdul fatah and Harrison, 1998).

According to Deft et al. (1988) the composition of the alternatives depends on the policies pursued by the institution and its potential physical and non-material resources and the circumstances of the external environment.

According to Al mouwsawy (1988) after evaluating the alternatives that have been obtained here, organization can then be benefited by making discussion of aspects of the strengths and weaknesses relating to these alternatives of proposed solutions. The necessary adjustments can be made in order to choose the best ones and these adjustments may make the possibility of implementing the chosen alternative is proper way.

According to Othman and Abdul wahab (2000) the decision making is the process of objective evaluation of alternatives at hand and view from all angles and this is the difficult stage.

According to Heracleous (1994) the process of differentiation between the alternatives are not practical and clear or easy as it does not show the advantages and disadvantages of each alternative at the time considered, but emerge when applied in the future. This process includes the elements of intangibles and it is difficult to establish precise criteria for their measurement as well as the limited time hinder the decision maker to explore the expected results relating to each of the available alternatives.

2.2.2 Characteristics of Decision-Making Process

Considering the properties of decision-making process several studies have identified five characteristics of the decision-making process. These are the level and structure of decision-making, procedures for conduction of the decision and its adoption, information flow and decision-making criteria and motivation for the formulation and implementation of the resolution (Haddad, 1996).

According to Moody (1983) the properties of the decision are relating to future decision, its implications, its consequences, the quality of the decision and finally an iterative decision. There are eight characteristics of decision-making process which are surprising resolution and ambiguity, complexity, instability in the goals and standards, the reflectivity of the resolution under all possibilities, importance for the organization and decision makers, accountability, and finally time and money required by the decision-making process (Harrsion,1987).

According to Simon (1976) decision-making process is based on the assumption that it is not possible to rationalize access to the full resolution, but it can limit the access to the majority of patients. The characteristics of decision extended from the past towards future and stems decision over the continuation of the other decisions already taken, and that the decision must be integrated with the rest of the decisions already taken, and these

characteristics extend the decision-making process in the future in terms of the fact that the decision was go off to the future (Wally and Baum, 1994).

According to Rausch (1996) as the result of collective decision making is worthwhile, today most organizations realized the importance of the participation of workers in decision-making process and it is one of the most important strategic factors in improving the performance of organizations. The decisions must be attributed either directly or indirectly to the organization or group not to individual that contribute to the decision-making, (Alomary , 2001).

One of the characteristics of decision-making process is that it should be public and inclusiveness and the foundations are common to all organizations whether the decisions are relating to the site, technology or services or goods (Hickson, 1989). On the other hand all types of organization categories like commercial, industrial or even service must include the personnel from all levels who are holding the managerial positions according to their capability of decision making (Basi, 1998).

According to Simon (1962) the difficulty of decision-making process stems from the activities required by the stages of this process and the requirements of these activities of the capabilities and skills to complete.

According to Al aljoundy (1991) decision makers are with a range of personal qualities like imagination, dissatisfaction, sensitive direction of events, motivation, self-development skills, innovative, courage and boldness, the ability to evaluate, using the scientific method in the analysis and finally seize the opportunities.

2.3 Managerial Decision Making

At the organization level one of the most important activities for management is decision making for the organization's success that is the process of deciding what action to take which usually involves select the best one among the alternatives (Adair, 2007). Organizational effectiveness depends on the quality and timeliness of decisions and steps or processes followed to take them. According to Rogers and Blenko (2006) every success, mishap or opportunity seized or missed by the organization is the result of a decision made by the management.

High level of complexity is available in the major business decisions and the process of making such decision requires the harmonization of groups of people and their perceptions, goals, and values. Many researchers have contributed to this field over the years. However, recently roles of both knowledge and expertise from cognitive sciences, psychology, knowledge management, and related fields are well recognized in decision-making become of ensuring better understanding (Wiig, 2004).

At the organizational level managers are continuously facing problems among those some are simple and some are complex; some require simple decision, some are overwhelming; some demand direct actions and still some others require months or even years to unfold (Bateman and Snell, 2004).

2.3.1 Type of Decision

There are several classifications of the decisions that have emerged in the field of administration or in the field of management information systems (Simon, 1962). According to Al Sultan (2000) all decisions are divided into two types: programmed decision and non-programmed decisions. Programmed decisions are made frequently and routinely. Specific procedures are followed to formulate them and they are expressed in the form of plan or program in computer. This kind of decisions describes the standards of governance clearly and often there is insufficient information. They are easy to determine from among the alternatives that one will solve the problem effectively.

As for the second type of decisions are those related to problems with multiple dimensions and of great complexity . These are not routine and therefore there is no specific measures in advance to be resolved. In addition to the complexity and regeneration, long time and great efforts are required to collect information and conduct research and studies and to explore the views of preparing the program. The decisions that can identify some of the stages and having much information about the phenomena compared to the non-programmed decisions can be classified as semi-programmed (Simon, 1976).

According to drucker (1967) decisions in similar divisions, but different in the label are called non-routine decisions. Delbeeq (1967) divided decisions into three categories: routine decisions, creative decisions, and negotiated decisions.

According to Gore et al. (1992) decisions are three types: environmental decisions, mission design decisions and output evaluation decisions. On other hand, (Al Sultan, 2000)

divided the decisions into three types: strategic decisions, operating decisions and administrative decisions.

2.4 Concept of Information

There are different definitions of information and in general the processed data is called information which is used to turn into results. So before defining the information it is wise to define data first. The data is a set of unorganized facts in the form of numbers or words or symbols which has nothing to do with each other, do not have any real meaning and do not affect the behavior of the reception (Al Sultan, 2000). Additionally, information is defined by its degree of novelty, and disposable capabilities (Boyden, 2003; Luhmann, 2002).

It is worthwhile to distinguish these two terms from each other as their arrangements are different. Their arrangement represents the direction of a flow where upgrade data turn into information and then information turn into knowledge, and information is the finished item manufactured from data, knowledge is a material made up of the information. Thus, knowledge is the result of individual, organization or society of information science and culture at a particular time or abstract of data and information (Alhusniah , 1998).

Through the previous definitions we can see that the relationship between information and data can be seen as raw materials and final product. The reflection of relationship between information and data is shown with the following figure.

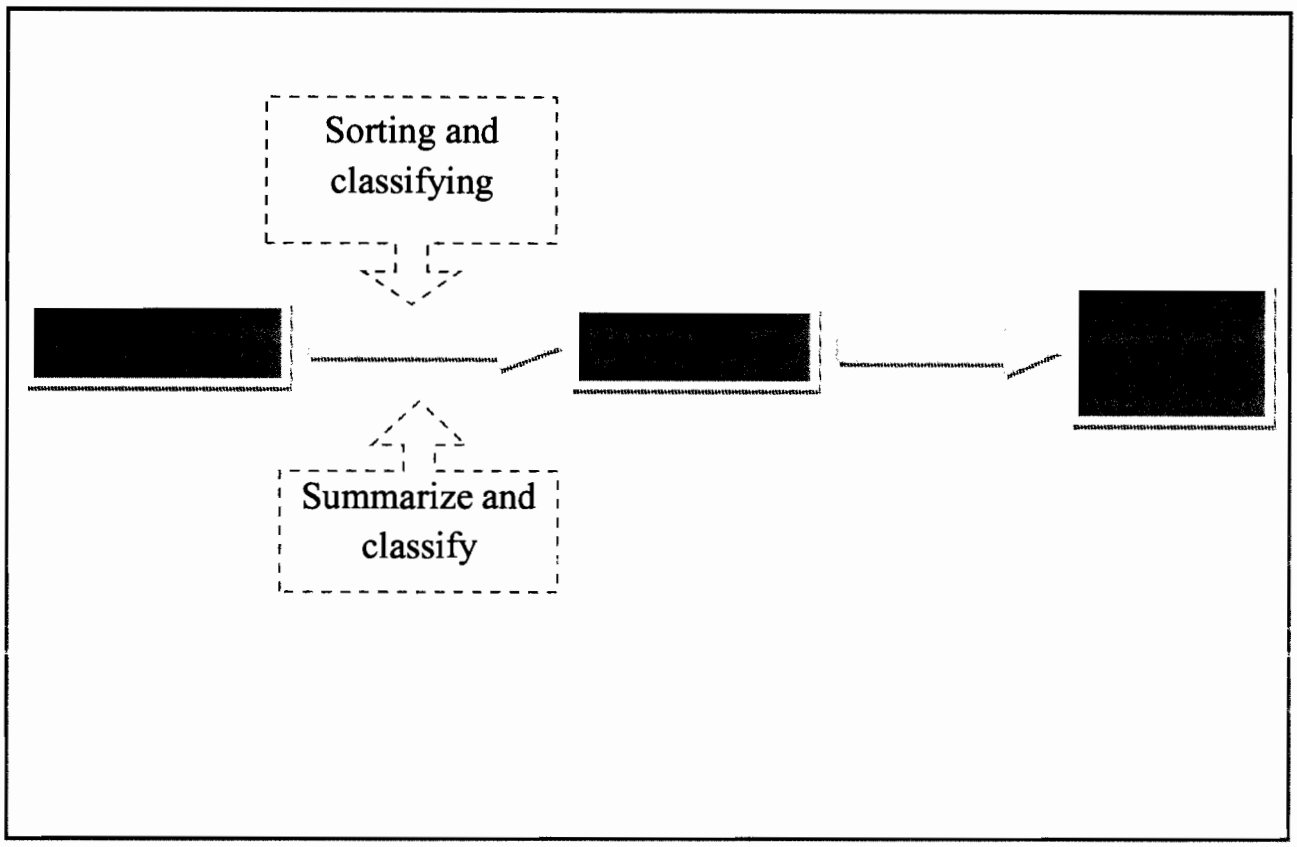


Figure 1.1: Conversion of data into information for decision-making process.

Source: (Al mashriqy , 1997).

2.4.1 Characteristics of Information Necessary for Decision-Making Process

The information helps to increase knowledge and reduce uncertainty and support decision-making processes in the organization. In order to achieve the desired interest through using information, it must fulfill some characteristics which are given below.

1). Accuracy: Accuracy reflects the percentage of correct information to the total quantity of data produced during a specified period of time and level of accuracy required depends on the nature of the information produced by the system. In general,

the achievement of the highest levels of accuracy often leads to increased costs (Burhan , 1988). According to Al Sultan (2000) determining the degree of accuracy of the information and the extent of representation of information are crucial for different situations or events. The degree of accuracy of the information depends on the needs of the user, the nature of the problem and a consideration of the user's decision-making stage.

2). Form: Information can be divided according to its forms like quantitative information, qualitative information, digital information, graphical information, summary information and detailed information (Burhan, 1998). Detailed information is enough to identify problems, but detailed information is used to take decisions at the operational levels (Al Sultan, 2000).

3). Comprehensive: Information should cover all the facts and phenomenon relating to the subject of study and should include all influences so that users can easily administer them and can be benefited from the decision-making. Moreover, the comprehensiveness of the information means the area to be covered for it (Alkilany , 2000).

4).Relevance: Information must be relevant to the situation being addressed and this means information is checked and evaluated whether they are related or irrelevant to the subject for resolution of the problem and thus help the decision maker to take the appropriate decision to resolve the problem (Alalawneh , 2001).

5). Actuality: Information should represent the reality of any actual problem, because access to high quality and impartial information requires complex processes and procedures in terms of their classification, organization, storage and accessibility and this requires the cost of material. Therefore information should be linked to the needs of

the beneficiaries, whether they are managers or implementing authority of the organization in order to reach rational decisions (Alkilany , 2000).

2.4.2 Sources of Information for Decision-Making

The process of obtaining the required information to solve problems and make decisions requires sources identification. The forms and sources of information are different and they include summarized periodic reports or oral presentation, domestic and foreign correspondence, interviews or meetings at conferences. Thus the sources of information are divided into two parts: non-official sources and official sources. Non-official sources information comes without the official channel of communication. It is difficult to obtain as the administration is reluctant to disclose this type of information. In fact, this type of information flow sometimes affects the company's confidentiality and it is out of administration's control. Official information is published in the periodicals and this information can be collected and organized to take advantage (Al mashriqy, 1997).

Burhan (1998) states that information can be classified according to levels of management including strategic information, functional information and operational information. Strategic information is related to a longer period of time which describe objectives and strategies of the organization and resources required to achieve these goals. Functional information is used for the implementation of various activities of the organization depending on the strategies set by senior management which describes the information and the organization's performance. Operational information includes recent information which is related to operational events and processes taking place within the organization.

The following figure shows an interaction among various variables and the flow of information.

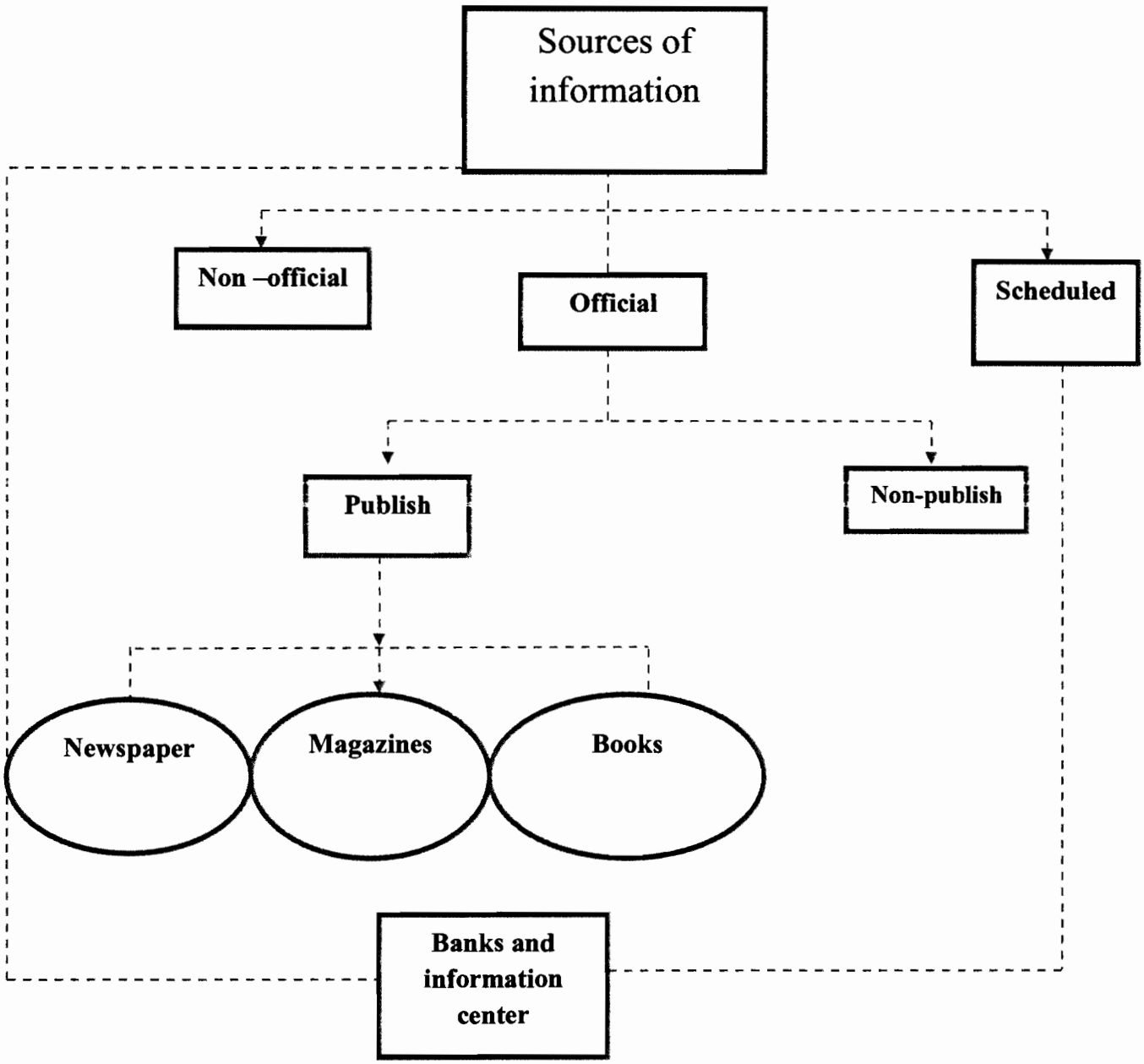


Figure 1.2: Scheme between the channels to move information

Source: (Al mashriqy 1997).

2.5 Information System

According to Brein (1993) custom information system is the method and process of collecting the customer information which support the internal processes and explore the external variables of the environment. This system helps the administration in carrying out the planning functions and operational control within the organization through the provision of integrated information which in turn will assist decision-makers. The information system includes the assembly, operation, storage, distribution, dissemination and retrieval of information in order to strengthen decision-making processes and oversight within the organization (Al Sultan, 2000).

Alhusniah (1998) defines that the types of information systems differ in terms of concepts that underpin the degree of absorption of technological progress and these systems are: modern or electronic information systems, old information system and total information system.

Al Nadaril's (1990) study describes the impact of information systems on the effectiveness of the decisions. The study looks for the efficiency of information systems in companies and to identify areas of weaknesses and in addition to contribute to these systems to reach decisions more effective and identification of the necessary means in order to develop and improve their effectiveness. Alshamaa (1991) opines that there are many types of decision making such as management information systems, computer information systems and he divided the computer information system based on historical development such as transaction processing system, decision support systems and expert support systems.

Yaghi (1993) defines the elements and the constructions of information system which impact on the decision making process such as size of the organization and its growth, the

number and quality of employees, type of decision and its importance, a natural of problem, the suitability of environmental conditions, internal and external environment, material and human resources available, time available for decision-making and existence of an information system that is capable of data collection and analysis.

The paper of Mintezberg (1976) is the first study that demonstrated the need for informal information by senior management. It is important as the proliferation taking place in the area of business and for getting the formal information more time is needed. The findings of this study revealed that managers prefer informal way of getting information because of the speed compared to the official procedure.

For decision making the paper of Glueck (1979) includes the elements of: the importance of the resolution, time and factors related to the decision environment, factors related to decision such as language of the decision, individual decisions, collective decisions, and aspects of the authority related to decision such as the political aspects surrounding the decision and official aspects.

Cheney and Dickson (1982) have described the impact of information systems on decision-making by identifying the characteristics of the department of management information systems and the user's system. According to this study the effects of the use of information systems on organizational characteristics include job satisfaction, satisfaction with the information, change the working environment, structural decisions to be taken. The most important results of this study are changed and enhanced levels of satisfaction, the degree of programmed decision-making, the stability of the decision environment, and the degree of benefit from the information.

Rockert and Treacy (1982) have examined the impact of using management information system based on computer by the top management. This study examined 16

companies and the result shows how the companies use computer in management functions such as planning and controlling. On other hand, the first study examined the extents of the use of information relying on computing by the senior management of 12 companies.

The study found that there is no evidence on the use of information by computer rather middle management use computer for the benefit of senior management. The purposes of the use of computers by middle management (in operation of information management) are to achieve the followings: to provide sufficient time for decision-making, an integrated analysis of the position, speed in decision-making and access to detailed information when they are needed (Brady, 1987).

The study of Goodman (1993) determines the stages of decision-making process in the U.S. and illustrates the various theories about the use of information in decision-making process. The findings of this study include the nature of the decisions, the types and sources of information needed to make these decisions, to provide advanced information technology to improve the communication process within and outside the company and the fluttering of the quality of decisions, if used in the right way (Goodman, 1993).

According to Wally and Baum (1994) various personal and structural determinants influence the strategic decisions. This study has identified four factors relating to both personal and structural. Personal factors are cognitive abilities, intuition, the ability to take risk and the tendency to work. The structural factors are central, formal, size, industry. The results of this study describe the positive relationship between personal characteristics of the director and the speed of decisions and also show that decisions making is faster in the central administrative institutions compared to the formal institutions.

Grieves (1998) have explained the use of information in decision-making in four different sectors in the UK including banking sector, government sector and pharmaceutical

industry. The study gathered information from these sectors and compares them. The results indicate that government and pharmaceutical industry believe that the information value is very high in decision-making process whereas banking sector believes that the availability of information leads to better decisions (Grieves, 1998).

Al Gamdi, (1998) undertaken a study to find out the obstacles on the way of implementing the strategic decisions in UK. Questionnaires were distributed among 100 companies in the area Bradford in Britain. The study isolated 15 obstacles on the way of the application of strategic decisions taken by the company which are engaged in commodity or service industry. The main constraints identified are the information systems used to implement the resolution were not enough, the basis of the implementation of resolution has not been precisely defined and detailed and the difficulty of the implementation of resolution within the time was scheduled (Al Gamdi, 1998).

Reid et al. (1998) has conducted a study on the role and value of information in decision-making process in the banking sector of Britain in addition of the impact of a library in the bank's decision-making process. Data has been collected through the distribution of questionnaire to a group of banks. The results indicate that the use of library in the bank as a source of information for decision-making gives great value and raise the confidence of decision-makers and the managers acknowledged that the library provides them with a lot of time and, moreover, managers believe that the information lead to improved decision making.

Another study was undertaken to assess the effectiveness of management information systems in decision making through continuous assessment by the decision maker in Sweden. The result explains that the quality and effectiveness of management information systems can be increased through precision and speed in the provision of information and

thus improve the image of the organization and maintain its customers and suppliers and achieve the objectives of any organization as a whole (Remeny and Sherwood,1999).

An exploratory study has been done by Kumar and Plavia (2001) in the United States about the use of the information system for senior management to provide the necessary information for executive managers in a timely manner to support in the decision-making process necessary for most U.S. companies.

Due to the emergence of globalization and greater openness, ensuring the proper flow of information from the internal environment is not sufficient for the organization rather external information about the competitors and business environment are vital for an organization's survival and success which necessitate the maintenance of information system in the organization.

Ashill and Jobber's (2001) exploratory study in Britain identifies the properties of required information necessary for directors of marketing executives to make decisions for the organization.

2.6 Management Information Systems

The nature of management information systems varies relating to its use and importance as expected by stakeholders (Muslaim, 1996). McLeod made three different views on the nature of management information systems which are management information system as totally system, management information system represents the application of computers and management information system is an organizational resource.

Senn (1982) study connote similar as the study of McLeod where he identified management information systems as totally system and second management information

systems reflect the systems and the management information systems multi-functional as the nature of management information systems. Management information systems is the type of information systems designed to provide managers of the organization with the necessary information for planning, organization, command and control on the activity of the organization or to help them make decisions (Husseiniya,1998).

Al Sultan (2000) opines that management information systems are an organized group of means to provide information on past, present and predict the future with respect to the activities and operations of the organization also what is happening in their external environment, which lead to the strengthening of the functions of planning oversight and operations of the organization through the availability of information in a timely manner to the decision maker.

According to Chen and cheng (2008) MIS is a multifaceted discipline which combines technologies, personnel, processes, and organizational mechanisms .clearly, the success of MIS is measured in terms of organizational strategy. Moreover the management information system is charged with improving the strategy of organizations and people related on management information systems such as decision maker's thought the employ of information technology (Li and Hu, 2007).

According to Ajayi and Omirin(2007).the management information system providing information about many aspects such as support operations , decision making functions and activities in an organization.On other hand , management infromation system had led to much activity in developing and improving techniques software for data management. MIS is basically involves the process of collecting, processing, storing and transmitting related information to support the management operations in any organizations and

decisions making. Thus, the success of decision-making is highly reliant on available information and somewhat on the functions that are the elements of the process (Laudon, 2009).

Kuoa and Ye (2010) the study focused that MIS was sufficiently used to make decisions during disaster. The majority of the studies indicated that MIS was always used in making decisions on different activates. In addition, the study was explained that the level of utilization of MIS for decision-making up to end users e expectation.

Dickson (1981) defines the management information systems as the systems that deal with all the activities of information and decision-making associated with the organization in order to increase the effectiveness of the organization by providing information and support management decisions. On the other hand, management information system provides precise and sufficient information about various activities of the organization of production, marketing , financial affairs, planning, human resources and research and development activities at the same time be able to meet the needs of the departments' strategic long-term or short-term plans.

2.6.1 Types of Management Information Systems

According to Al Sbakha (1996) there are many types of management information system. It can be classified according to its regulatory functions in the business sector or by administrative activity and can be classified according to the historical development, or according to a destination of interest and the nature of its operations. The following sections discuss various classifications of management information systems.

1) Transactional Processing Systems

This refers to the facts or events that occurs in the environment of the organization and affects its progress towards achieving its goals and at the same time these processes must capture and record data and incorporate into the computer to process by the processing systems operations. These systems are geared mainly to serve the operational processes in the lowest administrative level. In organization they are very necessary because they provide key data which are important inputs to other management information systems.

2) Management Reporting Systems

These systems provide the necessary information to management in various business organizations to assist them in making decisions. Managers are usually taken many decisions every day and these systems use data collected and stored by processing systems operations which dealt with specific situations and these can issue the reports for treatment by the computer periodically or on demand. The reporting systems focus on the administrative support relating to the administrative decisions with required information to make these decisions clear and accurate. This means that these systems can support management decisions with environment-specific variables which are known, clear. Three important features of the systems of management reports are that they support the decisions that are taken repeatedly, that a large part of the information needed for decision-making is stored in databases as a product of data processing systems and the information required for decision-making is obtained from various parts of the organization which means that these systems must be able to access the information in the various departments within the organization (Al Sbakha , 1996).

3) Office Automation Systems

These are the systems by which routine operations are carried out in offices through modern technological methods in such a way which will increase the productivity of employees and performance of personnel managers and secretarial staff. These systems collect and process; store and transmit messages and documents in various forms and contact electronically to individuals, groups and other organizations. There are different types of office automation systems which address the functions of word processing, electronic mail, voice mail, electronic calendar, audio conference, TV conference, fax and desktop publishing system (Sultan, 2000).

2.7 Information Technology

Information technology (IT) is defined as the computer-based hardware, software and remote means of communication, management of databases and other information processing techniques used in information systems. On other hand there are some sectors or industries handling large volume of information than others and these sectors have to take information technology systems more importantly to deal with the vast amount of information efficiently and this is so-called matrix of information-intensive (Porter and Millar, 1985). The information technology consists of a set of software and hardware that would help decision makers at all levels of management to find appropriate solutions to the problems facing decision-makers (Ageel, 1996).

The rapid development and continuous improvement in information technology making the older information systems obsolete which affects the competitive situation of the organization. So it is important for the organization to hire technical manpower like

skilled programmers and highly skilled analysts that will lead to increased costs for the product. Another aspect of these changes is high turnover rate among those working in government departments and departments of information systems organizations which affects the effectiveness of decision-making in these organizations. In addition, continuous intense competition and the entry of new competitors into the telecommunications sector requires several factors for success in the coming years such as strengthening marketing capabilities and constant changes in the structure of the organization . The reform of administrative systems in terms of accelerating the process of decision-making, giving the system greater flexibility in carrying out its duties, relationship with the company's customer or internal organization and work relies heavily on the use of management information systems. This system enables the company to meet the needs of customer's best and accelerate the process of decision-making (Bakri, 1996). A number of studies have been undertaken to understand the evolution of electronic data processing and to review of the evolution of the computer industry, regulations and problems for the use of computers in the accounting units and the statement of the importance of internal control objectives and procedures in the electronic processing in addition to measure the developmental impact of electronic processing on each of the internal controls and the procedures (Reem, 2000).

The study of Brhan (2000) explains the impact of information technology on banking service and the aims of the study are to identify recent developments and trends in the field of application systems, information and communication technology in the banking business and the relationship between these trends as well as measurement of the administration's willingness to implement the information and communications technology systems and the business of everyday banking. The study states that the application of ICT

affects the commitment of organization to its customers and there is a possibility for diversity and integration in the provision of banking services.

Kraemer et al. (1989) explain five different general models of information technology that differ in terms of the roles play to the environment and human action which are: environmental determinism, managerial factionalism, organizational evolutionism, and institutionalism and systems interactions.

Among these categories humans merely react to environmental stimuli except for the managerial factionalism and the systems interactions models. On the other hand, the integrationist model assumes that despite the external and internal influences that impinge on human beings, individual choice in human action must be considered.

Awar, (1999) conducted a study entitled computer and job performance on the general security of Jordan, The purpose of this study was to identify the reality of computer use in the general security service in Jordan and the effect of computer use on both the control and supervision system, and the stability of work, the degree of satisfaction of the employees, creativity and initiative among workers and job performance. The study was a comprehensive survey with 98 respondents related to computer jobs in the management of drivers and vehicle licensing and the department of computer and management of criminal information. This study concluded that the use of computers in the Jordan General Security has led to improved job performance through better control, supervision and stability of work and improves the creativity and initiative among workers (Awar, 1999).

Wilson (1995) has explained the management information system in general organizations where the researcher was interested in the systems management that relies on computerized information technology. The study has been conducted with the decision-makers to test their attitudes in the use of computer and information systems and the impact of the adoption of the computer information system by decision-makers on the basis of their education, age and sex. This study showed that there is a desire by the decision maker in using computer and the use of computer-based information technology improves the performance of decision maker.

2.8 Research Framework

From the review of the literatures, two independent and resulting one dependent variables are identified and deemed suitable for the study. The independent variables are management information systems and information technology systems. The dependent variable is managerial decision making.

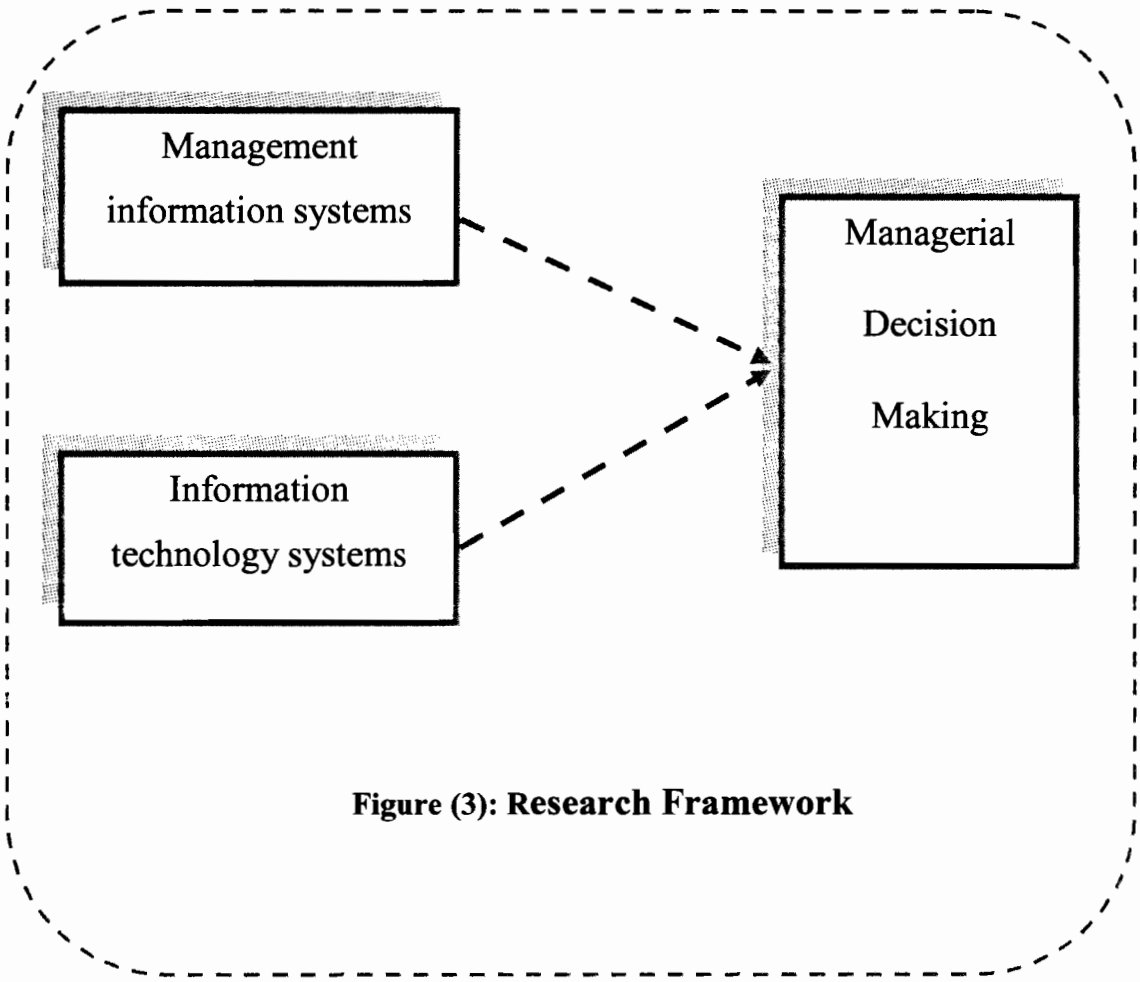


Figure (3): Research Framework

2.9 The Hypotheses

For the present study the following hypotheses are developed.

H1: There is a positive relationship between management information systems and managerial decision making

H2: There is a positive relationship between information technology systems and managerial decision making.

2.10 Conclusion

This chapter highlights the literatures related to the study. This chapter discusses management information systems, information technology systems, and managerial decision making. The final section shows and discusses the relationship among management information systems, information technology systems and managerial decision making.

CHAPTER THREE

RESEARCH METHODOLGY

3.1 Introduction

This chapter explains the various procedures that were used to collect, measure, and analyze the data for this study. This chapter will present the study's sections such as: Research Framework and hypothesis, Sample of the study, Data collection Survey instrument Method of analysis and Conclusion.

3.2 Research Design

The research model in the study consists of three variables. The variables are management information systems, information technology systems, and managerial decision making.

The literature shows that firm with well-developed management information systems could be able to motivate mangers to work at their highest capacity by showing them how their daily efforts help to achieve the overall mission and goals such as find the problems, find solution for this problems and how the managers deiced the decision especially in the higher levels, Additionally it would also create a working environment which is conclusive to improve the decision making of their mangers. In line with the view suggested in the literature, thus study hypothesized that there is a relation between management information systems, Information Technology systems and managerial decision making.

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3.3 Sample of the Study

The respondents in this study comprised mangers working in private companies in Jordan such as; IS mangers, IS directors, IS professionals and staff. The private company of the respondents was chosen based on list of Jordanian telecommunication ***www.ccd.gov.jo*** , which is private company in Jordan Control Department., private companies were selected as they are accessible. The 3 private companies are located in the capital Amman in the middle of Jordan.

3.4 Data Collection

Data were collected through questionnaires from the respondents of telecommunication sector in Jordan and the data were collected from the respondent by using structured questionnaires. A total 150 questionnaires for the study were distributed to the respondents by e-mail and also by hand. The sample size should be around 150 for generalization the findings

3.5 Survey Instrument

These instruments were adapted from (El-Shikhdeeb, 2008 and Al- shoubl, 2003). The study used a questionnaire survey to explore the relationship between management information systems, information technology systems and managerial decision. A survey instrument was used primary to gather information regarding management information systems, information technology systems and managerial decision making .There are 28items in this questioner.

The first part of the questionnaire comprised five questions on the demographic information of the respondents such as; gender, level of education, experience and background.

The second part of the questionnaire covers items on Management information Systems. There are six items covered in the second part. The third part of the questionnaire covers items on information technology systems, which consist of eight items. The fourth part of the questionnaire covers items on managerial decision making, which consist of nine items.

The questions designed to determine if there are a relationship between management information systems, information technology systems and managerial decision making on items that related to top management. Also the questionnaire consists of the level of experience as mangers professionals and the role position in the organization.

The management information systems items are measured on scale from strongly disagree (1) to strongly agree (5). The respondents are respected to give their responses based on the scale of (1) to (5).

Similarly the information technology systems items are measured on scale from strongly disagree (1) to strongly agree (5). The respondents are respected to give their responses based on the scale of (1) to (5). A copy of the questionnaire is given in Appendix. All the survey materials were prepared in English language as professional-level workers in Jordan can and often do work in English language.

3.6 Method of Analysis

In this study there are two types of statistical analyses that were carried out on the data obtained from the respondent. First, descriptive analysis was used to analyze the background of the respondent and the private companies; second, correlation analysis was used to analyze the relationship between management information systems, Information Technology systems and managerial decision making.

3.7 Techniques of Data Analysis

Out of 150 the questionnaires distributed, 135 were returned on 8 January 2010. The data of 150 participants are potentially available for analysis. Analyses were conducted using descriptive statistics and correlation analysis. The analyses were conducted using SPSS (version 12) program for Windows.

3.8 Conclusions

This chapter explained the methodology used to analyze the data. Reliability analysis was also carried out. In addition, a statistical analysis namely descriptive analysis and correlation analysis were also undertaken. Also this chapter showed the framework for analysis, design of the research instrument to evaluate the relation management information systems and information technology system and managerial decision making in telecommunication sectors. The findings and results from the application of the measuring instrument developed here are discussed in the next chapter.

CHAPTER FOUR

RESULTS OF THE STUDY

4.1 Introduction

This chapter discussed all the finding which through statistical analysis to show the analysis and discussions as the results of data analysis. This research is conducted in term to explore and explain phenomenon. The evidence and factor behind measures the impact of management information systems and information technology systems on managerial decision making in the telecommunication companies in Jordan.

The analysis will be made on the event which will be recorded in the form of questionnaire, and choosing an appropriate study design with adequate sample size. It will be discussing the impact of management information systems and information technology systems on managerial decision making in the telecommunication companies in Jordan.

This chapter is divided into three sections, the first section discuses about the personal information. Following by the second section which discuses about descriptive analysis of the variables, and the third section discuses the correlation analysis among the variables following which is all about test hypotheses.

4.2 DEMOGRAPHIC ANALYSIS

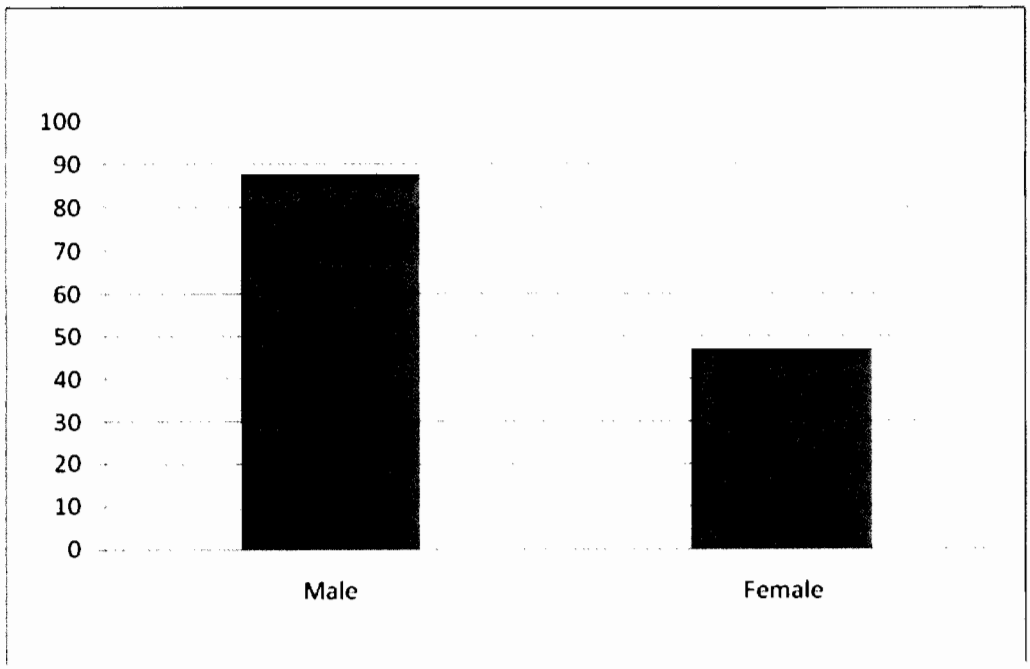
4.2.1 GENDER

Table 4.1 illustrates the gender of the respondents who are working in telecommunication companies; it can be observed that the gender of the respondents were 88 (65 %) male respondents and 47 (35%) female respondents.

Table 4.1 : Gender, N = 135

Gender	Male	Female
	88	47
%	0.65	0.35

Figure 4.1 : Gender



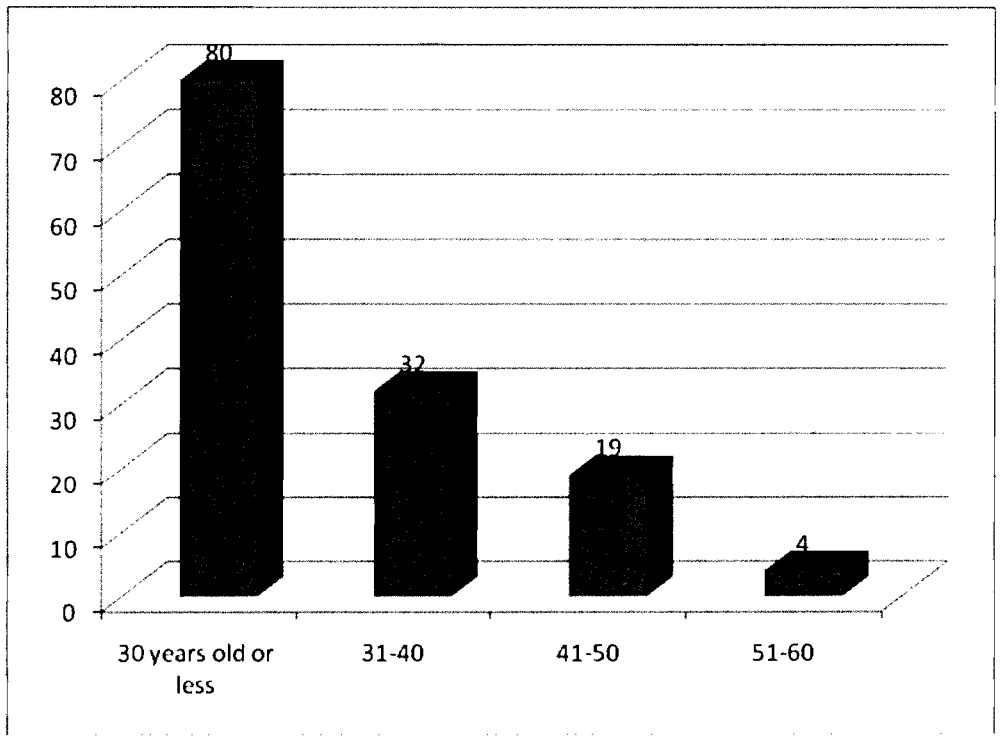
4.2.2 AGE

Table 4.2 shows the age of the respondents, the age of the respondents were 80 (59 %) respondents 30 years old or less, 32 (24 %) respondents between 31-40, 19 (14 %) respondents between 41-50, and 4 (3 %) respondents more than age of 51.

Table 4.2 : Age

Age	30 years old or less	31-40	41-50	51-60
	80	32	19	4
%	0.59	0.24	0.14	0.03

Figure 4.2 : Age



4.2.3 LEVEL OF EDUCATION

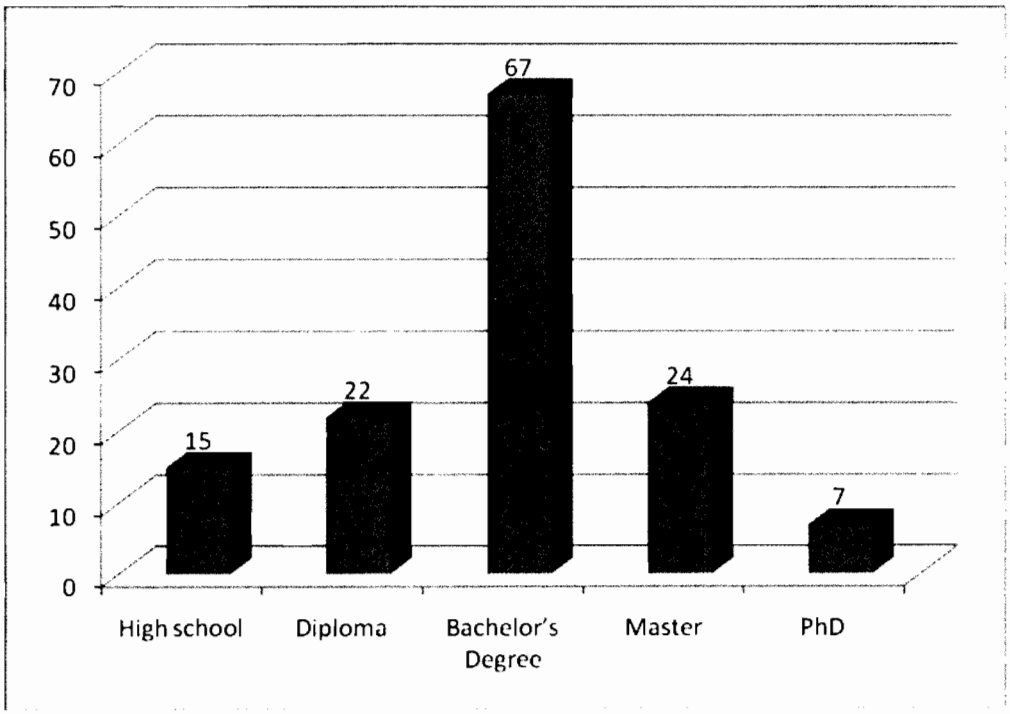
Table 4.3 describes the level of education of the respondents, it can be clearly seen that there were 67 (50 %) Bachelor's Degree holding, 22 (16 %) respondents were diploma,

15 (11 %) respondent were high school. However, in term of postgraduate it can be observed in the table that there were 24 (18 %) respondent were master holding and 7 (5 %) respondents were a PhD holding.

Table 4.3 : Level of education

Level of education	High school	Diploma	Bachelor's Degree	Master	PhD
	15	22	67	24	7
%	0.11	0.16	0.50	0.18	0.05

Figure 4.3 : Level of education



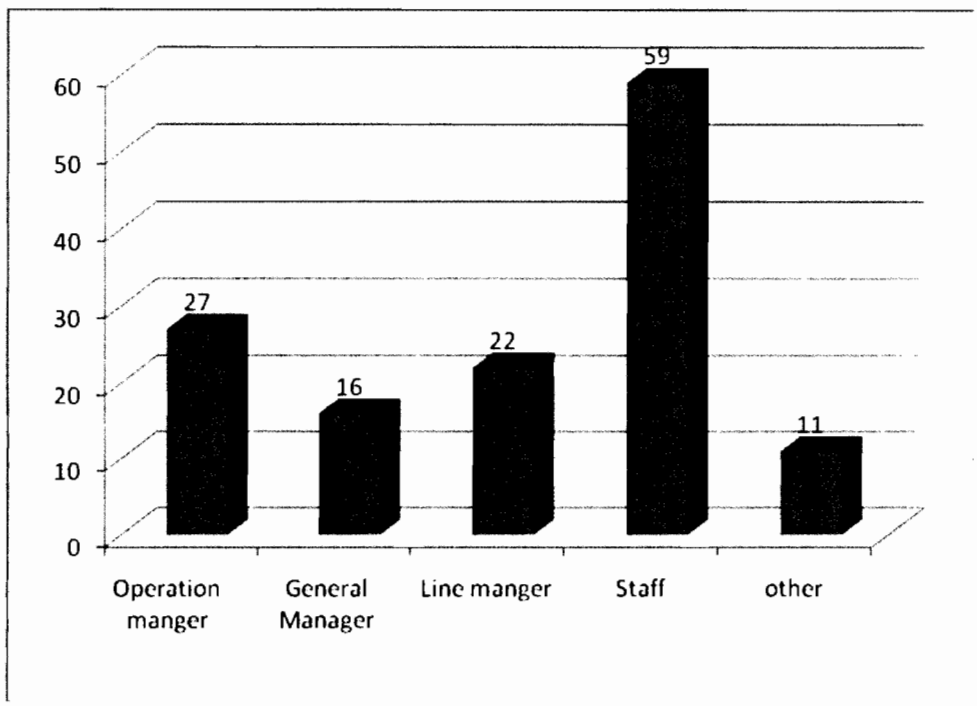
4.2.4 JOB LEVEL

Table 4.4 shows the job level of the respondents, the job level of the respondents were 27 (20 %) respondents operation manger, 16 (12 %) respondents general managers, 22 (16 %) respondents line managers, 59 (44 %) respondents were staff and 11 (8 %) respondents others.

Table 4.4 : Job Level

Job level	Operation manger	General Manager	Line manger	Staff	other
	27	16	22	59	11
%	0.2	0.12	0.16	0.44	0.08

Figure 4.4 : Job Level



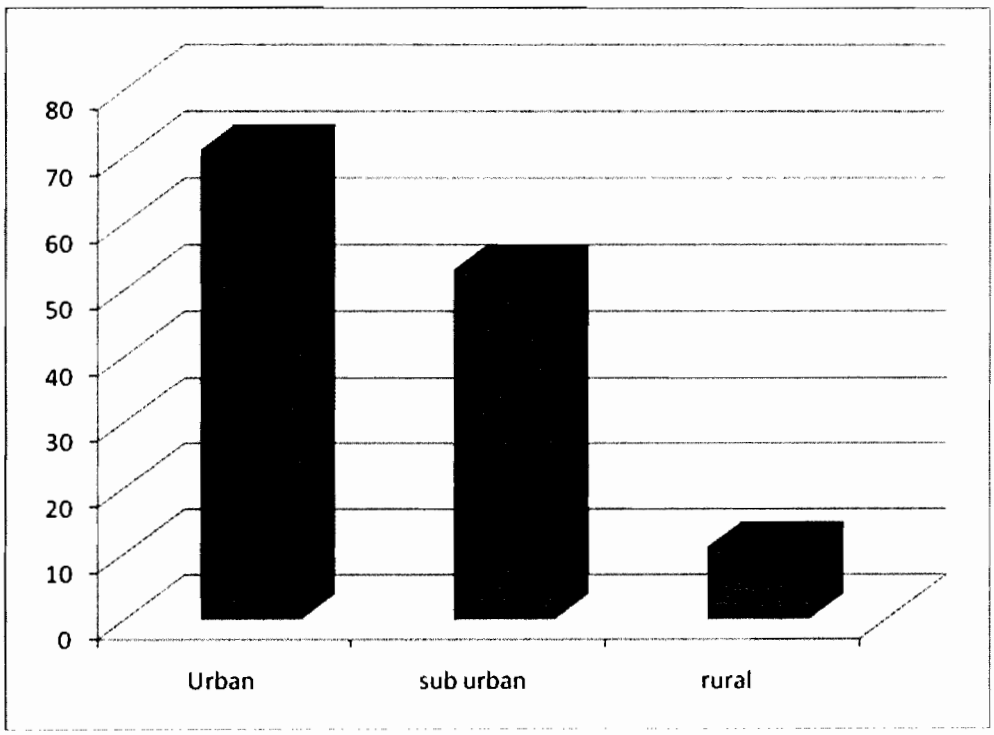
4.2.5 LOCATION OF THE DEPARTMENTS

Table 4.5 shows the location of the departments where the respondents work in, the location of the departments of the respondents were 71 (53 %) respondents in urban, 53 (39 %) respondents in sub urban, and 11 (8 %) respondents in rural.

Table 4.5 : Location of Departments

Department's location	Urban	sub urban	rural
	71	53	11
%	0.53	0.39	0.08

Figure 4.5 : Location of Departments



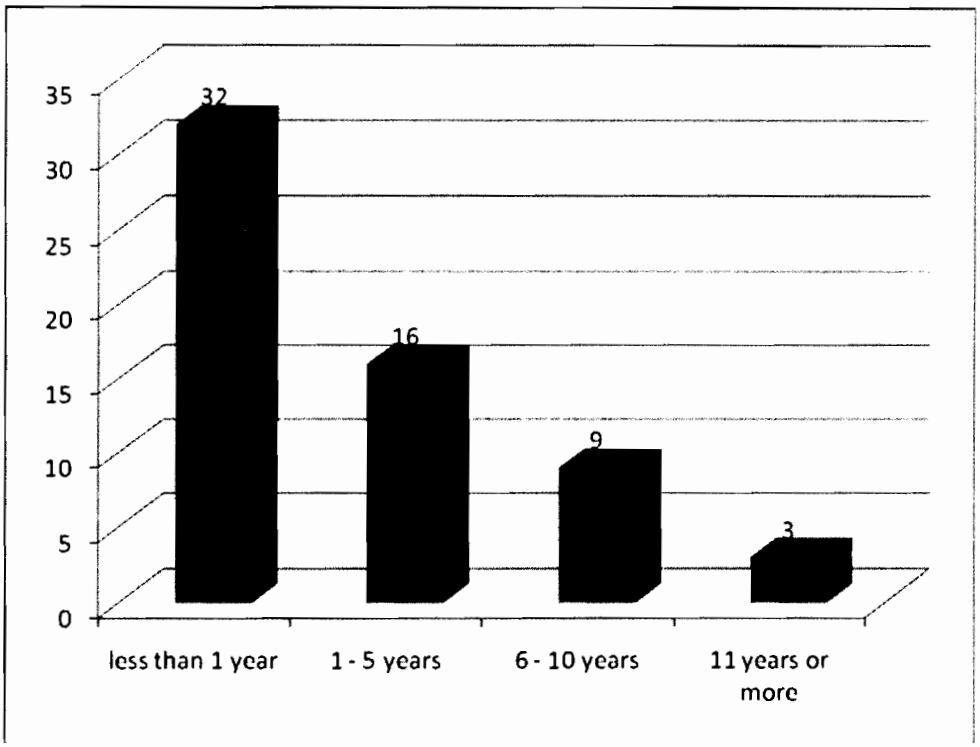
4.2.6 YEARS OF EXPERIENCE

The experience of the respondents is shown in table 4.6. It can be observed that most of the respondents have experience less than one year, there were 63 (47 %) respondents have experience less than one year, following by 48 (36 %) respondents have experience between 1-5 years. In addition there were 18 (13 %) respondents having experience between 6-10 years, and 6 (4 %) respondents have experience more that 11 years.

Table 4.6: Years of experience

Years of experience in the telecommunication sector	less than 1 year	1 - 5 years	6 - 10 years	11 years or more
	63	48	18	6
%	0.47	0.36	0.13	0.04

Figure 4.6: Years of experience



4.3 DESCRIPTIVE ANALYSIS

Descriptive analysis describes the response for the major variables studied. The descriptive analysis includes mean and standard deviation on the dependant variables and independent variables. The results of the descriptive analysis are shown in Tables below.

Table 4.7 Descriptive Statistics (Mean and Std. Deviation) for Management Information Systems.

No.	Items	N	Mean	Std. Deviation
Q1	Management information systems used to provide information that is necessary for the decision maker	135	2.9407	1.02770
Q2	Management information systems help the company to access necessary information and the necessary staff responsible for implementation of the decisions.	135	1.6741	.81798
Q3	Management information systems used to provide decision , but late in the necessary information and necessary to the decision maker.	135	1.9926	1.08927
Q4	There is a strong relationship between management information systems and competitive advantage for the company.	135	1.7704	1.04339
Q5	The use of management information systems in administrative decision-making leads to save time.	135	3.1556	1.10539
Q6	The management information systems are impacting on managerial decision making	135	3.2074	.96271

The mean and standard deviation for management information systems is shown in table 4.7. There are 6 items for the management information systems. The mean for the management information systems ranged from 1.6741 for "Management information systems help the company to access necessary information and the necessary staff responsible for implementation of the decisions." to the highest mean score of 3.2074 for "The management information systems are impacting on managerial decision making". Moreover, The standard deviation for the management information systems ranged from 0.81798 for "Management information systems help the company to access necessary

information and the necessary staff responsible for implementation of the decisions." to the highest standard deviation score of 1.10539 for "The use of management information systems in administrative decision-making leads to save time.".

Table 4.8 Descriptive Statistics (Mean And Std. Deviation) For Information Technology Systems

No.	Items	N	Mean	Std. Deviation
Q7	Use of information technology systems helps the mangers to reduce the processes within the company.	135	3.0296	1.07162
Q8	Information technology to facilitate and assist in decision-making flexible and accurate.	135	2.9481	1.01716
Q9	Information technology systems lead to the flow of information in a clear and working to raise the efficiency.	135	1.6741	.81798
Q10	The information technology systems are very important to top management.	135	1.9926	1.08927
Q11	There are many issues face the mangers when they are decide the decision making because they didn't have background about the technology and some the information néeds to update	135	1.7704	1.04339
Q12	The information technology systems are very important for any company whatever government or private.	135	3.3630	.97435
Q13	the information technology system has an effect on managerial decision making	135	3.2741	1.03253

The mean and standard deviation for information technology systems is shown in table 4.8. There are 7 items for the information technology systems. The mean for information technology systems ranged from 1.6741 for "Information technology systems lead to the flow of information in a clear and working to raise the efficiency." to the highest mean score of 3.3630 for "The information technology systems are very important for any company whatever government or private.". Moreover, the standard deviation for the information technology systems ranged from 0.81798 for "The information technology systems are very important for any company whatever government or private." to the highest standard deviation score of 1.08927 for "The information technology systems are very important to top management".

Table 4.9 Descriptive Statistics (Mean and Std. Deviation) Managerial Decision Making

No.	Items	N	Mean	Std. Deviation
Q14	Some decisions need to be a long time to implement and this is a big problem may result in poor performance for managers.	135	1.6741	.81798
Q15	Effective decisions need to be a huge amount of information whether, internal or external information	135	1.9926	1.08927
Q16	Integration information and data are very important to decision makers.	135	1.7704	1.04339
Q17	I do collect the substantial related information about the work problems before making decisions	135	1.6296	.81717
Q18	I specify the precise objective before initiating the decisions process.	135	1.9926	1.06852
Q19	Decision maker at the company assist in enhancing the efforts of decision process.	135	2.3481	1.12182
Q20	Skills management and competencies are enriched and developed through utilizing different decision methods	135	3.1556	1.02845
Q21	Direct supervision does not stress on their opinions and always listen to others, especially in decision making.	135	3.1630	1.00897
Q22	I listen carefully during the decision process.	135	3.0667	1.02360

The mean and standard deviation for Attitude of the managerial decision making is shown in table 4.9. There are 9 items for the managerial decision making. The mean for the managerial decision making ranged from 1.6296 for "I do collect the substantial related information about the work problems before making decisions" to the highest mean score of 3.1630 for "Skills management and competencies are enriched and developed through utilizing different decision methods". Moreover, The standard deviation for the managerial decision making ranged from 0.81717 for "I do collect the substantial related information about the work problems before making decisions" to the highest standard deviation score of 1.12182 for "Decision maker at the company assist in enhancing the efforts of decision process.".

4.4 CORRELATION ANALYSIS AND HYPOTHESIS TESTING

Correlation analysis is executed to test the strength of relationships between variables. Statistical test at 5% level is used to test the significance of the relationships between the independent variables in this study. It is also used to examine the potential issue of multicollinearity that exists when two explanatory variables are highly correlated. A Pearson product-moment correlation coefficient describes the relationship between two continuous variables or when the researcher is interested in defining the important variables that are associated with the problem (Sekaran, 2000).

Correlation is appropriate for interval and ratio-scale variables and is the most common measure of linear relationship. This coefficient has a range of possible values from -1 to +1. The value indicates the strength of the relationship, while the sign (- or +) indicates positive or negative correlation. Table 4.10 and 4.11 show the correlation matrix among the independent variables and dependent variable.

4.4.1 Hypothesis (H1)

The first hypothesis (H1) stated that There is a positive relationship between management information systems and managerial decision making. The correlation coefficient is .360. As the result in the next table 4.10 suggests, a significant positive relationship between management information systems and managerial decision making; therefore, there is a support for this hypothesis.

Table 4.10: correlation between management information systems and managerial decision making

		MIS	MDM
MIS	Pearson Correlation	1	.360(**)
	Sig. (2-tailed)	.	.000
	N	135	135
MDM	Pearson Correlation	.360(**)	1
	Sig. (2-tailed)	.000	.
	N	135	135

** Correlation is significant at the 0.01 level (2-tailed).

4.4.2 Hypothesis (H2)

The second hypothesis (H2) stated that There is a positive relationship between information technology systems and managerial decision making. The correlation coefficient is .320. As the result in the next table 4.11 suggests, a positive significant relationship between information technology systems and managerial decision making; therefore, there is a support for this hypothesis.

Table 4.11: correlation between information technology systems and managerial decision making

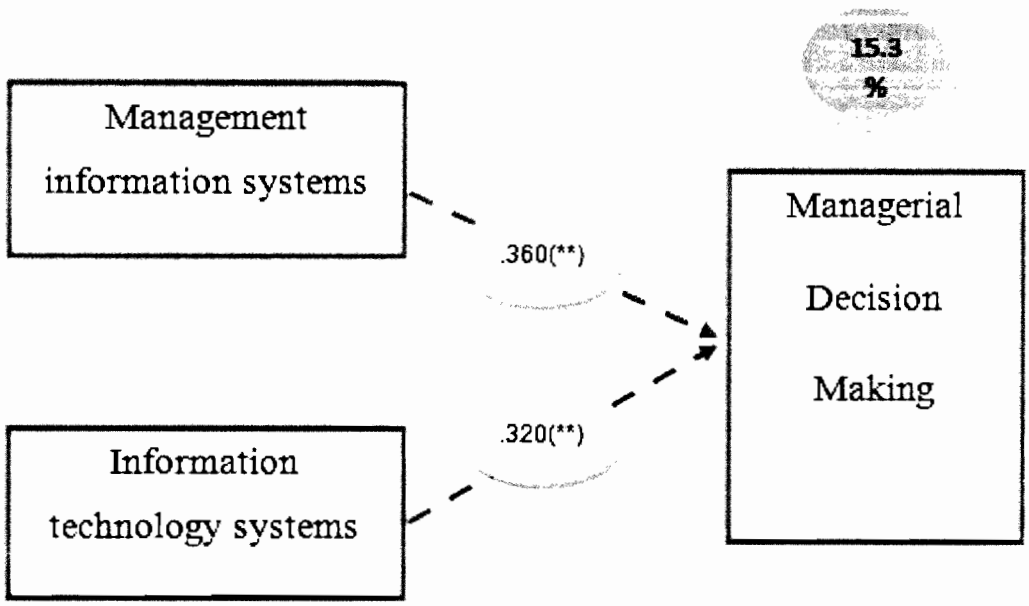
		ITS	MDM
ITS	Pearson Correlation	1	.320(**)
	Sig. (2-tailed)	.	.000
	N	135	135
MDM	Pearson Correlation	.320(**)	1
	Sig. (2-tailed)	.000	.
	N	135	135

** Correlation is significant at the 0.01 level (2-tailed).

Table 4.12: summary of hypothesis testing

Hypothesis	Supported	Correlation	Reason
Hypothesis 1	Yes	.475 (**)	Positive
Hypothesis 2	Yes	.320 (**)	Positive

The R Square (R^2) for the model is 0.153. This result suggests that the two management information systems and information technology systems aspects are able to explain 42.8 % variance for managerial decision making in telecommunication companies in Jordan.



4.5 CONCLUSION

This chapter explained the results of the statistical analysis. The results comprised background of the respondents, the mean and standard deviation for the major variables namley management information systems, information technology systems and managerial decision making. Finally the results of hypotheses testing were also provided.

CHAPTER FIVE

DISCUSSION AND CONCLUSION

5.1 Introdcution

This chapter summarizes the interpretations of results presented in the previous chapter and provides conclusion of this study. In addition, this chapter discussed the findings in this study with relation to the research objectives. The chapter begins discussion, followed by the implication of study, after that limitation of the study will be discussed, and finally the conclusion.

5.2 DISCUSSION

This study discusses the impact of management information systems and information information technology systems on managerial decision-making in the telecommunications sector in jordan . In other words, the study attempts to investigate whether there is a significant relationship between management information systems , information technology systems and managerial decision-making in the telecommunications sector in jordan. The results show that the relationships between management information systems , information technology systems and managerial decision-making are significant in Correlation analysis. Three research objectives were derived to guide this study:

1. To identify the types and stages of the process of decision making and requirements of the information and management information systems

2. To identify both the information technology and management information systems used in the telecommunications sector in Jordan.

3. To identify the means of security and control of information and management information systems based on the computer used in the telecommunications sector in Jordan.

The first hypothesis (H1) stated that there is a positive relationship between management information systems and managerial decision making. The correlation coefficient is .360. As the result in the next table 4.10 suggests, a significant positive relationship between management information systems and managerial decision making; therefore, there is a support for this hypothesis. And the second hypothesis (H2) stated that there is a positive relationship between information technology systems and managerial decision making. The correlation coefficient is .320. As the result in the next table 4.11 suggests, a positive significant relationship between information technology systems and managerial decision making; therefore, there is a support for this hypothesis. On other hand The R Square (R^2) for the model is 0.153. This result suggests that the two management information systems and information technology systems aspects are able to explain 42.8 % variance for managerial decision making in telecommunication companies in Jordan.

5.3 IMPLICATION OF THE STUDY

The findings of the study added input to the body of knowledge in management information systems, information technology systems and the managerial decision-making in the telecommunications sector in jordan. Moreover this study attempts to determine if there is any relationship between management information systems , information technology systems and the managerial decision-making in the telecommunications sector in jordan. This research provides vital information for the understanding the the impact of

management information systems and information technology systems on managerial decision-making in the telecommunications sector in Jordan.

Additionally, this study was conducted to identify the impact of management information systems and information technology systems on managerial decision-making in the telecommunications sector in Jordan. Therefore, this study would be beneficial to managers in the telecommunications sector in Jordan. This study also suggests that there is a need for the telecommunications sector in Jordan to improve the decision makers whatever IS mangers, IC mangers or staff. Mangers and staff must put more effort and commitment to arrive the good decisions is help the company to find many solution for any problem may facing this whatever private company or government. It also should take into the technology systems which include hardware, software and remote means of communication, management of databases and other information processing techniques used in information systems. On other hand there are some sectors or industries handling large volume of information than others and these sectors have to take information technology systems more importantly to deal with the vast amount of information efficiently and this is so-called matrix of information-intensive (Porter and Millar, 1985). All of these must be offered concurrently in order to produce good decision.

5.4 LIMITATION OF THE STUDY

There are many limitations of this study such as limited generalization of the study exists because the findings were limited to private company not public company or government in the telecommunication sector in Jordan and this because of the sampling plan used and the questionnaire was administrated only in the telecommunication sector in Jordan and the lack of cooperation of the respondents. The researcher legalized the situation that not all of the respondents were cooperation in answering the questions and

some of them did not take it seriously, on other hand the financial problem was one of the limitations in completing the research probably. Moreover the study focused on private company only and the study was carried among three private companies that are involved telecommunication sector thus, this study limited as the companies that participated in the study are located in Amman, the capital in Jordan.

5.5 Recommendation for future research

This study provides limited idea regarding the relationship between management information systems, information technology systems and managerial decision-making in the telecommunications sector in Jordan. However , it would be Beneficial for future research to consider the following suggestion .firstly , expansion of the study into other company whatever private or government and in the future the research can using the same methodology to carried out at the Private company , secondly evaluation can be made on of the most common management information systems in telecommunications sector in jordan .finally , the research should be focus on perception of management information systems , information technology systems and managerial decision-making.

5.6 CONCLUSION

The result of correlation, the regression analysis is assessing the variables or the empirical relationship between management information systems, information technology systems and managerial decision making. From the regression results, it can be observed that there was only one variable that is significant which the management information systems. However, management information systems and managerial decision making are significant. In testing hypothesis, table 4.8, 4.9, and 4.10 show the significant relationship between management information systems, information technology systems and managerial decision making .

Finally the study suggests that private company (telecommunication sector) in Jordan need to be more focused on improving mangers (decision makers) awareness toward decision making and how it could enhance the overall performance of the decision makers in telecommunication sector in Jordan.

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Appendix (A): Research Questionnaire

Questionnaire

Dear respondents:

I am a final year of MSc management of University Utara Malaysia, and now conducting a partial study in regard to explore "the impact of information systems and information technology systems on managerial decision making in the telecommunications sector in Jordan.

I would appreciate if you could spare some time and thought in completing the survey questionnaires. I hope that you would co-operate in completing the questionnaire with the best ability.

The questionnaire consists of four section or part. Part one consists the question about your demographic profiles; continue with part two consist about management information systems. The section three consists about information technology systems and the sections four consist about managerial decision making. Your response will be treated as confidential and used for research purpose only. There is no right or wrong answer .thank you for willingness to participate in this study.

You're sincerely,

Yazan Emnawer

Master candidate

E-mail: yazanhryza@yahoo.com

Hp: 0175052734

Section (1) Demographic background:

Tick the box which answer is best describing you:

1). Gender male ☐ female ☐

2). Age 30 years old or less ☐ 31-40 years ☐ 41-50 years ☐ 51-60 years ☐

3). Your education High School ☐ Diploma ☐ BA ☐ master ☐ PhD ☐

4). Your job level Operation manger ☐ General Manager ☐ Line manger ☐

Staff ☐ others ☐

5). Where is your department located ? Urban ☐ sub urban ☐ rural ☐

6). Do you have professional qualification in MIS?

No ☐ yes, please specify (.....).

7). the number of staff who supervised them directly(.....).

8). total years of experience in the telecommunications sector (.....).

Section (2) consists of the questions it will be cover management information systems:

9). Management information systems used to provide information that is necessary for the decision maker.

Strongly disagree ☐ disagree ☐ neutral ☐ agree ☐ strongly agree ☐

10). management information systems help the company to access necessary information and the necessary staff responsible for implementation of the decisions.

Strongly disagree ☐ disagree ☐ neutral ☐ agree ☐ strongly agree ☐

11). Management information systems used to provide decision , but late in the necessary information and necessary to the decision maker.

Strongly disagree ☐ disagree ☐ neutral ☐ agree ☐ strongly agree ☐

12). There is a strong relationship between management information systems and competitive advantage for the company.

Strongly disagree ☐ disagree ☐ neutral ☐ agree ☐ strongly agree ☐

13). the use of management information systems in administrative decision-making leads to save time.

Strongly disagree ☐ disagree ☐ neutral ☐ agree ☐ strongly Agree ☐

14). the management information systems are impacting on managerial decision making

Strongly disagree ☐ disagree ☐ neutral ☐ agree ☐ strongly

Agree ☐

Section (3) Consists of the questions it will be cover information technology systems:

15). Use of information technology systems helps the mangers to reduce the processes within the company.

Strongly disagree ☐ disagree ☐ neutral ☐ agree ☐ strongly

Agree ☐

16). information technology to facilitate and assist in decision-making flexible and accurate.

Strongly disagree ☐ disagree ☐ neutral ☐ agree ☐ strongly

Agree ☐

17). information technology systems lead to the flow of information in a clear and working to raise the efficiency.

Strongly disagree ☐ disagree ☐ neutral ☐ agree ☐ strongly

Agree ☐

18). Do not have the necessary skills to information technology leads to poor decision-making process.

Strongly disagree ☐ disagree ☐ neutral ☐ agree ☐ strongly

Agree ☐

19).the information technology systems are very important to top management.

Strongly disagree ☐ disagree ☐ neutral ☐ agree ☐ strongly

Agree ☐

20). There are many issues face the mangers when they are decide the decision making because they didn't have background about the technology and some the information needs to update

Strongly disagree ☐ disagree ☐ neutral ☐ agree ☐ strongly

Agree ☐

21).the information technology systems are very important for any company whatever government or private.

Strongly disagree ☐ disagree ☐ neutral ☐ agree ☐ strongly

Agree ☐

22). the information technology systems are very expensive when we talk about the cost

Strongly disagree ☐ disagree ☐ neutral ☐ agree ☐ strongly

Agree ☐

23). the information technology systems are impacting on managerial decision making

Strongly disagree ☐ disagree ☐ neutral ☐ agree ☐ strongly

Agree ☐

Section (4) Consists of the questions it will be cover managerial decision making:

24). some decisions need to be a long time to implement and this is a big problem may result in poor performance for managers.

Strongly disagree ☐ disagree ☐ neutral ☐ agree ☐ strongly

Agree ☐

25).Effective decisions need to be a huge amount of information whether, internal or external information

Strongly disagree ☐ disagree ☐ neutral ☐ agree ☐ strongly

Agree ☐

26). Integration information and data are very important to decision makers.

Strongly disagree ☐ disagree ☐ neutral ☐ agree ☐ strongly

Agree ☐

27). I do collect the substantial related information about the work problems before making decisions.

Strongly disagree ☐ disagree ☐ neutral ☐ agree ☐ strongly

Agree ☐

28). I specify the precise objective before initiating the decisions process.

Strongly disagree ☐ disagree ☐ neutral ☐ agree ☐ strongly

Agree ☐

29). Office designs at the company assist in enhancing the efforts of decision process.

Strongly disagree ☐ disagree ☐ neutral ☐ agree ☐ strongly

Agree ☐

30). Mangers skills and competencies are enriched and developed through utilizing different decision methods

Strongly disagree ☐ disagree ☐ neutral ☐ agree ☐ strongly

Agree ☐

31). Direct supervisors do not stress on their opinions and always listen to others, especially in decision making.

Strongly disagree ☐ disagree ☐ neutral ☐ agree ☐ strongly

Agree ☐

32). I listen carefully during the decision process.

Strongly disagree ☐ disagree ☐ neutral ☐ agree ☐ strongly

Agree ☐

Thank you so much for your contribution

Please check to make sure that all questions are answered , and then please return this Questionnaire using the post –paid envelope provided .

Appendix (B) :

Descriptive Statistics

	N	Mean	Std. Deviation
Q1	135	2.9407	1.02770
Q2	135	1.6741	.81798
Q3	135	1.9926	1.08927
Q4	135	1.7704	1.04339
Q5	135	3.1556	1.10539
Q6	135	3.2074	.96271
Valid N (listwise)	135		

Descriptive Statistics

	N	Mean	Std. Deviation
Q7	135	3.0296	1.07162
Q8	135	2.9481	1.01716
Q9	135	1.6741	.81798
Q10	135	1.9926	1.08927
Q11	135	1.7704	1.04339
Q12	135	3.3630	.97435
Q13	135	3.2741	1.03253
Valid N (listwise)	135		

Descriptive Statistics

	N	Mean	Std. Deviation
Q14	135	1.6741	.81798
Q15	135	1.9926	1.08927
Q16	135	1.7704	1.04339
Q17	135	1.6296	.81717
Q18	135	1.9926	1.06852
Q19	135	2.3481	1.12182
Q20	135	3.1556	1.02845
Q21	135	3.1630	1.00897
Q22	135	3.0667	1.02360
Valid N (listwise)	135		

Correlations

		MIS	MDM
MIS	Pearson Correlation	1	.360(**)
	Sig. (2-tailed)	.	.000
	N	135	135
MDM	Pearson Correlation	.360(**)	1
	Sig. (2-tailed)	.000	.
	N	135	135

** Correlation is significant at the 0.01 level (2-tailed).

Correlations

		ITS	MDM
ITS	Pearson Correlation	1	.320(**)
	Sig. (2-tailed)	.	.000
	N	135	135
MDM	Pearson Correlation	.320(**)	1
	Sig. (2-tailed)	.000	.
	N	135	135

** Correlation is significant at the 0.01 level (2-tailed).

Appendix (C) :

Variables Entered/Removed(b)

Model	Variables Entered	Variables Removed	Method

1	ITS, MIS(a)	.	Enter

a All requested variables entered.
b Dependent Variable: MDM

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.392(a)	.153	.141	.32890

a Predictors: (Constant), ITS, MIS

ANOVA(b)

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	2.588	2	1.294	11.961	.000(a)
	Residual	14.279	132	.108		
	Total	16.867	134			

a Predictors: (Constant), ITS, MIS
b Dependent Variable: MDM

Coefficients (a)

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	1.398	.192		7.286	.000
	MIS	.213	.075	.265	2.820	.006
	ITS	.151	.078	.181	1.929	.056

A Dependent Variable: MDM