

KAMAL YAZZIF

Doctoral Researcher in Management Sciences at the Higher School of Technology - Sidi  
Mohamed Ben Abdellah University of Fez

*kamal.yazzif@usmba.ac.ma*

FATIMA EL AMRANY

Doctorate Researcher in Management Sciences at the Higher School of Technology - Sidi  
Mohamed Ben Abdellah University of Fez

*fatima.elamrany@usmba.ac.ma*

ACHRAF BAGHDAD

Doctoral Researcher in Management Sciences at the Higher School of Technology - Sidi  
Mohamed Ben Abdellah University of Fez

*Achraf.baghdad@usmba.ac.ma*

ABDERRAHMANE OUDDASSER

Teacher-Researcher in Management Sciences at the Sidi Mohamed Ben Abdellah University of  
Fez

*abderrahmane.ouddasser@usmba.ac.ma*

*abdoouddas@gmail.com*

## MODERNIZATION OF PERSONNEL MANAGEMENT OF THE PUBLIC SECTOR CASE OF THE URBAN AGENCY OF AL HOCEIMA

### ABSTRACT

The performance and efficiency of the public administration is linked to the level of efficiency of its human resources management. These resources are considered as the main pillar for the development of the administration and its empowerment for its insertion in the social and economic sphere and for the contribution to lifting the challenges of globalization and international competition. It is in this context that the urban agency of Al Hoceima in coordination with the services of the TGR which has designed and developed a web version of the software package *Gipe/Ordinator* called *INDIMAJ* with the aim of facilitating communication with the partners of the GIPE system and to allow interfacing with the system *Wadef@ujour*, in order to constitute a first step of integration of the target system.

The integrated management system of the State personnel is a system allowing all the participants in the process of management, control and remuneration of the personnel of the State or other organizations to apply the same rules of management, to unify the concepts and procedures and to adopt the same standards of communication as regards exchange of information by relying on modern technologies of information.

Through this paper, we will try, in a first part, to present an overview of the human resources function in the public sector. In a second part, we will proceed to a reflection on the advantages and disadvantages of computer system in the management of human resources in the public sector.

**KEYWORDS:** Human Resources- Management, Information System, Public Administration.

**INDEX:** 1. Introduction. - 2. Overview of the Human Resources Function in the Public Sector. - 2.1. Human resources management: history and evolution. - 2.2 The salary processing system in the public sector: genesis and evolution of information systems. - 2.2.2 Historical evolution of the salary processing information system in Morocco. - 3. Modalities of payroll processing at the Urban Agency of Al Hoceima as a model. 3.1 presentation of the study zone. - 3.2 Payroll processing and scheduling - 4. The epistemological approach to research and discussion of results- 4.1 Advantages and disadvantages of the salary processing information system in Morocco - 4.1.1 The advantages. - 4.1.2. The disadvantages - 5. Conclusion. - 6. References

## **1. Introduction**

The actions taken in recent years to modernize the public administration are part of a broad support for economic and social development by the government. This administrative reform involves the optimization and rationalization of all production factors and methods (human resources management, simplification and dematerialization of procedures, management of working hours, etc.).

Thus, the implementation of an IT solution for payroll processing remains essential in this context marked by the encouragement of dematerialization of all human resources processes within public institutions. Indeed, this project is not only a technical and computer evolution but a real rational conception of time management, aiming at the efficiency of the service and the development of the civil servants' capacities.

In this case, the path of administrative modernization concerns the importance we must give to human resources, how to strengthen their skills and develop their creativity?

Taking into account the importance of the human factor in management as a basis for good governance in terms of effectiveness, efficiency, relevance, transparency and proximity («B. Martory, D. Crozet, 1998»).

At the national level, human resource management is now a central concern of public authorities. The way in which civil servants are recruited, their training and the management of their salaries and careers are all areas that require adaptation to new requirements. The decision of the Urban Agency of Al Hoceima in cooperation with the services of the general treasury of the kingdom to adopt an IT solution aimed at improving the payroll processing system is the result of an agreement between the two parties since 2017, it is a second experience in Morocco after that of the Urban Agency of Rabat salé.

This reform is not only a technical change but also a modern approach based on a rational conception of time management. It is a reasonable choice dictated by the need to establish compliance with national and international environmental standards.

This paper is based on a comparative analysis between a traditional system based on manual production and a new system marked by the introduction of computer techniques.

## 2. Overview of the Human Resources Function in the Public Sector

Nowadays, Moroccan public institutions are more and more questioned about their ways of managing human resources, moving from a purely administrative management orientation to a strategic vocation.

Indeed, the actors of the HR function are facing an increasingly globalized context, notably through the multiplication and introduction of NICTs in the different aspects of HRM. The interests of these actors may converge or diverge depending on their interactions, their expectations or their roles and responsibilities («A. CHERKAoui & Ab. BELGAID, 2021»).

### 2.1 Human resources management: history and evolution

Human resources management is probably several millennia old. Since then, it has imposed rules of organization, control and management of people. Human resource management is the set of activities that allow an organization to have human resources that correspond to its needs in quantity and quality («L. Cadin, F. Guérin and F. Pigeyre, 2007»). It covers the entire process from payroll management, time management, training management to end of career. From a simple organization of work, to the rationalization of personnel, modern society and progress, particularly technological progress, have led human resources management to increasingly specific and sophisticated tools («Ph.Kotler, K. Lane Keller, B. Dubois, De. Manceau, 2006»).

Today, managing human resources within an information system has become an essential professional practice. During the years of computerization, we can say that human resources management has gradually evolved in Morocco. It has gone through what is commonly called the four ages of computerized human resources management. From the payroll management of the years before 1980, the integration of tasks related to human resources in the 1980s and the connection of several information systems, then the integration into a single software package in 2000, then the Internet revolution of information sharing, and decision support tool and a common and secure access.

The Human Resources function has become a key function that acquires great strategic importance. Moreover, the human capital constitutes a major competitive advantage, and thus, a strategic resource for the public institution. We believe that securing the HR function as well as undergoing fundamental changes (less administrative and more strategic) are part of the strategic objectives in order to increase HR performance in the public sector. Human Resources are therefore neither a given nor an adjustment variable, but a strategic lever for achieving the objectives set.

Generally speaking, Human Resources management is a function linked to the company's duty, it is also a set of methods to plan, prevent, evaluate, train its resources and personnel needs in order to achieve the objectives it has set itself in a context of increased uncertainty. To contribute to the performan-

ce of the company<sup>1</sup> («An. DIETRICH, PIGEYRE, 2005»), HRM makes people an object of management: it develops their skills through training, measures their performance and increases their motivation.

Elton Mayo in 1940, professor of industrial research at the Harvard Business School, testified that man can only find happiness and security if he feels he belongs to the group in which he works. His proposals include the organization of time («RO. Stephen, D. DE CENZO, 2006»), the introduction of rest periods, as well as the comparative advantages of individual and collective pay scales.

## 2.2 The salary processing system in the public sector: genesis and evolution of information systems

### 2.2.1 definition

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### 2.2.2 Historical evolution of the salary processing information system in Morocco

Taking into account the evolution of the Moroccan administration's information systems, an evolutionary and incremental approach has been adopted since the first years of computerization in Morocco. Indeed, given the age of the payroll system that was implemented since the 1950s to ensure the part of the liquidation of salaries<sup>1</sup> («*Dahir No. 1-58-008 of 4 Chaabane 1377 (February 24, 1958) on the general status of the civil service*»), a reflection in the early 1980s implemented a roadmap for the automation and computerization of tasks not yet covered in this area. The salary processing system of the Moroccan State has progressed throughout the evolution of the Moroccan administration accompanied by regulatory changes. The status of the entity in charge of the pay has accompanied this evolution by several mutations.

The entity of payroll management started in Morocco in 1949 as the Service d'Ordonnancement Mécanographique (*SOM*). It was in charge of the operations of commitment and mandatement for a staff of about 20,000 agents.

In 1978, the Division of Scheduling and Computer Processing (*DOTI*) was established to liquidate and mandate remunerations («*Quarterly Review of the Ministry of Finance and Privatization AL MALIYA No. 3, 2007*»). In fact, the first purely computerized data entry and processing was carried out in 1980, with some 260,000 agents using a Cobol system (IBM).

In 1993, this entity was established as the Directorate of Remuneration and Payment of Pensions and was integrated into the General Treasury of the Kingdom as a public accountant. It was in charge of the execution of the payroll following the adoption of the standard known as (*GIPE*) integrated mana-

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<sup>1</sup>According to article 26, section II of Dahir n° 1-58-008 of 4 chaabane 1377 (February 24, 1958) on the general statute of the civil service: Remuneration includes salary, family benefits and all other allowances or premiums instituted by legislative or regulatory texts.

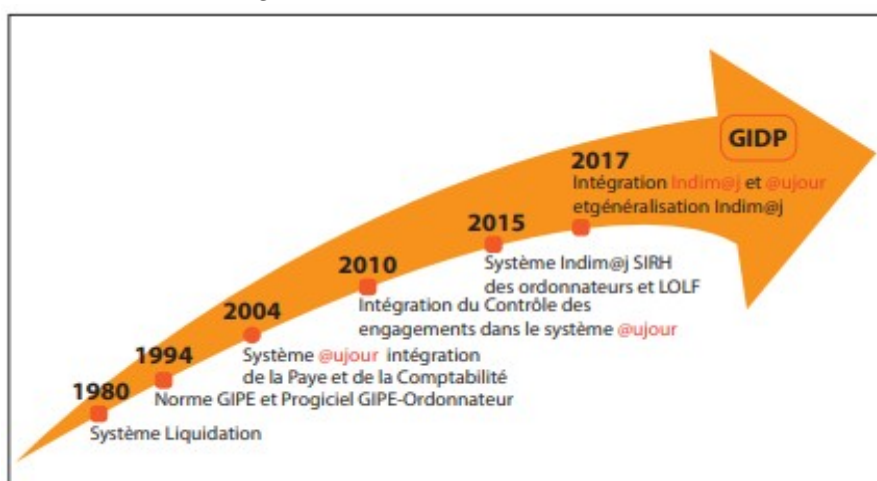
gement of the State personnel.

In 2002, the Paierie Principale des Rémunération (PPR, new name of the DRPP) was put in charge of the payroll of the State personnel after the transfer of the payment of pensions to the Caisse Marocaine des Retraites.

In 2008, the National Center for Salaries was in charge of the payroll following the establishment of the Ministerial Treasuries in charge of the control of regularity and validity of personnel expenses under the control of the Principal Treasurer as assigning accountant.

In 2014, following the new reorganization of the Kingdom's General Treasury, the Directorate of Personnel Expenditure was provided with the means to centralize the management and settlement of the payroll of the Territorial Communities in the same way as the State's personnel. Thus, the system has been opened to the centralized settlement of the payroll of local authorities in the same way as the State.

In 2017, a new version of the payroll system was put into service, integrating the new budgetary control rules following the implementation of the LOLF provisions relating to limited appropriations.



**Fig. 1.** Summary table of the evolution of payroll information systems  
 [Source: Treasury Review General of the Kingdom - N° 14 September 2018]

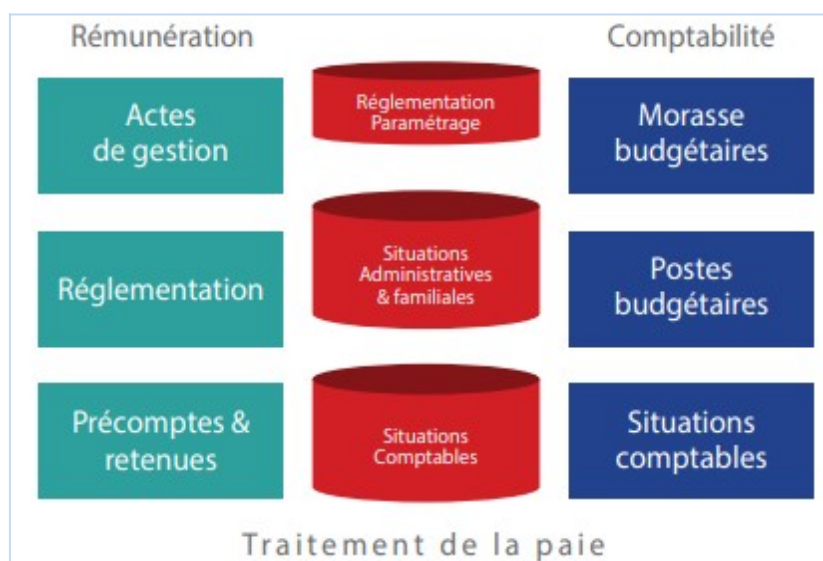


Fig. 2. Functional architecture diagram - source system design document @ujour 2004  
 [Source: Treasury Review General of the Kingdom - N° 14 September 2018]

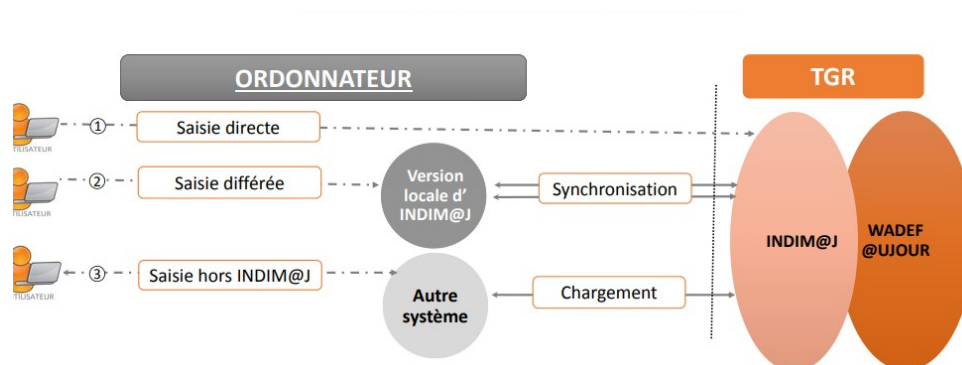
### 3. Modalities of payroll processing at the Urban Agency of Al Hoceima as a model

The Indimaj salary processing management software is a computerized payroll solution that complies with the standards of the Moroccan regulations. Adapted to the System used by all the ministerial departments (44), the territorial communities (1604) and the other conventional organizations (110)<sup>2</sup>, this payroll software manages the careers of the civil servants and all the treatments related to the payroll.

Developed with the latest technology, it uses all the powers to ensure data security, respond to future changes in the law and to changes in administrative procedures for human resources management. Equipped with a great functional richness, the *INDIMAJ* payroll software is able to process any type of payroll, even the most complex. A centralized database with secure access via the web that encompasses more than a million employee systems. A system that can be parameterized and adapted to the specific context of each organization. Online exchange with the payroll system *wadef@ujour*. It is an evolution of the GIPE software package, developed by the TGR services and implemented at the level of the State services.

<sup>2</sup> According to statistics made by the services of the General Treasury of the Kingdom in January 2017, of which the Urban Agency of Al Hoceima includes as a conventional body.





- (1) Direct use of Indim@j
- (2) Deferred use of a local version in synchronisation with Indim@j
- (3) Use of another product: interface with Indim@j

Fig. 3. Operating mode  
 [ Source: Official website of the General Treasury of the Kingdom of Morocco]

### 3.1 Presentation of the study zone

Our research focuses on public institutions such as the Urban Agency of Al Hoceima, where we will deal more specifically with the management of payroll processing through *INDIMAJ* computer solution that is centralized and directly connected to the *Wadef@ujour* system with secure access of all stakeholders by adopting an adequate system of empowerment.

The Urban Agency is a public institution with legal personality and financial autonomy. It is managed by a director and directed by the board of directors. It was created by the 14 rabii I 1425 (May 4, 2004) Decree No. 2-03-221, involving the agencies of the city of Nador, Al Hoceima, Ouarzazate Zagora, Oued-Eddahab-Aousserd, Errachidia and Guelmim-Es-Semara. The attributions of AUH (urban agency of Al Hoceima) revolves around four main axes:

Urban studies and planning:

- To carry out the studies necessary for the elaboration of the master plans of urban development and to follow the orientations which are stated there;
  - Plan development projects to achieve the objectives of the master plans;
  - Prepare draft urban planning documents, including zoning plans, development plans and development plans.

Urban management :

- To issue an assent within a determined period of time on the projects of subdivisions, groups of dwellings, subdivisions and construction transmit-



ted, for this purpose, by the competent authorities;

- To verify the conformity of the subdivisions, parcels, groups of houses and constructions in progress with the legislation and the regulatory requirements in force, with the authorization given by the authorities.

Operational management

- To carry out studies on development projects for the State, the local community or for any other public or private that will need it when the project is of general interest;
- To take stakes in any company whose activity corresponds to the objectives and missions assigned to it.

**Technical assistance<sup>o</sup>:**

- To promote, with the assistance of the elected bodies concerned, the constitution and development of owners' groups by providing them with the necessary frameworks in order to facilitate the implementation of urban planning documents and, in particular, to encourage the creation of syndical associations in application of the legislation in force on the subject and to ensure the follow-up of the operations carried out by the said associations in coordination with the above-mentioned communal councils;
- To provide technical assistance to local authorities in urban planning and development as well as to public and private operators who request it, in their development actions;
- To collect and disseminate all information relating to the urban development of the prefectures and/or provinces located within the Agency's territorial jurisdiction..

### 3.2 Payroll processing and scheduling

Within the framework of the dematerialization of these procedures, the Urban Agency of Al Hoceima has concluded an agreement for the outsourcing of the payroll services with the services the General Treasury of the Kingdom (TGR) to ensure the technical preparation of the salary processing of the staff on the basis of the elements transmitted by the services of the Agency and this, in accordance with the schedule of realization agreed upon, which for each phase, it determines the deadlines and the responsibilities, it is as follows:

| <u>step</u>                                                                                                                                                                                                               | Stakeholder                                                                     |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------|
| a) <b>Feasibility study &amp; specification of needs</b> <ul style="list-style-type: none"> <li>▪ Study of the personnel statutes and the remuneration system</li> <li>▪ Study of management and control rules</li> </ul> | <ul style="list-style-type: none"> <li>▪ TGR</li> <li>▪ Organization</li> </ul> |
| b) <sup>o</sup> Agreement                                                                                                                                                                                                 |                                                                                 |

|    | step                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | Stakeholder                                                                 |
|----|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------|
|    | <ul style="list-style-type: none"> <li>Elaboration and validation of the convention and the procedures manual</li> <li>Signing of the agreement and the procedures manual</li> <li>Implementation schedule</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | <ul style="list-style-type: none"> <li>TGR</li> <li>Organization</li> </ul> |
| c) | <b>Constitution of the regulatory database and setting of the organization's payroll parameters</b> <ul style="list-style-type: none"> <li>Setting of budgetary allocations</li> <li>Setting of rights</li> <li>Setting of deductions</li> <li>Setting of special situations, if any</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | <ul style="list-style-type: none"> <li>TGR</li> </ul>                       |
| d) | <b>4. Blank payroll by the DDP</b> <ul style="list-style-type: none"> <li>i. Authorization and paper editions</li> <li>ii. Generation of payroll files</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | <ul style="list-style-type: none"> <li>TGR</li> <li>Organization</li> </ul> |
| e) | <b>Real payroll processing on @ujour</b> <ul style="list-style-type: none"> <li>i. Decision to switch to @ujour</li> <li>ii. Elaboration and execution of the schedule for switching to real</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | <ul style="list-style-type: none"> <li>TGR</li> <li>Organization</li> </ul> |
| f) | <b>Deployment of GIPE authorizer at the agency level</b> <ul style="list-style-type: none"> <li>i. Installation</li> <li>ii. Training</li> <li>iii. Implementation assistance: database creation and management, processing of management acts</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | <ul style="list-style-type: none"> <li>TGR</li> <li>Organization</li> </ul> |
|    | <b>7. Creation of the "Personnel" database on @ujour</b> <ul style="list-style-type: none"> <li>▪ Sending the files in the agreed form</li> <li>iv. Loading of data and generation of management acts (5 families of acts): <ul style="list-style-type: none"> <li>i. Administrative situations (grade, scale, step, status, assignment...)</li> <li>ii. Family situations (spouses and children)</li> <li>iii. Non-automatic allowances (functions, expenses, compensation)</li> <li>iv. Regulatory deductions (mutual insurance, buyback and validation of services, rent ...)</li> <li>v. Withholding taxes (social foundations, loans, ...)</li> </ul> </li> <li>v. Payment methods (RIB, bankers)</li> <li>vi. Taking charge, control and validation of management acts on @ujour</li> </ul> | <ul style="list-style-type: none"> <li>Organization</li> <li>TGR</li> </ul> |
|    | <b>8. Reconciliation and reliability of data and treatments</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |                                                                             |

| <u>step</u>                                                                                                                                                                                  | Stakeholder                                                                     |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------|
| vii. Payroll liquidation<br>viii. Reliability of data and processing (iterative procedure of modifications and updates).<br>ix. Comparison of liquidation results (gross and net emoluments) | <ul style="list-style-type: none"> <li>▪ TGR</li> <li>▪ Organization</li> </ul> |

[Source: Manual of procedures for the management and processing of payroll of public bodies' personnel]

### 2.1.3 Monthly schedule of payroll processing

The monthly salary processing schedule is as follows:

At the end of each month, *TGR* will produce the files mentioned belowfl:

- ▶ The computer files of settlement by transfers through the Moroccan interbank teleclearing system (*SIMT*);
- ▶ Monthly computerized payroll files:
  - Monthly payroll file,
  - Payroll certification file,
  - Liquidation statement files,
  - Family allowance file,
  - Prepayment File.

These files will be transmitted to the Urban Agency of Al Hoceima at the latest on the 18th of the corresponding month.

☒ At the beginning of each year, *TGR* will produce the following files:

- Permanent Expenditure Report File;

- The file of the annual income tax return (*IR*) of the previous year.
- Other periodic editions can be established upon request, and after study of its feasibility by the *TGR*.

The diagram above shows the organization and the deadlines of this planning

| Actions                                                                        | Actors                   | Observations                  |
|--------------------------------------------------------------------------------|--------------------------|-------------------------------|
| Envoi des modifications du mois                                                | L'organisme conventionné | Before the 10th of each month |
| Processing of changes (Prepayment schedules, loans, handling of sent changes)  | <i>DDP</i>               | 12th of each month            |
| Calculation, liquidation and control of the payroll                            | <i>DDP</i>               | 15th of each month            |
| Mandating and issuing payroll                                                  | <i>DDP</i>               | 17th of each month            |
| Sending electronic files (payroll and LMIS files) by e-mail                    | <i>DDP</i>               | 18th of each month            |
| Sending of the monthly balance (various statements and paper documents) E-mail | <i>DDP</i>               | 18th of each month            |

[Source: Personnel Payroll Convection]

#### 4.The epistemological approach to research and discussion of results

Our study is based on an analysis of the process of implementing a performance system in an organization that has initiated such an approach. This is the study and analysis of documentation, a fully-fledged method of approaching organizations within the field of documentary studies.

The scientific requirements of this method are the same as those of the other research options, as it examines the phenomenon in its operational context.

Our research focuses on a public administration that has improved its management by introducing a modern payroll system. We intervene in a public administration that has introduced a system based on effectiveness, efficiency

and relevance, using appropriate management mechanisms. The aim of this research is to review the operation of the administration, taking into account all the concrete changes made.

#### 4.1 Discussion of results

At the end of this work and after analysis of the results, we can make the following remarks:

Considerable investment in the computerization of the administration must be accompanied by training, not only technical, but also in other areas.

It is important not to restrict the use of information systems to certain routine administrative tasks, but to extend them to more strategic activities such as knowledge management and human capital development.

It is essential for administrations to overcome organizational and cultural difficulties in order to maximize the benefits of ICT.

A lack of a culture of dematerialized payroll management and resistance to transparency and cross-functionality are commonplace in public sector organizations, particularly among managers.

Managers must face up to the problems of using information systems. They must not be used simply as a means of getting the job done, but as a genuine tool for good governance within the administration. It can also integrate the best practices of other administrations in a benchmarking approach;

Public administrations must face up to the problem of updating and updating data;

Managers need to address the issue of data security and confidentiality;

Administrations need to facilitate teamwork (groupware). Managers need to facilitate the creation of virtual teams, get the IT and communications departments to work together, and involve the IT department in reform projects.

The administration is called upon to overcome the legal and administrative obstacles to human resources management;

The use of information systems in administrative departments must be based on a performance-oriented approach;

Finally, we would like to point out that the individual must be at the heart of software development and use within the administration. The implementation of these technologies, by their very nature vectors of change, must not only respond to organizational concerns, but also take the end-user into account.

An understanding of people's behaviours will help to secure the support and commitment of all employees.

It should be noted that the system is used by all ministerial departments (44), local authorities (1,604) and other approved bodies (110)<sup>3</sup>.

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<sup>3</sup> According to the results of a study carried out by the General Treasury of the Kingdom of Morocco, which is the project owner.

A centralized database with secure web access, covering over a million civil servants.

The implementation of *INDIMAJ* offers major benefits for the Administration, including :

- A drastic reduction in the time taken to regularize the situation of civil servants.
- Simplification of personnel expenditure circuits and procedures;
- Reduce the cost of running departments and acquiring and maintaining technical equipment;
- Take advantage of the development of new information technologies, in particular Web technologies and communication networks;
- Accelerate the pace of processing required to regularize the administrative and financial situation of staff.
- Enable staff to access credit at source and at preferential interest rates.
- Ensure that salaries are paid in accordance with up-to-date regulations.
- Have access to all historical personnel information, either consolidated or detailed.
- Provide organizations with the necessary human resources management tools, training and assistance, in particular the *Indim@aj* system and *Teleservices*.
- Integrated processing of remuneration elements throughout the entire chain, from preparation of the management act to payroll settlement.
- Ease and convenience in managing withholding taxes: computerized and transparent procedure with finance companies, banks and insurance companies.
- Electronic Data Interchange (*EDI*) developed with pension, social security, credit and insurance organizations, ensuring monthly declarations of contributions and other complementary services.

#### **4.2 Advantages and disadvantages of the salary processing information system in Morocco :**

In general, a public administration processes all of its operations with the help of IT solutions to meet the increased needs of citizens. With information systems, it is possible for an organization to automate up to ninety percent of its operations and services. Today, with issues such as growing competition, labour shortages and increased data security risks, it is essential for an organiza-

tion to have business solutions that allow it to achieve one hundred percent operational efficiency. In this perspective, the acquisition of a custom software is no longer a question to be asked, it definitely becomes an added value for any organization in search of effectiveness and efficiency.

Here are the advantages and disadvantages that this solution represents in this establishment after having been installed at the services of this agency since 2014.

#### 4.2.1 The advantages

*INDIMAJ* is a centralized solution that provides an interface to "*Wade-f@njour*", connected directly to this system via a secure access, based on an adapted and reactive authorization system of high level in terms of confidentiality, integrity and data privacy. This system of integrated personnel management in the public sector allows all those involved in the management, control and remuneration of people to apply the same management rules, "unify concepts and procedures and the application of similar methods of communication in terms of exchange of information on modern information technology through two basic principles: standardization and computerization.

The objective of the system is to unify the concepts and procedures related to the management of State personnel, the standardization of management rules by applying the same rules regardless of the service or organization involved in the application of these rules, simplify administrative procedures and circuits by reducing the processing time of files, harmonization and reconciliation of data exchanged between the parties to achieve an official "identical file" at the level of all stakeholders in the HR management.

This system as it has been designed and implemented presents significant gains for the Administration, including:

The drastic reduction of the delays of regularization of the situations of the civil servants, the simplification of the circuits and procedures of execution of the expenses of the personnel, the reduction of the costs of functioning of the services, of acquisition and maintenance of the technical equipment, The use of the development of the new technologies of information, notably the technologies of the Web and those of the communication networks, automation and facilitation of the process of production of salary processing, modernization of the tools of management of the authorizing officers, pooling and optimization of the Administration's resources, automatic generation of response files for each authorizing officer, monitoring of the financial impact of management acts, which allows for automatic and real monitoring of available credits, consultation of the payroll situation by authorizing departments, automatic monthly dispatching of payroll files for each authorizing officer, provision of authorizing officers with data relating to budgetary forecasting of the wage



bill<sup>4</sup>, reliability and security of social data.

A high-performance payroll engine with automatic mass processing (approximately 2.5 million settlements for 2016), an information base structured in such a way as to make the system the basis of a real decision-making tool, a high-performance and integrated management system based on parameters adapted to take into account the main regulatory changes, Intrinsic time management allowing easy processing of retroactivity and future payroll (forecasting of the wage bill, simulation of the impact of regulatory reforms and budget programming), transfer of entries to the accounts, openness to other organizational modes and multi-payroll management.

#### 4.2.2 The disadvantages

Several categories of disadvantages exist:

During the last few years the system has undergone evolutions. This was either to meet functional needs due to the integration of the regularity control process or to meet user requests (*WADEF* and *@ujour* integration project and several maintenance requests related to regulatory changes). Nevertheless, the system continued to operate with the basic design with major evolutions that were implemented without re-engineering the basic process. This leads to double checks and possibly regressions detected afterwards. This choice is sometimes dictated by the possible cost of the investment for a given information system. The management acts continue to follow the same circuit, the handling at the order office, the study, the approval and then the validation, which causes a heavy exploitation when it is a question of transferring slips and acknowledgements of receipt between workstations of the same entity. In addition to the management of the acts, the constraints linked to the system can be summarized as follows:

Organizational and regulatory constraints. Indeed, the system requires readjustments to be multi-accounting and will be able to make each manager responsible for these interventions in the system. The process of liquidation and mandatement is made for the mass and not the unit, this makes the process of selective and very heavy control. The field of the Moroccan payroll is very complex and retroactive (*«depth until 1980»*), this makes the functional field alive and dynamic from month to month of the balance. This deployment requires a proximity assistance within the ministries, local authorities and autonomous organizations agreed. This system transmits the acts to the *@ujour* system after their initiation by the authorizing officers, which requires a double handling. In addition to these regulatory and organizational constraints, the system has technological constraints related to the durability of the technological architecture, which cannot cope with the changes in the new technology, and

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<sup>4</sup> The payroll includes the gross remuneration paid to civil servants and the social security contributions that the State, as the employer, is required to make to social security schemes.

human resources are scarce to ensure the maintenance of this technology. In addition, the current architecture was initially designed for local network access. This results in very slow response times for processing collective acts in intranet access. In view of these constraints, it is advisable to rethink the system. A re-engineering of the payroll system must be carried out in order to simplify the procedures for processing management acts, to make the "employer" actors more responsible and to give them a global view of the management of their human resources. The circuit that a management act must follow is necessary in order to eliminate certain tasks that have become useless and also to define the process of management acts on all the points of control of taking in charge, regularity and validity.

## 5. Conclusion

In conclusion, the *INDIMAJ* payroll processing project in Morocco has demonstrated its significant potential for improving payroll processes within companies. The initiative has standardized and streamlined the processing of payroll data, contributing to more efficient human resources management. Preliminary results indicate a noticeable reduction in calculation errors and an improvement in employee satisfaction, underlining the importance of an automated payroll system. The challenges encountered, notably resistance to change and technical problems, provided learning opportunities that could serve as a basis for other similar projects in the future. The lessons learned from the case studies presented illustrate the need for appropriate support when implementing new technologies. Moreover, the integration of regulations is crucial to ensure compliance and reinforce stakeholder confidence. In short, the *INDIMAJ* project can serve as a model for other initiatives in Morocco and beyond, illustrating how a methodical, analytical approach can transform human resources management practices.

The major challenges of the current system of payroll management for civil servants of the State and certain organizations consist in the adoption of new concepts of the latest generation of information systems, in this case the end-to-end dematerialization and self-service with its prerogatives in terms of security of access and data. It is desirable to re-launch in the short term the reflection on the redesign of the personnel expenditure system following the example of the integrated systems to integrate the authorizing officer and the other partners knowing that the human resources of the *TGR* have acquired a very great expertise in the matter.

The above-mentioned limitations open the way to promising new prospects, particularly in the area of introducing new technologies into human resources management via:

The move towards a single Integrated Personnel Expense Management (*IPEM*) system;

A progressive integration approach;

An integrated, unified system common to all personnel expenditure players.

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