



The Reality of Digitization in Local Communities in Algeria - A Case Study of Digitizing Human Resource Management at Souk Ahras Municipality.

واقع رقمنة الجماعات المحلية بالجزائر - دراسة حالة رقمنة إدارة الموارد البشرية لبلدية سوق أهراس.

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Abstract

This study aims to identify the results achieved by the municipality of Souk Ahras in adapting to current digital requirements by digitizing its administrative departments, particularly human resources management. The study focused on transitioning from traditional to digital management, with the goal of improving and speeding up service quality while reducing paperwork. The research problem addressed how the municipality was able to generalize digitization to improve service quality in various human resources offices. The study adopted a descriptive-analytical approach, interviews, and a case study. The findings revealed that the municipality successfully improved communication between administration, employees, and citizens, increased service efficiency by reducing traditional record-keeping, and enhanced transparency.

JEL Classification Codes : O33 ; J45 ; H83 ; J88.

Keywords

Digitization;
Municipality;
Human Resources
Management;
Souk Ahras;

الكلمات المفتاحية

رقمنه؛ بلدية؛ إدارة الموارد البشرية؛ سوق أهراس.

الملخص

تهدف هذه الورقة البحثية للتعرف على أهم النتائج التي حققتها بلدية سوق أهراس للتكيف مع المتطلبات الحالية التي تقتضي حتمية رقمته كافة مصالحها، وذلك للتحويل من الإدارة النمطية التقليدية إلى إدارة حديثة رقمية تعمل على تفكيك الروتين الورقي لكل من المواطن أو عمال البلدية بالإضافة لتحسين جودة الخدمات المقدمة وتسريعها، وتم طرح الإشكالية كالآتي: كيف تمكنت بلدية سوق أهراس من تعميم الرقمنة لتحسين جودة خدماتها على مستوى مختلف مكاتب إدارة الموارد البشرية، واعتمدنا على المنهج الوصفي التحليلي والمقابلة ودراسة الحالة، مما أسهم في إثراء البحث وتحقيق الأهداف المرجوة. توصلت الدراسة إلى أن إدارة الموارد البشرية ببلدية سوق أهراس حققت نتائج ملموسة في تطبيق التوجه الرقمي لمختلف مصالحها، بالإضافة إلى خلق الفهم المتبادل بين الإدارة والعمال والمواطنين من خلال وفرة المعلومات وسهولة الحصول عليها، تقليص التعامل بالسجلات التقليدية.

تصنيف JEL : O33 ; J45 ; H83 ; J88.

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I.INTRODUCTION:

The significant and rapid technological development that has occurred on the international stage has led to the shift from traditional services to smart digital services, thanks to their speed, time-saving, and efficiency. The Algerian state has adopted various strategies in line with this trend, aiming to transition from traditional management to digital management. One such initiative is the implementation of the e-municipality (digital municipality) project, which gradually phased out paper-based transactions and moved toward digitization. This represents a turning point toward a digital municipality offering public services distinguished by speed and quality.

In this context, the Ministry of the Interior and Local Authorities began implementing reforms to digitize various municipal departments, using methods like digitizing civil status and biometric services in the personnel department. This research paper will focus on how digitization has been applied to the human resource management department at Souk Ahras Municipality.

– Problem:

Based on the above, the research problem can be posed as follows:

How did Souk Ahras Municipality manage to implement digitization to improve the quality of its services at the level of the human resources management department?

– Study Objectives:

This study aims to achieve several objectives, which include:

- Understanding the concept of digitization.
- Examining the experience of the human resources department at Souk Ahras Municipality in applying digitization to its various activities in a brief period.
- Identifying the challenges, obstacles, and opportunities surrounding the implementation of digitization at Souk Ahras Municipality in general

– Study Structure:

To address the research problem, this paper is divided into two main sections:

Section One: The theoretical framework of digitization.

Section Two: The case study on the reality of digitization implementation in the human resources management department at Souk Ahras Municipality

1. Section One: The theoretical framework of digitization.

A. Definition of Digitalization:

Digitalization, according to a simple definition, refers to making changes associated with the application of digital technology in all aspects of human society, encompassing many organizational efforts, if not all. These changes and trends affect the entire organization. Digitalization must be connected to all business processes within the organization, as only through this connection can it extract high-quality information from daily operations and transform this data into informational products that contribute to decision-making. (Hellsten & Annamajja Paunu, 2020, p. 227)

Digitalization is the process of transforming an object, tool, process, or profession into computer code in order to replace it and make it more efficient. Digital transformation began with the advent of the internet, where mail was replaced by emails, forums replaced physical gatherings, and stores were replaced by e-commerce websites. Today, we are witnessing a broader and more efficient digitalization, such as automated checkouts, voicemail systems, and communication through social media. Digitalization has become a natural phenomenon combining the emergence of the internet with daily technological advancements (Alphalives, s.d.) From the previous definitions, we can conclude that digitalization is the process through which information is transformed from its current traditional form into a digital format.

B. Historical milestones of digital transformation:

The beginnings of digital transformation date back to the early 1980s. Its rapid evolution can be summarized by decisive stages that led to today's revolution.

Table (01): Historical milestones of digital transformation

1980	Generalization of personal computers	introduction of the French Minitel and then the Internet, opening the door to virtual exchanges and e-commerce.
1990	Generalization of the Internet	use of digitized databases; development of software, and mobile phones.
2000	Introduction of smartphones	miniaturization and portability of computers; increased performance of modems and the web; emergence of Cloud computing.
2010	Beginning of "Web 2.0"	widespread use of touch tablets and smartphones; exploitation of the first social networks; beginnings of Big Data, and connected devices.
2016	High-speed multimedia networks	(fiber optics, low-orbit satellites); development of web/TV, interactive media and videos; interface personalization (voice, handwriting, face

		recognition); development of AI, blockchain, and chatbots.
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Source: (ReCom, 2021)

C. The advantages of digitalization far outweigh its disadvantages. Some of these advantages are:

The advantages of digitalization far outweigh its disadvantages, as it enhances efficiency and facilitates access to information. It also helps reduce costs and increase transparency in administrative processes (Zahir & HADJADJ Zineb, La Digitalisation Des PME Pour Booster L'économie Nationale, Cas De La Sarl PALAIS BLANC, 2023, p. 373):

- Products delivered to the market more quickly.
- Reduced response time to customer feedback.
- Improved ideas.
- Entire supply chains benefiting from full integration.
- Reduced production costs.

On the other hand, the disadvantages are much less significant, but poor implementation of digitalization still carries certain pitfalls. These can manifest in different ways:

- Improved user experience to the point where digital transformation undermines economic rent, the process creates spectacular value for customers but none for the business.
- Promotion of a winner-takes-all economy, fostering monopolies.
- Poor understanding of ecosystems resulting from digitalization.
- Complete failure to manage the duality of the process

D. The stages of digitization:

The digitization process involves several key stages aimed at converting data and documents from paper format to electronic format. These stages require careful planning and organized execution to ensure a smooth and efficient transition to digital management. (Jacmin, 2018-2019, p. 8)Merck discusses, "The computerization of Human Resources Management truly gained momentum with the emergence of microcomputing." He also explains the existence of six stages that lead to the computerization we know today. These six stages are:

- The Human Resources Department has a single workstation equipped with a microcomputer to handle the initial applications of Human Resources Management, with payroll remaining on the main computer.
- The Human Resources Department connects a few microcomputers across various departments, each equipped with specific applications: "training" application in the training department, recruitment application in the recruitment department, etc.

- The hierarchy gains access to Human Resources Management data through the sharing function via a network connecting multiple microcomputers.
- Every employee can view the professional data concerning them, enter data, and manage their career via the intranet as part of a Self-Service Human Resources system.
- The company establishes a Human Resources portal.
- The company develops internal digital social networks.

E. Challenges:

The stakes of this digital transformation are numerous for an HR department. In a non-exhaustive way, there are five key challenges: (BENABID, Karim CHERIF, Emmanuel BAUDOUIN, & Caroline DIARD, 2019, p. 2) :

- Developing new services by leveraging the potential offered by the latest technological advancements: identifying and analyzing employee performance factors through HR analytics to better guide recruitment, making training environments increasingly realistic with the democratization of virtual reality...
- Responding to new modes of operation and expectations of employees and/or potential candidates (to attract, retain, and make employees more efficient): digital presence to capture potential candidates, informal digital self-learning (employees no longer need a training plan since January 2019, skills development plans) to implement learning strategies, remote work...
- Harmonizing HR practices and content: the implementation of an HRIS, for example, often requires standardizing practices across different entities where the processes followed may not always be the same. The use of e-learning modules allows the same content to be distributed across different subsidiaries of a group on a given topic...
- Optimizing HR processes through automation and decentralization: workflow systems, electronic signatures, automatic reporting generation, implementing chatbots to answer employees' recurring questions...
- Managing HR data: managing data flows for HR processes (training plans, payroll, etc.), complying with legal requirements, protecting data (especially through GDPR), and controlling performance measurement...
- This digital transformation of the HR function has been underway for several decades. However, it has experienced a strong acceleration over the past five years. Additionally, the digitalization of the HR function is being implemented in very diverse ways across companies.

2. Section Two: Case Study of the Digitalization Application in Human Resources Management at the Municipality of Souk Ahras:

E-government has become the first organizational choice for municipalities in order to rationalize public services, due to the benefits and facilitation it offers, the transition to e-government in municipalities is a gradual process that requires a plan through which the municipality must proceed., to implement the concept of the e-municipality in practice, the Ministry of the Interior in Algeria has taken numerous measures aimed at eliminating bureaucracy and shifting toward automated information processing to improve the relationship between the administration and employees, with the goal of transitioning towards a smart municipality.

A. Introduction to the Municipality of Souk Ahras:

The Municipality of Souk Ahras is a regional entity of the state and a place for the practice of citizenship. It serves as a framework for citizen participation in the management of public affairs and contributes, alongside the state, to the management and development of the region. It plays a role in economic, social, and cultural development, as well as in preserving and improving the living environment for citizens. The municipality forms part of the territorial area of Souk Ahras province, alongside 25 other municipalities.

B. The Municipality of Souk Ahras consists of:

- A deliberative body.
- An executive body headed by the Municipal People's Assembly.
- An administration led by the Secretary-General of the municipality, under the authority of the President of the Municipal People's Assembly.

C. Features of the Application of the Digitalization System in Human Resources Management at the Municipality of Souk Ahras:

In accordance with Ministerial Circular No. 4132 dated 11/05/2022, which includes the Charter of Work Rules for the Integrated Human Resources Management Information System for the Ministry of the Interior, Local Communities, and Urban Planning, the Municipality of Souk Ahras has established a unit to manage the system within the Human Resources Department in order to:

- Manage system user accounts (create, modify roles, suspend accounts, etc.).
- Ensure the proper functioning of the system and monitor its actual use.
- Actively intervene to address concerns and queries raised, and present them to the relevant department at the provincial level when necessary.
- Prepare periodic reports for the Head of the Municipal People's Council regarding statistical indicators provided by the information system.
- Supervise, study, and analyze data related to the municipality.
- Ensure the implementation of directives issued by the supervising authorities concerning the information system.

-Preparation of Employee and Contract Workers' Nominal Lists:

Based on the directive of the General Directorate of Human Resources dated 19/11/2019, which standardized the forms and content of the nominal lists, the directive specified that the Integrated Human Resources Management Information System, which came into effect on 31/12/2019, standardized the format and content of the nominal lists used by various entities under the sector, making the extraction of the lists electronic.

Productivity:

According to the official letter from the Governor of Souk Ahras, No. 79/2022 dated 02/03/2022, regarding the activation of the employee evaluation application for granting productivity bonuses, the steps are as follows:

- Entering the quarterly scores into the Integrated Human Resources Management Information System.
- Extracting the nominal list for the productivity bonus from the system.
- Sending the nominal list for the productivity bonus to the accounting department.
- Uploading the evaluation card for the first quarter through the application, accessible after adding the evaluation role.

Promotion in Grade and Compensation for Professional Experience:

To standardize promotion procedures and compensation for professional experience using the integrated system, the process is conducted based on Ministerial Circular No. 11773 dated 23/10/2022. The process follows these steps:

- **Promotion in Grade:**
- Entering the data related to the last grade promotion for all employees.
- Setting the zero grade for employees who have not previously been promoted, with the effective date matching the date of appointment to the current position.
- Entering data related to professional experience, southern region seniority, and any work interruptions.
- Entering the annual evaluation score for each employee, after which the system automatically ranks employees based on merit according to a 4-4-2 ratio, producing a ranking based on the minimum, average, and maximum duration, and setting the effective date for the promotion. In case of a tie, the system automatically uses priority criteria, such as seniority in grade, seniority in position, and age.
- The promotion tables are printed for each grade and rank, then presented to the relevant administrative committee for approval, the decision is then entered into the system and a promotion decision document is printed for each employee.

Compensation for Professional Experience for Contract Workers:

- Entering the data for each contract worker regarding the last year of professional experience compensation and the date of benefit.
- Entering the percentage of professional experience acquired or work interruptions, if any.
- Preparing a collective decision for contract workers who meet the seniority requirements for professional experience compensation, outside the system, and obtaining approval from the relevant authority.
- Entering the decision number and date into the system.

Printing the professional experience compensation decision for each contract worker. Professional experience acquired by employees before their employment is recorded outside the system according to legal conditions and then entered into the system under the professional seniority data section.

Leave:

- **Annual Leave:** All employee data is entered into the system, including the start date and duration of the annual leave. After processing, the system prints electronic leave certificates.
- **Sick Leave:** Employee data is entered, along with the start date and duration of the sick leave. After processing, electronic sick leave certificates are printed using the system.

Employment Certificates: Employee data is entered and processed to print an electronic employment certificate.

Employee Mobility: Decisions or results related to redeployment within the services are entered into the information system, allowing for the analysis and estimation of human resource needs and the implementation of employee redeployment, as outlined in the official letter from the Governor dated 22/08/2022, No. 372/2022.

Sanctions (Deductions, Disciplinary Sanctions, Dismissals): Employee or worker data is entered into the system, and after processing the information, an electronic copy of the sanction certificate is printed.

D. Digitization of Administrative Documents:

The Municipality of Souk Ahras has initiated the digitization of administrative documents related to managing the professional life of employees and contract workers in compliance with the official letter from the Ministry of the Interior and Local Communities No. 1020 dated 18/12/2023. Additionally, based on instructions from the supervising administration regarding the need to expedite the digitization of administrative documents for managing the professional life of senior position holders, employees, and contract workers who are active, the Ministry of the Interior and Local Communities issued a guide for the digitization of administrative documents for managing the professional life of human resources, this guide provides a list of administrative documents to be digitized, naming conventions for digitized documents, and how to store electronic files on the server ("Serveur"). Consequently, the Municipality of Souk Ahras notified its employees through an important announcement, advising them to visit the Human Resources Department with the following required documents:

- New personal photo
- Birth certificate (2024)
- Marriage certificate
- Family certificate

- Copy of the biometric national ID card

This is for the creation of an electronic file for each employee. After employees and workers responded to this announcement, the Municipality of Souk Ahras tasked a team of qualified employees to begin the digitization process. The process involved scanning all administrative documents related to the employee as outlined in the Guide for Digitizing Administrative Documents for Human Resource Management.

The main documents that were scanned and digitized include:

- Civil status file :
- Photo
- Birth certificate
- Marriage certificate
- Family certificate
- Career file
- Professional experience record
- Decision on compensation for professional experience for contract workers
- Reintegration into the original rank
- Promotion decisions
- Termination of employment contracts for contract workers
- Employment certificates
- National service
- Annual leave certificates
- Appointments to senior positions
- Ending of duties
- Sanctions
- Salary deductions
- Disciplinary sanctions
- Dismissal
- Absences and leave
- Maternity leave
- Breastfeeding hours
- Employee mobility
- Reappointment
- Secondment
- Leave of absence
- Retirement
- Resignation

– Other cases

After the digitization of administrative documents, all documents were saved within electronic files, with each employee's documents collected and stored in their respective electronic file.

E. Methods and Tools of Digitization in Human Resources Management at the Municipality of Souk Ahras:

As part of the digitization of human resources management in the municipality, the Ministry of the Interior and Local Communities established a new, unified system based on the Integrated Human Resources Management Information System, as per Ministerial Circular No. 4123 dated 11/05/2022, which outlines the work rules for the Integrated System in managing human resources for local government entities.

Tools for Digitization in Human Resources Management on the Public Function Website of Souk Ahras Municipality:

Public Function Website:

The system collects complete employee information such as name, surname, marital status, blood type, national ID number, social security number, etc.

This website is connected to the internet.

The goal of this website is to register the number of employees each year.

Through this site, the total number of employees and workers at Souk Ahras Municipality can be obtained.

Material Resources:

Given the importance of modernizing human resources management, Souk Ahras Municipality has provided the necessary material and human resources to ensure its effective operation, such as:

- Computer devices with appropriate technical specifications.
- Provision of security measures to protect devices connected to the information system from viruses.
- Prohibiting the use of external storage devices on machines connected to the information system.
- Restricting the connection of digitization devices to the internet.

Human Resources:

Given the importance and ongoing use of this system for daily human resources management, the Municipality of Souk Ahras assigned qualified employees to operate and manage the system.

The employees involved include:

Regional Administrative Advisors, Regional Administrators, Senior IT Technicians, Regional Attachés, and Senior Administrative Regional Assistants (with continuous awareness about the importance of this system to ensure the success of the modernization process).

- The National Social Security Fund Website:

This website, affiliated with the Ministry of Labor, Employment, and Social Security, pertains to the National Social Security Fund for wage-earners. The website started operating in 2019 through the Souk Ahras Municipality's user portal, shifting the municipality's operations from paper-based to electronic.

The tasks of this site include:

- Declaring employees, following these steps:
- Entering all relevant data for each employee and worker into the site. After processing, the declaration is activated within the National Social Security Fund's online system.

Sick Leave: The site includes this feature, though it is not yet activated.

Medical reimbursements: For prescriptions, lab tests, radiology, etc.

Resources for the National Social Security Fund Website:

Human Resources: Souk Ahras Municipality has designated an administrative attaché to manage this process.

Material Resources: Computers with internet connectivity are provided for this task.

Digitization of Administrative Documents for Human Resources Management:

Human Resources: Souk Ahras Municipality has assigned a team responsible for digitizing employee and worker files, with qualified personnel mobilized for this task.

Material Resources:

- Provision of 10 computer devices.
- Provision of 10 scanners.

F. Success of the Digitization System in Human Resources Management at Souk Ahras Municipality:

By reviewing a set of statistics from the Human Resources Department of Souk Ahras Municipality, we will assess the effectiveness and capability of the department in applying digitization across its various services.

G. Statistics on the Implementation of Digitization in Human Resources Management at Souk Ahras Municipality:

Results of Implementing the Integrated Information System:

The Integrated Human Resources Management Information System at Souk Ahras Municipality has simplified administrative work, saving both time and effort, below are the results of implementing this system:

Table (02): Results of Implementing Digitization for the Integrated System

Municipality of Souk Ahras	Preparation of Nominal Lists	Promotion in Grade and Professional Experience	Productivity	Vacations	Work Certificates	Employee Movements	Penalties
100%	100%	100%	100%	100%	100%	100%	100%

Source: Prepared by the researchers based on statistics from the User Services Office of the Municipality of Souk Ahras.

From the table, it can be concluded that the digitization process has been fully implemented in the Human Resources Management at a rate of 100%.

Outcome of Digitization for the National Social Security Fund Website:

The outcome of the digitization process through the use of the National Social Security Fund website for salaried workers is shown in the following table:

Table (03): Outcome of Digitization for the National Social Security Fund Website.

Municipality of Souk Ahras	Declaration of Workers	Sick Leave	Compensation
Percentage	100%	/	/

Source: Prepared by the researchers based on statistics from the Users' Office of the Municipality of Souk Ahras.

From the table, we observe that the implementation of digitization for the National Social Security Fund website is limited to the declaration of employees, while sick leaves and compensation still follow the traditional method.

Outcome of Digitizing Employee Files:

The outcome of the digitization of employee and worker files at the Municipality of Souk Ahras until 05/05/2024 is shown in the following table:

Table (04): Outcome of Digitizing Employee Files.

Municipality Of souk ahras.	Total number of employees	Number of files converted to electronic format	Number of remaining files	Percentage
	1504	1504	0	100%

Source: Prepared by the researchers based on statistics from the Users' Office of the Municipality of Souk ahras.

From the table, it is evident that the digitization of employee files has been successfully implemented, as 1504 paper-based employee files have been converted into electronic files.

I. METHOD AND PROCEDURES:

The descriptive-analytical methodology and the case study approach were used, which align with the nature of the topic. This was done by collecting and analyzing data, identifying the study variables, and drawing conclusions. Interviews were also conducted with various employees in the personnel department, as this research focuses on exploring the extent of digitization application in the human resources department of Souk Ahras Municipality.

II. STUDY RESULTS (ANALYSIS AND DISCUSSION):

Advantages of Digitizing Human Resource Management at the Municipality of Souk Ahras:

- Speed in extracting and processing data.
- Accurate data analysis.
- Protection of employee rights.
- Reduction of costs for storing employee data.
- Transparency of systems.
- Precise timing for data retrieval.
- Speed in completing storage and analysis processes leading to quicker and more accurate decision-making.
- Establishing good relationships and mutual understanding between management and workers by providing information on various activities of municipal employees.
- Reducing manual record-keeping and paper-based transactions.

Disadvantages:

- Psychological pressure on employees tasked with the digitization process due to the limited time allocated by the ministry to complete this process.
- Lack of interaction with the digitization system within the department due to varying technical skills among employees, as the Municipality of Souk Ahras relied on a small number of untrained staff for this process, especially for digitizing administrative documents.

- The use of digital technologies raises privacy concerns, as the digitization system contains sensitive employee information, which could be vulnerable to cybersecurity breaches and privacy violations.

Challenges Faced by the Human Resources Department at the Municipality of Souk Ahras in Implementing Digitization:

- Having a comprehensive strategy for digital transformation does not guarantee smooth and easy implementation, as several obstacles and issues hinder the digitization process. These challenges include:
- Many employees tasked with the digitization process suffer from a lack of regular training on how to use technology in their duties.
- Insufficient support from management to develop their technological skills.
- Inadequate staffing for the digitization process, especially regarding the recent digitization of employee documents, which was constrained by time, and the Municipality of Souk Ahras did not allocate enough human and material resources.
- Difficulties in accessing the digital platform due to weak network infrastructure.
- Lack of training and mentoring for employees, mainly due to a shortage of training programs in modern, advanced technology.
- Insufficient knowledge of computer skills and fear among some employees when using the technology.
- Outdated computer hardware and software.
- Limited computing knowledge among administrators responsible for implementing the technology.
- Insufficient financial resources allocated for developing the infrastructure necessary for digitizing human resource management, particularly for creating networks, connecting sites, and upgrading devices.
- Employees' lack of proficiency in foreign languages negatively impacted the digitization process.

III. Conclusion:

The implementation of digitization in human resource management at the Municipality of Souk Ahras will not happen overnight, as it is a significant project driven by technological transformations and administrative reform programs as a necessary phase in the digital era. Based on the above, we conclude that:

– **Result:**

- The visible aspects of digitization in human resource management at the Municipality of Souk Ahras are reflected in the digitization of administrative files and access to the electronic file.
- The integrated information system for human resource management standardized procedures for promotions, professional experience compensation, and performance evaluations, among others, facilitating the transition to electronic operations.
- With the use of the National Social Security Fund's website, the Municipality of Souk Ahras has transitioned from paper-based to electronic operations.
- Therefore, this project requires a comprehensive plan that outlines the uses of digitization in the municipality, along with a thorough evaluation of challenges and obstacles to overcome them.

– **Recommendations:**

- Focus on attracting qualified and specialized personnel and adopt a teamwork approach within the institution to exchange skills among employees.
- Promote a culture of creativity and openness among leaders to involve employees at all levels in various tasks.
- Develop necessary plans to qualify and train employees to align with the use of modern technologies and digitization.
- Provide data and information protection programs for employees in all dealings through appropriate legal regulations.
- Establish awareness and educational programs for employees about digital management and its importance, working towards improving employees' skills and eradicating technological illiteracy.

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