ECOLE DES HAUTES ETUDES COMMERCIALES

EHEC

Thesis Submitted in partial Fulfilment of the Requirements for Master's Degree in Commercial Sciences

Major: **Human Resource Management**

THEME:

The Role of Information System in Human Resource Management

CASE STUDY: CAGEX

Submitted by:

Ms. Hasna TAGUIG

Supervised by:

Mrs. Sarah ATROUNE

Lecturer at HEC Alger

8th Promotion
Jun 2021

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I do here by acknowledge my gratefulness towards all the persons associated in the completion of this project.

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Thank You!

Dedication:

I humbly dedicate this work...

To my supporting family, starting with my parents and my precious sibling: Manel, Hadjer and Abdelbaki for their concern, effort and time for me to successfully finish this work

To my best friend: Rayane who have supported me throughout the process.

To the one who appeared at the right moment when I was really lost, Achouak

Thank You.

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Abstract

Emerging hyper-competitive era in the last few decades has increased the need of information system and technology in human resource management for competitiveness. The revolution in information technology is completely and swiftly redefining the way things are done in nearly every field of human activity.

The extended use of information systems has a deep effect in the way HRM is managed nowadays. It boosted a major transformation of human resources (HR) processes and practices within organizations, namely on how they collect, store, use, and share information.

Human resources and information technology are two elements that many firms are looking to utilize them as strategic weapons to compete. Information systems especially developed for human resource management referred as human resource information system (HRIS) is an integrated system necessary to collect, record, store, manage, deliver and present data for human resource and hence promotes effectiveness of human resource system.

Our study aims to highlight the role and importance of HRIS towards business competitiveness. The brief will also highlight the need, components, benefits and functions of HRIS.

This new role in business strategy adds significant changes to HR function and to its professionals. Along this research we discuss the effects of information systems in HRM, considering the existing literature on the topic, and describe the benefits and possible limitations of using them.

Keywords: Human resource information system, business competitiveness, human resource management, information system.

Résumé

L'émergence d'une ère hyper compétitive au cours des dernières décennies a accru le besoin de systèmes d'information et de technologie dans la gestion des ressources humaines pour la compétitivité. La révolution des technologies de l'information est en train de redéfinir complètement et rapidement la façon de faire les choses dans presque tous les domaines de l'activité humaine.

L'utilisation étendue des systèmes d'information a un effet profond sur la façon dont la GRH est gérée aujourd'hui. Elle a stimulé une transformation majeure des processus et des pratiques des ressources humaines (RH) au sein des organisations, notamment en ce qui concerne la manière dont elles collectent, stockent, utilisent et partagent les informations.

Les ressources humaines et les technologies de l'information sont deux éléments que de nombreuses entreprises cherchent à utiliser comme armes stratégiques pour être compétitives. Les systèmes d'information spécialement développés pour la gestion des ressources humaines, appelés systèmes d'information sur les ressources humaines (SIRH), sont des systèmes intégrés nécessaires à la collecte, à l'enregistrement, au stockage, à la gestion, à la livraison et à la présentation des données relatives aux ressources humaines, ce qui favorise l'efficacité du système de ressources humaines.

Notre étude vise à mettre en évidence le rôle et l'importance du SIRH pour la compétitivité des entreprises. Le mémoire mettra également en évidence le besoin, les composants, les avantages et les fonctions du SIRH.

Ce nouveau rôle dans la stratégie d'entreprise apporte des changements significatifs à la fonction RH et à ses professionnels. Dans le cadre de cette recherche, nous discutons des effets des systèmes d'information dans la GRH, en tenant compte de la littérature existante sur le sujet, et nous décrivons les avantages et les limites possibles de leur utilisation.

Mots-clés : Système d'information des ressources humaines, compétitivité des entreprises, gestion des ressources humaines, système d'information.

الملخص

أدى ظهور عصر المنافسة المفرطة في العقود القليلة الماضية إلى زيادة الحاجة إلى نظام المعلومات والتكنولوجيا في إدارة الموارد البشرية من أجل القدرة على المنافسة. تعمل الثورة في تكنولوجيا المعلومات على إعادة تعريف الطريقة التي تتم بها الأشياء بشكل كامل وسريع في كل مجال من مجالات النشاط البشري تقريبًا

الاستخدام الموسع لأنظمة المعلومات له تأثير عميق في طريقة إدارة إدارة الموارد البشرية في الوقت الحاضر. لقد عززت تحولًا كبيرًا في عمليات وممارسات الموارد البشرية داخل المنظمات، وتحديداً حول كيفية جمع المعلومات وتخزينها واستخدامها ومشاركتها.

الموارد البشرية وتكنولوجيا المعلومات عنصران تتطلع العديد من الشركات لاستخدامهما كأسلحة إستراتيجية للمنافسة. أنظمة المعلومات المطورة خصيصًا لإدارة الموارد البشرية والمشار إليها بنظام معلومات الموارد البشرية (HRIS) هي نظام متكامل ضروري لجمع وتسجيل وتخزين وإدارة وتسليم وتقديم البيانات للموارد البشرية وبالتالي يعزز فعالية نظام الموارد البشرية.

تهدف دراستنا إلى تسليط الضوء على دور وأهمية نظام معلومات الموارد البشرية تجاه القدرة التنافسية للأعمال. ستبرز أيضًا الحاجة إلى نظام معلومات الموارد البشرية ومكوناته وفوائده ووظائفه.

يضيف هذا الدور الجديد في إستراتيجية العمل تغييرات كبيرة على وظيفة الموارد البشرية والمهنيين. على طول هذا البحث ، نناقش تأثيرات أنظمة المعلومات في إدارة الموارد البشرية ، مع الأخذ في الاعتبار الأدبيات الموجودة حول هذا الموضوع ، ووصف الفوائد والقيود المحتملة لاستخدامها.

الكلمات المفتاحية: نظام معلومات الموارد البشرية ، التنافسية التجارية ، إدارة الموارد البشرية ، نظام المعلومات.

General Introduction

General Introduction

Emerging hyper competitive era in the last few decades has increased the need of information systems and technology in human resource management for competitiveness. Information systems contribute to improve the organizational performance, and increase the competencies of human resource professionals. In today's global competitive business environment, the organizations broadly implement information systems and information technology to change improve-transform the human resource management system.

With the evolution of information systems and technology, meeting information requirements has been greatly enhanced through the creation of Human Resource Information Systems (HRIS).

Continuous innovations in technology will fundamentally change the way HR work is accomplished. Information systems have a deep effect on HRM. It transformed human resources processes and practices mainly in terms of how organizations collect, store, use, and disseminate information

The role of HR function is considered to be a supportive role since no other business functions or processes can be fulfilled without initial input from HR. HR function can be defined as an organizational function or unit that deals with people in employing, training, promoting, terminating, record keeping and meeting other legal requirements[1]

The availability of computerized systems has made acquiring, storing and using information possible and efficient. Apart from obtaining and maintaining data, advancements in technology have enabled analysis and manipulation of the data. Evolution of information systems has led to its rapid use by HR to improve processes thus facilitating improved performance. A study by Hussain, Wallace and Cornelius[2] has shown that the use of information systems improves the efficiency of HR roles and contributes towards achieving an organization's strategic development. As organizations become more complex and their

[1] ANTHONY (W.P), PERREW (P.L) and KACMAR (K .M), *Human Resource Management: A strategies Approach*, Orland, Dyden, 1999, p 5

[2] HUSSAIN (J), WALLACE and CORNELIUS (N.E), *information and management: the use and impact of human resource information system on human resource management professionals,* January 2007, p74

information management needs increase, the need for relevant information systems also increases dramatically

In this perspective and in a context of liberalization and opening of the economy, Algerian companies are not left out of the above changes and developments. They will thus have to proceed to increasingly fast adaptations of their organization in order to be competitive at the international level. In this sense the intensive use of teamwork and ICT, the restructuring of hierarchical levels, as well as a greater versatility of their collaborators could make it evolve towards into learning organizations.

As a result, companies began to realize the importance of human resources to their success and they have come to consider the human factor as a source in its own right, by setting up a Human Resources management system, which has evolved considerably over the last few decades, integrating new technological solutions such as the information system.

Our research is entitled: « **the role of information system in human resource management »**.The choice of this topic was not insignificant:

_First of all, in addition to the field of HRM, I have always been passionate about computer science.

_ secondly, and given the constant evolution of the company's environment, the interest in HRIS is becoming crucial, especially with the growing role of human resources in creating and maintenance of competitive advantage.

_Finally, there is also the fact that this theme is in perfect adequacy with the training followed.

The multiplication of HR tools within CAGEX company complexity and the importance of the volumes to be managed have prompted the company to use IT tools to help staff overcome the work overload and to encourage them to work in good conditions for a better performance.

This brings us to the following question: « How does HRIS contribute to the optimization of HRM in the service of the Human Resources function? **»**

So, for this question to be answered, it is more than necessary to pass by the following sub questions:

- what are the constraints of implementing an information system for the HR function?
- Do these systems meet the requirements of users (HRM stakeholders and Company)?

After initiating prior and previous studies and researches, and from the basis of some personal remarks and perceptions, we based our research on the next hypothesis:

- **H0:** The basic hypothesis of the research is that the satisfaction of CAGEX's staff is measured by the contribution of its HR information system to the HR function within the company.
- **H1:** When new tools are implemented, the HRF undergoes an evolution on the organizational, informational and technical levels.
- **H2:** The HRIS is in line with the needs of the employees of the company.

The objective of this study is to try to check the accuracy of the above mentioned hypotheses and to be able to answer the primary question already stated. In order to reach effective results that can either confirm or deny these assumptions we have adopted the following methodological approach:

During this study, we wanted to understand what an HRIS is, it is appropriate to history, the evolution of its definitions and the main functions that make it up. To be effective in practice, it is also necessary to understand some key concepts. And thus, to appreciate the state of progress of CAGEX in the use of new technologies and particularly the extent of their HRIS through numerous functionalities in human resources management.

The final work was therefore divided into three chapters as follows:

Chapter I: we will try to draw up the state of the literature of the subjects We will start by defining the notions necessary to understand the concept of HRIS: information system, information Then, we will be interested more particularly in the evolution, definitions and missions of the human resources function.

Chapter II: we will examine the human resources information system from various aspects: evolution, definition, advantages, disadvantages, describing the different organizational models of the HRIS and its functionalities, as well as the various visions of authors, consultants and software publishers.

Chapter III: devoted to our empirical study, we will begin by presenting the host presentation of the host organization, which we will study, the HRIS within the organization. Finally, we will present the results of our research and return to our research problem and problematic and research hypotheses.

Chapter I:

Basics to understand the concept HRIS

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1 Introduction:

In the present context of globalization, employing organizations and their environments have become increasingly complex. Managers in these organizations face growing difficulties in coping with workforces that may be spread across various countries, cultures, and political systems. Given such trends, manual HR systems management is completely inadequate[3] .On the other hand information technology has considerable potential as a tool that managers can use, both generally, and in human resource functions in particular, to increase the capabilities of the organization[4] .

The description of the IS and the human resource function will be the subject of this first chapter. We will first propose the basic vocabulary of information systems in organizations (section 1). Then in the section (section 2), we will approach synthetic aspects of the HR function. The goal that we hope to achieve is to allow a better understanding the need to automate certain HR tasks.

[3]BECKERS (A. M), BSAT (M. Z), *Information Systems Management :*A DSS classification model for research in human resource information system , (2002). P 41

[4] TANSLEY (C), WATSON (T), *Strategic exchange in the development of human resource information systems (HRIS):* New technology, Work and Employment, (2000) ,p 108.

2 Section01 : information system

People and organizations use information every day. Many retail chains, for example, collect data from their stores to help them stock what customers want and to reduce costs. The components that are used are often called an information system. An information system (IS) is a set of interrelated components that collect, manipulate, store, and disseminate data and information and provide a feedback mechanism to meet an objective. It is the feedback mechanism that helps organizations achieves their goals, such as increasing profits or improving customer service.

IS defined as:« A set of interrelated components that collect, manipulate, store, and disseminate data and information and provide a feedback mechanism to meet an objective. »[5]

2.1 Definitions:

2.1.1 Data:

Data consists of raw facts, such as an employee number, total hours worked in a week, inventory part numbers, or sales orders[6] As shown in Table 1.1, several types of data can represent these facts. When facts are arranged in a meaningful manner, they become information

Data can be defines as «Raw facts, such as an employee number, total hours worked in a week, inventory part numbers, or sales orders. »[7]

Table 1: Types of Data

Data	Represented by
Alphanumeric data	Numbers, letters, and other characters
Image data	Graphic images and pictures
Audio data	Sound, noise, or tones
Video data	Moving images or pictures

Source: 1: STAIR (R), REYNOLDS (G), *Principles of Information Systems, A Managerial Approach*,9th edition, Boston, 2010,*pp 5*

[5] STAIR (R), REYNOLDS (G), *Principles of Information Systems*, A Managerial Approach,9th edition, Boston, 2010,pp 4
[6] PRATTY, MARRY, *Computerworld, Rolling the Dice in Your Career*, February 25, 2008, p. 34
[7] STAIR (R), REYNOLDS (G), Opcit p 5

Data represents real-world things. Hospitals and healthcare organizations, for example, maintain patient medical data, which represents actual patients with specific health situations. In many cases, hospitals and healthcare organizations are converting data to electronic form. Some have developed electronic records management (ERM) systems to store, organize, and control important data. However, data—raw facts—has little value beyond its existence. For example, consider data as pieces of railroad track in a model railroad kit. Each piece of track has limited inherent value as a single object. However, if you define a relationship among the pieces of the track, they will gain value. By arranging the pieces in a certain way, a railroad layout begins to emerge.

2.1.2 Information:

is a collection of facts organized so that they have additional value beyond the value of the individual facts. For example, sales managers might find that knowing the total monthly sales suits their purpose more (i.e., is more valuable) than knowing the number of sales for each sales representative. Providing information to customers can also help companies increase revenues and profits. According to Frederick Smith, chairman and president of FedEx, « Information about the package is as important as the package itself… We care a lot about what's inside the box, but the ability to track and trace shipments, and therefore manage inventory in motion, revolutionized logistics. » FedEx is a worldwide leader in shipping packages and products around the world. Increasingly, information generated by FedEx and other organizations is being placed on the Internet. In addition, many universities are now placing course information and content on the Internet. Using the Open Course Ware program, the Massachusetts Institute of Technology (MIT) places class notes and contents on the Internet for more than 1,500 of its courses[8].

Information defined as: « A collection of facts organized in such a way that they have additional value beyond the value of the individual facts».

2.1.3 Knowledge:

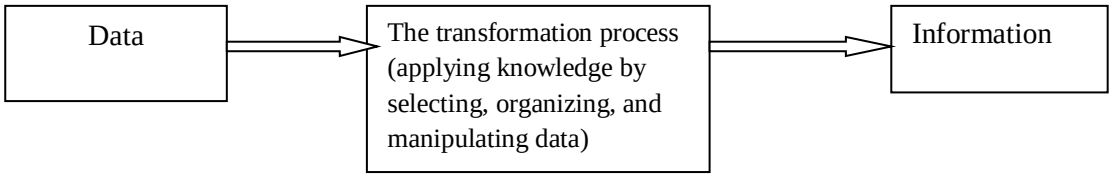
Turning data into information is a process, or a set of logically related tasks performed to achieve a defined outcome. The process of defining relationships among data to create useful information requires knowledge. Knowledge is the awareness and understanding of a set of information and the ways that information can be made useful to support a specific task or reach a decision. Having knowledge means understanding relationships in information. Part of the knowledge you need to build a railroad layout, for instance, is the understanding of how much space you have for the layout, how many trains will run on the track, and how fast they will travel. Selecting or rejecting facts according to their relevance to particular tasks is based

[8] STAIR (R), REYNOLDS (G), Opcit p 5

on the knowledge used in the process of converting data into information. Therefore, you can also think of information as data made more useful through the application of knowledge. Knowledge workers (KWs) are people who create, use, and disseminate knowledge, and are usually professionals in science, engineering, business, and other areas. A knowledge management system (KMS) is an organized collection of people, procedures, software, databases, and devices used to create, store, and use the organization's knowledge and experience.

Knowledge is defined as: « The awareness and understanding of a set of information and ways that information can be made useful to support a specific task or reach a decision. »

Figure 1 : The process of Transforming Data into Information



Source: 2 STAIR (R), REYNOLDS (G), *Principles of Information Systems, A Managerial Approach*, 9th edition, Boston, 2010,P. 6

2.1.4 Information system:

Many programs in business require students to take a course in information systems. Various authors have attempted to define the term in different ways. we can detect some variances after this following definitions[9]

• An information system (IS) can be defined technically as a set of interrelated components that collect, process, store, and distribute information to support decision making and control in an organization.

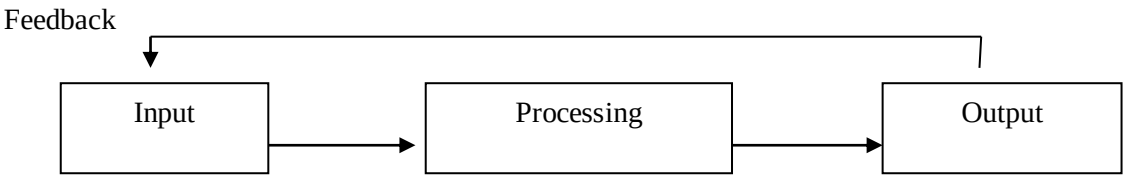
• Information systems are combinations of hardware, software, and telecommunications networks that people build and use to collect, create, and distribute useful data, typically in organizational settings.

• Information systems are interrelated components working together to collect, process, store, and disseminate information to support decision making, coordination, control, analysis, and visualization in an organization.

[9] BOURGEOIS (D), SMITH (J), WANG (S), MORTATI (M), *Information Systems for Business and Beyond*, Updated edition: August 1, 2019,P. 11

As mentioned previously, an information system (IS) is a set of interrelated elements or components that collect (input), manipulate (process), store, and disseminate (output) data and information, and provide a corrective reaction (feedback mechanism) to meet an objective . The feedback mechanism is the component that helps organizations achieve their goals, such as increasing profits or improving customer service.[10]

Figure 2 : The Components of an Information System



Source: 3 STAIR (R), REYNOLDS (G), *Principles of Information Systems, A Managerial Approach*,9th edition, Boston, 2010,P. 10

- **Input :** the activity of gathering and capturing raw data.
- **Processing :** Converting or transforming data into useful outputs.
- **Output :** Production of useful information, usually in the form of documents and reports.
- **Feedback :** Output that is used to make changes to input or processing activities.

2.2 Components and classifications of IS:

2.2.1 The Components of Information Systems :

Information systems can be viewed as having five major components: hardware, software, data, people, and processes. The first three are technology. These are probably what we thought of when defining information systems. The last two components, people and processes, separate the idea of information systems from more technical fields, such as computer science. In order to fully understand information systems, we will need to understand how all of these components work together to bring value to an organization[11].

- **Technology:**

[10] STAIR (R), REYNOLDS (G), *Principles of Information Systems*, A Managerial Approach,9th edition, Boston, 2010,P.10
[11] BOURGEOIS (D), SMITH (J), WANG (S), MORTATI (M), Op.cit ,P. 12

Technology can be thought of as the application of scientific knowledge for practical purposes. From the invention of the wheel to the harnessing of electricity for artificial lighting, technology has become ubiquitous in daily life, to the degree that it is assumed to always be available for use regardless of location. As discussed before, the first three components of information systems – hardware, software, and data – all fall under the category of technology.

2.2.1.1 Hardware :

Hardware is the tangible, physical portion of an information system the part you can touch. Computers, keyboards, disk drives, and flash drives are all examples of information systems hardware.

- ✓ Computer equipment used to perform input, processing, and output activities.

2.2.1.2 Software :

Software comprises the set of instructions that tell the hardware what to do. Software is not tangible it cannot be touched. Programmers create software by typing a series of instructions telling the hardware what to do. Two main categories of software are: Operating Systems and Application software. Operating Systems software provides the interface between the hardware and the Application software. Examples of operating systems for a personal computer include Microsoft Windows and Ubuntu Linux. The mobile phone operating system market is dominated by Google Android and Apple iOS. Application software allows the user to perform tasks such as creating documents, recording data in a spreadsheet, or messaging a friend.

- ✓ The computer programs that govern the operation of the computer.

2.2.1.3 Databases :

The third technology component is data. You can think of data as a collection of facts. For example, your address (street, city state, postal code), your phone number, and your social networking account are all pieces of data. Like software, data is also intangible, unable to be seen in its native state. Pieces of unrelated data are not very useful. But aggregated, indexed, and organized together into a database, data can become a powerful tool for businesses. Organizations collect all kinds of data and use it to make decisions which can then be analyzed as to their effectiveness. The analysis of data is then used to improve the organization’s performance

- ✓ An organized collection of facts and information.

2.2.1.4 Networking Communication :

Besides the technology components (hardware, software, and data) which have long been considered the core technology of information systems, it has been suggested that one other component should be added: communication. An information system can exist without the ability to communicate – the first personal computers were stand-alone machines that did not access the Internet. However, in today's hyper-connected world, it is an extremely rare computer that does not connect to another device or to a network. Technically, the networking communication component is made up of hardware and software, but it is such a core feature of today's information systems that it has become its own category

- ✓ Computers and equipment that are connected in a building, around the country, or around the world to enable electronic communications.

2.2.1.5 People :

When thinking about information systems, it is easy to focus on the technology components and forget to look beyond these tools to fully understand their integration into an organization. A focus on the people involved in information systems is the next step. From the front-line user support staff, to systems analysts, to developers, all the way up to the chief information officer (CIO), the people involved with information systems are an essential element.

People can be the most important element in most computer-based information systems. They make the difference between success and failure for most organizations. Information systems personnel include all the people who manage, run, program, and maintain the system. Large banks can hire IS personnel to speed the development of computer-related projects. Users are people who work with information systems to get results. Users include financial executives, marketing representatives, manufacturing operators, and many others. Certain computer users are also IS personnel.

2.2.2 The classifications of IS :

According to O'Brien & Marakas [12] the applications of information systems that are implemented in today's business world can be classified in several different ways. For example, several types of information systems can be classified as either operations (Support of business operation) or (Support of managerial decision making). Support of business operation such as transaction processing systems, process control systems and Enterprise collaboration systems (office automation system). Support of managerial decision making such as management information system, decision support system and executive information systems.

2.2.2.1 Transaction Processing Systems

Transaction processing systems (TPS) are the basic business systems that serve the operational level of the organization. A transaction processing system is a computerized system that performs and records the daily routine transactions necessary to the conduct of the business [13]. At the lowest level of the organizational hierarchy we find the transaction processing systems that support the day today activities of the business.

2.2.2.2 Process Control Systems:

Process control systems is Monitor and control industrial or physical processes. Examples: petroleum refining, power generation, and steel production systems. For example, a petroleum refinery uses electronic sensors linked to computers to monitor chemical processes continually and make instant (real-time) adjustments that control the refinery process .A process control system comprises the whole range of: equipment, computer programs, operating procedures [14].

2.2.2.3 Enterprise Collaboration Systems (Office Automation Systems) :

Office automation systems are one of the most widely used types of information systems that will help managers control the flow of information in organizations [15] . Enterprise collaboration systems (office automation systems) are enhance team and workgroup communications and productivity .Office automation systems are other types of information

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[12] O'BRIEN ,(J.A), MARAKAS (G.M). *Management information systems* , a business unit of The McGrawHill Companies. 10th ed, (2007)

[13] LAUDON (K). LAUDON (J), *Management Information Systems:* Managing the Digital Firm, 9th ed, Prentice Hall. (2006)

[14] CIORTEA (M), <<*Aspects Regarding The Types of Process Control Systems*>>, International Conference on Theory and Applications of Mathematics and Informatics (2004), PP.90–95.

[15] HEIDARKHANI (A), KHOMAMI (A.A), JAHANBAZI (Q), ALIPOOR (H).<< *The Role of Management Information Systems (MIS) in Decision-Making and Problems of its Implementation*>>, Universal Journal of Management and Social Sciences ,Vol. 3, No.3, 2013). pp. 78–89.

systems are not specific to any one level in the organization but provide important support for a broad range of users . Office information systems are designed to support office tasks with information technology. Voice mail, multimedia system, electronic mail, video conferencing, file transfer, and even group decisions can be achieved by office information systems .

2.2.2.4 Management Information Systems:

Management information systems are a kind of computer information systems that could collect and process information from different sources in institute decision making in level of management . Management information systems Provide information in the form of pre specified reports and displays to support business decision making . The next level in the organizational hierarchy is occupied by low level managers and supervisors. This level contains computer systems that are intended to assist operational management in monitoring and controlling the transaction processing activities that occur at clerical level. Management information systems (MIS) use the data collected by the TPS to provide supervisors with the necessary control reports . According to Hasan,Y. management information system is type of information systems that take internal data from the system and summarized it to meaningful and useful forms as management reports to use it to support management activities and decision making.[16]

2.2.2.5 Decision Support Systems:

A Decision Support System is a computer based system intended for use by a particular manager or usually a group of managers at any organizational level in making a decision in the process of solving a semi structured decision[17]. According to Heidarkhani, Decision Support Systems are a Kind of organizational information computerize systems that help manager in decision making that needs modeling, formulation, calculating, comparing, selecting the best option or predict the scenarios . According to Khanore[18], Decision-support systems are specifically designed to help management make decisions in situations where there is uncertainty about the possible outcomes of those decisions. According to Shim a decision support system is a computer-based information system that assists managers in

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[16] HASSAN(Y), SHAMSUDDINE (A), AZIATI (N), <<*The Impact of Management Information Systems adoption in Managerial Decision Making*>> *:* A Review, The International Scientific Journal of Management Information Systems ,Vol.8 ,No.4, (2013), pp.010-017

[17] ASEMI (A), SAFARI (A), ZAVAREH, (A.A), <<*The Role of Management Information System (MIS) and Decision Support System (DSS) for Manager's Decision Making Process*>>, International Journal of Business and Management, Vol. 6, No. 7, (2011), pp 164–173.

[18] KHANORE (S), PATIL (R) ,DAND (H). *management information system,* Institute of Distance and Open Learning , University of Mumbai. (2011)

making many complex decisions, such as decisions needed to solve poorly defined or semistructured problems[19] .

2.2.2.6 Executive Information Systems :

Executive Information Systems have been developed, which provide rapid access to both internal and external information, often presented in graphical format, but with the ability to present more detailed underlying data if it is required . Executive information systems provide critical information from a wide variety of internal and external sources (from MIS, DSS, and other sources tailored to the information needs of executives) in easy-touse displays to executives and managers . According to Patterson [20] An EIS provides senior managers with a system to assist in taking strategic and tactical decisions. According to Shim an executive information system is designed to generate information that is abstract enough to present the whole company operation in a simplified version to satisfy senior management

3 Section02: Human Resource Management

The terms 'human resource management' (HRM) and 'human resources' (HR) have largely replaced the term 'personnel management' as a description of the processes involved in managing people in organizations. the aim of this section is to provide a framework for what follows by defining the concepts of HRM and continues with a historical review.

3.1 Historical view and definitions:

3.1.1 Historical overview – From transactional HR to Strategic HR:

HRIS has grown in popularity since the 1960s in parallel with the grow of a new awareness of the personnel function from being a compiling office to a company strategic partner[21].

Table 2 : Stages of the Human Resource Management view

Stages of the development of HRM	Time Period	Relevant tasks	Role	Focus of restructuring within the stage
HR Partial/File Administration	Until mid of 1960s	Fulfillment of management	Personnel Office	Focus on restructuring of

[19] SHIM (J.K) , *Information Systems and Technology for the Non-information Systems Executive,* by CRC Press LLC. (2000)
[20] PATTERSON (A), *Information Systems - Using Information,* Learning and Teaching Scotland, (2005)
[21] **BENFATTO (M),** *Human Resource Information Systems and the performance of the Human Resource Function,* Libera Università degli Studi Sociali "Guido Carli" ,Roma,P. 11

("File maintenance")		information needs		HR database
HR Full Administration "Government accountability"	From mid of 1960s until mid of 1980s	Compliance with legal & tax rules, fulfillment of administrative and legally mandated tasks	Personnel Administration	Focus on optimal legal handling of a full range of administrative tasks, development of HR departmental structure
HR Professionalization ("Organizational accountability")	In the 1980s and 1990s	Accountability for success (in single business units), effective use of HR tools (recruitment, development, etc.) for business success	Personnel Management	Focus on increasing professionalization of the HR departments, development of services and tools, optimizing the cooperation with other HR partners
HR Strategic Integration ("Strategic Business Partner")	From the late 1990s, ongoing development	Demand for added value to the business. Contributions with strategic impact,, participative developed organizational strategy (strategic partnership)	Business Partner and role sets	Focus on outsourcing, enabling of line managers to do HRM, inclusion of new fields (e.g. knowledge management, cultural development, creation of a new model of cooperation

				between HR partners)

Source: 4 BENFATTO (M), *Human Resource Information Systems and the performance of the Human Resource Function*, Libera Università degli Studi Sociali "Guido Carli" ,Roma,P. 11

The ongoing development process, which started with the massive restructuring of organizations in the 1990s, sees today two parallel phenomena: on the one hand a large-scale outsourcing of transactional HR activities (payroll, benefits administration, some types of training); on the other hand the re-integration of those activities into a single, internal information/service system that, thanks to intranet platforms, enables employees to manage themselves in a variety of "self service" HR activities.

The difference between today and 1990s approach consists in an enriched interest in the social part of the socio-technical view of HRIS. According to Cascio[22] , if transactional activities are being eliminated, then the survival of in-house HR talent depends on a demonstrated ability to add value to the business. In order to do that, a number of key These include proficiency in areas such as the following:

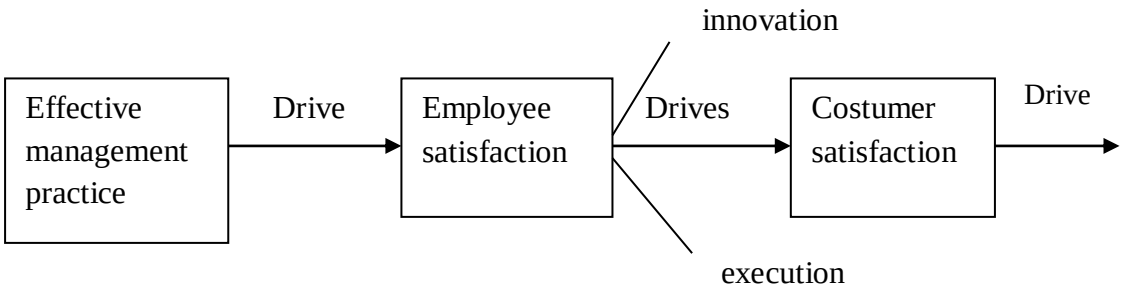
- An organization's business model. How the company competes for business in the product or service markets in which it operates. This also includes understanding the constraints that managers face, as well as the needs of internal and external customers. A HR professional can acquire this competency by working with managers and employees responsible for operations and also by serving on a management team with other executives to gain experience and exposure;
- Basic business literacy (corporate finance, marketing, accounting, information technology, and general management);
- Functional areas within HR (legal requirements, recruitment, staffing, training and development, performance management, compensation and benefits, labor and employee relations, occupational safety and health);
- Listening skills, as well as the courage to raise difficult issues with senior executives based on what has been learnt by listening;

[22] CASCIO (W. F), <<*Human Resource Management*>>, From business partner to driving business success: The next step in the evolution of HR management., (2005). PP.159-163.

- Skills as a strategic business partner (creating an overall talent or people mindset; creating an HR strategy that aligns people, processes, and systems; developing human capital metrics that are aligned with the strategy of the company; acquiring the ability to assess talent especially during challenging organizational changes; ensuring that ethical standards are actually practiced). Competencies are necessary.

Strategic business partnership is an important role for HR professionals to play, for it demonstrably adds value to any organization, but in and of itself it is insufficient. The role of a HR Business Partner encompasses strategic business partnerships, but also requires HR professionals to understand and identify the key drivers of individual, team, and organizational success that are consistent, or aligned with, the strategy of an organization. Those drivers become the basis for human capital metrics to assess work-unit or organizational performance. The mere existence of metrics is not enough, however. The challenge is to link the human capital metrics to customer behavior and important financial outcomes of the business, and to build a coherent information management system around the entire process.

Figure 3 The chain of relationships that links management practices to long-term profitability and growth



Source: 5 BENFATTO (M), *Human Resource Information Systems and the performance of the Human Resource Function*, Libera Università degli Studi Sociali "Guido Carli" ,Roma, P. 13

3.1.2 Definition of HRM:

HRM has been argued to be a replacement of the term personnel management in organizations. In this light, an expert like Armstrong (1987) sees HRM as « old wine in new bottles', while Guest (1987) argued that human resource management is not a replacement but somehow differs from personnel management. Practically, it suggests that Human Resource (HR) tasks are majorly concern with the administrative activities such as recruitment, reward systems, promotion, and so on. However, it does not make HR administrators 'having a seat at the table' meaning that HR administrators is not regarded as a strategic business partner, therefore does not contribute to the success of the business.

Storey (1995) defines HRM as« a distinctive approach to employment management which seeks to achieve competitive advantage through the strategic deployment of a highly committed and capable workforce, using an integrated array of cultural, structural and personnel techniques», while Byars & Rue (2004) see HRM as « activities designed to provide for and coordinate the human resources of an organization. » In addition, Boxall & Purcell (2000) argue that « HRM includes anything and everything associated with the management of employment relationships in the firm. »The words anything and everything in the definition explains the wider range of issues comprising policies such employment contract and ways in which employees may be involved and participate in areas not directly covered by the employment contract thus ensuring suitable work life. Further, it goes beyond employment relations or industrial relations, which personnel management would not have been able to render in organizations.

However, the four key dimensions to HRM as postulated by Guest (1987) include:

- Commitment: It is expected of employees to identify the interests and goals of the organizations, and be aligned and committed in achieving these goals.
- Flexibility: Employees are expected to adapt willingly to change within the organizational structure, without any strife or prejudice.
- Quality: High levels performance attainment of organization depends on the quality of members of staff and management of such organization.
- Integration: 'It involves the matching of human resources strategies to the needs of the business strategy (Guest, 1987).[23]

[23] OSIBANJO (A,O), ADENIJI (A,A), *Human Resource Management: theory & practice* ,first edition, August, 2012, P. 5

Overall we can define HRM as a practice of recruiting, hiring, deploying and managing an organization's employees. A company's HR department acts as a bridge between a company and its employees, facilitating a healthy relationship between employees and upper management. And it creates and implements policies to help everyone do their jobs.

3.2 Scope, Objectives and HR practices:

3.2.1 Scope of HRM:

The scope of HRM is very wide. Research in behavioral sciences, new trends in managing knowledge worker and advances in the field of training have expanded the scope of HR function in recent years. The Indian Institute of Personnel Management has specified the scope of HRM thus[24]:

- Personnel aspect: This is concerned with manpower planning, recruitment, selection, placement, transfer, promotion, training and development, lay off and retrenchment, remuneration, incentives, productivity etc.
- Welfare aspect: It deals with working conditions and amenities such as canteens, crèches, rest and lunch rooms, housing, transport, medical assistance, education, health and safety, recreation facilities etc.
- Industrial relations aspect: This covers union management relations, joint consultation, collective bargaining, grievance and disciplinary procedures, settlement of disputes etc.

3.2.2 Objectives of HRM:

The principal objectives of HRM may be listed as[25]:

1- To help the organization reach its goals: HR department, like other departments in an organization, exists to achieve the goals of the organization first and if it does not meet this purpose, HR department (or for that matter any other unit) will wither and die.

2- To employ the skills and abilities of the workforce efficiently: The primary purpose of HRM is to make people's strengths productive and to benefit customers, stockholders and employees.

3- To provide the organization with well-trained and well-motivated employee: HRM requires that employees be motivated to exert their maximum efforts, that their

[24] DAS (U.C), MISHRA(A.K), *human resource management, study material*, Utkal University DDCE, 2019, P. 9

[25] Ibid.

performance be evaluated properly for results and that they be remunerated on the basis of their contributions to the organization.

4- To increase to the fullest the employee's job satisfaction and self-actualization: It tries to prompt and stimulate every employee to realize his potential. To this end suitable programmes have to be designed aimed at improving the quality of work life (QWL).

5- To develop and maintain a quality of work life: It makes employment in the organization a desirable, personal and social, situation. Without improvement in the quality of work life, it is difficult to improve organizational performance.

6- To communicate HR policies to all employees: It is the responsibility of HRM to communicate in the fullest possible sense; tapping ideas, opinions and feelings of customers, non-customers, regulators and other external public as well as understanding the views of internal human resources

7- To be ethically and socially responsive to the needs of society: HRM must ensure that organizations manage human resource in an ethical and socially responsible manner through ensuring compliance with legal and ethical standards.

3.2.3 Human resources (HR) practices:

Human resources (HR) practices, also called HR activities are the tasks that are related to the management of human resources, such as routine bookkeeping activities, selection, recruiting, compensation, benefits administration, performance management, training programs, knowledge management, organizational development and so on. Huselid [26]maintain that HR practices influence firm performance. Adding value to this argument, Baruch maintains that «HRM practices can serve as an indication for the way in which the organization takes care of its people»[27] and concludes from his empirical study that:

"It appears that the evaluation of the HRM unit using such a process (evaluating HR practices) is better than other options, or at least can provide a feasible, reasonable and comprehensive way of assessing HRM quality. Its advantages are concerned with the achievement of greater accuracy and better reliability and validity".

[26] HUSELID (M. A), JACKSON (S. E) and SCHULER(R.S) ,<<*Technical and strategic human resource management effectiveness as determinants of firm performance*>>. Academy of Management Journal. Vol. 40 (No. 1), (1997), PP.171-188.

[27] BARUCH (Y)**<<** *Evaluating quality and reputation of human resource management*>>. Personnel Review. Vol. 26 (No.5), (1997), PP..377-394.

Table 3 : HR Practices

Author(s)	Number of HR practices	Name of the HR practices
Ulrich (1997)	06 (Six)	Staffing, Development, Appraisal, Rewards, Organization Governance and Communication
Paauwe and Richardson (1997)	09 (Nine)	Recruitment/Selection, Human resource planning, Rewards (motivation), Participation (commitment), Internally consistent HR bundles, Decentralization, Training/Employee development, Organizational structures/Internal labor market and Formal procedures
Carrig (1997)	03 (Three)	Transactional, Traditional and Transformational
Lepak and Snell (1998)	04 (Four)	Core, Traditional, Peripheral and Idiosyncratic
Nutley (2000)	07 (Seven)	HR planning, Staffing, Training, Performance appraisals, Employee relations, Compensation and benefits, and HR information systems.
Boselie et al. (2001)	11 (Eleven)	Recruitment and Selection, HR planning, Rewards, Participation (consultation), Internally consistent HR bundles, Decentralization, Training, Opportunities for internal promotion, More Autonomy, Formal Procedures and Coaching
Lepak et al. (2005)	03 (Three)	Transactional, Traditional and Transformationa
Tsui (1987)	08 (Eight)	Staffing/Human resource planning, Organization/ Employee development, Compensation/Employee relations, Employee support, Legal compliance, Labor/Union relations, Policy adherence, and Administrative services
Alexopoulos and Monks (2008)	04 (Four)	Selection and Socialization, Training and Development, Performance appraisal, and Rewards
Kavanagh, et al. (2012)	03 (Three)	Transactional, Traditional and Transformational

Source: 6: SRITHARAKUMAR , *Human resources information system (HRIS)-enabled human resource management (HRM) performance: A business process management (BPM) perspective*, Ph. D. Thesis(2015)

As seen in Table, while others have simply listed the possible HR practices that are connected with their research, Carrig , Lepak et al. and Kavanagh, et al, in consideration of broader acceptance, agree on categorizing the HR practices under three domains, namely, transactional, traditional and transformational. Each of these categories can be further explained as[28] :

- HR Transactional Practices: These practices involve the day-to-day transactions that deal mostly with record keeping and bookkeeping – for example, entering payroll information, employee status changes, and the administration of employee benefits.
- HR Traditional Practices: These practices involve HR programs such as planning, recruiting, selection, training, compensation, and performance management.
- HR Transformational Practices: The practices are those actions of an organization that "add value" to the consumption of the firm's product or service, such as cultural or organizational change, structural realignment, strategic redirection, and increasing innovation. An example of a transformational HR practice would be a training program for retail clerks to improve customer service behavior, which has been identified as a strategic goal for the organization.

[28] KAVANAGH (M. J), THITE (M) and JOHNSON (R. D), <<*Evolution of human resources management and human resources information systems*>>. 2nd ed. California: SAGE Publications Inc. (2012). PP.2- 34.

4 Conclusion:

This rapid preliminary analysis of the definition of the concept of IS shows that several perspectives must be taken into account to understand what a system really is First and foremost, probably the most immediate vision, an information system is a system that manipulates and produces information from data, then, it is a system that uses technologies of information within an architecture (computers, networks, software) and, finally, it is a system that supports the process and structure of an organization (links close between work processes and information system).

From a technical point of view An information system corresponds to a set of interrelated technological components (hardware and software) that collect, process , store and disseminate information to help manage day-to-day operations, decision-making, coordination and control within an organization. Three functions can be linked to an IS: the input, the process by which raw data is provided to the system from the organization or its environment; treatment, process of transformation of raw data; and finally, output, information dissemination process processed to users who need it.

From a managerial point of view, overall, IS is a solution organization and management to a problem posed by the environment, a built solution on information technology. By entering all of its dimensions organizational, strategic, social, ethical and technological, an IS can be an instrument important and effective value creation for the company, by providing information necessary that helps managers make the best decisions or improves management repetitive processes. This IS approach is also called "IS culture" which has recently become acclimatized to the notion of HR.

Indeed, IT has changed the daily work within the Departments of Human resources. These now have computerized management systems staff allowing them to record, store and submit to the various processing procedures all the useful information, to better use it in the sockets decisions.

Human resource management is one of the last functions of the organization to be affected by IT. The growing mass of treatments to be carried out in this domain gives technology considerable weight in the activities of managers and gives all its letters of nobility to the HRIS concept.

Chapter II:

HRIS

5 Introduction:

With the use of large database system, human resources management system integrates almost all the information sources data, which relates to human resources such as pay and benefits, recruitment, individual career design, training, position management, performance management, and job descriptions. An important decision support system function of HRIS is data processing and analysis, making predictions and decision support for the management.

With this chapter, we intend to contribute to the definition of the role of HRIS in human resources management, as well as the role of HR professionals in this process and more concepts.

6 Section 1: Generalities on HRIS :

A computerized human resource information system consists of a fully integrated, organization-wide network of HR-related data, information, services, databases, tools and transactions. Such a system can be described as 'e-HR', meaning 'the application of conventional, web and voice technologies to improve HR administration, transactions and process performance'.

In this section we will see many definitions of HRIS also the deferent phases of HRIS evolution

6.1 Definition and Evolution:

6.1.1 definition of HRIS:

One of the earlier researchers in this field, DeSanctis[29] introduced HRIS as a system designed to support the planning, administration, decision-making, and control activities of HRM. To add further value to this argument, quoting the work of Kavanagh, et al in their book titled 'Human resources information systems', Kavanagh, et al. define an HRIS as a:

"System used to acquire, store, manipulate, retrieve and distribute information regarding an organization's human resources. An HRIS is not simply computer hardware and associated HR-related software. Although an HRIS includes hardware and software, it also includes people, forms, policies and procedures, and data"[30].

[29] DESANCTIC (G), *Human Resource Information Systems: A Current Assessment. MIS Quarterly. Vol. 10 (No. 1), (1986), P.15.*

[30] KAVANAGH (M. J), THITE (M) and JOHNSON (R. D), *Evolution of human resources management and human resources information systems. 2nd ed. California: SAGE Publications Inc. (2012). pp.17*

Kovach [31] et al. defines human resources information systems (HRIS) as a systematic procedure for collection, storing, maintaining, retrieving, and validating data needed by organizations about HR . Tannenbaum [32] defines it as a technology-based system used to acquire, store, manipulate, analyze, retrieve, and distribute pertinent information regarding HR in the organization .

HRIS shapes integration between HRM and information technology. HRIS is a management system designed specifically to provide managers with information to make HR decisions. Is a system that lets you keep track of all your employees and information about them? It is usually done in a database, or more often in a series of inter-related databases[33].

6.1.2 Historical Evolution of Human Resource Information System (HRIS):

In this study, the historical evolution of HRM had traced out five broad phases of the historical development of industry in the United States[34]

6.1.2.1 Stage-I: Pre-world war-ii era and Emerging Personnel Management

- Emergence of the Term "Personnel": Personnel Management (the precursor of the term HRM) can trace back to prehistoric times, when tribal members assigned for specific jobs of hunting or gathering. The households of ancient Chinese emperors had employment tests to identify servants with special talents for special jobs. Then there were the apprentice system and artisan guilds, formed to train new workers. Then human resources treated as "Personnel.
- Isolated Function: The then, personnel management isolated from core organizational functions, like; operations, marketing, accounting and finance, and research & development.
- The Term "Employee Welfare": In the late 19th century, where organizations such as; Cadburys at its Bournville factory organized the importance of looking after the welfare of the workforce, and their families. Employing women in their factories in UK during the first world-war leads to introduce "Welfare Officers".

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[31] KOVACH (K), HUGHES (A), FAGAN (P), MAGGITI (P), *Administrative and strategic advantages of HRIS, Employment Relations Today, 2002,P, 43-48*

[32]TANNENBAUM (S), *HRIS Information: User group implications, Journal of System's Management,(1990),pp 27-36*

[33] BOATENG (A), *The Role of Human Resource Information Systems (HRIS) in Strategic Human Resource Management (SHRM) [thesis], Sweden: Swedish School of Economics and Business Administration,(2007),P. 112*

[34] KAVANAGH (M. J), GUEUTAL, and TANNENBAUM(S.I), *Human Resource Information Systems*. 1990: Boston: PWS-Kent.

- Record Keeping: In the early 20th century and before World War II, the personnel function (the precursor of the term human resource management) primarily involved in record keeping of employee information, like; name, address,, phone, employment history etc. In other words, it fulfilled a "caretaker" function. There was simply no computer technology to automate the records now in history of the course paper records would keep and we can still see paper record Human Resource Systems in many smaller firms today.
- Few Govt. Influences : At this point in history, there were few government influences in employment relations, and thus, employment terms, practices, and conditions left to the owners of the firm. As a result, employee abuses such as child labor and unsafe working conditions were common.

Table 4 : Summary of pre-world war-ii era

Period	**Issues**
Pre-world war-ii era	• HR treated as personnel • Personnel management as separate and independent function of organization • Organizations focused on employee welfare programs • Focused on more record keeping about HR • Less emphasized on employee relations

Source: 7 BHUIYAN(F), CHOWDHURY(M), FERDOUS(F), <<*Historical Evolution of Human Resource Information System (HRIS): An Interface between HR and Computer Technology*>>, In Human Resource Management Research 2014, 4(4): PP. 75-80

6.1.2.2 Stage-II: Post world-war-ii era (1945-60)

The period of 1945-1960 is characterized by the importance of employee morale while personnel are part of operating costs but not yet in mainstream of operations. Research and development in employee selection, payroll automation, applications of mainframe computers for personnel use in defense industry[35] also practiced during this period.

- Employee Morale: Labor utilization and mobilization during the war-ii had a great impact on developing the personnel function. Managers realized that employee

[35] KAVANAGH (M. J), GUEUTAL, and TANNENBAUM(S.I**),** *Human Resource Information Systems*. 1990: Boston: PWS-Kent.

productivity and motivation had a significant impact on the profitability of the firm. The human relations movement after the war emphasized as employees was motivated not just by money but also by social and psychological factors, such as recognition of work achievements and work norms.

- Formal Selection and Development: During the middle of the last century, larger corporations, typically those in the United States that emerge after the second world-war. They recruited personnel from US military and could apply new selection, training, leadership and management development techniques, originally developed by the Armed services, working with, for example, university based occupational psychologists. Similarly, some leading European multinationals, such as; Shell and Phillips developed new approaches to personnel development and drew on similar approaches already used in Civil Service training. Gradually, this spread more sophisticated policies and processes that required more central management via personnel department composed of specialists and generalist team.
- Concept of Job Description: Due to the need for classification of large numbers of individuals in military service during the war, systematic efforts began to classify workers around occupational categories to improve recruitment and selection procedures. The central aspect of these classification systems was the job description, which listed the tasks, duties, and responsibilities of any individual who held the job in question. These job description classification systems could also use to design appropriate compensation programs, evaluate individual employee performance, and provide a basis for termination.
- Extensive Reporting to Govt Agencies: Because of the abusive worker practices prior to the War, employees started forming trade unions, which played an important role in bargaining for better employment terms and conditions. There were a significant number of employment laws enacted that allowed the establishment of labor unions and defined their scope in relationship with management. Thus, personnel departments had to assume more record keeping and reporting to governmental agencies.
- Use of Computer Technology: Because of these trends, the personnel department had to establish specialist divisions, such as recruitment, labor relations, training and benefits, and government relations. With its changing and expanding role, personnel departments started keeping increasing numbers and types of employee records, and computer technology emerged for facilitating in maintaining employee information.

Table 5 : Summary of post-world war-ii era

Period	Issues
Post World War-II era (1945-60)	• More emphasized on employee relations • Systematic selection • Emerged the term job description for effective selection • Focused on extensive record keeping and reporting • Emerged computer technology as facilitator in managing employee information

Source: 8: BHUIYAN(F), CHOWDHURY(M), FERDOUS(F), <<*Historical Evolution of Human Resource Information System (HRIS): An Interface between HR and Computer Technology*>>, In Human Resource Management Research 2014, 4(4): PP. 75-80

6.1.2.3 Stage-III: Legislative era (1960-1980) and Emerging Human Resource Management (HRM):

During the period of 1960-1980, social issues change HR; the increased paperwork and reporting requirements; protector of employees; advent of MIS in computer world; introduction of IBM/360; HR now more in mainstream of operations[36]

- Emergence of HR: It was about this time that personnel departments were beginning to be called Human Resources Departments and the field of human resource management was born.
- HR Became Key in Organization: The increasing need to be in compliance with numerous employee protection legislations or suffer significant monetary penalties made senior managers aware of the importance of the HRM function. In other words, effective HRM practices were starting to affect the "bottom line" of the firms. So, there was a significant growth of HR departments, and computer technology had advanced to the point where it was beginning to use.
- Govt. and Regulatory Agencies Increased Reporting Requirement: This period witnessed an unprecedented increase in labor legislation that governed various parts of the employment relationship, such as prohibition of discriminatory practices (EEO),

[36] BHUIYAN(F), CHOWDHURY(M), FERDOUS(F), <<*Historical Evolution of Human Resource Information System (HRIS): An Interface between HR and Computer Technology*>>, In Human Resource Management Research 2014, 4(4):PP. 75-80

occupational health and safety (OSHA), retirement benefits, and tax regulation. As a result, the HR department burdened with the additional responsibility of legislative compliance that required collection, analysis, and reporting of voluminous data to statutory authorities.

- Development of MIS for HRM :There was an increasing demand for HR departments to adopt computer technology to process employee information more effectively and efficiently. This trend resulted in an explosion in the number of vendors who could assist HR departments in automating their programs in terms of both hardware and software. Simultaneously, computer technology was evolving, and delivering better productivity at lower costs. These technology developments and increased vendor activity led to the development of a comprehensive management information system (MIS) for HRM.

Table 6: Summary of legislative era

Period	**Issues**
Legislative Era (1960-1980)	• Personnel became HR • HR treated as key for organization success • Increased govt. pressure on proper report keeping • Emergence of MIS for HRM • HRIS used mostly to keep administrative records

Source: 9: BHUIYAN(F), CHOWDHURY(M), FERDOUS(F), <<*Historical Evolution of Human Resource Information System (HRIS): An Interface between HR and Computer Technology*>>, In Human Resource Management Research 2014, 4(4): 75-80

6.1.2.4 Stage-IV: Low Cost Era and Emerging HRIS (1980-1990)

With increasing competition from emerging European and Asian economies, U.S. and other multinational firms increased their focus on cost reduction through automation and other productivity improvement measures. The history of HRIS began from payroll systems in the late 1950s and continued into the 1960s when the first automated employee data used

- Affordability of HRIS: Regardless of the Size of the Organization In the 1960's and 1970's, large companies felt a need to centralize their personnel data in large part to facilitate record keeping and meet regulatory needs. Programs would write on large

mainframe computers that acted as a central data repository with little transactional processing, usually only for payroll. The Human Resource Information System (HRIS), also known as a Human Resource Management System (HRMS), became prevalent in the 1980's with the popularity of Enterprise Resource Management (ERP) applications and the move from mainframe systems to client server technology.

- HRIS as Simple Record Keeping to Complex Analytical Tools: HRIS has evolved from simple record keeping to complex analytical tools to assist management decision making. The 1980's saw a shortage in skilled workers, especially in the technology sector. Human Resource Management had long evolved from the basis of a skills management discipline to more of an employee satisfaction and productivity tool. However, by the 1980's, HRIS systems now included a host of feature sets and functional capabilities aimed at attracting, retaining and properly compensating the workforce. By 2000, the human resource software industry saw HRIS grow to include recruitment, benefits management, time management, payroll, compensation management, learning management, expense reporting and reimbursements, and performance management.

Table 7: Summary of low cost era and emergence of HRIS

Period	Issues
Low Cost Era and Emergence of HRIS (1980-1990)	• HRIS became affordable to organizations • HRIS became complex analytical tool • HRIS for all

Source: 10: BHUIYAN(F), CHOWDHURY(M), FERDOUS(F), *<<Historical Evolution of Human Resource Information System (HRIS): An Interface between HR and Computer Technology>>*, In Human Resource Management Research 2014, 4(4): 75-80

Table 8: Differentiating features of both legislative and low cost era

Basis	Legislative Era	Low Cost Era
Time	1963-1980	1980-1990
Focus	HR assumed key	HRD concentrates on HRIS
Regulators	increased reporting requirements by Govt. and Regulatory Agencies	increased demand for ensuring a technology-enabled HRM system by giant competitors
Scope	HRIS used mostly to keep administrative records.	HRIS as simple record keeping to complex analytical tools.

Source: 11: **Ibid**

6.1.2.5 Stage-V: Tech Era and Emergence of Strategic HRM (1990 to the present)

The increased use of technology and changed focus of the HRM function as adding value to the organization's product or service led to emerge the HR department as a strategic partner. With the growing importance and recognition of the people and people management in contemporary organizations, SHRM has become critical in management thinking and practice. SHRM derives it theoretical significance from resourced based view of the firm that treats human capital as a strategic asset and a competitive advantage in improving organizational performance[37]. SHRM designed to diagnose firm strategic needs and planned talent development, which requires implementing a competitive strategy and achieving operational goals

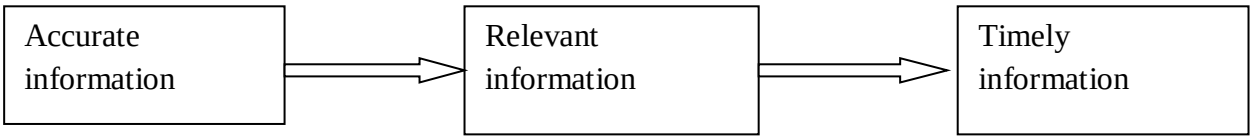
Strategic Human resource Management (SHRM) evolved from Personnel Management in two-phased transformation: from personnel management to traditional human resource management (THRM) and then from THRM to SHRM[38]. Firms today realize that innovative and creative employees who hold the key to organizational knowledge provide a sustainable competitive advantage because unlike other resources, intellectual capital is difficult to imitate by competitors.

6.2 Objectives, components and users of HRIS:

6.2.1 Objectives of HRIS:

HRIS shapes integration between HRM and information technology. Therefore, the basic objectives of HRIS are[39]

Figure 4: **HRIS objectives.**



Source: 12: ALVES (M.S) and GUILHEM (C), *the Role of Information Systems in Human Resource Management*, P.115

[37] BECKER (B.E), and HUSELID (M), *Strategic human resource management: Where do we go from here*? Journal of Management, 2006. 32(6): PP. 898-925.
[38] SCHULER (R.S), DOLAN (S), and JACKSON (S.E), *Introduction to strategic human resource management*, International journal of manpower, 2001. 22: PP. 1995-7.
[39] ALVES (M.S) and GUILHEM (C), *the Role of Information Systems in Human Resource Management*, P.115

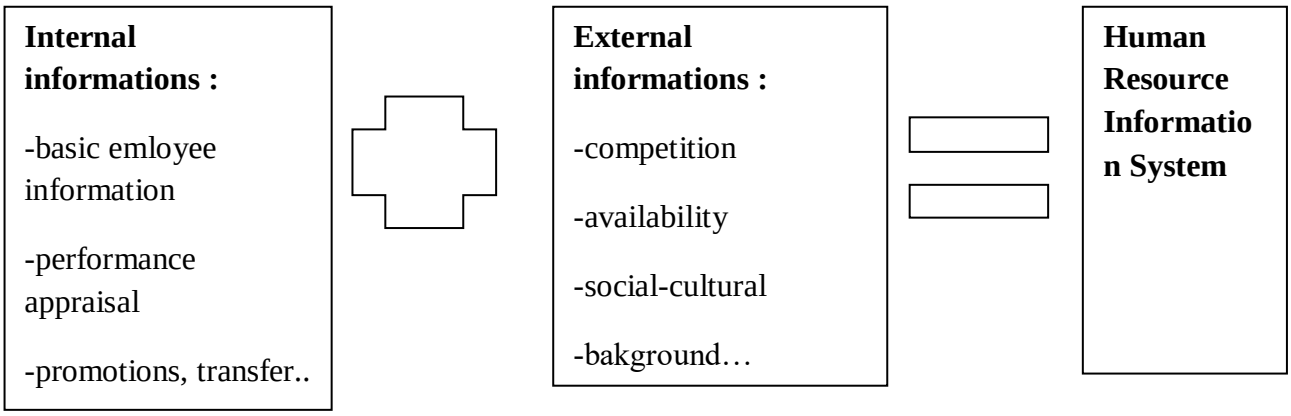
- To provide accurate information about human resource and their functioning and relevant environmental factors.
- To provide relevant information.
- To provide timely information.

Organizations require information about their human resources and their functioning, but also require information from their external environment. Thereby, HRIS allows us to collect, store, manipulate, analyze, retrieved, and distribute information from internal and external environment.

HRIS in an organization should be developed in such a manner that the data stored in it can be used for several outputs. Because of these multiple uses of data, there is a need to develop a complete system of gathering, processing, and flowing of information

Chakraborty lists several examples of information that is collected from HR departments or from the surrounding environment and that makes part of HRIS, such as[40]

Figure 5 :Type of information needed in HRIS.



Source: 13:Ibid

• Employee information (name, age, qualification, …)

• Type of employee recruited during the year

• Training and development offered

• Results of performance appraisal

• Promotion, demotion, transfer, separation of employees

[40]CAKRABORTY (A), MANSOR (N), <<*Adoption of human resource information system: A theoreticcal analysis*>>. Journal of Social and Behavioral Sciences. 2013; PP; 75,473-478

• Compensation packages, both financial and nonfinancial, offered

• Employee absenteeism and turnover

• Maintenance, safety and health services

• Availability of human resources from different sources

• Training and development facilities available outside the organization

• Expectations of human resources from the organization

• Government policies affecting the employment conditions and labor laws

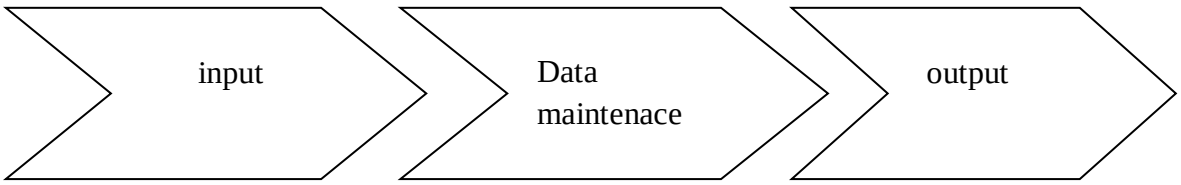
• Trade union movement and its attitudes toward employer organizations

• Benchmark of HRM practices.

6.2.2 Components of HRIS

HRIS applications allow users to store and track all types of data that are related to HR . In the research carried out by Dorel[41] et al. is notorious that HRM was focused on collect and store personal data (records) of each employee, handle their salaries, benefits, vacations, etc. However, HR function has developed and became a very important function of management. Keeping this in mind, we can identify three major functional components of HRIS[42]

Figure 6: functional components of HRIS.



Source: 14Source: ALVES (M.S) and GUILHEM (C): Op.cit P.117

Input function allows us to enter personnel information into the HRIS. The maintenance function allows us to update and add new data into the database. To generate valuable outputs, HRIS needs to make the necessary calculations, and format the data in a way that it could be

[41] DORAL (D), BRADIC-MARTINOVIC (A), *The role of information systems in human resources management*. Munich Personal RePEc Archive, Paper No. 35286; 2011

[42] KOVACH (K), HUGHES (A), FAGAN (P), *Administrative and strategic advantages of HRIS*. Employment Relations Today. 2002;29(2):PP. 43-48

understood. Therefore, it is important to remember that the most important elements of HRIS is the information, rather the automation of the process or the hardware/software used

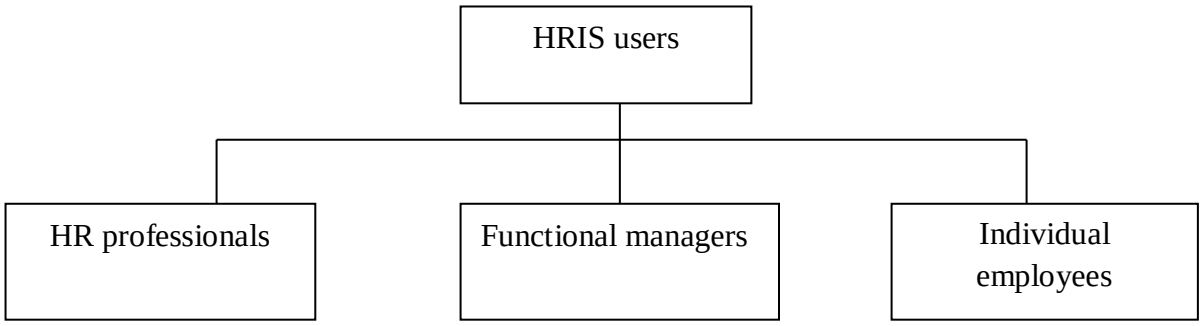
In HRIS we can identify three dimensions of HRIS: operational, tactical, and strategic[43]:

- Operational human resource information system : provides data to support routine and repetitive human resource decisions (e.g. workforce, governmental regulations, …);
- Tactical human resource information system : provides data for support decisions related with allocation of resources (e.g. recruitment, job analysis, training and development decisions, compensations plans, …)
- Strategic human resource information system :provides data for strategic decisions in human resources plan.

6.2.3 User of HRIS:

There are several users of a HRIS. So, who uses HRIS and how is it used? Essentially, we can define three groups of people: HR professionals, functional managers, and employees[44]

Figure 7: user of HRIS



Source: 15: ALVES (M.S) and GUILHEM (C): Op.cit, P. 117

In the HR professionals' case, HRIS helps them to fulfill the job functions, even the most elementary job tasks, like reporting and compliance, payroll and compensation analysis, benefits administration, applicant tracking, and skills inventory.

In the other hand, functional managers expect that HRIS provide data to achieve goals and objectives. They expect that the system provide information for performance appraisal and management, team and project management resume processing, recruitment and retention, training and skills testing, and management development.

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[43] KARIKARI (A), Boatang (P), Ocansey (E): <<*The role of human resource information system in the process of manpower activities*>>. Journal of Industrial and Business Management. 2005;5: PP.424-431.

[44] ALVES (M.S) and GUILHEM (C): Opcit p117

Additionally, individual employees become end users of several HRIS applications, such as self-service, benefit options, career planning, or training and development.

7 Section 2: the role of HRIS in HRM:

"*Continuous innovations in technology is ganging the way HR work is accomplished*"[45]. These technology developments made it possible to create a real-time information-based and interactive work environment. Personnel information systems have evolved from the automated employee record keeping into more complex reporting and decision systems.

In a traditional HRIS, practically we could only work administrative issues, like monitor absences, salary structures, training information, recruitment, media response, accessing to current information, medical information, and global administration.

However, we watched a break with the past and an increase in effectiveness. HRIS allows us to respond more quickly to changes and to needs of decision-making. HRIS allows budget control, tracking and screening, skills matching, appraisals, feedback, manpower planning, succession planning, skills monitoring, training needs analysis, and global analysis[46].

The main issue is to define what are the real implications and the role of the information systems in HRM. HRIS can be applied in several areas, integrated into the HRIS system

[45] STONE (D) and all, <<*The influence of technology on the future of human resources management*>> , Human Resources Management Review, 2015; PP; 216-231

[46] SHRM, *SHRM Learning System—Module One Strategic Management*. USA: Society for Human Resource Management; 2008. P. 41

Figure 8: Areas of application of HRIS.

Source: 16: ALVES (M.S) and GUILHEM (C): Op.cit; P. 120

According to the research of Kavanagh et al., HR professionals spend their time essentially in business process improvements, talent management processes, workforce metrics, HR strategy, workforce management and planning, and competency management[47]. We will now discuss some examples of the application of information systems in the functional areas of HRM[48].

7.1 Strategic HR management :

Strategic HRM is characterized by the adoption of a dynamic vision of the resources it manages. It covers not only the planning and implementation of actions, but also the control of results, which must be related to the strategy of the organization[49]. In HRIS, we can find information at these levels:

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[47] KAVANAGH (M), THITE (M), HOHONSON (R). *The Future of HRIS: Emerging trends in HRM & IT*; 2012.
[48] SHRM **:** Op.cit, P.41
[49] PERETTI (J). *Recursos Humanos*. 3rd ed. Lisbon: Edições Sílabo; 2001. P 600

- Environmental scanning: monitoring internal and external environments for detecting opportunities and threats that may influence organizational plans
- Quality and productivity improvements: analysis and development to certify the development of HR quality and productivity.

7.2 Workforce planning and employment :

HR planning of what the organization will need is of great importance to HR professionals, revealing different skills profiles, working schedules, enabling the organization to have the right people, in the right amount, at right time. It reflects the interests and perspectives of the organization as well as the aspirations of the candidates and collaborators[50]

The information that we can collect in this area from HRIS is, for example:

- Promotions, transfers, hiring, and termination rates: tracks data to analyze and make decisions about workforce planning and employment needs.
- Analysis and definition of work: allowing employees in geographically dispersed locations to work together.
- Recruitment and selection: ability to support processes by creating tools that are more agile and enable online work.

7.3 Human resource development:

In addition to the need for work organization and decision-making, what will allow organizations to have increased levels of productivity will be the preparation of their staff and their motivation? In this sense, the development of HR will be a factor of competitiveness and even, in some cases, of survival. "Organizational development is directly associated with the development of Human Resources"[51]. In these cases, the information that we can gather from HRIS is:

- Career development: analysis of careers, their evolution, development of career plans and the achievement of objectives outlined.
- Education, skills, and training programs: analysis and identification of competences, identification of training needs, access to training contents remotely.
- Evaluate employee performance: definition of performance goals, design of evaluation metrics, performance evaluation, and feedback of results.

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[50]CAMARA (P), GUERRA (P), RODRIGUE (J), *Humanator – Recursos Humanos & Sucesso Empresarial*. 6th ed. Lisboa: Publicações Dom Quixote; 2005. P.585

[51] Ibid

7.4 Total rewards:

Reward systems consist of all material and immaterial counterparts, which employees can receive, depending on the quality of their performance, the contribution to the development of the business and its identification with the values of the organization .HRIS allows us to identify the following information, regarding rewards:

- Salary information: salary processing, holiday management, absences and absences, automatic calculations of wage components.
- Retirement planning: identification of succession plans, pensions, streamlining of untying programs.
- Benefit administration: benefits attribution, attributed benefits analysis, cost-benefit analysis.
- Salary analysis: analysis of salary developments, salary comparisons.

7.5 Employee and labor relations :

The role of HR professionals in the social relations system is considerable. They appear as a link between the organization, employees and trade unions and workers' committees[52]. HRIS can help us in different aspects of this area:

- Employee discipline records: access and management on disciplinary proceedings, disciplinary proceedings reports.
- Union and labor distribution: management of information on trade unions and workers' committees, work distribution, and analysis of work and labor relations indicators,
- Attitude, climate, culture, and commitment: possibility to automatically inquire the entire organization and perform the attitude, climate, culture and commitment analysis.

7.6 Risk management:

Safety and working conditions improvement are areas with profitability difficult to evaluate and considered as real investments for the company, being considered a specific domain of HRM. Thus, great consistency must be sought between the actions developed and the other areas of HRM[53]

HRIS can assist the risk management by analyzing the following points:

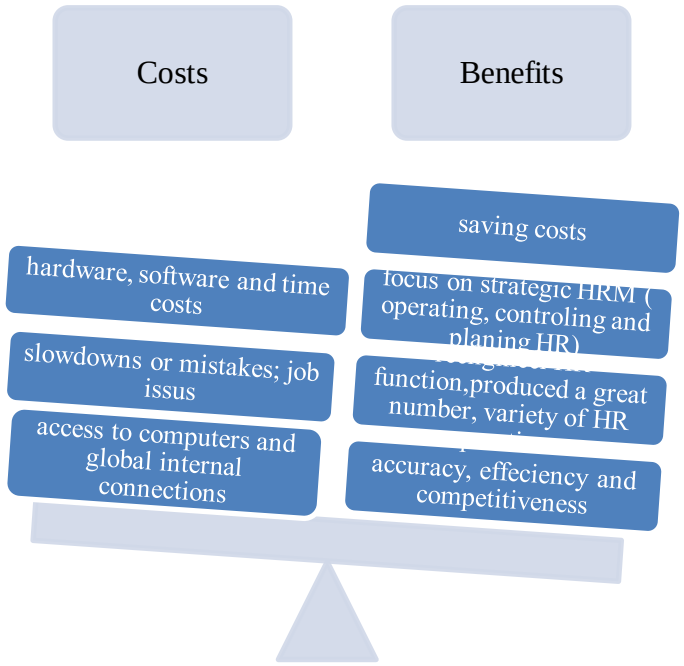
[52] PERETTI (J). Opcit p 600
[53] PERETTI (J). Opcit p 600

- Accident and illness: analysis of trend on accidents and illness; managing reports.
- Safety, insurance and workers' claims: agility and support to processes, records maintenance, monitoring of high-risk conditions and accidents.

8 Section 3 :costs and benefits of HRIS :

Information systems represent a major investment by the organizations. Thus, it is necessary to keep in mind the costs and benefits of implementing a HRIS.

Figure 9: Costs and benefits of HRIS.



Source: 17: ALVES (M.S) and GUILHEM (C): Op.cit, P. 118

The common benefits of HRIS [54]

- Improved accuracy
- Provision of time and quick access to information
- Saving costs
- Operating, controlling and planning HR activities
- Increase competitiveness by improving HR practices
- Increased efficiency
- Produce a great number and variety of HR operations

[54] ALVES (M.S) and GUILHEM (C): Op.cit, P. 118

- Shift the focus of HR to strategic HRM
- Make employees part of the HRIS
- Re engineer HR function

However, there are costs associated with a HRIS implementation:

- Employees need to have access to computers and global internet connections
- Slowdowns or mistakes, errors
- Costly technology costs, time costs
- Job issues (change of tasks, need for training, change of posts, dismissal, …)

There are many software solutions offers, the choice it will be dependent on the decision of the user. Many types of computer-based training, internet access to the recruitment world, and the use of certain programs to assess employees in the hiring process are only available for those with technology-rich environments. The reality is that HRIS enable effectiveness and efficiency, and ensure competitiveness.

According to Hendrickson study, increased efficiency is a benefit of an HRIS[55]. Both time and cost efficiency can be addressed with the ability to do more transactions with fewer fixed resources. This can specifically be seen in areas such as payroll and benefits. In terms of accuracy, the HRIS helps in transactions. Additionally, the technology can be used to simplify processes

[55] HENDRICKSON (A), <<*Human resource information systems: Backbone technology of contemporary human resources*>>. Journal of Labor Research. 2003;4(3): PP.381-394

9 Conclusion:

According to researches done in this second chapter, it can be admitted that technology has a profound impact on HRM. As technology evolves, it will also force HRM to take on new contours in both its processes and its practices. HRIS emerged in response to the need for this change to be carried out in the most fruitful way possible, considering the improved accuracy, the quick access to information, the increased competitiveness and efficiency and the re engineer of the HR function.

By focusing on using technology to continuously improve the quality of the work. Technology can improve the information available to HR, facilitating HR processes, and making them faster and more effective.

It remains to determine how does IS within a company influences HRM in the third chapter.

Chapter III:

Case study

10 Introduction:

In this chapter, we will deal with the practical part of this dissertation, which includes three sections. The first section will focus on the presentation of the Export Credit Guarantee Company Of Algeria “CAGEX” where we did our internship.

We will then begin the second section, which will focus on the presentation of the survey and the research methodology chosen to conduct our study.

Finally, the third section will present the subject of our study by analysing the answers obtained, we will synthesize the results, and we will then try to make a list of recommendations and suggestions.

11 Section 1: Overview of the host company:

In this section, we will provide an overview of the organization in which we spent our internship and undertaken our research. The presentation is dependent on the internal information that was given by the host company.

11.1 General description of CAGEX:

11.1.1 Legal framework:

The Algerian Export Insurance and Guarantee Company is governed, among other things, by article 4 of ordinance 96/06 of 10/01/1996 relating to export credit insurance and its texts application.

CAGEX is a joint stock company with a share capital of 3,000,000,000 DA, divided equally between the shareholders (Banks and Insurance).

11.1.2 Shareholding:

Table 9 : CAGEX shareholding

BANKS	COMPANIES INSURANCE
BADR (Banque de l'Agriculture et du Développement Rural)	CAAR(Compagnie Algérienne d'Assurance et de Réassurance)
BEA (Banque Extérieure d'Algérie)	CAAT (Compagnie Algérienne des Assurances)
BDL (Banque de Développement Local)	CCR (Compagnie Centrale de Réassurance)
BNA (Banque Nationale d'Algérie)	CNMA (Caisse Nationale de Mutualité Agricole)
CPA (Crédit Populaire d'Algérie)	SAA (Société Nationale d'Assurance)

Source: 18: CAGEX docs.

Each shareholder holds 10% of the company's capital

11.1.3 Partners and / or Reinsurers of CAGEX:

- ATRADIUS : 2nd Global Credit Insurer, (Belgium)
- COFACE : 3rd Global Credit Insurer (France)
- ICIEC (Saudi Arabia)
- AFRICA-RE (Morocco)

- DHAMAN (Kuwait)
- COTUNACE (Tunisia)
- BULGARIAN EXPORT AGENCY

11.2 CAGEX Activities and Missions:

Any export-related transaction involving goods and / or services, and for which payment must be made from a country other than that of the exporter, may be insured against a risk of non-payment as well as other risks linked to the different phases of the commercial transaction (prospecting, manufacturing, bonding, repatriation of equipment).

If CAGEX is empowered to insure all export operations of goods and services, the fact remains that membership in the credit insurance system in Algeria is optional since there is no legal obligation for operators to cover their risks arising from exports.

11.2.1 CAGEX activities:

It has a dual activity:

- Covering commercial risk for its own account.
- On behalf of the State and under its control, political risk coverage.

11.2.2 CAGEX missions:

The company's mission is to encourage and promote non-hydrocarbon exports and to guarantee credit sales for the benefit of economic operators operating on the national market.

As part of its activity, CAGEX must accomplish several missions, namely:

- Coverage of risks arising from export
- Guarantee of payment in the event of default by the buyer;
- Compensation and recovery of debts addressed to insured and uninsured customers;
- Sale of economic and commercial information;
- Assistance to exporters for the promotion of exports;
- Reinsurance

To properly carry out its missions, CAGEX maintains high-level relationships with numerous organizations and institutions, within the framework of international cooperation linking credit insurers and reinsurers to each other. We cite:

ATRADIUS	COTUNACE	INFO CREDIT MECOS
COFACE	SMAEX	CREDIT REFORME
ICIEC	AFRICARE	URIOS
DHAMAN	RIME	

11.3 CAGEX organization chart :

The organization chart is as follows (Figure III.1) :

Chairman and CEO: to which are attached

- Two Advisors
- QMS and compliance unit
- Internal Audit Unit and Management Control
- System Project Direction Information
- Direction Rating of Companies

Administration and Heritage Direction : with

- Human Resources and Training Department
- Department of General Means

Finance and Accounting Direction : with

- Finance and Investments Department
- Accounting department

Arbitration and Risk Assessment direction : with

- Département Arbitrage et Evaluation des Risques
- Commercial Information Department

Commercial management : with

- Prospecting and Commercial Animation Department
- Subscription Department

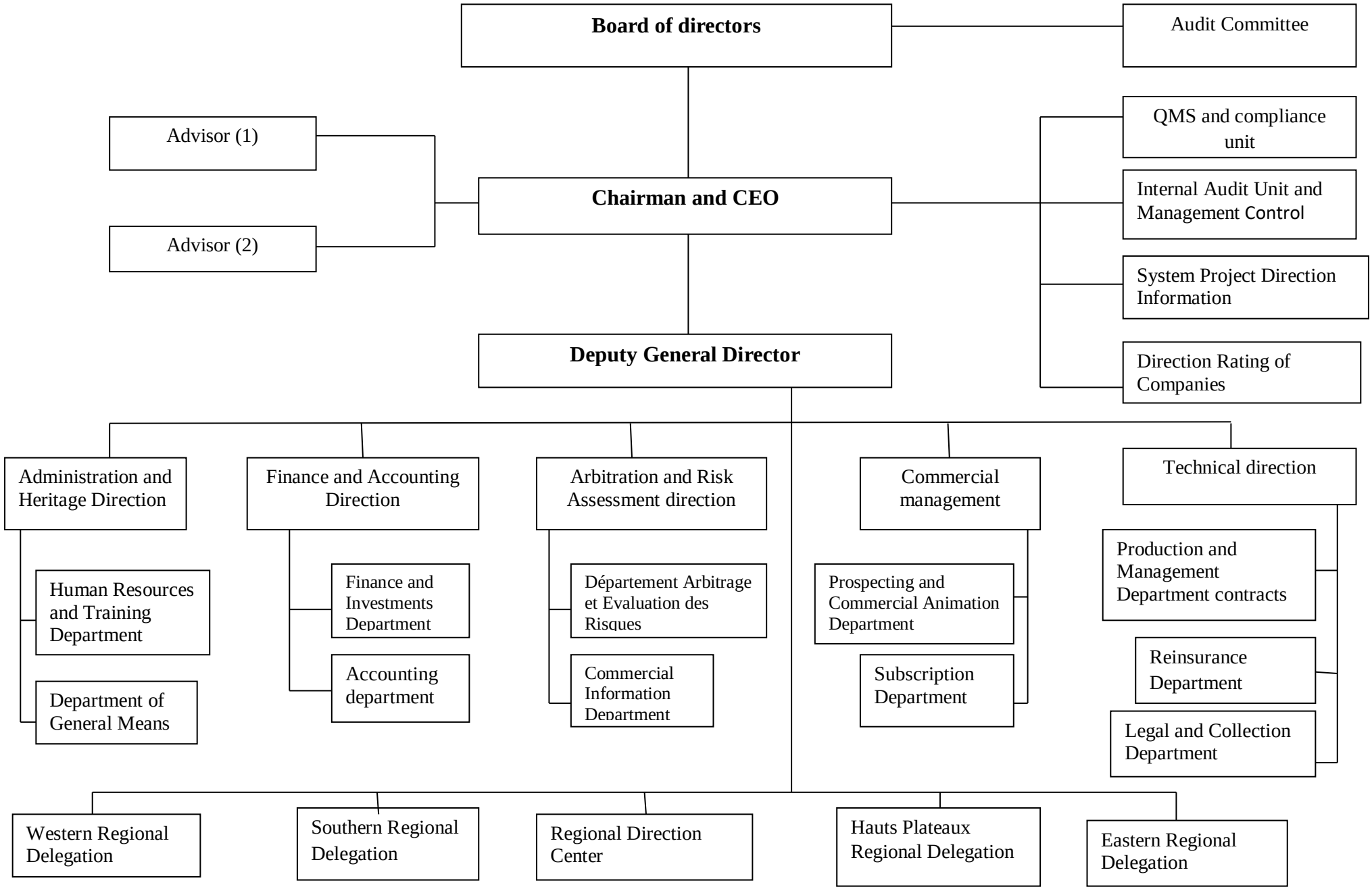
Technical direction : with

- Production and Management Department contracts
- Reinsurance Department
- Legal and Collection Department

Five regional delegations :

Center, east, west, south and Haut Plateaus Regional Delegation, reporting directly to the CEO and functionally to the various central departments

Figure 10: CAGEX organization chart



Source: 19: GAGEX docs

11.3.1 Executive management:

The general management is administered by a chief executive officer who combines the functions of chairman of the board of directors and chief executive officer of the company.

In addition to the statutory powers conferred on him by the Board of Directors, the Chief Executive Officer directs, controls and coordinates all of CAGEX's activities and reports to the Board of Directors

Summary duties of the advisor:

- design and implement the forecast and multi-year plans of the company
- ensure the secretariat of the board of directors
- keep the deliberation register of the board of directors and general meeting
- organize meetings of the board of directors and general assemblies
- in charge of all other missions on the instructions of the Chief Executive Officer

Summary responsibilities of the audit and internal control unit:

- develop and maintain control and audit methods and instruments
- provide assistance to operational staff to prepare budgets and business plans
- ensure the implementation of audit and management control procedures and regulations and ensure their app
- carry out internal audit missions on all the structures making up the company
- carry out studies of opportunities to improve the functioning of the company
- ensure the competitive intelligence mission
- conduct strategic analyzes aimed at developing guidelines or policies
- respond to specific requests from general management

Summary responsibilities of the information system unit:

The information system unit reports directly to the chairman and chief executive officer because of the importance of the missions entrusted to it in the collection and construction of information, the keys to the management of the company.

The perspective of the company in the design of information systems being done in stages, to end up with a functional information system reflecting a physical reality.

It is a matter of validating the stages one by one, taking into account the results of the previous phase to arrive at a coherent, homogeneous and automated information system.

The management of this activity cannot be separated from the decision-making power of the company at least for this period of information systems design.

This is how the essential missions of this unit are detailed below:

- design the IT master plan
- draw up annual and multi-year plans for its implementation
- manage IT security
- organize and follow the information processing steps before validation
- design the company's own software, in conjunction with specialized offices, if applicable
- manage the company's computer network
- monitoring technology
- prepare IT budgets
- design and maintain dashboards and management tools applicable to all structures
- design actions or programs to improve methods and procedures
- respond to requests from the hierarchy
- ensure the completion of projects in accordance with specifications, budget deadlines and quality
- test computer applications
- define IT needs (analysis of what already exists)
- coordinate and manage IT projects (planning, state of progress ...)
- ensure the prevention of the protection of computer equipment

Under the authority of the CEO, CAGEX is organized into 5 regional delegations

The essential missions of the regional delegations consist of representing the company at regional level and developing, organizing and supervising the activities and results of commercial actions falling within the competence of the region, in particular by prospecting and canvassing missions for potential customers.

- ensure permanent knowledge of the market and its development at regional level
- ensure the launch and follow-up of new products
- animate and organize regional events

12 Section 2: Presentation of the survey

In this section we aim to define the different stages involved in carrying out of this survey study, we start with the objective of the questionnaire survey, to the presentation of the study and complete it by the structuring of the questionnaire.

To achieve the objectives we have already set it, to confirm or invalidate our hypotheses, we have adopted the questionnaire technique which is most commonly used in our field of study and it is primarily designed to collect standardized information for quantitative analysis.

12.1 The objective of the questionnaire survey:

A questionnaire is a systematic compilation of questions that are submitted to a sampling of population from which information is desired. As the term generally used in educational researches, "the questionnaire consists of a sense of questions or statements to which individuals are asked to respond the questions frequently asked for facts or the opinions, attitudes or preferences of the respondents. This instrument is widely used by researchers for a number of reasons, the most important one is that the questionnaire is a form which is prepared and distributed for the purpose of securing responses. Generally these questions are factual and designed for securing information about certain conditions or practices, of which recipient is presumed to have knowledge."[56]

For the purpose of the current study, this questionnaire allows us to collect information on the personal characteristics, attitudes and opinions of the employees surveyed, corresponding to the main objective of our study, which is to analyze the perceptions of employees regarding information system within the company and measure the degree of its influence .

It will also allow us to have a general view of the work environment and to measure the degree of satisfaction of employees regarding the IS existing within their work teams, their degree of integration.

The questionnaire permits a wide coverage at a minimum expense of both money and effort. It affords wider geographical coverage it makes for greater validity in the results through promoting the selection of a large and more representative sample. The validity of

[56]YOGESH KUMAR SINGH, *Fundamental of research methodology and statistics, New age international(p) Ltd, New Delhi, 2006, PP.191-192.*

questionnaire data also depends in a crucial way on the validity and willingness of the respondent to provide the information requested.[57]

12.2 Presentation of the study:

This questionnaire survey took place on CAGEX bank, located in the DELY-BRAHIM, Algiers (Algeria).

Since our study focus on the subject of information system within the company, thus we had to cover all variety of functions and departments and to collect maximum of data from all over the organization as this variable exist in all parts of the organization. And as CAGEX is considered as a small organization with 90 employees, we took a sample population. The population of the organization is composed of different strata; employees differ in CAGEX, according to their qualifications, their experience, and also to their level on the management scale.

We, therefore, proceeded to submit the questionnaire to individuals via a Google form by e-mail thanks to the collaboration of LG's HR representatives, which reduces the risk of refusing to answer.

Our population is made up of people in a variety of positions ranging from office staff to executives, managers and technicians, as it is significant in that it sheds light on what CAGEX need to know about the importance of information system in the business field and to know about effective and the barriers to it in real-life situations.

We mailed 30 copies of the questionnaire, and we gathered 27 copies in total which help us to continue the study and analyze the results of the responses.

After collecting the copies of the entire questionnaire, it was translated into charts and tables via Excel software, this allowed us to summarize and reorder the data. All data was then compiled on the SPSS software « Statistical Package for Social Sciences SPSS Version 26 » for Windows in order to perform statistical processing.

12.3 Structuring of the questionnaire:

The questionnaire was designed in (French) in order to have maximum coverage for the target group, and 26 questions in total, in the form of a close-ended question (the possible

[57]YOGESH KUMAR SINGH, op.cit, P.*108.*

answers are set out in the questionnaire and the respondent or the investigator ticks the category that best describes the respondent's answer.[58]) among which we find :

Dichotomous questions: questions that can be answered either in one of the two ways, "yes\no" or "true\false".

Multiple choice questions: questions in which a respondent has to select one or many responses from a given list of options.

We chose to focus on these close-ended questions and not open-ended questions for their many advantages (Easy and quick to answer, and response choice can clarify the question text for the respondent but most of all is that answers are easier to code and statistically analyze).

Based on the construction of the theoretical framework and the proposed hypotheses, the questionnaire was designed to contain 5 parts:

- The first part, contains a brief description of our work, the purpose of the survey, and the confidentiality of the answers given.
- The second part, is a fact sheet that tells us a little more about the employee in person by asking questions that are not of a private nature.
- This was followed by third part, which gathered some background information on the need for tools at work in their workplace
- As for the fourth part, it aims at figuring out the nature of the information system and its use on the company and the measures taken.
- And we end up with a fifth part, in which we discuss the level of the means used in the HR function for the computerization of Human Resources management.

[58] RANJIT KUMAR, *Research Methodology a step-by-step guide for beginners*, 3rd edition, Sage publication, 2011, P.151.

13 Section 03: Results and data analysis of the conducted survey.

In order to better understanding our quantitative study, we are going to make a small reminder of our research problem, our hypotheses, as well as our questionnaire axis.

13.1 Reminder of the research problem, hypotheses, and axis of the questionnaire:

- **Research problem:** « How does HRIS contribute to the optimization of HRM in the service of the Human Resources function? »
- **Hypotheses 0:** The basic hypothesis of the research is that the satisfaction of CAGEX's staff is measured by the contribution of its HR information system to the HR function within the company.
- **Hypotheses 1:** When new tools are implemented, the HRF undergoes an evolution on the organizational, informational and technical levels.
- **Hypotheses 2:** The HRIS is in line with the needs of the employees of the company.

- **Questionnaire axes :** Two principal axis : Information system within the company. HRIS within the organization

13.2 Statistical description of the study sample according to personal factors:

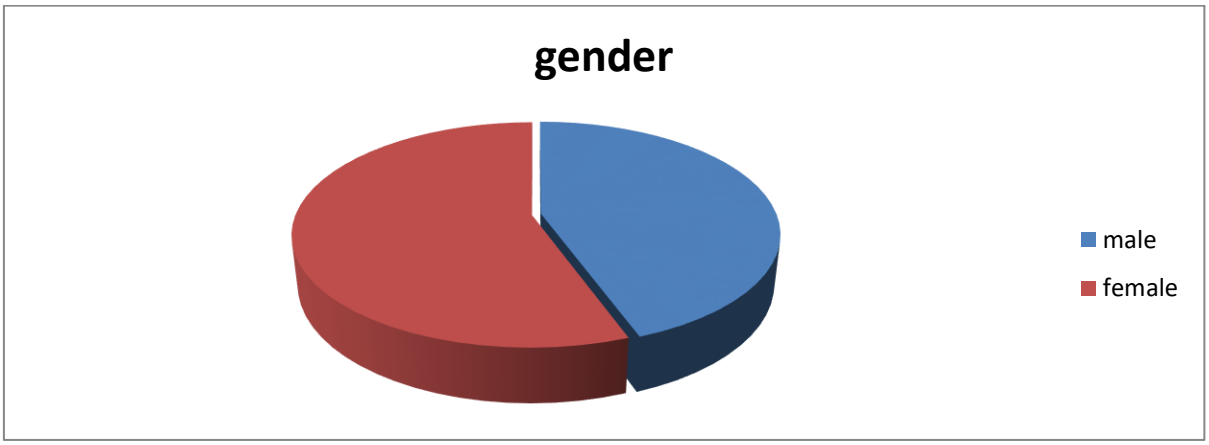
- **Gender Diversity:**

Table 10 : Gendre diversity

Gender	Responses	%
Male	12	44.4
Female	15	55.6
Total	27	**100%**

Source: 20 : SPSS

Figure 11; Gender diversity



Source: 21: SPSS

According to the results obtained, we note that 44% of the respondents are men against only 55% of women. There is a small imbalance between the two sexes with a favorable distribution for women.

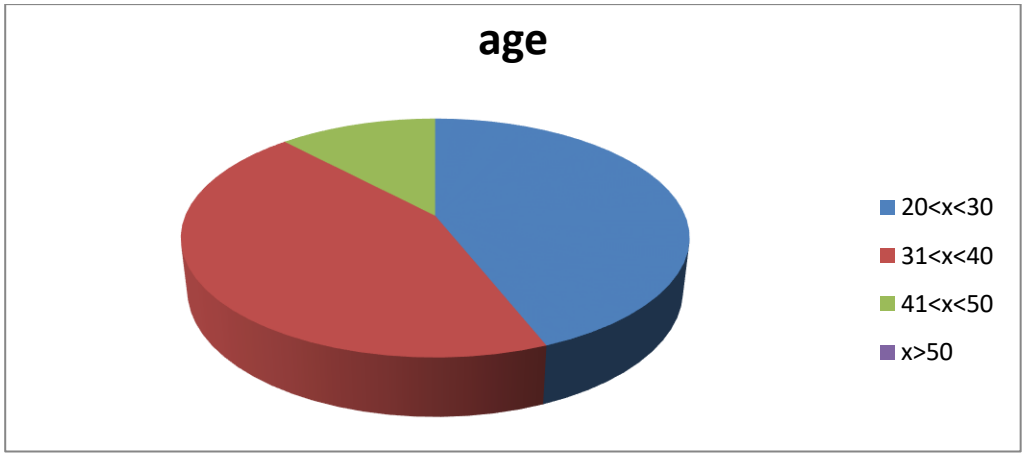
- **Age Diversity:**

Table 11 : Age diversity

Age	**Responses**	**%**
20<x<30	11	40.7
31<x<40	11	40.7
41<x<50	3	11.1
x> 50	2	7.4
Total	27	**100%**

Source: 22; SPSS

Figure 12/ Age diversity



Source: 23: SPSSS

According to the results obtained, we note that the largest percentage of respondents is the percentage of employees aged between the age of 20 and 40 with more than 80% of the total, followed by the category of employees with more than 40 years, who constitute more than 11%, and the lowest proportion of employees between the age of plus 50, who account for 7%. By observing these results we came up with the conclusion that the employees with less than 40 years old represent the majority, this indicates that the company is largely made up of a young population and that the company favors the recruitment of young people, given their high skills potential and their dynamism.

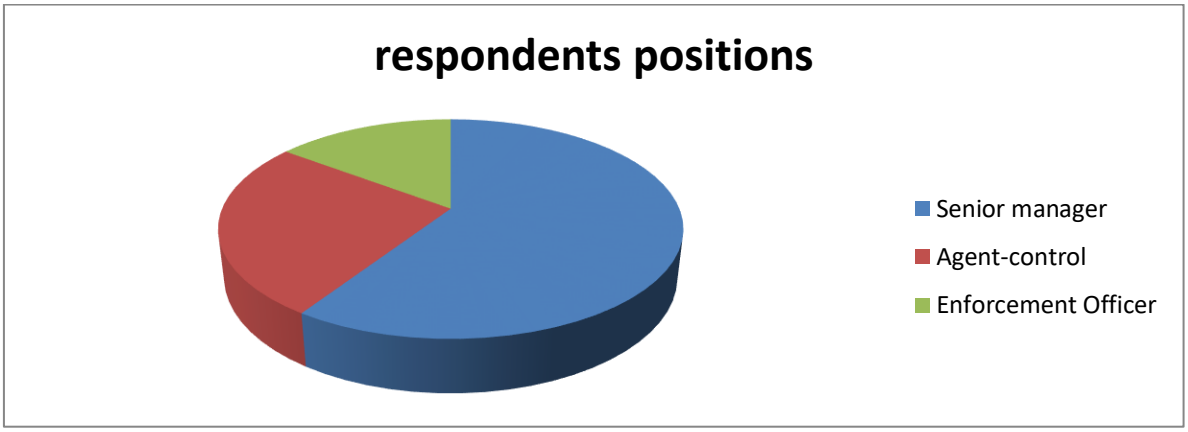
- **Respondents' position:**

Table 12 : Respondents' position

Position	**Responses**	**%**
Senior manager	16	59.3
Agent-control	7	25.9
Enforcement Officer	4	14.8
Total	27	**100%**

Source: 24, SPSS

Figure 13/ Respondents' position



Source: 25; SPSS

We note that more than 59% of respondents are senior managers, and more than 25% are of the Agent-control category, while 14% are Enforcement Officer.

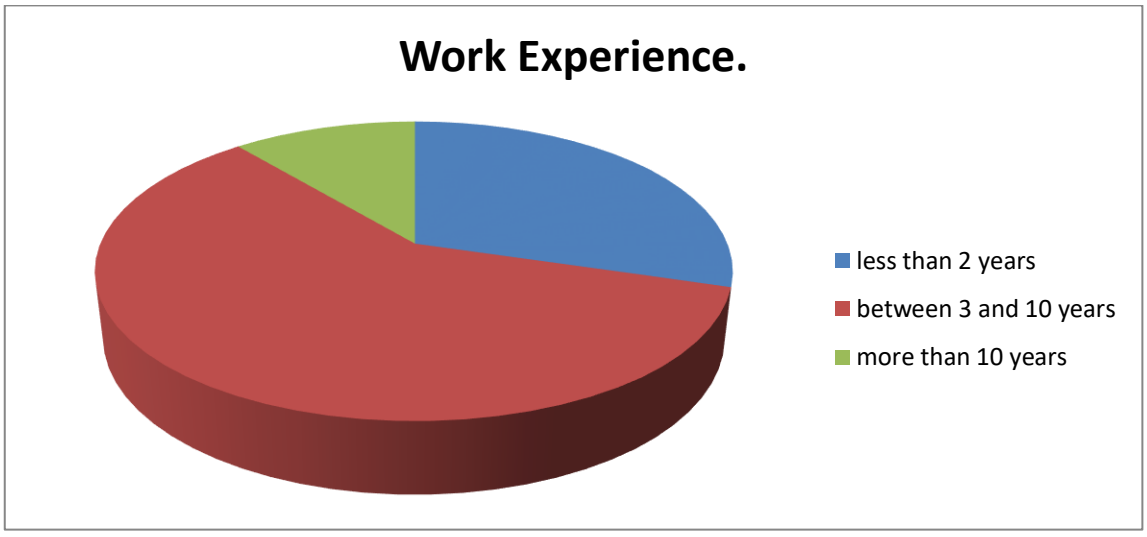
- **Work experience:**

Table 13: Work experience

Work experience	Responses	%
less than 2 years	8	29.6
between 3 and 10 years	16	59.3
more than 10 years	3	11.1
Total	27	**100%**

Source: 26 ; SPSS

Figure 14. Work Experience

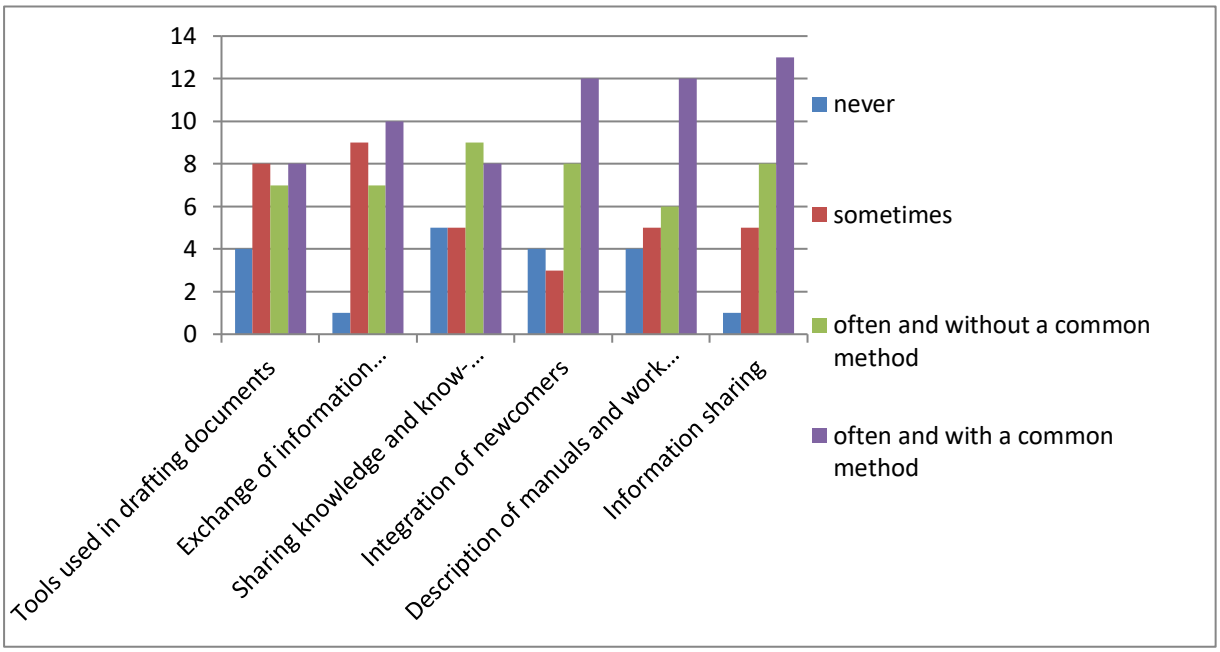


Source: 27 ; SPPSS

According to the results obtained, shows that the respondents consist of different levels of experience, and most of them have less than 10 years of experience. We understand that CAGEX does indeed rely on fresh graduates and young experiences as raw material for talent development within the company. Those employees are accompanied during their journey to obtain the needed experience and climb the hierarchical ladder to reach well-placed positions.

Axis II: questionnaire for team members

Figure 15; tools and information in team members



Source: 28; SPSS

- Tools used in drafting documents

  Overall, 75% of employees considered the regular use of the various tools (Templates, templates, forms) more than necessary for the accomplishment of their tasks, against 25% use little or no work method
- Exchange of information between employees

  A majority percentage of 45% is marked by the information exchanges carried out between employees by various methods; against 35% of them who favour a common method; while a frequency of 20% uses little or no working methods.

- Sharing knowledge and know-how to face the future

  After each staff training session, the training manager assesses the trained members in order to test the degree of their knowledge and skills acquired. The graph above shows the importance given to the sharing of these new practices between employees, which is indicated by a common method used (holding a meeting to share information), at a majority rate of 75%.

- Integration of newcomers

  Overall, the integration of newcomers is considered rapid. However, it should be noted that this integration is not limited to new recruits but also includes that of promotion or change of an employee's job, from one direction to another. This is illustrated by the percentage of 70%. This generalization can also be seen at the level of each hierarchical level.

- Description of manuals and work process

  Taking into account the responses, we note that all of the respondents (80%) use the same procedures, instruction manuals and instructions in writing in order to accomplish their tasks.

- Information sharing

  Among the channels for transmitting information, respondents often use a common method (85%) using brochures, personal contacts, the intranet and websites, in order to ensure spontaneous sharing of paper documents and / or electronic.

Axis III: use of information system:

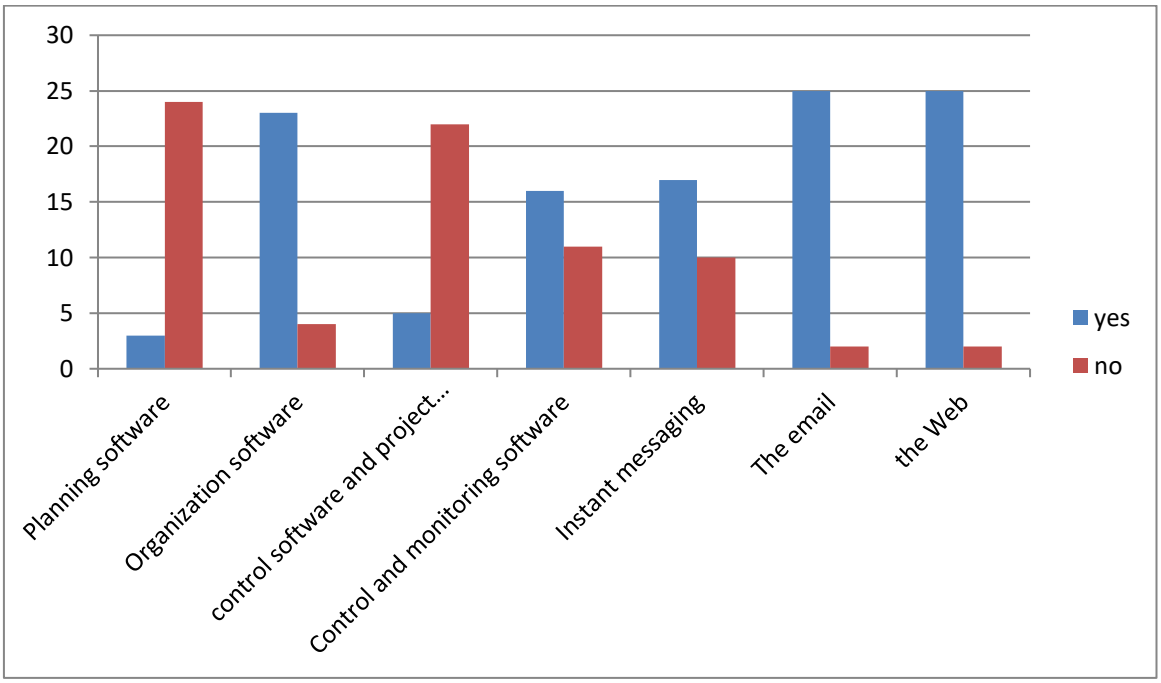
Table 14 : Degrees of IS use

	Responses	**%**
yes	24	88.9
no	3	11.1
total	27	**100%**

Source: 29, SPSS

Analysis of this table shows that the totality of respondents consider the use of the IS more than necessary in the performance of their work.

Figure 16 ; use of ICT (software and services)



Source: 30 : SPSS

- Planning software

  Generally, the use of planning software is absent within the CAGEX company. This generalization is also found at the level of each hierarchical level.

- Organization software

  Overall, the use of organizational software is widespread within the CAGEX company. This generalization is also found at the level of each hierarchical level. However, it should be noted that the percentage of managers using organizational software tends to increase as one rises in the hierarchical level.

- control software and project tracking

  In general, the use of control and project monitoring software is absent within the company . This generalization is also found at the level of each hierarchical level.

- Control and monitoring software

  In general, control and monitoring software is seldom used in the CAGEX company. More specifically, the company's respondents hardly use this kind of software. However, it should be noted that the percentage of employees using control and monitoring software tends to rise as one rises in the hierarchical level.

- Instant messaging

Overall, the use of instant messaging (Outlook) is completely widespread in the CAGEX company. This generalization is also reflected at the level of each hierarchical level.

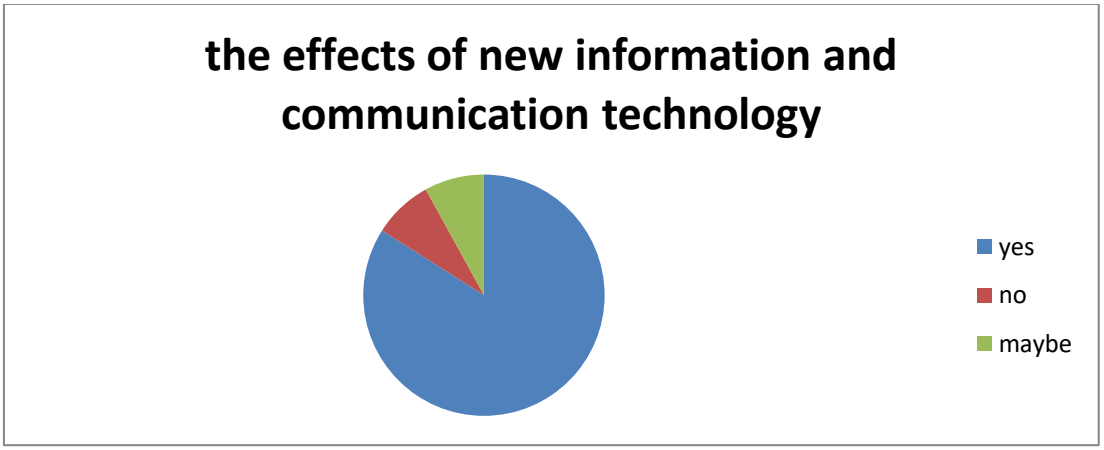
- The email

  Email use is widespread among all staff at all hierarchical levels and regardless of the department in which they work

- the Web

  Overall, the use of the Internet (FTP, intranet and / or extranet) is completely widespread in the company studied. This generalization is also observed at the level of each hierarchical level.

Figure 17: Impacts of selected ICTs



Source: 31, SPSS

- The technologies selected, according to the respondents, have positive impacts on the work of employees.
- The goal behind the use of ICT the most cited by respondents (facts) is the performance of their work.
- The goal behind the use of ICT by the respondents (perceptions) with the highest percentage is to increase their efficiency and that of their productivity.
- When examining the results of various findings, a new element of response was introduced this time. Respondents do not think that there are, in general, unintended and / or unintended consequences on their work; those who think there are, try to reduce them, or even eliminate them, by reorganizing or adopting working methods that reduce these impacts or by using at least the ICT concerned.

13.3 Synthesis of the survey:

From the questionnaire at CAGEX we can derive the following information:

- ✓ Of the 27 persons we questioned:
  - 55% is female.
  - 40% is between the ages of 20 and 30
  - 59% are Senior manager
  - 59% have between 3 and 10 years of experience.
- ✓ From the above results, it can be seen that CAGEX's HR function makes intensive use of ICT, which indicates the interest that this company has in new information technologies as work tools that can help increase organizational performance. . In particular, we have noticed a predominance of the use of IT in payroll functions, personnel records administration, training, recruitment, time and leave management, and personnel evaluation. .
- ✓ In terms of the means used in the HR function for the computerization of Human Resources management, we have seen that: The company uses Internet and Intranet technologies as one of the means among others in resource management human, and this is explained by the use of all employees of the Outlook tool for the transmission of information between them (instant messaging) and their use of Google as an information search engine; this is done even outside of their working hours for the performance of their daily tasks (in the case of executives).
  - The CAGEX website (www.cagex.dz.com) is the tip of the iceberg. Indeed, this Internet showcase is the only part of the information system visible from the outside. It is therefore important to take good care of, filter and control the information published.
  - 80% of the use of the Intranet by this company is justified by the importance of the functionalities integrated into it and which are related to human resources management, namely:
    - Wide, vertical and horizontal communication, that is to say between different collaborators and employees.
    - Automation of tasks or manual operations, in particular for meetings, agendas, meetings ... and the dissemination of internal communication messages.
  - Electronic forums and virtual conferences: They allow greater collaboration between individuals and promote the rapid flow of information.

- ✓ We have found that the use of these tools has positive effects on the functioning of the organization, namely:
    - The personal motivation
    - Saving time by automating management in terms of information processing and its optimization
    - Controlling costs and delays
    - Increase in HRM productivity
    - Increased evolution and competitiveness
    - Information available on time, in quantity and quality
    - Good decision making.

Table 15: Results according to research hypotheses

Research hypotheses	Status
Hypotheses 0: the satisfaction of CAGEX's staff is measured by the contribution of its HR information system to the HR function within the company.	**Affirmed**
Hypotheses 1: When new tools are implemented, the HRF undergoes an evolution on the organizational, informational and technical levels.	**Affirmed**
Hypotheses 2: The HRIS is in line with the needs of the employees of the company.	**Affirmed**

Source: 32; elaborated by us

13.4 Suggestions and recommendations:

Throughout the realization of our research work on the impact of information system on human resource management, and according to the results of the survey we conducted based on an online questionnaire among CAGEX employees, which made it possible to collect their perception of IS within their work teams, we have constructed a list of recommendations:

- Adapt its organization by renewing its workforce

From this perspective, turning your HR organization towards productivity and service culture cannot be done without considering the following avenues:

  - the pooling of certain tasks, via HR service centers - i.e. decentralization and delegated management to operational managers,
  - the sharing of certain activities with specialized service providers

- Set up an HRIS, which brings together the following areas: GPEC, Training, Recruitment, Payroll, Time management and social management
- The HRD must ensure the emergence of a Business Partner function
- Structure the work in a virtual team
- To preserve a specialization in the face of 'finance' modules, CAGEX will have to launch a new category of financial software: FRP, Finance Resource Planning which brings together
  - Full and expert coverage of the financial functional scope to give a 360 ° view of the company's performance: accounting, cash flow, fixed assets, consolidation, taxation, etc.
  - The integration of all end-to-end software modules, a single data repository and the automation of financial processes to increase productivity (traceability of financial flows, workflow, automatic alerts).
  - Reports and dashboards including relevant performance indicators, to help the CFO in his role as a partner of general management for strategic decisions and anticipation of risks.
- Extension of the CEVWORKFLOW solution to automate and dematerialize:
  - leave requests,
  - training requests,
  - requests for absences.

14 Conclusion:

This chapter represents the basis of our practical work. In the first place, we developed the foundations of our practical study, namely all the methods relating to the development of our questionnaire, its distribution, data collection, but also to the analysis of the latter.

In the second place, the processing of the collecting data allowed us to clarify many points related to the perceptions of employees regarding the information system present within CAGEX Company, and to identify the influences of this latter on human resource function. But also to achieve the objectives expected by the distribution of our questionnaire and which are the acceptance and/ or refutation of our research hypotheses.

Moreover, we have closed our chapter by accepting the three hypotheses of our study.

General conclusion:

Companies are currently going through profound movements of reorganization and adaptation under the influence of multiple factors. Among these factors, we note the importance of ICT in organizational reconfigurations in terms of changes in roles, occupations, structures, and relationships with the environment.

The objective of our work is to understand and explain an organizational phenomenon namely "The contribution of the information system to the HRF", while using a multidimensional theoretical framework. To do this, we absolutely had to put in place tools allowing us to analyze as best as possible, and in good conditions (over time), the data emanating from the field.

In this context, a literature review in information systems and HRM allowed us to highlight the interest that the information system has for the HR function. In this regard, the contribution of the IS to the HR function results in more flexibility in the accomplishment of tasks with the use of different automation software, personalized management of skills thanks to technical tools adapted to their training. , and a decentralization of the decision allowed by the HR Intranets.

In addition, our survey enabled us to draw up certain observations that should be integrated into the theoretical framework favoured in this research. It is not a question of making an exhaustive reading of the theoretical bases used but to confirm or to deny the aspects which we used in the framework of our research.

From this perspective, CAGEX's investment in IS is part of a logic of modernity in terms of quality and not quantity. Indeed, with new IT tools, a good quality IS, its employees could properly adopt these means in logic of profitability and performance. Likewise, with the standardization of access to a company's information system, ICTs offer a sufficient dimension of openness to each actor to rapidly acquire and share the widest variety of information required. These assertions confirm the validity of the first hypothesis.

Finally, we will say that in terms of the implementation of ICT,CAGEX is in a phase of evolution of its organizational practices, which are reflected in particular by a series of changes at various levels: technical, informational and human. And this is what validates the second hypothesis.

In the end, given the importance of the subject previously developed. We hope the study we did will be more developed by other researchers so that IS and employee find their real place within business.

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ANNEXE

Annexe 1 : Questionnaire

Questionnaire

Dans le cadre de la réalisation d'un mémoire de fin de cycle en vue de l'obtention d'un master en sciences commerciales option "management et gestion des ressources humaine" à EHEC Alger sous le thème « rôle du système d'information dans la gestion des ressources humaines », nous nous serions reconnaissants de bien vouloir répondre à ce questionnaire.

L'anonymat est garanti, nous vous remercions à l'avance de votre contribution à cette étude

Axe I: Les données personnelles

1. - Êtes-vous ?

- un homme
- une femme

2. Quelle est votre tranche d'âge?

- entre 20 et 30 ans
- entre 31 et 40 ans
- entre 41 et 50 ans
- plus de 50 ans

3. Dans votre entreprise vous êtes?

- Cadre
- agent de maitrise
- agent d'exécution

4. Quelle est votre ancienneté dans l'entreprise?

- moins de 2 ans
- entre 3 ans et 10 ans
- plus de 10 ans

5.Quel est le champ disciplinaire de votre (vos) diplôme(s)? Vous pouvez cocher plus d'une case.

- Finance
- Marketing
- Ressources humaines
- Management
- Technologies de l'information
- Administration
- Other:

Axe II: QUESTIONNAIRE POUR LES MEMBRES DE L'EQUIPE

	Jamais	parfois	souvent et sans méthode commune	souvent avec méthode commune
Nous utilisons des outils pour faciliter et améliorer la rédaction de nos documents les plus fréquents. Exemples: Template, modèles, formulaires				
Nous sélectionnons les informations en provenance de l'extérieur, nous veillons à ce que chacun reçoive uniquement l'information qui lui est utile. Exemple: nous limitons le nombre de personnes en copie dans un mail.				
nous identifions les connaissances et savoirfaire que nous devons acquérir, pour faire face à l'avenir. Exemples: nous avons un plan de développement de l'équipe, il existe des plans individuels de développement pour chaque membre de l'équipe				
Nous veillons à ce que les nouveaux venus soient rapidement intégrés et opérationnels. Exemple: nous organisons des parrainages.				
Nous décrivons par écrit notre manière de travailler (nos processus, nos méthodes de travail). Exemples: procédures, manuels d'instructions, modes d'emploi.				
Après une formation, nous partageons avec nos collègues les connaissances ou pratiques nouvelles que nous avons acquises et nous réfléchissons à la façon dont nous pouvons les appliquer.				
Nous utilisons des canaux efficaces pour transmettre les informations aux autres équipes, aux autres organisations et/ou aux citoyens. Exemples: contacts personnels, brochures, intranet, site web.				
Nous partageons spontanément les documents qui nous intéressent tous. Exemple: nous avons un serveur sur lequel nous plaçons les documents importants.				

AXE III : UTILISATION DES SYSTEMES D'INFORMATION

1. est-ce que votre travail nécessite l'utilisation d'un système d'information ?

- Oui
- Non

2 Quelles types de système d'information utilisez-vous dans le cadre de votre travail?

3.Combien d'heures par semaine travaillez-vous en moyenne (en utilisant le système d'information, incluant les heures travaillées à la maison)?

- 37h30 et moins
- Entre 37h30 et 45h

- 45h et plus

4.Selon vous, les technologies sélectionnées à la question 2, ont-elles des effets sur le travail des managers et des autres paliers hiérarchiques?

- Oui
- Non
- Peut-être

5 . Apres l'utilisation des systèmes d'informations , répondent-ils à vos attentes et à vos besoins?

- Oui
- Non
- Peut-être

AXE IV : UTILISATION DES LOGICIELS ET SERVICES

Dans le cadre de votre travail, utilisez-vous ce qui suit?

	oui	non
Des logiciels de planification (ex. MS Project, Lotus, AgileTimeTM, Visual Planning, OMP Supply Chain Suite, NaviPlan…)		
Des logiciels d'organisation (ex. Lotus, Agenda de MS Outlook, Rapid'Accès, Klastoo, AgentWebRanking…)		
Des logiciels de contrôle et de suivi de projet (ex. Lotus, MS Project…)		
Des logiciels de contrôle et de surveillance (ex Webmail Spy, Chat Blocker, Remote Spy, NetVizor, Activity Monitor, Activity Logger…)		
La messagerie instantanée (messagerie interne, MSN Messenger, mIRC, ICQ, Yahoo Messenger, NetMeeting…)		
Le courriel		
Le web		

TABLE DES MATIERE