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Electronic Management as a Mechanism for the Development of the Algerian University in the Knowledge Society

الإدارة الالكترونية كآلية لتطوير الجامعة الجزائرية في ظل مجتمع المعرفة

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Abstract

This research paper highlights the role of Electronic Management in the Algerian university by identifying the requirements for applying knowledge management in the knowledge society. In general, throughthis scientific article, we tried to answer the following question: What are the mechanisms for implementing Electronic Management at the Algerian university with a view to the knowledge society? The study reached a set of conclusions; the most important is the recognition that electronic management is a subjective companion to management that has to keep pace through the qualification of its employees, professors and students, and the consolidation of digital thinking within it.

The researchers presented a set of proposals that are congruent with the mentioned conclusions.

Keywords: Algerian university; electronic management; knowledge society.

ملخص

جاءت هذه الورقة البحثية لتبرز دور الإدارة الالكترونية في الجامعة الجزائرية من خلال تحديد متطلبات تطبيق إدارة المعرفة في ظل مجتمع المعرفة، وبشكل عام حاولنا من خلال هذا المقال العلمي الإجابة على التساؤل الآتي ما هي آليات تطبيق الإدارة الالكترونية بالجامعة الجزائرية في ظل التوجه نحو مجتمع المعرفة؟ وقد توصلت الدراسة إلى مجموعة من الاستنتاجات أهمها الإقرار بأن الإدارة الالكترونية تعد مواكبة ذاتية للإدارة التي عليها أن تواكب نفسها عبر تأهيل موظفيها والأساتذة والطلبة، وترسيخ الفكر الرقمي داخلها، وقد قدمت الباحثتان مجموعة من المقترحات التي تنسجم مع تلك الاستنتاجات.

الكلمات المفتاحية: الجامعة الجزائرية، الإدارة الالكترونية،مجتمع المعرفة.

INTRODUCTION

The acquisition and the use ofknowledge for the development of societies are conditional on the nature of social, economic, cultural and political structures. It depends on the existence and effectiveness of society's institutions in preparing and qualifying human resources.

Global changes in technology and information have forced the need to shift towards the application of electronic management in all developed and developing societies. The competitive creative orientation of universities has made them the most demanding institution to try to adapt the new situation.

Recently, Some Algerian universities have achieved global rankings in which three Algerian universities were dissolved in the British Times Higher Education Rankings in 2022. It is based on five indicators and 13 features, grouped under five categories: teaching, research, citation with the research of the university or research institution, the status at the international level and the income volume. This methodology was issued in June 03rd, 2010 which awarded on the basis of the place on the universities list. the University of Farhat Abbas Setif 1 is ranked first nationally and ranked: 501 and 600, whereas the University of Oran 1 is ranked 601 and 800, then the University of Abou Bakr Belkayed Tlemcen ranked 1201 in which it was in the top 10 of the world's most prestigious universities as Oxford, California and Harvard University and other American universities, three Algerian universities are in the Times Rankings**(echouroukonline, 2021)**

The reform of educational systems and the integration of digitization into the university system are among the most important challenges facing the university in the world, particularly in view of widespread of Covid 19. This compels the need to implement distance education in order to develop the performance of university education through the activation of electronic management mechanisms and its components.

The researches claimed that the Algerian university is trying to implement the electronic management strategy by reforming the university education systems and academic scientific research. In the light of the recommendations of the National Commission for the reform of the Educational System for the special plan for the reform of the educational system adopted by the Council of Ministers on April 20th, 2002, a strategic

objective for the 2004-2013 phase of comprehensive and profound reform of higher education through the introduction of L.M.D which has been in force since 2004-2005, accompanied by the integration of the Internet system into the higher education sector by introducing many organizational and operational mechanisms in the digitization of the university education sector**(Saci, 2016, p.75)**.

Now, the Algerian university has been convinced of the pressure placed on in the context of adaptation to Covid 19 health protocol established by the Ministry of Higher Education, that's why it adopts distance learning and digitization of the educational process. It is considered to be a qualitative step towards the knowledge economy that developing countries are seeking to possess their means and techniques to catch up with developed nations and reach the knowledge age. In order to improve the status of Algerian university from a side and deal with emergency crises and cognitive and technological changes, modern administrative methods and the application of electronic management must be followed as it is an integrated process that requires the participation of all the users with a view to achieve their economic and social development objectives by using information and communication technologies.

Thus, the problematic of this article comes from the following main question: **"What is the role of electronic management at the Algerian University in light of the trend towards a knowledge society?"**
It is divided into the following sub-questions:
1- What are the most important strategies adopted by the Algerian University to activate electronic management in light of the trend towards a knowledge society?
2- What are the most important challenges facing the Algerian university in light of the trend towards a knowledge society?
3- What are the most important suggestions for activating the electronic management at the Algerian university in light of the knowledge society?

1-Electronic management is a cognitive approach

Electronic management is a new management method that emerged as a result of technological, cognitive and scientific developments that affected all developed and developing global societies.

1.1 The emergence and development of electronic management in developed societies:

From the perspective of a lot, it is notable thatthe electronic management in the stretch of technological development in management is starting to replace the machine in computer-assisted planning and control, until the Internet has made it a business network with more technological dimensions than any historical phase in which management dealt with technology.

Electronic management is defined as a modern term referring to the use of information and communication technology in order to increase efficiency, effectiveness and transparency in its services to citizens and the business community. This will lead them to support all government procedural systems, eliminating corruption and give them the opportunity to participate in all stages of the political process as well as the related decision affecting various aspects of life**(Karti, 2017, p.3)**.

For that purpose here, we can say that Electronic management as a new pattern goes into scientific management; its emergence follows the rapid development of e-commerce and e-business with the spread of the Internet. It appeared in late 1995 in Florida, the United States, at the Central Postal Service in which a number of countries then quickly built up their own government and electronic management**(Kariani & Ait El Madani, 2018, p.2)**.

In fact, with the development of management schools, management concepts and principles were entrenched in terms of achieving market results, and based management's positive whether in achieving goals effectively or in using resources efficiently, whereasin electronic management some focus on accounting the return on management similar to the return on RIO Counseling.

As the internet evolves, the issue seems to be very different when in many cases the e-challenge appears in an escalating response to management, its legacy, principles and methodsand the truth underscore the

importance of the return on management. Because of that, it should be seen as a technological imperative and not as a management development parallel to the development of internet and software which relates to functions, relationships, business delivery and transactions digitally. Thus, the next figure is between the dimensions of technological evolution towards the internet and electronic management **(Abdel Rahman, 2008, p.44)**.

1.2. Definition of Electronic Management:

Electronic management as the managerial process based on the distinct potential of the internet, business working of planning, guidance and control over material without limits for the company goals **(Saci, 2016, p.8)**.

The United States of America predominates all countries around the world in the field of informatics, especially in terms of information manufacturing, then it was the prior in the application of electronic management through the full availability to all government information, laws and regulations on the internet in a way that makes it possible for the user to identify the full range of laws governing any subject or case, for instance, it has the largest online legislative information base, the LIXUS.

In addition to this, there is a special initiative by the Ministry of Defense in these government supplies, therefore through this network, the entire management of government stock and electronic procurement are carried out, and thereby creating a huge saving in government spending could lead to a higher level of government services**(Abbane, 2016, p.84)**.
While another argumentis presented that electronic management in the European Union included combinations and questions from European organizations and that's where it can be done a lot of electronic works and tasks. Moreover, this experience can be used while the government of member states is based on the e-government principles, states with interest and trends can rely on this experience **(Samir, 2008, p.301)**.

2- Knowledge society and its dimensions

It is not possible to define anexhaustive definition of the term knowledge society, because of the term's description of a society in a certain stage of evolution and transformation. Certainly, the emergence and circulation of the term dates back to the 1960s, when"the concept of knowledge society first appeared in the mid-1960s, when there were

debates, arguments and heated discussions about contradictions, flaws and obstacles facing industrial society" **(Alayat, 2012, p.2130)**.

Knowledge society has resolved a post industrial development phase based on the implementation of knowledge in all spheres of life.Apart from this, it is also defined in the Arab Human Development Report in 2003 p.39: "that society is essentially disseminating, producing and efficiently applying knowledge in all areas of social activity: economy and society, civil society and politics, i.e. human development. ". Besides, knowledge is linked and utilized for human development and gain inclusive and sustainable development.

The knowledge society has a set of dimensions related to the fields of human life and activity, including:

- **Economic dimension**: Knowledge is as a commodity or as a service is the primary source of value added, job creation and rationalization of the economy. Therefore, the society that can generate, disseminate and implement knowledge in various economic sectors is the society that is able to create competitive market shares in differentareas and parts of the world.
- **The technological dimension**: means the spread and sovereignty of information technologies and their application in different spheres of life, adapted to the objective circumstances of each society.
- **The social dimension**: the knowledge society in this aspect means a clear change in the building of society in terms of existing relationships and interactions based on an electronic information network. Hence, the society is required to provide the necessary media and information in terms of quantity and quality, so it is moving towards a virtual community where there are internet stores, web journalism, internet cafes, e-government and virtual universities.
- **The cultural dimension**: it is discussed that the knowledge society works to give significant importance to knowledge and attention to the creative abilities of people and access to freedom of thought and justice in the distribution of science, knowledge and services, " The social justice and education democracy require that opportunities for formal and non-formal education are linked to the individual's own

abilities and preparations, not to the social and economic status of him and his family" (**Al Masry, 2004, p.46**).

- **The political dimension**: the knowledge society is based on the principle of participation in several sectors, so it provides freedom of information circulation, a political climate based on democracy, justice and equality, and to involve the public in decision-making and effective political participation.

On this basis, the main element in building and managing knowledge is the individual and the culture of the institution that is inclusive of a set of values and norms that are owned by the institution and that play an important role in encouraging individuals to participate effectively and use knowledge rationally.All these requirements are based on a cornerstone, which is the need to change education systems to incorporate modern technologies for the knowledge and learning society. This confirms the importance of education in general and university education in particular. Along with, the university is one of the most important institutions working to prepare the human being as the primary source of knowledge production.

3- Electronic Management and the Algerian University

3.1 Reasons for the interest in electronic management at the Algerian University:

Electronic Management is an important topic for the establishment and use of information and communication technology in diverse institutions by providing services, exchanging information and communication, and integrating different management and regulatory systems within the institution and among the government, the citizen, economic partners and social actors.

Electronic management of a set of common goals and interests is achieved in an effective and expeditious manner, as well as, management effectiveness, transparency and accountability within the organization are also achieved. Moreover, management functions shall be facilitated if the implementation of their mechanisms is controlled by the members contributing to the management of the institution. Since the university is the first institution of the higher education sector, by virtue of its leadership role

and place in the knowledge society, it is among the institutions that nowadays seeks to keep pace with the scientific and research development of the world and move towards electronic management and its realism by developing scientific and practical programs of modern technology.It is only through adoption that the Algerian university can achieve its orientation towards effective electronic management except through strategic adoption of modern techniques in education and research work. In addition to this, providing infrastructure of material and human potential, autonomy and academia, as well as provide training for the university professors team by raising awareness of the importance of electronic management by creating a sense of responsibility within the university (professors, employees, workers and students)

It has been pointed that the interest in electronic management at the Algerian University has increased due to many factors, including:

- Increased pressure on higher education institutions from growing social demand for higher education which linked to the increased population growth, especially with the possibility of meeting the demand of all applicants as a result of limited absorptive capacity.
- The emergence of new forms of higher education, such as open education and distance education.
- The increasing international character of higher education.
- Research, innovation and the use of knowledge production. Institutions make a significant contribution to research and innovation by creating new knowledge through scientific and technological research and througheducational training of skilled personnel.
- Weak research structures and limited opportunities for scientific research, and this takes a number of forms of expansion programs, particularly postgraduate studies,which have less research requirements than laboratories and cadres.
- Weakness of the scientific research culture in public and private sector institutions.
- Weakness of the link between the university research projects, economic and social development plans and productivity issues**(Burqaan & Al Quraishi, 2012, p.6)**.

For the most part, nowadays one of the most important advantages of electronic management in the educational sector or services is a solutionto the many problems of corruption, hegemony, exclusion and other manifestations of underdevelopment that contributes to:

- **Transparency:** electronic governance works directly within government bodies with each individual or citizen, it allows to take decisions by providing all services effectively and a simple manner.
- **Enabling effective participation:** every citizen has the right to participate in public opinion in order to give everyone an opportunity to benefit from the available information and services through training and various distance available technological means.
- **Efficiency and effectiveness:** it appears in the division of functions and organization of educational institutions and functions of government structures that provide various services at the lowest cost and achieving quality of services according to the requirements of each individual.
- **Cost reduction:** electronic learning is cost-effective compared to traditional forms of learning.
- **Overcoming difficulties, problems and health conditions:** especially in the context of crises like the quarantine in the pandemic of Covid19.

As a result, especially in recentdecades, the emergence of electronicgovernanceknew adramatic changes and transitions in technological techniques in the field of information and communication and in diverse spheres. Hence, it has led the entireeducation system to enrichknowledgeespecially in developed countries under the fiercecompetition of the globalizationmechanisms and itspolitical, economic and technological objectives.

3.2 The Electronic Management at the Algerian university and the stages of application:

The challenge of electronic management representedin Algeria to keep pace with the technological development and enroll the developed

countries, which adopted it and succeeded in developing it in several aspects, especially at the level of its activities and administrative works. Besides, the abandonment of paper-based management characterized by the widespread of administrative corruption, including bribery, bureaucracy and poor services.

The Algeria e-project is one of the major projects prepared by the Ministry of Post and Technology in early 2009 in the context of consultations with public institutions and departments, as well as with private clients. Also, research agencies and centers included professional associations which operate in the field of science, technology, information and communication.

In this spirit, this strategic program aims to accelerate the information society and the digital economy in Algeria by assessing its uses of modern technologies in all sectors, such as public administration institutions, the education sector, etc…

The higher education sector highlights several images of the exploitation of modern technologies, the most notably of these lies in examining the official website of the Ministry of Higher Education, as well as all universities bodies and centers at the national level, and that's almost brings all students, professors and all citizens closer.

Among these uses are:

- University enrolment processes by electronic means for students with a baccalaureate: the university offers them opportunities via the Internet by filling out an electronic form that is made available as soon as the baccalaureate results are announced on websites **(Al Shiker, 2019, p.298)**.

- The National Portal for Reporting Theses PNST: It is a comprehensive way of reaching the scientific production of researchers regarding theses. The portal covers all stages of thesis preparation from the time the thesis topic is proposed and notified until its publishing.

- The Algerian Common Catalog CCDZ: It is a national catalogue of a collection of documentary assets of Algerian libraries. It encourages teamwork among libraries, as well as increasing documentary funds aimed at assisting and developing libraries, thus greater number of sources with establishing of a unified and regulated National Bibliographic Base **(Sharafi &Burian, 2019, p.246)**.

In addition, a set of laws that have been introduced in order to facilitate procedures, including:

-Decree No. 01-417 of December20[th], 2001, related to the possibility of establishing and exploiting public communication networks.
-Law No. 05-10 of June 20th, 2005, complement and amend the Algerian civil code, whereby the project moved from the paper-based system of evidence to the electronic system**(Ben Morsli, 2020, p.2**).

3.3 Principles and requirements for the application of electronic management at the Algerian university:

The electronic management serves the beneficiaries' needs by the provision of administrative, human and financial resources, and this is where we extract some of the most important requirements:

A- Administrative and legislative requirements:

All administrations in educational or in other organizations, need to eliminate the bureaucratic and routine procedures involved for each development and renewal in the methods used for these organizations,
The following requirements are needed:

- Raising awareness among employees of the importance of electronic management.
- Provision and validation of an environmental infrastructure of communications.
- Preparing a qualitative information system for information integration.
- Providing a research policy with a designated official or committee to oversee the application and evaluation the levels of implementation.

B- Human Requirements:

The electronic management project is a new project for the university employee in which it needs experiences and skills that are not available in the current human component, so the efficiency of the human component plays a crucial role in the success of electronic management. Hence, among the human requirements to be renewed are: **(Sharafi & Burian, 2019, p.239**)

- Attracting the best qualified individuals in the fields of information systems and software.
- Creating effective systems for the conservation, development and motivation of individuals.
- Empowering individuals to provide opportunities to deal with the changes in the technological environment.

C- Technicalrequirements:

The technical requirements include the following: **(Al Dais & Saeed, 2018, p.131)**

- Study of the university's needs for institution's electronic management devices, equipment, programs and applications.
- Provide sufficient modern computers for employees with accessories.
- Provision of software-based computer accessories as well as internal network and business applications.
- Provision of necessary maintenance and continuous control, relying on protection programs to preserve data within the university.

D- Financial Requirements:

The financial requirements include:

- Monitoring electronic management application plan at each faculty.
- Provide adequate financial support for the purchase of modern computer programs and applications.
- Continuous development and updating of programs and applications used.
- Provision of necessary financial allocations for university networking.
- Allocate appropriate incentives and rewards to the programmers.
- Provide the necessary financial allocations for training and qualifying internal and external employees.
- Adequate financial support for the programs maintenance.
- Provision of funds for the use of electronic managements experts.

In addition to that, some recommendations for good management of the transition process to electronic management are:

- The need for senior management in decision-making centres to recognize the importance of applying electronic management to the improvement and development of administrative work.
- Ensure the importance of providing qualified and trained human cadres for a successful electronic management implementation.
- Provision of regulations and legislations governing the application of electronic management.
- Training managers and employees in information and communication technology management.
- Conduct continuous studies on electronic management requirements and obstacles to its application in educational environments**(Al Dais & Saeed, 2018, p.132)**.

3.4 Strategies followed by the state to implementelectronic management at the Algerian university:

It is noticed in the sense of the Higher Education reform system overseen by the National Commission for Programs (NCP), three billion Algerian dinars have been allocated. Among the projects envisaged at the level of higher education, we find that they are divided into two types:
A-Infrastructure projects: They are:
- **The ALGERIEN RESCHNET (ARN) project:** it is the largest project of the higher education and scientific research sector, with the aim to provide the basic structures and technological tools needed for all the actors in the sector, including officials, research students, and the creation of a special network that contributes to strengthening activities such as distance education and the virtual network.
- **Distance education project (TELE Enseignement):** the objective of the project is to provide all university institutions with teaching structures, including distance lectures equipments with sound and image.

B-Projects on information infrastructure: Its goal is to facilitate access to information, whether global or local, as:
- **The CERIDT centre**:it has more than 30 databases that allow it to respond on a daily basis to researchers' requests and to establish

mechanisms for obtaining documents not available to the centre through international conventions such as LIBRARY, BITISH and INIST.

- **The National Online Documentation System (SNDL)project**: This system is considered as a source of information within universities, thus overcoming the lack of funds and documents related to scientific research exceeded**(Ben Morsli, n.d, p.76)**.

While the Algerian state has attached great attention to the implementation of the electronic management strategy through the preparation of a renewed outline of 13 themes, with a view of achieving the desiredobjectives since 2008, which were represented in:**(Ben Morsli, n.d, p.77)**

The 1ˢᵗtheme: accelerating the use of information and communication technology in public administrations.

The 2ⁿᵈtheme: accelerating the use of information and communication technology in institutions.

The 3ʳᵈtheme: the development of incentive mechanisms that enable citizens to benefit from information technology equipment and networks.

The 4ᵗʰtheme: Working on developing the digital economy.

The 5ᵗʰtheme: enhanced high-speed, secure and high-service communications infrastructure.

The 6ᵗʰtheme: Developing human competencies.

The 7ᵗʰtheme:promoting research in development, creativity and innovation.

The 8ᵗʰtheme:regulation of the national legislative and regulatory framework.

The 9ᵗʰtheme: information and communication.

The 10ᵗʰtheme: valuing international cooperation.

The 11ᵗʰtheme: evaluation and follow-up mechanisms.

The 12ᵗʰtheme: organizational procedures.

The 13ᵗʰtheme: financial resources.

3.5 The challenges facing the Algerian university in applying electronic management in a knowledge society

Despite the urgent need to adopt technology applications, this project may address a number of constraints, which can be presented as follows:

A- Human resource training challenges:

- The lack of employees who meet basic computing and internet skills and the difficulty of communicating through modern technology.
- Absence of training courses under electronic management transition.
- Lack of access to communication and the availability of out-of-work communication as a result of lower per capita income. Thus, electronic management projects were delayed (**Omran&El Houni, 2010, p.30**).

B- Financial and Technical challenges:

- High infrastructure costs and technical maintenance of electronic management programs.
- The difficulty in reaching parity for internet services, which are essential nowadays, as a result of the high costs of using them.

C- Management challenges:

- Weak planning and coordination at the senior management level of electronic management programs.
- Failure to make the organizational changes required to introduce electronic management from the addition or integration of administrations.
- Resistance to change in organizations by employers who are opposed to the application of modern technologies for fear of their positions and future career.

D-Security challenges:

- The fear from technology and lack of conviction in electronic dealings fearing of the potential racial and privacy threat in government services with composed of the loss of a sense of security toward many electronic technical dealings.

Through these constraints, the Algerian university must build mechanisms in order toenable radical solutions to contribute to electronic government (**Abbane, 2016, p.80-81**).

CONCLUSION

The knowledge society is not an optional path, but rather an urgent necessity to be treated as a reality not just as a fact. Therefore, the Algerian university must review its educational systems and methods to create a human resource capable of producing knowledge.

Electronic management is an inevitable result of scientific development in various fields, especially at the scientific and cognitive level and that's why scientists and researchers came to the attention to study it and discover its facts. It contributed to the development of management. Moreover, it seeks to create a major transformation in the field of administrative management by moving from the traditional management to the modern methodbased on digitization, through which public services were developed, transparency, equality, efficiency and effectiveness were promoted in all institutions, especially the university.

Given the effectiveness of these technologiesthrough the 2013 Algeria'se-project, the Algerian state is trying hard to develop strategies for the use of e-governance and to confront the various obstacles that stand in its way.

Among the suggestions for the activation of electronic management at the Algerian University in the context of the knowledge society, we mention:

- More attention needs to be paid to keeping pace with technological developments in various institutions, especially the university, which is considered one of the sectors most concerned with improving the quality of its services, mainly in the light of the outbreak of the Corona virus, thus increasing the need to integrate the latest technologies and techniques.
- Introduce innovative learning methods that help students learn well to use modern electronic technologies.
- Building and employing a strong communication network to intensify the use of communication technology at the university.
- Promoting the values of the knowledge society by activating the role of self and continuous learning;
- Trying to create funding sources for universities and also relying on self-financing on the basis that knowledge is a commodity that can benefit the

research offered by the university for some Sectors or institutions for their economic resources.

- Greater use of information networks is necessary to facilitate the exchange, rationalization and wider flow of information.

- The necessity of providing internet networks and its accessories of information and communication technologies as an infrastructure for electronic governance.

- Training employees to use modern technologies to keep pace with digitization.

- Paying attention to the quality of management services is an effective step towards establishing the rules of e-governance.

- The need to provide various platforms to link stakeholders and management in order to establish the rules of electronic management;

- Providing modern technologies, whether software or hardware, is a good step to activate electronic management;

- The need for continuous updating and maintenance of programs and thewebsite that links the university institution with stakeholders.

To summarize, it should be explicitly acknowledged that electronic management is not information and programs to be installedwithin the university administration and air-conditioned offices, nevertheless it is a self-accompaniment to the administration, which has to keep pace with itself through the qualification of its employees, professors and students. Besides, the consolidation of digital thinking within the administration, particularly the need to encourage investment in information and communication technologyinfrastructure and increasing both the efficiency of the human component and the quality of electronic services provided.

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