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## END OF STUDIES DISSERTATION

A Dissertation Submitted in Partial Fulfilment of the Requirements for  
the Degree of Master in Strategic Management and Information Systems

### **The Impact of Human Resources Information Systems Implementation on the Organization's Performance**

Case: Sonelgaz

#### **Elaborated by:**

Seif Eddine BIBIMOUNE

Chemseddine KARA

#### **Board of Examiners:**

- Chairwoman: LAADJOUZI Soumia
- Supervisor: TOUMI AAMARA Djamila
- Examiner: ZEROUTI Messaoud

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## **Abstract:**

This research aims to examine the impact of implementing a Human Resources Information System (HRIS) on an organization's performance, particularly in terms of HR processes, time efficiency, cost efficiency, information effectiveness and decision-making effectiveness. Using data collected from 14 interviewees who are managers, executives and engineers at the Directorate of Personnel Management, Compensation and HR systems in the Company of Sonelgaz. We find that the implementation of HRIS in an organization does have an impact and a positive one nonetheless on the organization's performance in terms of HR processes, time efficiency, information effectiveness and decision-making effectiveness. However, we also find that HRIS implementation does not have any impact on the cost efficiency within the organization. Theoretical and practical implications were discussed.

**Keywords:** HR processes; Time efficiency; Cost efficiency; Information effectiveness; Decision making effectiveness.

## **ملخص:**

الهدف من هذا البحث هو دراسة الأثر الذي قد ينجم عن إدخال نظام معلومات للموارد البشرية على مستوى الشركة، حيث تمت دراسة الأثر على وجه الخصوص فيما يتعلق بعمليات الموارد البشرية، توفير الوقت، خفض التكاليف، دقة المعلومات ونجاعة اتخاذ القرارات. باستخدام البيانات التي تم جمعها عبر إجراء مقابلات 14 من المسيرين، الإطارات والمهندسين على مستوى مديرية شؤون الموظفين والأجور ونظم الموارد البشرية بشركة سونلغاز. وقد تم الوصول الى نتائج تشير بأن لنظام معلومات الموارد البشرية تأثير إيجابي على أداء المنظمة من حيث كل من عمليات الموارد البشرية، توفير الوقت، دقة المعلومات، ونجاعة اتخاذ القرارات. بينما وجدنا أن هذا الأخير لا يؤثر بأي شكل على تكاليف الشركة. هذا وقد تمت مناقشة كل من الجانب النظري والتطبيقي في هذا البحث.

**الكلمات الدالة:** عمليات الموارد البشرية، توفير الوقت، خفض التكاليف، دقة المعلومات، نجاعة اتخاذ القرارات.

## **Résumé :**

L'objectif de cette recherche est d'étudier l'impact qui peut résulter de l'introduction d'un système d'information des ressources humaines au niveau de l'entreprise, où l'impact a été étudié en particulier en ce qui concerne les processus des ressources humaines, le gain de temps, la réduction des coûts, l'exactitude des informations et l'efficacité de prise de décision. En utilisant les données recueillies en menant des entretiens avec 14 managers, cadres et ingénieurs au niveau de la Direction du personnel, rémunération et systèmes de ressources humaines de Sonelgaz. Les résultats obtenus indiquent que le système d'information des ressources humaines a un impact positif sur la performance de l'organisation en termes des processus de ressources humaines, de gain de temps, d'exactitude des informations et d'efficacité de la prise de décision. Alors que nous avons constaté que ce dernier n'affecte en aucun cas les coûts de l'entreprise. ). Les implications ont été discutées tant du côté théorique que pratique dans cette recherche.

**Mots clés :** Processus RH ; Gain de temps ; Efficacité des couts ; Exactitude des informations ; Efficacité de prise de décision.

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We would also like to thank our co-supervisor, Dr. Taous Asma BENHIDJEB whose language and academic expertise were of big help to us while trying to conduct this research in English.

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## **TABLE OF CONTENTS**

ABSTRACT	ii
ACKNOWLEDGEMENTS	iv
TABLE OF CONTENTS	v
FIGURES LIST	vii
TABLES LIST	viii
ABBREVEATIONS AND ACCRONYMS LIST	ix
INTRODUCTION	10
<b>CHAPTER I : LITERATURE REVIEW AND CONCEPTUAL FRAMEWORK</b>	<b>12</b>
SECTION 01 : LITERATURE REVIEW	13
SECTION 02 : CONCEPTUAL FRAMEWORK	16
1. Definition of the Human Resource Information System	16
2. Main types of Human Resource Information Systems	17
3. Factors influencing the Adoption of HRIS	19
4. Definition of Organizational Performance	22
5. Measurement of Organizational Performance	22
6. Indicators of Organizational Performance	25
<b>CHAPTER II: METHODOLOGICAL FRAMEWORK AND HOST ORGANIZATION</b>	<b>27</b>
SECTION 01: PRESENTATION OF THE HOST ORGANIZATION	28
1. About Sonelgaz	28
2. The Directorate of Personnel Management, Compensation and HR System at Sonelgaz	30
3. Organizational chart of the Directorate of Personnel Management, Compensation and HR System	35

<b>SECTION 02 : METHODOLOGICAL FRAMEWORK</b>	<b>36</b>
1. Choice of topic	<b>36</b>
2. Choice of company	<b>36</b>
3. Research Methodology	<b>36</b>
4. Data collection methods	<b>37</b>
5. Interviewees	<b>39</b>
6. Data Processing	<b>39</b>
<b>CHAPTER III : RESULTS AND DISCUSSION</b>	<b>40</b>
1. Results	<b>41</b>
2. Discussion	<b>48</b>
<b>CONCLUSION</b>	<b>49</b>
<b>REFERENCES</b>	<b>51</b>
<b>APPENDIXES</b>	<b>55</b>

## **FIGURES LIST:**

**Figure 01:** A model of a Human Resource Information System (HRIS)

**Figure 02:** Factors influencing the Adoption of HRIS

**Figure 03:** Organizational chart of the Directorate of Personnel Management, Compensation and HR System at SONELGAZ

## **TABLES LIST:**

**Table 01:** Demographic characteristics of interviewees

**Table 02:** HRIS implementation impact on HR processes

**Table 03:** HRIS implementation impact on Time Efficiency

**Table 04:** The impact of HRIS implementation on Cost Efficiency

**Table 05:** HRIS impact on Information Effectiveness

**Table 06:** The impact of HRIS implementation on Information Effectiveness

## **ABBREVIATIONS AND ACRONYMS LIST:**

**HR:** Human Resources

**HRIS:** Human Resources Information System

**HRM:** Human Resources Management

**SHRM:** Strategic Human Resources Management

**IT:** Information Technology

**ERP:** Enterprise Resource Planning

**PMM:** Performance Measurement Matrix

**RDF:** Results Determinants Framework

**PPS:** Performance Pyramid System

**BS:** Balanced Scorecard

**IPMS:** Integrated Performance Measurement Systems

## **KEYWORDS**

**HR processes:** HR processes refer to the fundamental strategies that HR leaders implement to ensure successful employee lifecycles and work experiences.

**Time efficiency:** the state or quality of being efficient, or able to accomplish something with the least waste of time and effort; competency in performance.

**Cost efficiency:** Cost efficiency is the act of saving money by changing a product or process to work in a better way. This is done to improve the organization's bottom line by decreasing procurement costs and improving efficiencies across the board

**Information effectiveness:** Information systems (IS) effectiveness is a complex variable. The literature on organizational effectiveness suggests that it may not be possible to find a precise measure of IS effectiveness and the criteria for effectiveness may vary from organization to organization.

**Decision making effectiveness:** Effective decision making is defined here as the process through which alternatives are selected and then managed through implementation to achieve business objectives. 'Effective decisions result from a systematic process, with clearly defined elements, that is handled in a distinct sequence of steps

# **INTRODUCTION**

The field of Human Resource Management has been going through a continuous evolution, an evolution so massive to the point where HR functions no longer played a supportive role, and became strategic instead.

One of the main traits of the evolution mentioned above is HRIS or Human Resource Information System.

Within our research, we have placed a particular focus on the areas where using HRIS might have an impact on the overall performance of an organization, the organization being Sonelgaz in this case. Within the context of that scope, this research aims to answer the following question:

What impact if any, does the implementation of a Human Resources Information System have on an organization's performance?

To answer the research problem above, we have followed a qualitative research method.

Our work is structured as follows:

In the first chapter titled Literature Review and Conceptual Framework, the main works of research on which our study relied will be presented, and then the conceptual bases of our research will be listed in a conceptual framework with an emphasis on the notions of HRIS and Organizational Performance.

In the second chapter, a presentation of our host organization will lead, followed by a methodological framework where we will present our methodological approach, our data collection methods and even our data processing methods.

Finally, in the last chapter, results of structured and semi-structured interviews that we conducted will be presented, analyzed then discussed.

**CHAPTER I: LITERATURE REVIEW  
AND CONCEPTUAL FRAMEWORK**

## **SECTION 01: LITTERATURE REVIEW**

Numerous works of research were conducted on the topic of the Implementation of Human Resource Information Systems in an organization; this part will be dedicated to discussing the different studies and researches elaborated on this topic.

**First** is an article about the implementation of HRIS and its benefits for organizations, written by LIELI SUHARTI and PRYANTO RATNA SULISTYO, from the Faculty of Economics and Business at the Satya Wacana Christian University in Indonesia,

The article discusses hypotheses concerning the positive effect of implementing a HRIS on an organization from 04 different aspects: time efficiency, cost efficiency, managerial satisfaction and quality of information.

Throughout their research, the writers were looking to answer the following problematic:

**How supported are the hypotheses concerning the positive impact of a HRIS on time efficiency, cost efficiency, quality of information and managerial satisfaction?**

To answer the problematic above, a qualitative research method was followed, using data of 80 respondents from different Indonesian companies to questionnaires and interviews, where the following results were reached:

- The implementation of a HRIS does indeed have an effect on an organization's time efficiency
- The implementation of a HRIS does not impact nor influence an organization's cost efficiency
- The implementation of HRIS in an organization does not affect the quality of information
- The implementation of HRIS does indeed affect the managerial satisfaction in an organization.

**Second**, is an article about the Impact of HRIS Applications on Organizational Performance in Jordanian Private Hospitals, elaborated by IYAD MOUHAMED ALI KHASHMAN from the Jazan College of Technology in Saudi Arabia, and AYSAR MOUHAMED KHASHMAN from the World Islamic Sciences and Education University in Jordan.

The article discusses hypotheses concerning the impact of HRIS applications on an organization from 03 different aspects: organizational performance, efficiency and effectiveness.

Throughout their research, the writers were looking to answer the following problematic:

**Do HRIS applications have an impact on an organization when it comes to; performance, effectiveness and efficiency?**

To answer the research problematic, a quantitative research method was followed, using data of 170 respondents from 39 private hospitals in the city of Amman to questionnaires, where the following result were reached:

- There is a positive impact of HRIS applications on organizational performance.

Moreover, their research recommended that hospitals should pay more attention to HRIS applications to maximize organizational performance.

**Third**, is an article under the title: HRIS: An Effective Tool for Strategic Human Resource Management, written by SALONI DEVI, from the Business School at the University of Jammu, in India.

The article discusses the role of Information Technology in the transition of Human resources from Human Resource Management (HRM) to Strategic Human Resource Management (SHRM).

Throughout his research, the writer was looking forward to answer the problematic that follows:

**What is the role of the Human Resource Information System in the Strategic Management of Human Resources?**

To answer the problematic above, the researcher followed a quantitative research method where he attempted to examine how HR professionals and managers in different organizations see the effects of human resource information systems on strategic human resource tasks and job roles, after reviewing over 37 articles related to the matter, the writer was able to reach the following results:

- Strategic human resource management is supported by HRIS however the degree of support depends on the type of organization
- Users of HRIS need to identify their strategic human resource tasks and organization type before embarking on any implementation in order to enjoy the full benefits of using HRIS both to HR professionals and to the organization as a whole
- The usage of HRIS for strategic HR tasks leads to an enhanced professional standing in the organization
- HRIS plays a key role in strategic human resource management but the degree of that role is also very much dependent on the type of organization.

## SECTION 02: CONCEPTUAL FRAMEWORK

The second section of our study aims to present the conceptual bases of our research, with particular emphasis on the notions of Human Resources Information Systems and Organizational performance

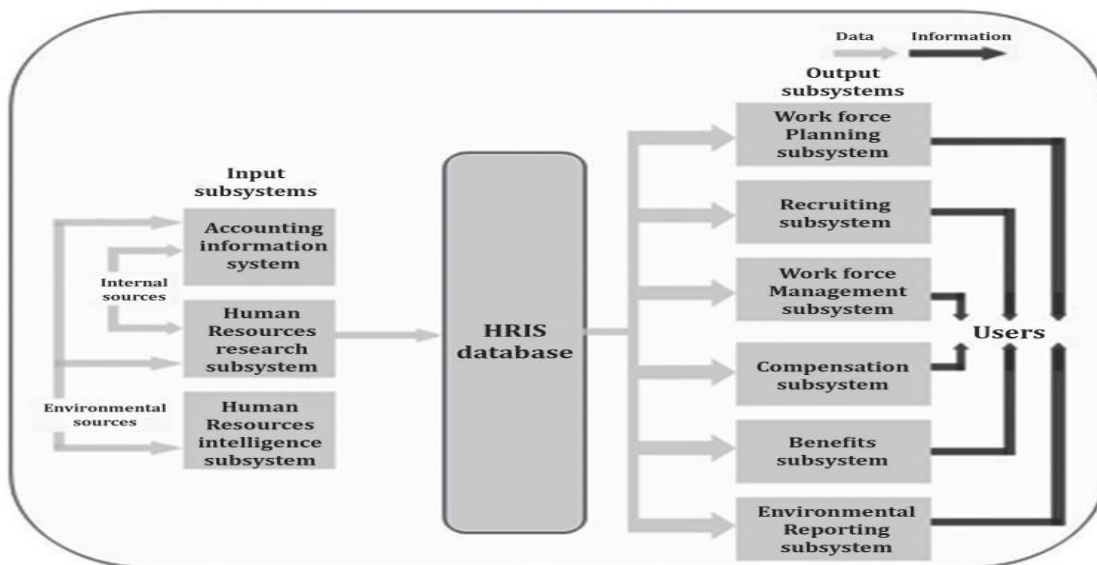
### 1. Definition of the Human Resources Information System:

HRIS is “a system that develops current and accurate information for decision-making and monitoring” (Bohlander et al, 2001)

According to (Kovach & Cathcart, 1999), “HRIS is a systematic procedure for collecting, storing, maintaining, retrieving, and validating data needed by an organization about its human resources, personnel activities, and organizational unit characteristics”.

“The typical HRIS consists of 4 to 5 application modules such as; Compensation and equity monitoring, which is considered to be the most important module. Followed by benefit administration module, applicant flow module, and the human resource control module” (Yeung & Brockbank, 1995).

**Figure 01:** A model of a Human Resource Information System (HRIS)



Source: website

As is the case with any complex organizational information system, an HRIS is not limited to the computer hardware and software applications that comprise the technical part of the system, it also includes the people, policies, procedures, and data required to manage the HR functions.

## **2. The main types of Human Resources Information Systems:**

There are four main types of Human Resources Information Systems: Operational HRIS, Tactical HRIS, Strategic HRIS and Comprehensive HRIS.

### **2.1. Operational Human Resources Information Systems:**

Operational HRIS systems work on collecting and reporting human resource data such as; records of employees, details about their positions, and information about their performance.

They aim to provide HR managers with the much-needed data for the efficient performance of tasks such as; performance management, promotions, hiring, and internal personnel changes.

This type of systems can be helpful in a variety of organizations as they help with standard HR functions. If you feel that your HR team spends too much time on repetitive people management tasks or digging around disorganized files and spreadsheets for employee data, an operational HRIS system could be the right choice for you.

### **2.2. Tactical Human Resources Information Systems:**

Tactical HRIS systems are involved in processes related to the use of resources. This includes things like recruiting, training, compensation, vacancies, and so on. These are more useful for making big-picture decisions about things like resource allocation, job analyses, and development. In addition to internal figures, tactical HRIS systems also deal with data such as union information, competitor data, government requirements, etc.

Tactical HRIS systems are best for organizations that need assistance making macro-level decisions about what to do with resources and less for those who need support with smaller day-to-day tasks.

### **2.3. Strategic Human Resources Information Systems:**

Just as it sounds, strategic HRIS systems help with strategic analysis and decision-making. They assist HR professionals in functions like goal-setting and future workforce planning. Strategic HRIS systems can help with awareness regarding available labor resources and proper workforce planning by managing data like market information and operations budgets.

Strategic HRIS systems are especially useful for organizations looking to expand or grow strategically. If you want to rely on concrete figures to make intelligent, strategic, data-driven decisions for your company's future, it is a good idea to consider a strategic HRIS.

### **2.4. Comprehensive Human Resources Information Systems:**

A comprehensive HRIS is somewhat of a combination of the above types, including operational, tactical, and strategic matters.

It works as a streamlined database and platform to offer easy review and management of a variety of HR-related tasks, such as Employee information, HR files, open positions, employee safety guidelines, Skills inventory, performance management...etc.

A comprehensive HRIS functions as a one-stop shop for storing and displaying any information needed to perform nearly all HR functions. While they may be a bit pricier or require more training and resources to run, comprehensive HRIS systems can offer many valuable features that can ultimately transform how an HR department runs.

### **2.5. Limited-Function Human Resources Information Systems:**

Unlike the types mentioned above, a limited-function HRIS serves one purpose only. They are not necessarily made for strategic planning or management, instead, their functions are more concrete and granular.

The exact function of each limited-function HRIS depends on the particular system. For example, there might be an HRIS created specifically for employee training or benefits management.

Limited-function HRIS is generally better suited for smaller companies as they are often inexpensive, easy to operate, and can be used comprehensively by even a single HR manager.

### **3. Factors influencing the adoption of HRIS:**

#### **3.1. Organizational Factors:**

Organizational factors those characteristics of organizational nature that influence the adoption of HRIS.

The main organizational factor when it comes to HRIS adoption would be the size of the organization “all HRIS types were not created equally, and they don't need to be, as the HRIS usage depends greatly on the firm's size. The reason can be explained with an example; a company consisting of 25 employees can install a major HIRIS like PeopleSoft but the huge expense would be difficult to justify. Similarly, a large multinational company could create a database program just to access and perform the functions necessary to operate, but it would be unmanageable and very limited”. (Hendrickson, 2003)

Therefore, “it is clear that effective HRIS requires a balance between technical and critical information needs of the HR function according to the organization's size, as the size can define the needs of the HR function” (Hendrickson, 2003).

Beside the organization’s size, other organizational factors influence the implementation of an HRIS within an organization, such as; top management, expertise or human capability, and the degree of centralization within an organization.



### **3.2. Technological Factors:**

“Technological factors focus on the manner where technology characteristics can influence the adoption” (Yang et al., 2007).

Adopters assess the characteristics of innovations in terms of "possible gains and barriers". Gains refer to “the benefits organizations expect to receive upon adoption and include increased levels of service quality, efficiency, and reliability” (Oliveira & Martins, 2010).

On the other hand, barriers include “innovation complexity and its compatibility with organizational technology competency systems” (Rogers, 2003)

“HRIS can become an integral part only if the organization has infrastructures and technical skills. These factors allow the technological capacity of an organization to adopt HRIS” (Oliveira & Martins, 2010)

Conversely, since organizations with superior technology readiness are in a better position to adopt HRIS, companies that do not have strong technology infrastructure and wide IT expertise may not take the risk of adopting HRIS.

A number of researches have recognized technological readiness as a significant factor that influences IT adoption (Kwon & Zmud, 1987; Oliveira & Martins, 2010).

### **3.3. Environmental Factors:**

“Environmental factors are the area where organizations conduct their business, and includes industry characteristics, government regulation, and supporting infrastructure” (Oliveira & Martins, 2010; Troshani et al., 2011).

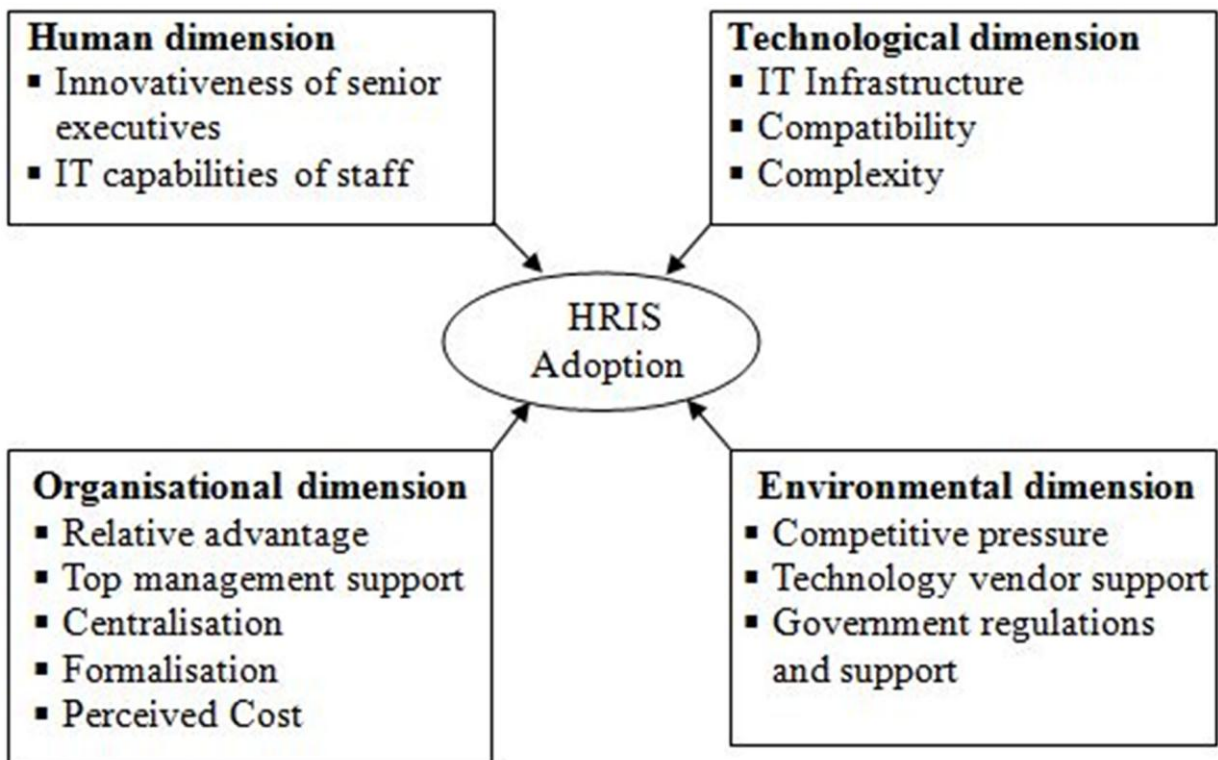
“Besides infrastructure and technical support, governments also play a vital role for encouraging technology adoption by raising awareness, training, support, and funding” (Troshani et al. 2011),

The list of environmental factors affecting HRIS implementation includes but is not limited to competition, technological development and HRM state of art, labor market, societal developments, and even governmental regulation.

In addition, when it comes to multinational organizations “HRIS is influenced by factors such as institutional and cultural host-country environment” (Dowling, Festing & Engle, 2008, Festing & Eidems, 2011).

In addition to the factors above, it is important to consider the Human Factor, now even though this factor should fall within the category of organizational factors, it is important to consider on its own as well.

**Figure 02:** Factors influencing the Adoption of HRIS



**Source:** elaborated by us

#### **4. Definition of Organizational performance:**

Organizational performance is described as the degree to which a corporation, as a social system with limited resources, can achieve its objectives without depleting those resources or putting undue strain on its personnel.

(Warmington et al, 1977) treated the concept of organizational performance in the most careful and explicit manner in comparison with other researchers in the same period. “in an effective organization, the productivity rate and levels of satisfaction and motivation of its members are high, while rates of turnover, costs, labor unrest are low or absent.” (Lupton T, 1977).

However, according to (Katz, D. and R.L. Kahn, 1978), the efficiency (ratio of outputs to input) and effectiveness of an organization were parallel, both vital components of the overall organizational performance, which can be assessed through maximizing the total returns of all kinds. In summary “effectiveness,” “efficiency,” and “relevancy” are three dimensions of organizational performance that have been used as common elements in the abovementioned definitions

#### **5. Measurement of Organizational Performance:**

Due to organizations differing in size, nature, activity, location, values ... etc. There could not be one clear standard way to measure the performance of an organization, instead there are different models of performance measurement, and the main ones are:

##### **5.1. The Performance Measurement Matrix (PMM):**

“The PMM model includes elements such as strategy alignment, stakeholder balance, clarity and simplicity, and verticality and balance (Garengo et al., 2005).

“As a complete model, it allows you to check all potential metrics of success in an organization while also identifying omissions or areas where more attention is needed. by integrating the different business performance classes and combining the financial and non-financial perspectives with the internal and external perspectives” (Neely et al., 2000)

This model helps the organization to define its strategic objectives and translate them into performance measures through a hierarchical and integrated approach. It enables them to trace paths of all possible measures of performance of an organization.

However, “its simplicity has is criticized for failing to consider some perspectives and relationships that are more explicit in other models such as the BSC” (Neely et al., 1995), (Neely et al., 2000).

### **5.2. Results and Determinants Framework (RDF):**

“The RDF model is based on the premise that there are two basic types of performance measures in any organization: those relating to the results (competitiveness, financial performance) and those that focus on the determinants of the results (quality, flexibility, use of resources and innovation)” (Bourne et al., 2000; Neely et al, 2000).

“This model, allows distinguishing between the results and their determinants” (Bourne et al., 2000).

However, “by not including customers or human resources as performance dimensions it cannot give a truly balanced view of performance” (Hudson et al., 2001).

### **5.3. The Performance Pyramid System (PPS):**

“The PPS model is a pyramid-shaped suggested model and divided into four levels, describing the measures that are part of the performance through the hierarchical structure of the organization” (Bourne et al., 2000).

“It is used as dimensions the alignment of strategy, strategic improvement, balance, orientation to the processes, depth, width, causal relationships, verticality and balance” (Hudson et al., 2001; Rouse and Putterill, 2003).

This model, “has the advantage of clearly showing the difference between the measures that are of interest to external parts - customer satisfaction, quality and delivery - and the measures that are of interest to the internal parts - productivity, time cycle and waste” (Neely, 2000).

However, “it does not specifically address neither the form of the measures nor the process to develop them” (Hudson et al., 2001).

#### **5.4. Balanced Scorecard (BS):**

“Being the most studied and perhaps the one with greater applicability, the BSC model is the most cited model in the literature with positive and/or negative references. It reinforces the measurement of the relationship with the strategy on four different perspectives - financial, customer, internal processes, learning and growth - from a set of measures that allows top managers to immediately get a comprehensive view of the business” (Tangen, 2004).

This model “emphasizes the balance between financial and non-financial measures to achieve the strategic alignment” (Hudson et al., 2001).

#### **5.5. Integrated Performance Measurement Systems (IPMS):**

The IPMS model emphasizes two main aspects of performance measurement systems: integrity and implementation.

“Integrity refers to the capacity of the performance measurement system to promote the integration of the various business areas, whereas the implementation relates to the execution of business objectives and policies over four levels: corporate, business units, business processes and activities” (Bititci et al., 1998).

This model is based on seven key dimensions: two externals used to monitor the organizational position in the competitive context (financial performance and competitiveness)

and five internal used to monitor all the production process (costs, factors of production, activities, products and incomes).

However, “the IPMS model was not a structured process in which the objectives are specified, as well as the development timelines and its implementation” (Hudson et al., 2001; Pun and White, 2005).

## **6. Indicators of Organizational Performance:**

### **6.1. Quality:**

Quality is the key to the success of any organization. Today, customers want high-quality products, and organizations that can provide such products at low cost win the rivalry.

“The quality is checked mainly at three levels input, output and throughput or process quality. Most of the organizations focus on quality because they have made promises to their customers about quality of their services and products” (Heckl and Moormann 2010; Badri et al. 1994)

“The measures of quality are performance, features, reliability, technical durability, serviceability, aesthetics, perceived quality, humanity, and value.” (Neely and Platts 2005)

### **6.2. Time:**

“Time is a very important determinant of the manufacturing performance of the organizations. The time-based manufacturing is an important concern for the manufacturing organizations in the world; in order to achieve competitive advantage over their competitors” (Koufteros et al. 1998).

Neely and Platts (2005) has listed the measures of time performance as follows; time to market, distribution lead times, delivery reliability (to clients), supply lead times, supplier delivery reliability, manufacturing lead time, standard run time, actual run time, wait time, setup time, move time, inventory turnover, order carrying out time and mean(flexibility).

However, White (1996) has chosen to list a way more detailed roll of time performance measures related to strategy. His list goes as follows; used lead time, cycle time, order processing time, response time, material throughput time, distance travelled, decision cycle time, time lost waiting for decisions, percentage of first competitors to market, breakeven time, time from idea to market, average time between innovation, number of changes in projects and engineering time as the strategy related measures of time.

### **6.3. Cost:**

“The external stakeholders have more concern with the cost-based measures of the performance, so that is why the organizations use cost accounting system which include measures of efficiency and effectiveness, represent an effort to relate internal performance measures to external ones” (White, 1996).

Neely and Platts (2005) has listed the measures of cost performance as follows; manufacturing cost, value added cost, running cost, services cost, and selling price.

However, White (1996) has listed a way more detailed list of cost performance measures that he thought to be strategic. His list goes as follows; cost relative to competitors, perceived relative cost performance, manufacturing costs, capital productivity, labour productivity, machine productivity, total factor productivity, direct labour cost, relative labour cost, labour efficiency, material cost, inventory cost, scrap cost, repairing cost, cost of quality, design cost, relative R&D cost, distribution cost, overhead and transactions per product.

### **6.4. Financial Performance:**

Historically, financial indicators such as physical value of sales and profits, return on equity, return on assets... etc. have been the best indicator for assessing business performance.

(White, 1996) states that the reason behind companies using financial measures for their performance measurement, is the pressure put on them by external groups of stockholders who would be strongly concerned with these sort of performance measures.

**CHAPTER II: METHODOLOGICAL  
FRAMEWORK AND HOST  
ORGANIZATION**

## **SECTION 01: PRESENTATION OF THE HOST ORGANIZATION**

### **1. About SONELGAZ:**

Sonelgaz is the historical operator in the field of electric and gas energy supply in Algeria. Created in 1969, Sonelgaz has been working for half a century at the service of the Algerian citizen by providing him with this essential energy source for his daily life.

Sonelgaz plays a major role in the economic and social development of the country. Its contribution to the realization of the national energy policy is commensurate with the important programs carried out in rural electrification and public gas distribution, which has allowed raising the rate of electricity coverage to 98% for 10,983,538 customers and a rate of gas penetration to 65% for 6,886,407 customers. Today, the Sonelgaz group is composed of 14 subsidiary companies, managed directly by the holding company and 10 companies in participation with third parties.

Sonelgaz is as one of the largest employers in the industrial landscape. Indeed, its workforce has been growing steadily over the years. At the end of December 2021, the Sonelgaz Group employs 93,250 agents in all socio-professional categories.

#### **1.1. Mission Statement of Sonelgaz:**

To provide reliable and responsible energy, to ensure quality public service, every day, everywhere we operate, and to contribute to the well-being of our customers and to sustainable development.

#### **1.2. Vision of Sonelgaz:**

As an integrated energy group and a major regional player, we are working to become a leader in the energy transition, to make reliable and responsible energy available and to drive economic and social development wherever we operate.

### **1.3. Values of Sonelgaz:**

- Commitment
- Ethics
- Responsibility
- Listening and Proximity
- Innovation
- Competence

### **1.4. Strategic Axes of sonelgaz :**

- Deploying digital technology and operational excellence to improve our performance
- Controlling our operational and financial investments
- Be a leader in renewable energies and energy transition
- Ensure our growth in new territories
- Develop our employees' skills and commitment within effective organizations
- Complete our financial restructuring.

Within the company of Sonelgaz, we did our internship in the Directorate of Personnel Management, Compensation and HR System.

Within the company of Sonelgaz, we did our internship in the Directorate of Personnel Management, Compensation and HR System.

## **2. The Directorate of Personnel Management, Compensation and HR System:**

This is the directorate in charge of all HR and all HRIS related projects, tasks, and issues

### **Its missions are:**

- To ensure the individual and collective management of the personnel of Sonelgaz in the respect of the rules and procedures of HR management in force;
- To ensure the management of the executives of Sonelgaz;
- To ensure the role of advice and animation towards the managerial line and the personnel on the aspects related to the development of employment and human resources;
- Align HRIS developments with the strategic issues of the HR function as defined by the decision-making bodies;
- Ensure, in relation with the project management, the functional administration of the interface with other systems, in particular the finance and accounting system.
- Propose the compensation policy in line with the Group's strategy and analyze its results;
- Design, develop and implement the individual and collective performance compensation system(s).

### **This directorate consists of 02 Departments:**

#### **1.1. Personnel Management Department:**

##### **1.1.1. Missions:**

- To ensure the individual and collective management of the personnel of Sonelgaz in the respect of the rules and procedures of management HR in force;
- To ensure the management of the executives of Sonelgaz;

- To ensure the role of advice and animation towards the managerial line and the personnel on the aspects related to the development of employment and human resources;
- Assisting companies in the operational management of personnel,
- Provide secretarial services for commissions.

### **1.1.2. Responsibilities:**

- Ensure administrative record keeping;
- To ensure the follow-up and the update of the computerized file of the personnel, in particular the modules dedicated to the administrative management and the management of the careers of the NOVA HRIS;
- Ensure the preparation and operation of the payroll;
- To ensure the administrative management of the executives of Sonelgaz;
- Coordinate with DFC for all payroll related reports (payroll journals, Income Tax, Social security, retirement fund, declarations, etc.)
- Take charge of relations with external organizations (Social security, retirement fund, declarations)
- To ensure the acts of miscellaneous management (temporary absences, clothing, staffing, liquidation of files in the process of closing, etc.);
- To ensure, in relation with the center of occupational medicine, the medical coverage of the personnel of Sonelgaz (periodic visits, systematic, etc.);
- Develop the Holding's HR dashboard.
- Develop and implement the recruitment plan of the Holding Company;
- Promote and monitor the integration of new recruits;
- Implement annual staff evaluation and promotion/advancement campaigns,
- Provide secretarial services for commissions

## **1.2. HR System and Compensation Activities Department:**

### **1.2.1. Missions:**

- Align HRIS developments with the strategic issues of the HR function as defined by the decision-making bodies;
- To manage the development and evolution of the HRIS in accordance with the terms of the specifications and the orientations of the decision-making bodies
- Ensure in relation with the project management, the functional administration of the system and the assistance to the users;
- Ensure in relation with the project management, the functional administration of the interface with other systems, in particular the finance and accounting system;
- Propose the compensation policy in line with the Group's strategy and analyze its results;
- To ensure the work of reorganization or relating to the evolutions of the systems of remuneration of the companies;
- Design, develop and implement the individual and collective performance compensation system(s);
- Drive and implement the performance management system;
- To control the factors of evolution of the payroll and to optimize the socio-economic balance according to the strategy of the Holding, its means and the job market;
- Conducting HR and compensation-related studies in response to requests from management, Group companies or public authorities. These studies may be carried out in partnership with professional organizations, which, in this case, provide their sector expertise.

### **1.2.2. Responsibilities:**

- Ensure the functional administration of the system and assistance to end users;

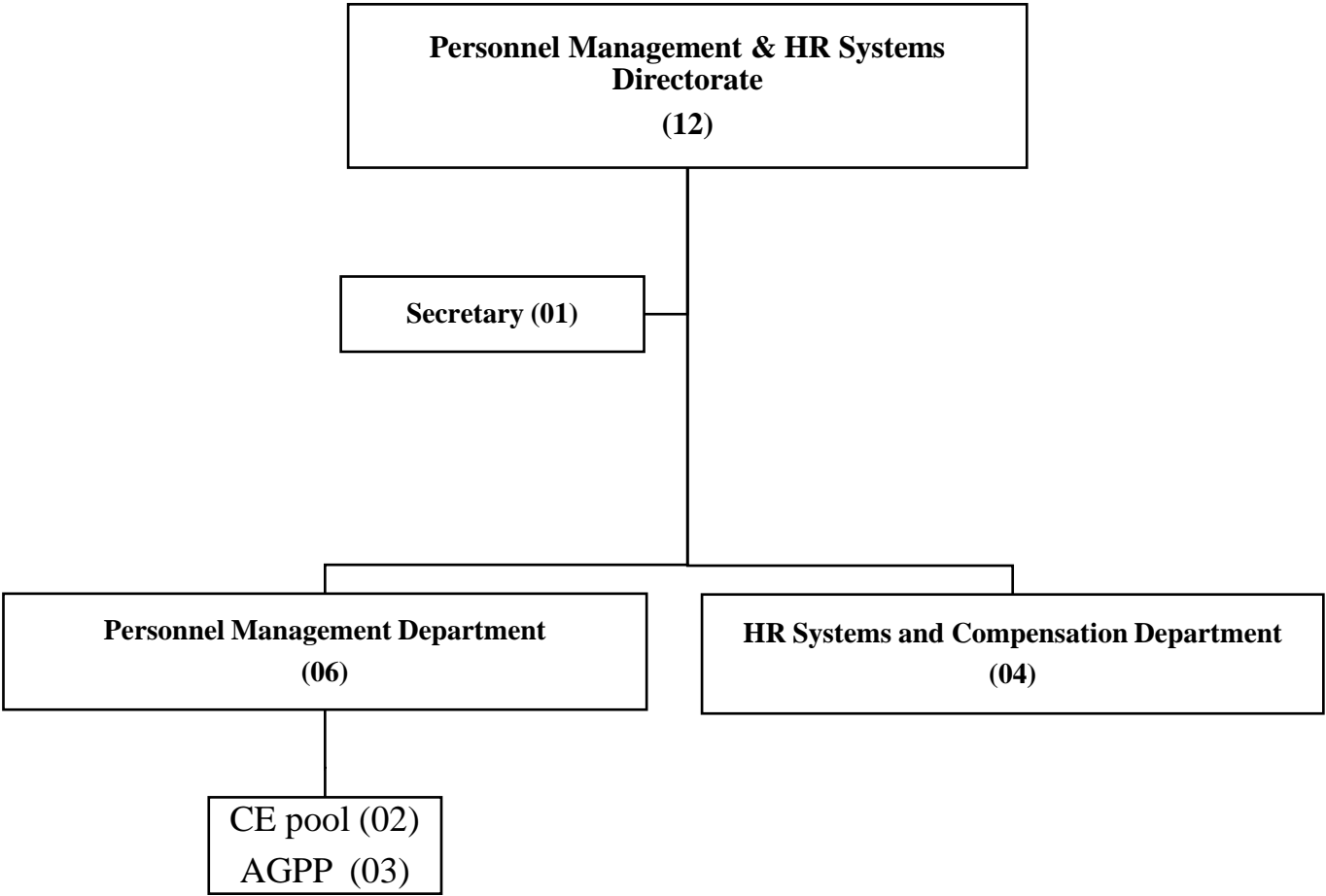
- Prepares, validates and implements HRIS evolution and/or extension projects in relation with the project manager and the HR business line operational staff, with regard to:
  - expected specifications and settings;
  - Implementation methods (priorities, timetable, validation framework, resources, etc.).
- Manage the integration of new developed functionalities and functional acceptance tests and validate the delivered products jointly with the project manager;
- Participate in the implementation of the HR environment (HR brick) in the ERP platform initiated by ELIT;
- Report on the progress of development and integration work to the HRIS and implement the actions decided upon;
- Report and follow up on system malfunctions, especially in the production phase;
- Develop, validate and update the HRIS manuals and procedures (documentary supports);
- Provide training and assistance to end-users on new features or modules put into production.
- Administer, control and update the basic repositories;
- Report and follow up on system malfunctions, especially in the production phase;
- Ensure data security, reliability and confidentiality;
- Maintain continuous availability of system operation,
- Set up the system for the integration of new functionalities;
- Set up the system to integrate the areas of improvement;
- Manage the interface with the various information systems, particularly the finance and accounting system;
- Write the functional specifications;
- Write animation materials for user training.
- Design, implement and maintain the compensation system(s);
- Conduct audits of the compensation system(s) for effectiveness and appropriateness;

- Monitor the components of compensation, both in terms of mass and attribution rules;
- Propose changes in the system of bonuses and allowances as well as social benefits (development of proposals and simulation of amounts according to eligibility rules, calculation bases, allocation and validation process);
- Carry out simulations on the payroll at the Group level or at the level of each company;
- Analyze payroll changes and trends;
- Design, develop and implement the individual and collective performance compensation system(s);
- Establish hourly costs, ratios to measure staff performance;
- Ensure forecasting and reporting of compensation achievements;
- Ensure benchmarking at the national level;
- Leading and facilitating the medium- and short-term recruitment planning process (developing and distributing the orientation note and collecting, analyzing and consolidating needs);
- To provide the secretariat of the Compensation Committee;
- Drawing up a report on consolidated employment.
- To develop data allowing the implementation of a human resources optimization policy;
- Organize information, reconcile databases, process, verify, analyze and produce statistics;
- To provide statistical information to the various companies of the Group;
- Produce the employment balance sheet and the consolidated HR dashboards of the Group's companies;
- Make forecasts on the evolution of resources in the medium term (recruitment, age and seniority pyramid, departures, financial impact);
- Accompany the necessary change to be in phase with the development of the group.



**3. Organizational chart of the Directorate of Personnel Management, Compensation and HR System:**

**Figure 03:** Organizational chart of the Directorate of Personnel Management, Compensation and HR System at SONELGAZ



**Source:** Sonelgaz internal documents

## **SECTION 02: METHODOLOGY**

After having presented the theoretical foundations on which the current research is centered, it would only be suitable to identify the methodology upon which it was characterized.

This part describes the steps we have followed while conducting our research. It includes the adopted research methods, the techniques employed for data gathering, as well as the methods applied to analyze the results.

### **1. Choice of topic:**

The topic falls at the crossroad of two major fields of research: Management Information Systems as it gets into the implementation of HRIS, and Strategic Management as it gets into organizational performance.

Therefore, it was captivating to peruse this topic as students majoring in Strategic Management and Information Systems.

### **2. Choice of Company:**

We chose Sonelgaz due to it being one of the biggest employers in the industrial landscape, by the end of 2021, Sonelgaz had over 93 000 employees of all socio-professional categories, making the use of the HRIS extremely important in the management of the company.

Which means that such a company could definitely be of help in seeking elements of answers to our research problematic.

### **3. Research methodology:**

While performing this work of research, we have followed the qualitative method, a method that consists of an inductive approach in a natural setting, to go in depth or generate

hypotheses, by collecting data out of purposeful sampling, and analyzing that data in an iterative interpretation.

“Qualitative research involves the studied use and collection of various empirical materials; case studies, personal experiences, introspective, life stories, interviews, observational texts, historical texts, and visual texts, that describe routine and problematic moments and meanings in individuals’ lives”. (Denzin and Lincoln 2005:2)

#### **4. Data collection method:**

##### **4.1. Documentary Research:**

During our research, we made sure to gather as much information as possible through the review of some of the company's internal documents and data, which helped us with the presentation of our host organization.

##### **4.2. Interviews:**

We conducted our qualitative research in the form of interviews, to gather information that would help us in reaching answers to our questions.

An interview is a conversation between researchers and participants; it focuses on questions related to a research study. These questions usually revolve around the participant’s thoughts, opinions, perspectives, or descriptions of specific experiences.

An interview could also be defined as "a face to trace verbal interchange which one person, the interviewer, attempts to elicit information or expressions of opinion or expressions of belief from another person or persons" (Maccoby et Maccoby, 1954).

In the process of our research, we performed two rounds of interviews; we conducted semi-structured interviews in the first round, and structured interviews in the second round.

##### **4.2.1. Structured interviews:**

A structured interview includes orally administered questionnaires, in which a set of previously determined questions are asked, with little to no variation and with no scope for follow-up questions to responses that may require further elaboration.

Research that the most important dimensions in a Structured Interview are: “...job-relatedness of the interview...standardization of the process...and structured use of the data to evaluate the Candidate” (Macan, 2009)

#### **4.2.2. Semi-Structured interviews:**

A semi-structured interview includes several key questions that help identify areas to explore, but also allows the interviewer & interviewee to diverge in pursuit of a more detailed idea or answer.

It could be defined as “A key technique which is a much more flexible version of the structured interview in real-world research” (Gillham, 2000)

So, semi-structured interviews could be seen as a “high-preparation, high-risk, high-gain, and high-analysis operation” (Wengraf, 2001, p. 5).

#### **4.2.3. Interview Guide Construction:**

Before conducting each interview, we prepared an interview guide, (Appendix01) & (Appendix 02).

An interview guide is a list of the main topics that the interviewer intends to cover in his interview, alongside the main questions that should be addressed under each topic.

The elaboration of an interview guide allows us to have an understanding of both sides (management and system), this allows us to detect relationships, impacts, defects and to have a more accurate look at the situation before being able to propose solutions and recommendations.

### **5. Interviewees:**

In the process of our research and to bring an empirical dimension to our work, we have conducted several interviews, both structured and semi-structured, with a purposeful sample of Sonelgaz employees.

The selection of interviewees was based on the position they occupied within the company, and to that position's relevance to our research topic. Hence, their ability to answer questions listed in our interview guide.

## **6. Data Processing:**

### **6.1. Content Analysis:**

Our choice of this particular data processing method is that it seeks to capture the interviewees' statements as objective as possible

Content Analysis can be defined as “a research technique for making replicable and valid inferences from texts (or other meaningful matter) to the contexts of their use” (Krippendorff, 2004).

# **CHAPTER III: RESULTS AND DISCUSSION**

## 1. Results:

### 1.1. Structured Interviews Results:

Table 01 below represents the demographics of interviewees, which include their names, as well as their position within the directory of Personnel Management, Compensation and HR System.

**Table 01:** Demographic characteristics of interviewees

<b>N°</b>	<b>Code</b>	<b>Position</b>
1	<b>H1</b>	Research Officer 1
2	<b>H2</b>	Research Officer 2
3	<b>H3</b>	Research Officer 3
4	<b>M1</b>	Management executive 1
5	<b>M2</b>	Management executive 2
6	<b>M3</b>	Management executive 3
7	<b>M4</b>	Management executive 4
8	<b>E1</b>	Engineer of studies 1
9	<b>E2</b>	Engineer of studies 2
10	<b>E3</b>	Engineer of studies 3
11	<b>E4</b>	Engineer of studies 4
12	<b>E5</b>	Engineer of studies 5

In this part, we asked interviewees from (Table 01) above, about how the implementation of HRIS impacted the performance of Sonelgaz from four main aspects:

- Human resources processes (Table 02)
- Time efficiency (Table 03)
- Cost efficiency (Table 04)
- Information effectiveness (Table 05)
- Decision making effectiveness (Table 06)

The results are presented in tables 02 to 06 below:

**Table 02:** HRIS implementation impact on HR processes

Topic	Questions	Answers	Frequencies	Score / 12
The impact of HRIS implementation on Human Resource Processes	How did the implementation of HRIS impact your recruitment process?	Positive impact	R2, R3, M3, E1, E2, E3, E5	07
		No impact	R1, M1, M2, M4, E4	05
	How did the implementation of HRIS impact your training process?	Positive impact	R2, R3, M1, M3, M4	05
		No impact	R1, M2, E1, E2, E3, E4, E5	07
	How did the implementation of HRIS impact the data input process?	Positive impact	R1, R2, M1, M2, M3, E1, E2, E3, E4, E5	10
		No impact	R3, M4	02
	How did the implementation of HRIS impact your data maintenance process?	Positive impact	R1, R2, M1, M2, M4, E1, E2, E3, E4, E5	10
		No impact	R3, M2	02
	How did the implementation of HRIS impact the forecast of staff requirements?	Positive impact	R2, R3, M3, E1, E2, E3, E5	07
		No impact	R1, M1, M2, M4, E4	05
	Did using HRIS help you reduce paperwork?	Yes	R1, R2, R3, M2, M3, M4, E1, E2, E3, E4, E5	11
		No	M1	01

**Source:** elaborated by us

**Table 02 Results:**

First, it can be seen that the overall vision of interviewees is that there is an impact, and a positive one on HR processes because of HRIS, while it is clear that the impact is present when it comes to recruitment, data input & maintenance, staff requirements and even

paperwork loads. It also appears that there is no impact on training process, which are considered to be of importance in the Algerian workplace since Algerian laws require 1% of any company's total payroll to be spent on training and education within the organization.

**Table 03:** HRIS implementation impact on Time Efficiency

Topic	Questions	Answers	Frequencies	Score / 12
The impact of HRIS implementation on Time Efficiency	Did HRIS help reduce the time spent on recruiting?	Reduced	M3, E1, E2, E5	04
		Not reduced	R1, R2, R3, M1, M2, M4, E3, E4	08
	Was the time spent on training reduced after implementing HRIS	Reduced	M3, E2, E5	03
		Not reduced	R1, R2, R3, M1, M2, M4, E1, E3, E4	09
	How was the time spent on making staff decisions after using HRIS?	Reduced	M1, M2, M3, M4, E1, E2, E3, E5	08
		Not reduced	R1, R2, R3, E4	04
	How was the time spent on inputting data after the implementation of HRIS?	Reduced	R1, R2, M1, M2, M3, M4, E1, E2, E3, E4, E5	11
		Not reduced	R3	01
	Did HRIS help reduce the time spent on communicating information within organization?	Reduced	R1, R2, M1, M3, M4, E2, E3, E4, E5	09
		Not reduced	R3, M2, E1	03
	Was there a change in time spent on processing paperwork after the implementation of HRIS?	Reduced	R1, R2, R3, M2, M3, M4, E1, E2, E3, E4, E5	11
		Not reduced	M1	01

Did the implementation of HRIS reduce the time spent on correcting errors?	Reduced	R1, R2, R3, M1, M2, M3, E1, E2, E3, E4, E5	11
	Not reduced	M4	01

Source: elaborated by us

**Table 03 Results:**

Time is a factor of extreme importance in an organization, mainly because it would end up most of the time affecting every other factor of its performance. While interviewees seemed to agree that HRIS does impact their time efficiency, and does so positively. Such an agreement could not be seen on all aspects of time efficiency, more particularly the time it takes for recruiting, and that it takes for training, where most interviewees saw no impact caused by HRIS.

**Table 04:** The impact of HRIS implementation on Cost Efficiency

Topic	Questions	Answers	Frequencies	Score / 12
The impact of HRIS implementation on Cost Efficiency	Was there a change in your cost per hire after using HRIS?	Reduced	M3, E3, E5	03
		Not reduced	R1, R2, R3, M1, M2, M4, E1, E2, E4	09
	How did HRIS affect your training expenses?	Reduced	M3, E5	02
		Not reduced	R1, R2, R3, M1, M2, M4, E1, E2, E3, E4	10
	Did the implementation of HRIS help reduce recruiting expenses?	Reduced	M2, M3, M4, E5	04
		Not reduced	R1, R2, R3, M1, E1, E2, E3, E4	08
	Was your overall staff's salary expense reduced?	Reduced	R1, M2, M3, E1, E2, E3	06
		Not reduced	R2, R3, M1, M4, E4, E5	06

Source: elaborated by us

**Table 04 Results:**

According to our interviewees' answers, HRIS impact on cost efficiency is not to be seen on any aspect. There was an overall agreement that none of the expenses related to hiring, training and recruiting were reduced, there was however a non-certainty if the same thing could be said about the total salary expense, where interviewees split into two equally numbered groups, those who saw an impact of HRIS resulting in reduction, and those who saw no impact.

**Table 05:** HRIS impact on Information Effectiveness

Topic	Questions	Answers	Frequencies	Score / 12
HRIS impact on Information Effectiveness	Was the disseminate information increased after using HRIS?	Increased	R1, R2, M1, M2, M3, E1, E2, E3, E4, E5	10
		Not increased	R3, M4	02
	Was the level of useful information within your department increased after implementing HRIS?	Increased	R1, R2, M1, M2, M3, M4E1, E2, E3, E4	10
		Not increased	R3, E5	02
	Did the information generated by HRIS help increase the coordination between HR dept. and top administrators?	Increased	R1, R2, R3, M1, M2, M3, M4, E1, E2, E3, E4, E5	12
		Not increased		00
	Does information generated by HRIS increase the value of organization?	Increased	R1, R2, R3, M2, M3, E1, E2, E3, E4	09
		Not increased	M1, M4, E5	03

**Source:** elaborated by us

**Table 05 Results:**

Based on answers provided by interviewees, there was a clear increase in the level of useful information generated by HRIS, that information was a key factor in increasing the value of

the organization. Not only that, but it could also be seen by the entirety of the interviewees that the information that HRIS generates leads to an increased level of coordination between HR and Top Management.

**Table 06:** The impact of HRIS implementation on Decision-making Effectiveness

Topic	Questions	Answers	Frequencies	Score / 12
The impact of HRIS implementation on Decision-making Effectiveness	Does HRIS help with the effectiveness of HR decision-making?	Helps	R1, R2, M2, M3, M4, E1, E2, E3, E5	09
		Does not Help	R3, M1, E4	03
	Does information generated by HRIS improve decisions on employee pay raises in your organization?	Improves	R1, R2, R3, M1, M2, M3, M4, E1, E2, E3	10
		Does not improve	E4, E5	02
	Does information generated by HRIS improve effective promotion decisions in your organization?	Improves	R1, R2, M1, M2, M3, E1, E2, E3, E4, E5	10
		Does not improve	R3, M4	02
	Does information generated by HRIS improve decisions when hiring the staff?	Improves	R1, R2, R3, M2, M3, M4, E2, E3	08
		Does not improve	M1, E1, E4, E5	04

Source: elaborated by us

**Table 06 Results:**

Decisions made within the HR of the company of Sonelgaz seem to have improved entirely because of the information generated by HRIS, most interviewees were able to see the increase in effectiveness of decisions made, that increase included pay raise decisions, promotion decisions and even hiring decisions.

## **1.2. Semi-Structured Interviews Results:**

- **Head of the HR systems and compensation Department:**

The implementation of HRIS in our company has actually affected our human resource processes positively. For starters, we are now dealing with less paperwork and more ease in accessing documents and files, our equipment processes have also improved so much, we can also see improvement when it comes to managing our staff, specifically when it comes to recruitment and training.

There is no doubt that this has actually helped us save so much time as well, like I mentioned earlier dealing with less paperwork definitely means saving more and more time. In addition, HRIS actually reduced the time we spend on data processing and information communication within our company. Even decision making is now faster.

I would not say the same when it comes to our cost efficiency, not much reduction can be seen after the implementation of HRIS. Maybe the overall staff salary has been reduced a little bit but our expenses are the still the same.

The quality of information however has improved so much, more useful and accurate information is generated and communicated with ease leading to better decision making and more efficient planning

Obviously from all that I've mentioned before our decision making would definitely be more efficient.

- **Principal Research Officer:**

The positive impact of HRIS on our and human resource processes can definitely be seen , in fact all of our human resource processes have been improved, from recruitment processes to training, even when it comes to forecasting our staff needs. It has all been made more efficient by our HRIS.

Same thing can be said about time, since we ended up saving a lot of time, which led us to save even more money and reduce our expenses, all thanks to decisions made based on extremely accurate and useful information generated by our HRIS.

It has also made our overall performance more efficient by limiting errors and transgression within our work groups and facilitating certain tasks and practices that were seen as difficult before.

## **2. Discussion:**

After careful examinations of the answers that were given in interviews conducted as can be seen above, we were able to reach the following conclusion:

The implementation of an HRIS does have an impact, and a positive impact on the performance of an organization, but not on all aspects of it:

- HRIS implementation does impact HR processes, positively so.
- HRIS implementation does impact time efficiency, positively so.
- HRIS implementation does not impact cost efficiency in any way.
- HRIS implementation does impact Information effectiveness, positively so.
- HRIS implementation does impact decision-making effectiveness, positively so.

### **Recommendations:**

We recommend that Sonelgaz try to examine and understand why their HRIS is not helping with their cost efficiency, and try to come up with ways of using HRIS for that very reason, given the importance of cost efficiency on the organization's performance.

# **CONCLUSION**

In this chapter, we will conclude our study by summarizing key research findings in relation to the research aims and research question, as well as the value and contribution thereof. We will also review limitations of this work and propose opportunities for further works of research.

This research aimed to examine the impact of implementing a HRIS on organizational performance, and throughout our research, we were able to perform such an examination by following a qualitative research method, on data collected from HR employees of the biggest electricity and gas provider in the country. We particularly examined the potentially impacted performance in terms of HR processes, time & cost efficiency, information & decision making effectiveness.

The results indicate that the implementation of a HRIS does in fact have an impact and a positive one nonetheless on the overall performance of an organization, in terms of HR processes, time efficiency, information and decision-making effectiveness.

The findings of this study also confirm what multiple former studies on the same topic have already concluded, which is that the implementation of a HRIS does not actually have an impact on cost efficiency within the organization.

Our recommendation for the company of Sonelgaz is to invest in a development project that would aim to deem their HRIS more efficient when it comes to hiring and training expenses, as well as helping with the management of the company's payroll. Which would help achieve a true cost efficiency.

Throughout our research, we found ourselves to be mainly limited in terms of sample size and diversity of profiles. That would be due to interviews being the main method for data gathering.

We therefore leave it to future researchers to target a wider and a more diverse range of subjects for more detailed answers that could lead to more accurate and efficient results.



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# **APPENNDIXES**

**Appendix 01: Semi-structured Interview Guide, for the Head of the HR systems and compensation department, and the Principal Research Officer at the company of Sonelgaz.**

In the process of conducting our research, and to reach convincing results, we would like to ask you some questions to which your answers could be of help.

According to your experience and your scope of responsibilities within the company:

1. Did the implementation of a HRIS actually impact your HR processes? If yes, how so?
2. Did you end up saving more time by using a HRIS within your organization?
3. How would you rate your cost efficiency after you started using HRIS?
4. As an employee in a position that gives you more access to information than others, how effective is the information you are getting, compared to before you started using an HRIS?
5. When it comes to making decisions, does your HRIS help you in any way?

**Appendix 02: Structured Interview guide for managers, executives and engineers at the company of Sonelgaz.**

**THE IMPACT OF HRIS IMPLEMENTATION ON HR PROCESSES**

How did the implementation of HRIS impact your recruitment process?

How did the implementation of HRIS impact your training process?

How did the implementation of HRIS impact the data input process?

How did the implementation of HRIS impact your data maintenance process?

How did the implementation of HRIS impact the forecast of staff requirements?

Did using HRIS help you reduce paperwork?

**THE IMPACT OF HRIS IMPLEMENTATION ON TIME EFFICIENCY**

Did HRIS help reduce the time spent on recruiting?

Was the time spent on training reduced after implementing HRIS?

How was the time spent on making staff decisions after using HRIS?

How was the time spent on inputting data after the implementation of HRIS?

Did HRIS help reduce the time spent on communicating information within organization?

Was there a change in time spent on processing paperwork after the implementation of HRIS?

Did the implementation of HRIS reduce the time spent on correcting errors?

## **THE IMPACT OF HRIS IMPLAMANTION ON COST EFFICIENCY**

Was there a change in your cost per hire after using HRIS?

How did HRIS affect your training expenses?

Did the implementation of HRIS reduce help reduce recruiting expenses?

Was your overall staff's salary expense reduced?

## **THE IMPACT OF HRIS IMPLAMANTION ON INFORMATION EFFECTIVENESS**

Was the disseminate information increased after using HRIS?

Was the level of useful information within your department increased after implementing HRIS?

Did the information generated by HRIS help increase the coordination between HR dept. and top administrators?

Does information generated by HRIS increase the value of organization?

## **THE IMPACT OF HRIS IMPLAMANTION ON DECISION-MAKING EFFECTIVENESS**

Does HRIS help with the effectiveness of HR decision-making?

Do information generated by HRIS improve decisions on employee pay raises in your organization?

Does information generated by HRIS improve effective promotion decisions in your organization?

Does information generated by HRIS improve decisions when hiring the staff to organization?

