



## *Digital transformation in the service sector and the quality of the decision-making process*

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### *Abstract*

This study aims to highlight the important role of electronic management in facilitating administrative work and the extent of its impact in improving the quality of the decisions taken. Besides, it identifies the most important requirements for electronic management applications, ensuring its success. The study also shows the most prominent obstacles that prevent its application. The significance of the study stems from the importance of electronic management in this era as a result of the development of technology and techniques that help in this field, in addition to the fact that the decision-making process is the pillar of the administrative work in the institution. Any work or activity is only accomplished through a decision, regardless of its importance.

This study found that electronic management positively impacts the decision-making process, as it greatly contributes to improving the quality of the decisions taken through credible and transparent information while saving time and effort, in addition to speeding up transactions and the accuracy of the tasks performed.

- ✓ Keyword: electronic management, decision-making, Information Technology, Administrative decision.

## 1. INTRODUCTION

Changing technological trends that affect all sectors and fields, especially management has prompted the institution to reassess the way it handles its work in order to keep up with these changes, as well as the possibility of making the most of all the privileges brought by this openness to the world of technology.

As management consists of activities, tasks and functions largely dependent on decision-making, we find each level of management has its special type of decision regardless of their importance or difficulty. The decision-making process can only be launched with the availability of a basic condition, which is information, and since there is new technology, development and globalisation, information has become more complex and intertwined than before. The matter is due to its increasing size and diversity. Therefore, dealing with and processing it with traditional management methods has become difficult. The institution must renew its methods and adopt the digital path required by technological development.

Modern technology has forced the institution to follow the digital pattern in its administrative operations and has become called electronic management. Moreover, from the name, we can notice that everything is accomplished electronically, starting from collecting information, processing and storing it in databases to the stage of retrieving it and using it to complete transactions and tasks electronically, in addition to its use in the decision-making process, which facilitated the work on the decision-maker and raised the accuracy of decisions taken as a result of the credibility and transparency of information as well as reducing costs, time and effort.

On this basis, we raise the following problem :

**1.1 The problem of research :**

To what extent does e-management improve the quality of decisions making ?

**1.2 Research questions :** To solve this problem, we asked some sub-questions that help us solve it :

- What changes are needed to shift to so-called e-management ?
- Does digitising activities affect their effectiveness ?
- What advantage does electronic information storage add to the decision-making process ?

**1.3 Research hypotheses :** To study this problem, we have formulated the following scientific hypotheses :

**Hypothesis One :** There is an impact of electronic administration on the quality of decisions making ;

**Hypothesis Two :** Electronic administration has no impact on the quality of decisions making ;

**Hypothesis Three :** Trying to find the Relationship between Electronic administration and the decision- making process, and this is a basic hypothesis for research.

**1.4 Objectives of the study :** To study these hypotheses, we have defined the following objectives :

- Building a knowledge framework on electronic management and decision making.

- Highlighting the important role of electronic management in facilitating administrative work and improving the quality of decisions making.
- Identify the most important requirements for the application of electronic management, which ensures its success, in addition to identifying the most prominent obstacles to its application.

### **1.5 Importance of the study :**

- The importance of the study stems from the importance of electronic management in this era as a result of the development of technology and techniques that help in this field.
- The decision- making process is considered the pillar of administrative work in the institution, as any work or activity is not accomplished except through making a decision, whether simple or important.
- Information is the basic component of the decision making process, and it can not be provided in the necessary quantity and quantity and with high accuracy unless digital methods are relied upon, and this is only done by relying on the electronic management approach.

**6.1 Study Methodology :** To reach the set goals, we followed the following scientific approaches :

Descriptive approach : We relied on this approach to study this topic, through which the phenomenon under study is described, its data is analysed, and the relationship between its components is analysed through the collection of information and data from journals and the Internet.

### **7.1 Divisions of the study :**

To study this topic, we divided the research into two axes : the first axis dealt with the shift towards electronic management through the concept of electronic management and its most important features and requirements and the barriers that make it difficult to adopt it.

The second axis dealt with the decision-making process being the essential element in administrative work, as we looked at its concept and the most important stages followed by the decision-maker to come up with a good decision, in addition to highlighting the most important classifications of administrative decisions.

### **1.8 Previous studies :**

- Houria Karti, Imane Madawi, “A study of the impact of the use of electronic administration by public services in improving the quality of public service in Algeria : an exploratory study on the biometric passport issuance service”, (2017), representing the study population in all biometric passport extractors for the month of March 2016, and the sample size is 210 items. The researchers used the questionnaire to collect data. The study aims to identify the extent of the impact of the use of electronic management by the interests of Local authorities (municipality and department) in improving the quality of the biometric passport issuance service in its five dimensions (reliability, response, emphasis, tangibility and empathy) and this is according to the Servperf model. The results show a strong positive relationship between the use of electronic management and between each of the dimensions of response, tangibility and empathy for the quality of the biometric passport issuance service, and it is a positive relationship for the dimensions of reliability and emphasis.
  
- Amira Ayman, “The Role of Internal Audit in Decision Taken under the

Governance of Economic Organizations - Sonatrach as Case Study”, (2018). The study population is represented in the workers and officials in Sonatrach, estimated at 50 employees, and the sample size is 50 individuals, the researcher uses the questionnaire to collect data. The study aims to highlight the role of internal audit in decision-taken from the perspective of organisational governance. The results prove the effective role of internal audit in decision-taken and show the development that occurred to the concept of internal audit under the governance of organisations.

## **2. The first axis is the shift towards electronic management.**

### **2.1 The nature of electronic administration and its features :**

#### **2.1.1 The concept of electronic management :**

Electronic management is a new concept and has received a great deal of attention, so there has been a wide range of definitions presented to it. Researchers did not agree on a single and comprehensive definition. Here are some definitions of electronic management :

- Electronic management is defined as the administration in which various forms of technology are used, such as computers and the Internet, in order to facilitate the process of accessing the necessary information on the one hand and on the other hand to improve the services provided by the institution as it enjoys transparency and efficiency.
- Electronic management is also defined as reflecting the organisation's ability to manage and manage its various internal and external activities in a digital manner through the use of electronic means in order to facilitate the process of providing services to its various customers quickly while saving costs, time and effort. (Ben

Kassimi, 2017, p. 27).

Through the previous definitions, electronic management can be comprehensively defined as the transition from paper-based management and traditional methods of completing work to modern digital management that relies on technology from Internet programs and technologies to accomplish tasks efficiently and effectively, with the greatest speed and with the lowest effort and cost.

### **2.1.2 Characteristics of Electronic Administration :**

Electronic management has a set of qualities that make it unique, distinct and completely different from traditional management. The features of electronic administration are as follows : (Ben Ali and Tawal, 2019, p. 18)

- **Paperless commercial transactions :** Electronic management helps to carry out commercial transactions in a digital way by replacing paper documents with electronic ones as they are more practical, unlike commercial transactions that used to depend on paper and require a large place for storage, in addition to the high cost of transportation as well as the difficulty of retrieving the necessary information in real time and quickly.
- **Electronic delivery :** The modern aspect brought by the electronic administration, which did not exist before, is the delivery of products and their delivery electronically to the customer, and in particular here are electronic products such as books and also electronic services represented in consultations of various kinds, whether legal, medical or other.
- **Indirect relationship between the contracting parties :** The electronic management of the institution has provided the opportunity to conduct all its transactions behind the computer screen without the need for customers to be

present in the workplace, as this made the individual able to meet his needs from home without the need to move.

- **Group interaction between parties :** Thanks to electronic management, the large number of customers is no longer an obstacle to providing services, because the individual can deal with several people at the same time, and even can send a message to the largest number of parties at the same time, and this has a positive impact on the institution as there is the possibility of meeting the needs of a large number of customers at one time without effort or great cost.

## **2.2. Benefits and objectives of e-management :**

**2.2.1 The importance of electronic management :** Electronic administration has received great attention recently, due to its usefulness and importance in the field of information technology, and the following is a presentation of its most important benefits : (Marrakchi and Fakayer, 2017, page 183)

- Electronic management helps to improve the quality of services provided to customers by simplifying the procedures followed, which results in reducing the time required to perform a certain task.
- Electronic management has made communication between different institutions very easy thanks to technological means.
- Electronic management works to make the processes within the organisation accurate and objective, thanks to the use of computers and various softwares.
- Electronic management contributes to the process of storing information or what is known as archives, as the emergence of electronic management has reduced the use of paper and thus the process of documentation and storage has become carried out



electronically, and this has led to saving the cost of paper as well as the places allocated for the archive, and ensuring the safety of information and the possibility of retrieving it at any time and with ease.

### **2.2.2 Objectives of Electronic Administration:**

Electronic management seeks to achieve a set of diverse and multiple goals, all of which are in one direction, which is to facilitate work, improve the service provided in addition to reaching high performance that is efficient and effective, and its most prominent objectives can be clarified in the following points : (Gharibi and Renoba, 2016, page 413)

- Make the process of providing services easy and fast, along with the low financial costs it requires.
- Work to provide all the necessary information to individuals and make it available on the Internet so that it is easy to access without the need to move.
- Expanding the time zone for providing the service, as it becomes 24 hours and seven days a week, as the individual is able to obtain his service at any time he wishes without adhering to the official working hours within the institution.
- The electronic administration reduces the time required to perform the service as well as the effort required, through the possibility of knowing what the service process needs in advance and even before going to work.
- The use of electronic management helps to raise cultural awareness among individuals, in addition to giving individuals a kind of participation, which makes them feel belonging and satisfaction.
- Electronic management increases administrative performance by developing

concepts related to management, as well as creating flexibility in terms of delegating work and encouraging the adoption of management that relies on teamwork and team spirit.

- The application of electronic management leads to the transition from a physical service to an electronic virtual service, thus shifting from direct management to remote management that is based on network organisation instead of hierarchical organisation.

## **2.3 Electronic Management Requirements And Obstacles To Its Application.**

### **2.3.1 Electronic Management Requirements :**

Since electronic management involves a comprehensive change in the management style, it is not an easy but complex process ; whether related to the procedures followed and work methods or even the change related to the legal aspect and legislation, and from it there is a set of elements necessary to adopt the concept of electronic management, which are as follows :

- **Administrative requirements:** It is represented in the installation of a body in charge of developing the necessary strategies and following up the implementation of those plans set for electronic management, in addition to the use of advisory and research committees in order to study the e-management project and determine the general standards and requirements for it. Electronic management requires a change in the organisational structure in place and reliance on networks and matrices as well as regulations related to the communication fabric, all of which includes the development of procedures, regulations and laws that facilitate the implementation of electronic management to become more credible.
- **Human requirements :** The human element is one of the most important resources

that ensure the success of any project if it is invested in it appropriately. Therefore, the success of electronic management requires subjecting individuals to training on the use of electronic devices and databases under the supervision of specialised training centres. The aim is to keep pace with the changes that occur as a result of the shift to the digital trend, in addition to working to develop awareness on individuals regarding the culture of electronic management. (Karti and Madawi, 2017, p. 235)

- **Technical requirements** : include providing a high level infrastructure that includes a modern network for communication and data to ensure secure communication and the transfer of information. Furthermore, there is a need for the provision of electronic means, such as computers and network phones, to ensure maximum benefit from electronic management services, whether between institutions or between the institution and its customers.
- **Security requirements** : Since electronic management is based on saving, storing and processing information and documents in a digital way, this requires the obligation to maintain the security and confidentiality of this data and information and the need to protect it from any penetration, and this is only done by relying on security programs in the network, in addition to the use of electronic signature and password. (Shlehi and Kornai, 2019, p. 189)

### 2.3.2 Obstacles to Electronic Administration :

Despite the great interest witnessed by electronic administration and its countless advantages, there are a set of obstacles that prevent the application of digital orientation, and among the barriers and obstacles that hinder and make it difficult to adopt e-management we find the following :

- Since e-management requires a set of skills and abilities that an individual must

have, especially those related to information technology, this pushes individuals to resist change for fear of losing their positions as they are not formed in this field, and even if they are trained, it may be incomplete and inadequate.

- The main goal of every organisation is to survive and continue, and this can only be achieved by the confidentiality of its important information. Therefore, most institutions are reluctant to apply electronic management for fear of being hacked and thus hacking information by destroying or deleting it, and the matter can reach the point of using pirated information in illegal acts.
- The absence of effective control programs and systems to protect an organisation's information from hacking and theft has made it difficult to adopt a digital orientation. (Darraji and Abdellawi, 2021, p. 186)
- The inability of senior management to plan e-management programs, in addition to the total absence of a strategic vision related to information technology and its important role in the possibility of transformation into electronic institutions in the future.
- The financial deficit that hinders the application of electronic management, especially as a result of the financial cost required by the process of establishing an international information network, as it requires computers as well as a communication network on the one hand, and on the other hand when it comes to the human resource and the inability to provide training and training programs by information expertise due to the lack of financial resources. (Kawareh, 2018, p. 169)

### **3. The Second Axis : The General Framework For Decision-making.**

### 3.1 The Nature Of Decision-making And Its Constituent Elements :

#### 3.1.1 The Concept Of Decision-Making :

Decision-making is a logical process that represents the basis of the administrative process, as it is the trade-off between several available alternatives and the choice of alternative that suits the capabilities of the institution. The decision-making process results in a set of decisions made by leaders in the organisation in order to either achieve a specific goal or address a problem, and from it, the decision-making process has a significant impact on the success or failure of the organisation, because the success of the organisation is largely based on the ability and efficiency of leaders to make the best decisions (Becharef, 2019, page 32).

Herbert Simon also defined decision-making as the heart of management, and that decision-making is a search for a solution and simplification of the problem at hand. (Laiyadi, 2019)

#### 3.1.2 Elements of the decision-making process :

The decision-making process includes a set of constituent contemporaries, as these elements influence and is affected among them and therefore also has an impact on the decision taken in the latter. In the absence of any of these elements, the decision-making process loses its meaning. (Maddahi, 2018, p. 236)

- **Problem :** The problem is defined as the difference between reality and the desired situation, and also represents that barrier or obstacle that prevents the goal from being achieved and reached.
- **Decision maker :** It is considered the most important element of decision-making,

as it represents the individual or group that will undertake the decision-making process, and from it the decision can be individual or collective, depending on the nature of the party entrusted with it. The decision maker must have the ability and competence to understand and analyse the problem, as well as the ability to collect information about it and control existing alternatives.

- **Decision alternatives :** These are the multiple options that help the leader solve the problem if he chooses the appropriate alternative, as in the absence of several alternatives ; this prevents the decision-making process from existing.
- **Objective :** The decision-making process cannot be carried out without knowing and defining the general objectives of the organisation, such as achieving the greatest return, for example, as well as personal goals related to the decision-maker. Thus, the step of setting goals guides the decision-maker at the stage of choosing an alternative to know the alternative that fits the predetermined goals.
- **Conditional results :** After the stage of identifying the available alternatives, comes the stage of knowing the conditional results, which is to study each alternative separately and try to know the possible return from each alternative as well as the expected results when implementing each of the alternatives.

### 3.2 Stages Of The Decision-Making Process And Decision Classifications.

#### 3.2.1 Steps To Make The Decision :

- **Definition And Identification Of The Problem :** The decision-making process is not a random process, but rather the result of the existence of a problem and seeks to solve it, and therefore identifying the problem is the first step in making decisions. A problem means that there is a difference between what is actually there and what is expected or planned and therefore reflects the difference between goals

and outcomes. At the stage of defining and identifying the problem, the decision-maker is required to study the problem accurately and clearly and to know all its dimensions in terms of the degree of severity and urgency on the one hand, and on the other hand to prepare a model that represents the problem, as it includes the variables that affect the realisation of the problem and the possibility of knowing the ways and means necessary to solve it. (Latrach, 2015, p. 130)

- **Finding solutions and alternatives :** At this stage, the decision maker prepares a list of alternatives that will help him solve the problem, and then develops those alternatives either by himself, based on his personal experience or with the help of some experienced and competent individuals. The multiplicity of alternatives will increase the likelihood of making the right decision. (Koussa and Bouamoucha, 2017, p. 133)
- **Evaluation of alternatives :** At this stage, each alternative is studied separately by identifying the advantages and disadvantages using a set of economic, financial, technical and social criteria, determining the expected return from each alternative, as well as knowing the requirements and difficulties of implementing the alternative as well as determining the time required for its application. The process of evaluating alternatives works to identify the strategic factors of alternatives, as they are the basis for the forecasting process. (Amira, 2018, p. 24)
- **Choosing the appropriate alternative and monitoring the implementation of the decision :** One alternative is selected from among the available alternatives through a process of scrutiny, scrutiny and critical evaluation, where the best alternative is selected on the basis of the lowest costs and the highest results achieved in addition to its suitability with the planned objectives. As the last step in the decision-making process, we find follow-up and control over the integrity of the implemented decisions in order to ensure that the results emanating from the

decision are compatible with the specified objectives. (Ben Rahmoun and Mezahidia, 2021, p. 147)

### 3.2.2 Classifications of Administrative Decisions :

#### ✓ Decisions according to their nature :

- **Structured decisions :** Also called programmed decisions, they are those repetitive decisions that are routine, as they are taken either on a daily or monthly basis and do not change and are taken according to a certain time frame. Structured decisions are spontaneous because they are programmed before, and this type of decision has been used to being made and therefore spontaneous. (Berkane, 2017, p. 145)
- **Unstructured decisions :** Decisions are known as unprogrammed decisions, which are new decisions about the institution, and this prevents the availability of previous procedures necessary to take them, and this type of decision has an impact on the institution in the future, that is, in the long term. Unstructured decisions require a lot of time and mental effort to reach the solutions that suit them, and this is due to the fact that the institution faces these decisions for the first time, including the absence of previous experience to make such decisions. (Al-Mokhtar and Makhoukh, 2017, p. 253)

#### ✓ Decisions by organisational level :

Decisions are classified according to organisational level into 03 types, based on the level of the department responsible for decision-making, in addition to the extent or period of time they cover. The following is a presentation of these species : (Arouf and Zarguin, 2016, p. 164)

- **Operational decisions :** They are those decisions that are related to the daily



activity of the organisation, and are often easy and simple characterised by repetition being routine and daily. Operational decisions do not require time to be made, but can be made immediately by an individual as a result of the experience and information they possess. Examples of operational decisions include remuneration, division of labour and complaints handling, and these decisions are short-term.

- **Tactical decisions :** They are medium-term decisions related to the preparation of plans and budgets as well as the use of financial, human and even material resources. Examples of tactical decisions include the distribution of power, the organisation of work as well as the renewal of the course of relations between individuals, this type of decisions are the prerogative of middle management, i.e. they are taken at the level of functions and units.
- **Strategic decisions :** They are long-term decisions related to the future of the organisation and its relationship with the surrounding environment and are represented in decisions that affect goals, market options as well as strategising. Strategic decisions are made by senior management and require a huge amount of information.

✓ **Decisions According To The Nature Of The Decision Maker :**

- **Individual decisions :** They are those decisions made by one person, whether the leader if it comes to the organisation and important strategic decisions, or what is related to jobs, as each individual is responsible for a job or task, he is required to make the decision about that task or job. (Ismail Shobaki, 2016, p. 09)
- **Group decisions :** They are those decisions that are taken in cooperation and coordination between the leader and an advisory committee or work team, collective decisions help to improve the decision-making process, including raising

the quality of decisions taken, as they facilitate the process of good communication that works to focus efforts and enhance discussion about the problem and the possibility of analysing it from several aspects in addition to avoiding wasting time. (Abd Ali Kharmait, 2020, p. 131)

✓ **Decisions by degree and volume of information :**

This classification shows the types of decisions according to the availability of information necessary for decision-making : (Mohammed Ahmed and Muhammad Abu Abdullah, 2020)

- **Decisions in case of certainty :** These decisions are easy because the necessary information for the decision-making process is available in the necessary quantity and quality, and thus will enable the decision-maker to be able to predict the possible results as well as help him choose the best alternative that achieves the greatest possible return.
- **Decisions in case of uncertainty :** In this case, the information necessary for decision-making is present, but not to the required and sufficient extent that meets the purpose, but rather it is limited, and this matter affects the decision-making process as there is no large number of alternatives to compare between them, but rather the presence of a specific number, and therefore it will be difficult for the decision-maker to recognise the expected results of each alternative. In this case, the decision-maker relies on his personal experience and previous knowledge to judge each alternative with the possibility of using the individuals working with him through consultation.
- **Decisions in case of risk :** In case of risk, the decision maker does not have any

information about the existing alternatives and is forced to develop alternatives himself on the one hand, and on the other hand the need to use quantitative methods to calculate the probability of achieving the expected return from each alternative. Among the quantitative methods to help decision-making under risk are the decision tree method, the simplex method and sensitivity analysis.

✓ **Organisational and personal decisions :**

Organisational decisions are characterised as formal, they are related to work, and the responsible for making this type of decisions is the leader in his capacity as an official employee as well as the official responsible for organising in the institution, and from him the leader is the only one who is authorised to make such decisions and is not allowed to delegate them to anyone else whatsoever.

Personal decisions are related to the person of the leader and have nothing to do with work, such as breaks, vacations and holidays, but these decisions have an impact on the organisation if these decisions are made at a time when individuals need the leader's guidance. (Belkadi, 2016, p. 130)

#### **4. CONCLUSION**

The technological development in the field of management, especially with the emergence of electronic management and information technology, reflected positively on the decision-making process and made it an easy and quick task, in addition to the distinction of decisions taken with accuracy and objectivity and thanks to the information provided by the application of electronic management.

Through the analysis of the course of the presentation and from the above, a set of results were reached as follows :

- Electronic management is only a new face of traditional management, where the

basic pillars on which the administration is based have not been changed, but changes, updates and renewal of the way the work is done and the means used only.

- Since the decision-making process is not easy and most of the decisions taken are in a state of uncertainty, the existence of electronic management facilitated the latter by breaking up information technology that provides the required information from the database that stores all the information that can be useful to the decision maker.
- Electronic management is a platform that allows the institution to keep pace with technological development, since all information is now available on the Internet, which pushes the institution to make its functions electronic in order to be able to make the most of all information, all in an electronic way.
- Electronic management helps in improving the quality of the decision-making process by creating the appropriate conditions for this, which is represented in the short time required to make the decision as a result of the possibility of accessing the necessary information at the desired time without effort or fatigue.
- Reducing the procedures followed and the accuracy of tasks, as well as the speed of completing transactions, raise the quality of the decision-making process and make it more efficient and effective, since the decisions taken are correct, and this goes in the direction of achieving the goals of the institution in the desired way, in addition to gaining the loyalty and gratitude of customers as a result of meeting their needs in a comfortable and modern way without their need to move.

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