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Department of Business Administration

**THE IMPACT OF INFORMATION AND
COMMUNICATION TECHNOLOGY (ICT) ON
HUMAN RESOURCES**

Master of Science

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THE IMPACT OF INFORMATION AND COMMUNICATION TECHNOLOGY (ICT) ON HUMAN RESOURCES

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ABSTRACT

THE IMPACT OF INFORMATION AND COMMUNICATION TECHNOLOGY (ICT) ON HUMAN RESOURCES

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The study aimed to investigate the impact of ICT (ICT) on human resource performance and human resource strategy in the Baghdad Electricity Company, based on the descriptive-analytical approach. The study has used a sample of 189 employees using a survey to collect the responses. The study has used a theoretical model consisting of one independent variable and two dependent variables. The multivariate regression analysis was conducted using SmartPLS 2.0 to statistically test the hypotheses. The results indicated that there is a statistically significant impact of ICT on HR performance and HR strategy. Therefore, the use of ICT is the catalyst in the development of human resources and improves its performance.

Keywords: ICT, Strategy, Performance, Human, Resources

ÖZET

BİLGİ VE İLETİŞİM TEKNOLOJİLERİNİN (BİT) İNSAN KAYNAKLARI ÜZERİNDEKİ ETKİSİ

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Çalışma, tanımlayıcı-analitik yaklaşıma dayalı olarak, Bağdat Elektrik Şirketinde bilgi ve iletişim teknolojisinin (BİT) insan kaynakları performansı ve insan kaynakları stratejisi üzerindeki etkisini araştırmayı amaçlamıştır. Çalışma, yanıtları toplamak için bir anket kullanan 189 çalışandan oluşan bir örneklem kullandı. Çalışmada bir bağımsız değişken ve iki bağımlı değişkenden oluşan teorik bir model kullanılmıştır. Hipotezleri istatistiksel olarak test etmek için SmartPLS 2.0 kullanılarak çok değişkenli regresyon analizi yapıldı. Sonuçlar, ICT'nin İK performansı ve İK stratejisi üzerinde istatistiksel olarak anlamlı bir etkisi olduğunu göstermiştir. Bu nedenle, bilgi ve iletişim teknolojisinin kullanımı, insan kaynaklarının geliştirilmesinde katalizördür ve performansını artırır.

Anahtar Kelimeler: Bilgi ve İletişim Teknolojisi, Strateji, Performans, İnsan Kaynakları

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1 INTRODUCTION

The reality of globalization has shed light on a new global scene, based on the development and production of knowledge and information systems that have turned into a basic production force and considered Information and Communication Technology (ICT). The main engine and its first and last decision to pave the way to receive the seeds of this globalization and make the most of these advantages.

This is the case of every institution, as it has to imbue the effects of globalization and modernize its systems using new technologies as a tool to improve management capabilities, simplify and facilitate procedures as well as the development of human performance (Raguseo et al., 2016). The fact that humanity has become a prisoner of virtual reality, according to the American philosopher Hilary Putnam: who stated that reality is a brain connected by a cable to a computer that sends all the feelings and feelings of the physical body, so that this object cannot imagine or describe his condition outside that virtual reality inside (Auxier et al., 2015). The idea of separating the brain from the body and linking it to a virtual world, as a way of simulating reality or in other words creating a kind of interaction between the human mind and the virtual world. Moreover, it has to be within limits that ensure its vitality without realizing it as the sanctuary of every institution that seeks to ensure its survival by working to develop and invest their competencies (Piabuo et al., 2017). Therefore, the need to cope with the changes of the information-based world and the belief in the need to develop and value human capabilities and competencies.

Based on the idea of who got the information got the power as the main nerve in all administrative work at the level of organizations and the source of all decisions in the institution of any nature, not to mention the organization in all transparency as well as the processing and do all accounts and monitor automatically in response to the developments of the times (Bourke & Crowley, 2015). Especially after it became clear that the knowledge economy is the evolving economic pattern, which programs all of its work within an information chart of the most important components of networks and the Internet, and exploited in various aspects of economic activity strongly based on creativity, knowledge and technological development.

The economic institution, in general, has always been the tool and building block in developing and the strength of any economy and the other aspect that reflects the intellectual, creative, and

functional capabilities of its human resources (Silverstone, 2017). As an inevitable result of a change in a new reality beyond the industry called the virtual world, the Iraqi institution, like other institutions, is obliged to do so by following the policy of renewal and automation of devices and departments, and all services without neglecting to qualify their human resources as they are any new technologies and qualified human resource (Stone et al., 2015). Each institution has a clear role in supporting its capabilities to make sound and rational decisions and maximize their outputs to ensure their continuity, survival, and achieve their desired objectives under the overall strategy.

To modernize and develop Iraqi institutions that are moving steadily and balanced to reach what they want—the Baghdad Electricity Company working within a new law that allows the possibility of intervention in other sectors of economic activities of great importance, new context imposed the need to adapt, equipped with information technology, and communication to enable them to assume a prominent position among their counterparts in the sector in which they work and why not in most sectors.

1.1 RESEARCH QUESTIONS

The current study aims to know the effect of the use of ICT on the performance of human resources in the Baghdad electricity company. The research questions are as follows:

RQ1: What is the importance of ICT for human resource management?

RQ2: How does ICT impact the HR performance?

RQ3: How ICT is significant for gaining a competitive advantage?

1.2 OBJECTIVES OF THE STUDY

The study aims to determine the impact that ICTs make on the performance of human resources in the Baghdad Electricity Company especially that the adoption of ICT reflects the real picture. Moreover, it is obvious of the latter's capabilities and potential to compete, availability of information necessary to make appropriate decisions, building future policies, the relationship between training in the use of information technology, and communication with performance.

1.3 SIGNIFICANCE OF THE STUDY

The importance of this study derives from the great interest in human resources in the Baghdad Electricity Company. Moreover, the role of ICT on the as the main factor in the success or

failure of the institution. This study contributed to highlighting the impact of the relationship between the performance of human resources and ICT in the Baghdad Electricity Company, draw its positives at the end of the twentieth century, and the need to establish electronic management of human resources at the local level. Moreover, there is a conscious reaction to their importance as the developed societies have gone beyond the idea define their relationship to how to manage that relationship.

1.4 DISPOSITION

Table 1.1: Disposition

Chapters	Description
Chapter 1 Introduction	It introduces the main thesis of this study, problem discussion, objectives, research questions, and the significance.
Chapter 2 Literature Review	It comprehensively covers the literature on ICTs, HR strategy, and HR performance.
Chapter 3 Methodology	It includes the research design of the study, sample, response rate, and measurement scales.
Chapter 4 Data Analysis	This chapter is one of the important since it illustrate the detailed data analysis and testing of study hypotheses.
Chapter 5 Conclusions, Limitations, and Future Directions	Last chapter conclude the study on the basis of empirical evidences, limitations, and future directions

2 LITERATURE REVIEW

Researchers have relied on a set of theories to explain the broad scope of the impact of ICT on business operations and organizations more broadly where economic production and resource-based theories (RBV) were the most used techniques in many cases and the results were ambiguous and inconclusive (Nagano, 2020). Many studies have focused on providing empirical evidence on the impact of investment in ICT. It is to note that most of which was on computers as well as on productivity growth and performance at the firm level. However, the results were different and complex and this approach has been criticized because it made unrealistic assumptions and because of the shape of the production function used (Charlot et al., 2015). However, the role of specific resources and capabilities is significant because they are difficult to replicate and create competitive advantages. Further, the differences in resources for ICT such as increased investments in ICT and their combination by companies may enhance organizational capabilities. This ultimately led to better performance of the company (Grant & Yeo, 2018). However, the literature provides diverse results especially those analyzing the impact of ICT on financial performance (Hadi et al., 2018).

2.1 ICT

The common circulation of the term ICT suggests its simplicity and ease of identification. However, it is a somewhat overlapping concept due to the evolution that has been witnessed. The fact that most technologies have been around for the last thirty years or more and what can be considered new is expanded their use in the field of corporate governance and rely heavily on networking and the internet.

ICT is a wide concept both in theory and practice since it depends on the context, internal environment, and external environment of the company. Therefore, everything that is new is discovered or invented by scientists and discoverers through different eras. On contrary, others confuse this concept by defining communication with some philosophy as communication has an important role in raising the internal efficiency of organizations (Aceto et al., 2019). Further, it can be likened to the blood flowing in one's arteries to carry food to all parts of the body, as it ensures the flow of information inside and flows of work easily.

Scholars divide the term into three major components (i) technology, (ii) information, and (iii) communication. Others interpret it into two parts (i) information technology, and (ii)

communication technology. However, this division may have been valid for a certain period but it became improper after the continuous and rapid developments in communication technologies (Fabris, 2018). It has also facilitated the flow of information to and from an inch in the world effectively and at high speed coupled with the evolving development in computer technology. It led to the emergence of a new perspective on information technology and turned the world into a true World Wide Web (WWW).

It is to note that information technology is a combination of computer technology with communication technology and it is evident as progression in the evolution of the concept of ICT. It is the interconnected and interconnected set of technologies usually computer-based on the tremendous capacity to digitize, process, process, and transfer data in unlimited quantities in a variety of ways (Tulaev et al., 2020). More, ICT is a set of devices and tools that provide the process of storing, processing, retrieving, communicating, and receiving information from anywhere in the world through multiple communication devices. Further, it can transfer and processing of information in unlimited quantities and different ways.

The importance of ICT lies in storing and analyzing data and providing it in the desired for promptly. It also ensures the required speed starting from the combination of written and spoken word, still and animated images, and terrestrial or wireless telecommunications. Perhaps, the most comprehensive of ICT is as follows.

Diverse set of technological tools and resources used to transmit, store, create, share or exchange information. These technological tools and resources include computers, the Internet (websites, blogs, and emails), live broadcasting technologies (radio, television, and webcasting), recorded broadcasting technologies (podcasting, audio, and video players and storage devices), and telephony (fixed or mobile, satellite, Visio/video-conferencing, etc.). UNESCO (2021)

Therefore, ICT is the set of methods and modern technologies used to simplify and increase the performance of a particular activity, forms and types, written, audio/visual. The primary purpose is to facilitate bilateral and group communication through closed and open networks. Since 2000, the concept of information technology has expanded to include not only computers and communications but also a third component, consumer electronics.

The UNESCO (2021) definition is very comprehensive and accurate as it shows how ICT is a mixture of different methods and methods provided by modern means—especially it seeks to simplify the activity and raise its performance and the investment of intellectual capital that can

make it a competitive advantage. Furthermore, the high speed, accuracy, and transparency in addition to its breadth and thus reach the right decisions.

2.1.1 Types of ICT

The impact of ICT varies according to the type of technology used and the degree of its adoption in enterprises (Boothby et al., 2010). Several studies in Organization for Economic Cooperation and Development (OECD) countries confirm the high rate of production growth in companies that use the most advanced communication technologies that combine many types of technology are integrated at different stages of the production process (Boothby et al., 2010).

The network technologies in telecommunications and ICT systems appear to have a positive impact on the company. This is because they help to have spillover effects and broaden the impact of ICT as local and shared computer networks were positively associated with efficiency gains in internal and external communications and with higher productivity levels. These positive effects have been confirmed in practically all OECD countries (OECD, 2004). However, this research has focused on a single technology in personal computers, software, and communications equipment.

2.1.2 Time Lags and ICT

Companies need time to learn, adjust or reorganize themselves to get the benefits of ICT, taking into account the changes that ICT brings to the organization, as there are many short or long-term impacts during this adjustment period. However, there is no consensus on the timing of the impact on the performance of that institution due to an investment in ICT. The results differ significantly depending on several factors, such as the type of technology (Rice & Leonardi, 2014). The presence of organizational and complementary innovation in the organization. Moreover, the level of investment in ICT (Gholami et al., 2006). Therefore, the available evidence regarding the impact of ICT on corporate performance is inconclusive and relates mainly to large firms. Literature has shown the necessity to study the effects of ICT on many final and intermediate performance measures taking into account that there are different types of ICT and aspects of complementarity between technological and organizational innovations, especially, the time interval of those effects.

2.1.3 Stages of ICT Development

Our world is subject to rapid change and development, which makes it impossible for us to accurately monitor the historical development of ICTs. However, it is recognized that ICT is the fruit of evolution over time, which can be summarized as follows (Tan et al., 2018):

The first stage of information and communication has been evolving since 3600 BC as the invention of writing and various means of preservation of information. The Sumerians were able to write on the soft clay resulting at the end of the era of oral information which disappeared, however, it was expensive and only monopolized the rich and clergy. The second stage of the information and communication evolution was the era of the emergence of printing. The German Gutenberg, a hero of this period in the 15th century and the main actor in the dissemination of information and communication and a large number of publications and dissemination. Similarly, the emergence of the Age of Enlightenment which gave Europe the right precedence in advancing the world.

The third stage of the information and communication revolution is the discovery of the telegraph 1837 was an inevitable reaction of the communication systems to provide greater efficiency in the exchange of information during the emergence of the industrial revolution. Further, the discovery of the phone through the power and speed of the electric current in the transmission of sound over wires inventions in the field of communication as a photographic apparatus was rolled out in the 19th century by Thomas Edison. Moreover, thanks to Guglielmo Marconi and the discovery of Marconi Wireless in 1896. It was the first time that sound traveled over long distances without wires and radio services 1919 spread and then broadcast commercial television services 1941.

The fourth phase of the information and communication evolution was characterized by the invention of the computer and the development and stages of its different generations, and its positive impact on the flow of information flow through the means of communication-related to computers. The fifth phase of the information and communication evolution started from the second half of the 20th century to the present day. It depends primarily on the sweep of satellites and high-speed fiber networks in the information world in the transmission of news, data, and pictures. As an inevitable result of the enormous interdependence between advanced computer technology and different communication technologies, the use of the Internet as a tool that abbreviates the whole world in three letters is best demonstrated.

The rapid development in the computer technology with thermal ion valves to another with a transistor, to a computer that can be carried in a pocket from data entry with piles of paper cards to a keyboard and mouse, and storing information. In magnetic strips to flexible and other compact discs of optical and enormous capacity and from the output of information (Hadi et al., 2018). On the computer screen in written language to output them with graphics and fixed and animated, with sound or colors thanks to multimedia and then exchange them with information networks.

It has been observed that the development of information technology can be represented in an irregular, toothed and, inscribed curve. It is to note that each of these stages is a prelude to the soil of the corresponding phase and although it is an experience that has invaded a considerable period. However, it seems a flash in the eye of what it has achieved and continues to achieve as virtual reality based on expectations and possibilities.

2.1.4 Components of ICT

Laudon and Laudon (2011) have combined the concept and components of ICT under new change, and the digital world. ICT is a management tool consisting of five components that are information gear, software, storage technology, communication technology, and networks. Ziemba (2017) suggested that there are five basic components that are knowledge of ICT, hardware, non-physical components (software and networks), data accuracy, and users. To sum up the components of ICT—there is common ground established that is as follows:

Hardware: The range of computers of different types, sizes, speeds, and the possibilities of accommodating data needs. In other words, the tools responsible for: save, storage, data processing, and all associated devices such as the central unit, keyboard and Screen, and others. A computer is an electronic device designed to process and run data quickly and accurately, and receive and stored it automatically, and can perform calculations and logic and sometimes compare two or more things (Hischier et al., 2015). It works according to programs consisting of instructions arithmetic, logical coded, and numeric that converts data in all its forms (symbols, images, words, etc.) into a series of binary forms (0, 1) that are called Bits three and each called eight digits Bytes.

Software: This component of ICT is considered as the soul in the body that makes the technology and equipment useless without it. It is the supreme word in the Kingdom of ICT because it controls all the processes associated with data. To obtain problems as needed with

the advent of intelligent systems capable of demonstrating theories and decision-making, self-adapting to the surrounding environment, and sovereignty has move hardware to software. Caravan of hardware to highlight the Microsoft software pioneer, and thus take the mental element positioned at the top of the information technology system, demonstrating the rise of thought about the material, and the importance of information as a development resource in the importance of material resources, whether natural or financial (Ciroth, 2007).

System software: it is a series of programs prepared and stored internally in the computer by the manufacturer of it, which is an integral part of the computer itself and is intended for the general software group that manages computer resources such as other examples, such as operating system software and the most famous Ms. Dos and Windows

Application software: these are specially designed to run operations of a typical nature through minor changes, and includes include instructions that sequentially determine the operations of processing and data processing, as well as implementation such as writing programs on the computer.

Authoring software: a group of programs interested in the translation of written instructions in one of the programming languages.

Data: Without it, the rest of the components cannot list them and they represent those raw data that is recorded and stored randomly. become meaningless and useful only if converted to information and then stored on clouds, hard disk drives, USB, DVDs, and others.

Networks: They are the outcome of the results of telecommunications, because of their effectiveness and speed in the transfer of data and information. It can be defined as a coordinated arrangement of separate and overlapping units to achieve certain objectives efficiently than if each initial try to achieve them individually (Scherngell et al., 2020). It is associated with a range of devices and appropriate communication technologies such as telephones, teletex, fax mile, satellites, and e-mail. Perhaps, the simplest example of a network is the computer network as a cable group that connects a group of computers to divide the organization's information elements at several points. Local area networks (LAN) are useful in limited geographical space. Metropolitan area network covers the city or a specific territory.

Wide area network (WAN) a wide geographical area for several countries within each organization these networks take several forms such as structured networks with a central point representing the hub, ring, linear, and connectivity in each node, and an extended stellar. The

arboreal through a computer represents the role of the network distributor in the stellar structure. Network technology has included several terms that refer to convergent meanings separated by precise and dynamic boundaries such as the internet, extranet and intranet, and many attributes to WAN.

The Internet: some call it the network of networks because it is the result of communication between thousands of networks of various types all over the world. It operates as an open system and independent management of each where computers are connected to this network in a common language is the decrees (transfer control Protocol) TCP/IP.4 which is credited with creating a kind of interaction in the speed and flexibility of information exchange in a decentralized way. One giant system is reflected in the whole set of fully independent computer networks, distributed all over the world. The efforts of several organizations, institutions, universities, and universities were at the beginning of the era of monopoly of large institutions (Tan et al., 2009). However, this situation has changed in the present time especially after the emergence of the World Wide Web and thus expanded the internet. The number of users, the number of local and wide area networks, and the overall progress of the Internet have increased Services.

The Intranet: The institution needed to master the art of communication to face the current economic obstacles, and strive to develop its structure and make it more adapted to the tools of the internet. Intranet is defined as *“an internal network that uses Internet protocols and tools and has a character privacy for each affiliate”* (Rammutloa, 2017: 98). It is the internal application of an organization or management exploiting the technologies and all the tools used in the internet world. It is characterized by the property of urban access to all who do not belong to the institution. The user accesses the network using the office browser instead of the Internet, allowing access to files, e-mail, and desktop printers as if they were browsing the web.

Extranet: The boom in business and the development of relationships and partnerships and alliances in a virtual world requiring confidentiality and sharing of information across networks is where the idea of extranet emerged. An extranet is the result of the intermarriage of the internet and the intranet as an intranet is open to the outside periphery of collaborating institutions which are linked by a working partnership in one project but preserves the privacy of each intranet (Spralls et al., 2011). It is therefore the link between the institution and its external environment of partners and dealers as it ensures permanent contact with them through

the internet applications of data transfer and transfer and information. Moreover, it provides them with all internal and external developments of the organization and has an active role in the marketing of products and services. Therefore, the extranet network has several types, including:

Thus, it is clear that each component of the ICT is effective within the specified framework, however, the integration between them is the true destination to achieve the desired objectives of the ICT To the fullest. This area is in the opinion of the student, as well as how this technology is used by users efficiently serves the organization and achieves its best performance. Information systems are the secret to the success of each organization as if the apparent success of a particular organization is its ability to make important and right decisions (Tulaev et al., 2020). Further, the secret of success is the flow of appropriate and reliable information at the right time. It is important and necessary to increase the effectiveness and efficiency of information systems as an important step in developing the performance of institutions and maximizing their capacity. Further, their ability to compete to achieve the goals of the organization in the era of globalization and the technological revolution in which we are living today.

2.2 INFORMATION SYSTEMS

Information systems are a complex set of vital functions thanks to many means Information is the basic building block for decision-making, coordination, and oversight within the organization (Rainer et al., 2020). These systems are a set of physical and moral elements associated with each other which is an organized structure aimed to perform a specific function. It is a set of functions of data processing and storage as information, update, and retrieved on manual methods for long periods. However, it showed its limitations in light of globalization, transcendence, and necessitated the restructuring of the organization. It is to note that the need to rely on modern information technology as a tool to represent the technological aspect of the information system.

The concepts related to information systems have seen a remarkable prevalence in world literature. The diverse application and theory make it difficult to reach a specific concept such as its flexibility and the existence of a relationship. The virtual world is exploited to reach a sound decision with the least costs and dazzle the results. Most of the definitions related to it ranging from novelty and old to simplicity and complexity, and the simplest (Stair et al., 2017).

For instance, instances up of overlapping and the elements that collect and process important data and information interact, store, and then transfer and distribute them to make appropriate decisions.

Integrated information systems are referring to as each system capable of integrating data from several sources, making it a comprehensive and well-known information unit to provide the necessary information whether to achieve an administrative objective or to take administrative decisions. While some knew it as a set of tools that seek to communicate the necessary information to the worker at the right time so that he can do his job. Murdock et al. (2017) defines it as *“a group of individuals and devices that collect, process, store and retrieve data, to reduce uncertainty in decision-making by meeting information resource needs and using them effectively”* (p. 2588). Moreover, the information systems support alongside organization-wide coordination, oversight, and decision-making processes because of their important role in business management today.

Some conceptualize the information system as an integrated system that deals with executive and management functions and contributes to decision-making, to help individuals at the level of each organization. It reduces manual procedures and contributes to creating enterprise-wide analysis, planning, monitoring, and decision-making models. Medrek's definition is the most accurate definition combining intellectual capital (human effort) with physical capital (ICT equipment), integrating them to eliminate all weak links in decision-making, and avoiding uncertainty by optimizing the use of devices. All of its applications by individuals and make the information valuable and effective, and of course without neglecting control at the level of the organization (Stair & Reynolds, 2017).

2.2.1 Characteristics of Information Systems

Information systems are the essential means to increase the effectiveness of the performance of institutions and they must be characterized by a set of characteristics that can be summarized as follows (Force, 2017). The system must be established and the availability of a reasonable degree of conviction of its importance and usefulness. The system should be designed to serve functions and activities, especially the planning and control functions, to enable decision-makers to make the right decision at the right time, as it supports the decisions directed, and half directed at the levels of administrative and operational control in the organization.

The system should be simple, easy to understand, clarify data sources and help the flow of information, because it is a system that relies on the data available in the organization, relating to the past and present. Flexibility in the system to keep abreast of developments and changes to maximize the goals and commitments of the organization. The system should be able to meet the needs of decision-makers, as it relates to the system of internal control and follow-up deviations. The system adjusts according to the conditions resulting from the interaction with the environment, using the feedback method, which helps to assess the work and identify deficiencies.

2.2.2 Roles of Information Systems

The need to simulate virtual reality, the vitality, and the immense flexibility of information systems in extending its application beyond economic reality to others. Roles of which are as follows (Majchrzak et al., 2016) to improving performance for decision-makers. Share in the formulation of the strategic vision for the benefit of decision-makers through the availability of sufficient information, clear and credible, high and credible about the organization itself, and the external environment. Strengthening the competitive position of the business and raising its productivity to new highs. Formulate the strategic objectives of the organization and improve the ability to respond to crises and solve problems, which reduces the high costs and costs, by forecasting the external environment and monitoring the strengths and weaknesses within the organization. Providing valuable and reliable information of total quality works to raise the skills of leadership and efficiency of users to make the right decisions without resorting to senior leadership, which reflects positively on the good functioning of the institution and activates the exploitation of all its resources. Increase the spirit of participation and cooperation and self-initiative and collective, and the spirit of the brilliant team, and his money from the impact.

In structural integration of core oversight activities, strategic evaluation, and improvement in the overall performance of the organization. Therefore, the information systems help to reach a state of life and actual interaction that provides the self-skill of each work-work to control everything that occurs in the institution, both near and far and created emergency preparedness and intervention as quickly as possible.

2.3 HUMAN RESOURCES INFORMATION SYSTEMS (HRIS)

The tremendous development in ICT led to a series of pressures that prompted the organization to adopt each application in its information systems. The application of data output in its various management reports and the need to divide its information systems into functional subsystems. This section is subject to marketing information systems as well as production information systems as well as accounting information systems and financial information systems as well as human resources information systems. This does not mean that these subsystems work sporadically but rather they work in a specific and harmonious manner whereby the organization can achieve the expected benefits from the special information system that depends on it.

2.3.1 Defining of HRIS

Human resources management as based on the achievement of organizational goals and is inspired by the ability to attract competence from its workforce, which requires development and retention at the level of each business organization (Karikari et al., 2015). Perhaps human resources information systems are a clear reflection and the first step of the organizations' interest in human resources and the development of their use. The HRIS is a sub-system of staff management information systems within the organization that is integrated and includes predictive management of workers, management of the training process, management of competencies, the professional career of workers, and management of wages for the quality of planning and decisions related to resources (Masum et al., 2018).

Human resources information system and personalization is a system that was specifically designed to manage human resources by providing information officials with the necessity to make decisions regarding the efficiency and effectiveness of using the human element and raising the level of its performance to have a role in achieving organizational goals. Modern information systems have also allowed automation of some activities such as wages, training, distance training, and reduce costs (Karikari et al., 2015). In a sense of conciseness and accuracy—the information system defines human resources as a special application or ready-made program in the institution and related to the human factor aims to achieve efficiency and effectiveness.

Human resources information systems as that system derived from information systems in general, are concerned with the management of human resources in particular and engaging everything related to it. The main objective of modernizing the human element and the development of efficiency and improve its effectiveness and improve performance at all the level of an organization (Bhuiyan et al., 2015). It relies mainly on its credibility in providing its information and the impartiality of management in its management of the human resource.

The human resources information system (HRIS) utilizes several subsystems to enhance the organization's performance efficiencies. The human resource planning information system is based on two bases. First ensures the availability of employees in the current centers and the so-called recruitment planning. Second, to prepare predictive charts depending on software and computers.

An employment information system is a sub-system of HRIS that includes all information related to recruitment processes and improve the efficiency and productivity of recruitment procedures such as assessing the effectiveness of the sources of polarization, taking into account the equality of opportunity underlined by government agencies, and for use in decision-making to provide the best competencies to work in the organization. Stair and Reynolds (2017) stated that:

Computerized information systems allow to process and track the large number of requests that are difficult to process traditionally, in an orderly manner and concerning employment standards, such as giving the selection process greater credibility, saving time, and reducing costs, and also providing periodic and up-to-date information on human performance. (p. 98).

Training and development system focus of human resources performance is to focus on human resources within the institution and the training programs are the most important entrance used in this area-wide including all data on the number of participants in the training, various activities underway in the organization, and to make decisions regarding training processes. The reality is undoubtedly the result of developments in the world of information, networks, and various software created in developed societies to expand the knowledge balance of the worker and gain experience and exchange among workers (Nawaz & Gomes, 2017). Additionally, the development of their capabilities to receive training programs remotely and indicates that the process of formation is the most frictional element affected by these developments.

Performance management information system is a wide database of data related to the nature of performance, and ways to determine the level of achievement of employees by comparing the planner and the actual investigator in performance, because of this prominent role in identifying performance problems and propose effective and appropriate solutions to them now (Force, 2017). At present, most organizations have overcome these difficulties in pursuing the career path of their workers by choosing the appropriate technologies and building a database. These must be available to all their workers and conducting a professional evaluation of them as well as assessing all their abilities, competencies, expertise, and performance. Moreover, these with great ease and reasonable costs and electronic access to this rule. However, it is also given allowing-evaluation of each and give them the right to judge the course of the professional and this translates into transparency in the professional evaluation of the employee.

A compensation information system is about compensation has many forms such as salaries, wages, bonuses, incentives, subsidies, cash and public services, and social services. There are currently specialized programs in this field that contribute to establishing a ceremony of transparency and equality between workers in terms of remuneration and penalties as well as various compensation for workers and all their qualities (Masum et al., 2018). The human resources information systems are an integrated unit of five branches, the first is planning to attract competencies, and the latest evaluation of performance and compensation. It is an essential step to provide justice among workers on the one hand and improve performance (Bhuiyan et al., 2015). On contrary, you cannot assure that planning is the first and the last compensation because it is a coherent link and each system is linked in one way or another to another subsystem within the overall framework of human resources information systems.

2.3.2 Importance of HRIS

The combination of information technology and communication with human resources information systems has had a significant impact on the level of human resources management. It has increased its ability to control the flow of information and create value, thus enhancing its competitive position through (Lukaszewski et al., 2016), Reducing effort and time as it accomplishes many tasks in a short time while achieving accuracy in achievement and objectivity. In addition, the increasing efficiency in follow-up and control as well as improving the quality of decisions related to the organization and raising its effectiveness in addressing performance troubles.

Training and qualification programs that led to the valuation of human abilities and competencies thanks to the services of distance learning and distance training. Moreover, facilitating the identification of training needs for workers has spread the term labor relations management. For instance, if you can convince your worker your product has promoted Him involuntarily outside your organization and your employee was the instigator.

The computer has contributed to the process of assessing the performance of employees objectively and with high accuracy especially in the areas of retirement, security, and development. The internal networks contributed to the minimization of costs, self-follow-up career, and file for each worker which reflects the empowerment and sense of responsibility. The reliance on computers in various human resources departments as well as the provision of many features. For the exam, the selection section enabled the preservation and retrieval of information related to job candidates when needed.

Concerning the salaries, the department has led to the achievement of accuracy, speed, and provides all facilities on deductions required internally and externally. The accounting analysis and the detection of deviations and corrected. The conquest of information technology by the business world and the control of information systems on the content of activities within the organization produced the term teamwork. The role of a group of workers tens of miles apart from the formation of a group, the work of each of them supporting, and complementing other works leading at the end to improve performance and raise productivity. Besides ensuring that factual information is delivered on time to the right people, this is called workflow and leads to rapid targeting of the right destination and loss of information and documents.

2.4 ICT AND HUMAN RESOURCES PERFORMANCE

The intensity of competition and its tyranny on all local and global markets has had a prominent impact in adopting modern administrative management methods. The environment that governs them is volatile after the infiltration of ICT and the transformation of the economy into pure knowledge (Elhazzam, 2015). Therefore, many organizations stand at the level of their performance to achieve a privileged position in a changing competitive environment.

The performance management that focuses on the human element and its performance appeared in a framework that includes effectiveness and efficiency. The role of continuous training and the development of its methods in line with the requirements of the times is paramount or in other words, it is concerned with the movement of human performance technology. Thus,

improving performance is one of the types of continuous training. Further, it is necessary to look for new leaders on the other hand by re-engineering it and rethinking the design of its structure in an attempt to involve workers in setting policies and making decisions (Ariana et al., 2020). Or what can be said about enabling future workers to play new roles in a contemporary digital society? This section deals specifically with the role of ICT in developing human competencies and performance excellence, and an overview of the electronic functions of human resources management.

2.4.1 Defining Performance

The term performance belongs to the family of multiple meanings as it is a baggage word that it corresponds to many words and carries broad interpretations. In theory, it represents the centre of strategic management and includes all the implications and implications for performance, which is a strategic choice in certain periods (Ariana et al., 2020)

The systems school perspective suggests that performance refers to the balance between the environment, workers, and the institution. Moreover, it ensures the ability to adapt and settle in the surrounding environment and the positive impact on the psyche of workers and raising their morale. It also ensures rational exploitation and optimal resources available in the organization and thus achieving its goals.

The degree of achievement and perfecting of the tasks that make up the individual's job. Also, performance means carrying out work burdens equal to the average imposed by the competent employee the coach. As far as performance is concerned, it is the sum of the standards that are supposed to exist to accomplish the work and through which the required goals can be achieved with minimal physical as well as mental costs and speed in mastering the work in the least possible time (Zainal et al., 2020). Roughly in the same field and the direction linking performance to the factor of time, and it is indicated that it consists of two parts, one of which includes the ruler results and that is intended to be obtained from the resources and activities available and directed for this purpose. The second section includes the value officially achieved as a result of efforts and activities within a strategy enterprise.

Performance is one of the sponge words and this is what makes the idea about it ambiguous because of its employment in various fields. It can be found this term in politics, sociology, and administration due to the multiplicity of factors affecting it. Moreover, the ambiguity in it increases as is the case with all jobs in institutions performance is not without factors affecting

it. Further, it represents the outcome and fruit of that interaction between motivation and ability as well as a correct understanding of the functional role of each factor. This means that performance is a product of the interrelationship between effort, abilities, and realization of the role. As the effort indicates the physical and mental energy of the worker resulting from motivation but as for his personal qualities that he uses in his job. It is often called his abilities and the core of the topic is his awareness of his tasks through a set of activities and special behaviours in his work (Taiwo, 2016)

The concept of performance is a coordinated effort to implement the transformative process with quality commensurate with the functional concepts and personal capabilities of the worker based on factors driving them to do them including effort, time, and costs. The rest of the factors determining performance are clear such as factors related to the job and the institution and others to the environment that can be summarized as follows (Albrecht et al., 2015):

Factors related to the worker includes the ability to perform the actual work. The characteristics and features that distinguish the worker differ from others, which include knowledge, education, seniority, demographic characteristics, as well as the directions and aspirations that he seeks to satisfy. Factors related to the job are in two ways: some relate to job design and participation in decision-making and organization, and others are related to the completion of the employee's job such as remuneration, material and moral incentives, and appropriate conditions for work.

Factors related to the institution are usually called technical factors, as the worker works in a collective and management framework that defines their strategies and has technical aspects that affect their efficiency and their personnel such as the quality of machines, technological progress, organizational structure, methods and methods of work, and others. The environment-related factors are various factors related to the general atmosphere and it refers to the culture and values shared by individuals and what reflects the individual's affiliation with the environment or is considered foreign to it, for example; generally, the factors of the external environment affecting the worker and his performance of his job.

This concept has always been linked to two other concepts, efficiency, effectiveness, and intermarriage. Tso each goal means raising the value of the outputs, and low inputs are a concept in prison romance. Performance in this regard is defined as combining efficiency and effectiveness. The effective results within the framework of the stated objectives and efficiency

for better and effective management of the means and relationships with results. And if it comes to the performance of institutions, it can be said that performance is the mirror of the institution through which it is possible to achieve high productivity as well as customer satisfaction, good market share, and high financial return. Further, the carrying out moral and social responsibilities in society all of which are elements and results of long-term performance. Performance is a result of the organization's ability to utilize its material as well as human resources and its correct direction towards achieving the expected goals.

As for performance management, it is the process of managing and assisting workers to work efficiently and effectively to achieve the goals of the organization. Often performance management works to improve and develop the performance of employees and raise the added value to them either individually or within groups. Therefore, it is an integrated strategic process and the secret of the success of each organization. The performance is only the achievement of the best objectives and ruler results that are usually called outputs with the least possible number of available resources or what is called inputs over some time-specific.

2.4.2 Performance Appraisal and Methods

The diagnosis of the situation in which the organization is at one time is not sufficient but rather quantitatively presenting the results and accompanied. A set of suggestions and solutions for some problems and crises is the ideal solution for the prosperity of the institution and the achievement of its goals (DeNisi & Murphy, 2017). It has become necessary for each organization to ask some questions such as what way has the organization performed all of its functions to accomplish its performance? What is the extent of the achievement of human resources for its various tasks? What is the result of the organization exercising its functions? Did it fail but if the opposite is the extent of success? What are the strengths of the organization to reap the success? What are the weaknesses of the organization in cases of failure?

Perhaps answering such questions reveals the role of performance appraisal in every organization that has developed policies and strategies. To know the extent to which it has achieved its previously stated objectives and how well its strategies are considered as performance appraisal is an essential source of feedback. It can be said that the process of measuring and evaluating performance in the institution is the last stage of the process the administration is evaluating as a final result during a certain period. In this regard, the difference between the two terms must be clarified: Measurement and performance evaluation, as the first

of them represents the process of collecting quantitative information on the subject to be measured (Iqbal et al., 2015).

Performance evaluation is generally defined as a fair assessment of the employees' efforts to reward them for firing their performance with a set of criteria. It represented in the characteristics and advantages available in the individual to achieve goals including enabling the worker to carry out his work successfully and efficiently in terms of quality and quantity. It is achieved by measuring a specific period compared to the work performed for the employee at the specified rate to reach his real production level. Some believe that performance evaluation is an administrative process to judge the employee's progress in his duties and behaviours period not exceeding a year and a process report is issued in a specific form attached to the worker file and produces legal administrative implications.

Performance evaluation is also defined as a formal system designed by human resources management that contains a set of foundations, scientific rules, procedures, adopted by each higher administrative level in its assessment (Idowu, 2017). This concept implies the necessity of evaluating the performance of each party in the organization whether it is a simple factor or manager. The performance evaluation aims to compare the actual performance to reveal the deficiencies and does not necessarily mean defamation, distortion, or even accusations and prosecutions. It can be stated that evaluation with efficiency and effectiveness depends mainly on the dialogue as it determines the goals of the worker within the framework. The general goals of the administration participation in achieving them also through proposing the best, then improving and developing.

It can be said that performance evaluation is a vital and ongoing process that aims to improve and develop workers, and provide opportunities for promotion and fair rewards. On the other hand, it is to identify the strengths and weaknesses of the organization from observation and analysis and according to policies and fixed dates as well as certain criteria. For instance, the actual volume of employment, the cost of work and programs, and levels of productivity achieved, and others. Many organizations rely on a set of methods when assessing performance. These methods are divided into two parts. First, the performance appraisal section by a traditional or self-paced method based on personal judgment (Silva et al., 2017). *Arrangement method*: An old method for assessing performance that mainly depends on comparing the performance of two or more individuals according to specific formulas and characteristics that

are supposed to be available in the individual group as the evaluator takes the arrangement of individuals and workers sequentially to perform the level of performance from best to worst.

The double comparison method: Under this method, the organizational unit is divided into teams in the form of pairs. The evaluator adopts the method of comparison between the performance of each individual with the rest of the individuals in the organization.

The method of compulsory distribution: Here, the evaluator distributes those who want to evaluate them according to their capabilities and competencies in the form of a natural curve, where the high percentage falls in any large group in the middle category, then distributions are graded in less or higher proportions evenly on both ends of the curve. *Gradation method:* This method is the simplest and the most common method for evaluating performance, as it depends on the development of classifications for working individuals prepared by the Human Resources Department or assessor; The pre-determined degree is the degree of each individual.

Despite the simplicity of this method that is traditional and its adoption by most organizations. It suffers from some problems such as influencing the behaviour and personality of the resident. The lack of impartiality in addition that his tools are no longer able to give a clear and integrated picture in terms of performance. This is what necessitated the adoption of modern methods based on the opinion of all. Therefore, a consistent with the surrounding environment guarantees the objectivity of decisions to increase the effectiveness of human resources.

Department of performance assessment by modern or objective methods which have been remedied to avoid errors of traditional methods performance evaluation using traditional self-methods. This method includes the judgment of the individual head directly on his performance in the evaluation process it focuses on quantitative aspects and uses purely financial criteria and indicators as well as attention to individual performance. It includes (Idowu, 2017).

Objective management method: Management with goals is called several names such as results management results in management, work planning, performance management, and audit programs. This is considered a new management philosophy as it has become an axiom in the organization to involve workers with their boss in setting goals realistically and clearly. Their capabilities and drawing the strategy during a future period to achieve and accomplish them and then there is a performance review based on the idea that the goals have become criteria for performance evaluation. One of the most important features of this method is that it is

concerned with performance in the future and develops the individual's ability to achieve and analyse his goals.

The critical events method: Performance is evaluated according to this method based on one of the factors specified for it namely the nature of the job and the consequence of its analysis and description. They're e a set of positive or negative behaviours provided that they are important and sensitive and have a direct impact on the performance of individuals and those responsible for it. It. exclude all elements that do not differentiate between effective and ineffective performance then keep it in a register with the evaluator and allocate each page to a specific worker. This record becomes the basis for reviewing the performance of workers during a specific period in an official manner.

The method of compulsory selection: This type of evaluation was widely spread aiming mainly at reducing human bias during the evaluation process. In most cases, it takes the form of a form that carries a set of expressions divided into groups each containing four divided terms Muthanna desired and undesirable. Here, the supervisor of the selection process is forced, and there is no way to ever skip it and based on the weights given for each selected phrase.

Checklists: These lists are usually prepared by experts who are familiar with the behaviour of the job being evaluated based on several descriptive phrases that describe the various positive aspects of worker performance. Often typical expressions are set for each job as the supervisor is required to evaluate and indicating yes or no to the appropriate characteristic of each worker according to his personal opinion. Then the list returns to experts in human resources management to analyse and determine its value secretly to avoid bias.

The written report: A method that is very similar to the method of critical events in which the supervisor writes a report at the end of the period about his judgment and observations on the worker's performance relying on his memory without any written document for evaluation.

Balloting: One of the modern methods of measuring and evaluating the performance of workers in the evaluation of the individual by secret balloting by every member of the working group. Without any regard for the administrative, the methods of performance evaluation are characterized by the predominance of supervisors and is characterized by the punitive nature and the tolerance of psychological and social factors surrounding the individual.

2.4.3 HR Training, Globalization, and Competition

The modern management thought that the institutions are currently adopting requires the realization of their reality in all its aspects to design a consistent training. The reality to achieve the qualitative and quantitative performance of the human resource and enable it to keep pace with and absorb the rapid and emerging technological developments at the same time. Thus, it is not considered an intellectual luxury or a spontaneous activity. The organizational changes and competition brought about by globalization have necessitated most, if not all, modern organizations by converting their training policies into learning strategies (Choi & Yoon, 2015). Moreover, it facilitates the training, continuous development, adopting contemporary trends permanently, in line with every change that occurs in the environment, and putting them into the correct actual application.

All recent studies in the field of management confirmed that the organization is a permanent climate for learning and work. The first of which exists in an unstable environment that will inevitably affect the training needs of human resources. It led the organization to consider the issue of training as part of its strategies and as a strategic key to achieving its growth and ensuring its sustainability as well as its plan to adopt (Bonaretti et al., 2017). Perhaps, what the training aims at is to see all that is new from philosophy, curricula, methods, techniques, planning, implementation, and evaluation to face problems.

The continuity lies in the fact that it accompanies the employee during his entire practical career, as it begins before the employee joins the service, then prepares him to work at the start of the service and from thereafter his regularity in the work is either a correction of a situation or the acquisition of a new skill, and it is also characterized by the comprehensiveness of all frames in the administration whether a simple worker or a person of distinct administrative weight.

The training is characterized as an integrated bloc based on reciprocal relations to perform functions whose outcome will be the results achieved by the system as a whole. Particularly, after modern organizations have tended to establish human resource departments that have exceeded their duties and tasks as a routine character to the seriousness in their activities. Therefore, they are closely linked with planning, attraction, Selection of human resources and provision of staff qualification programs.

The training represents the modern face of human resources, as it helps to adapt in the organization and provide it with competencies to improve performance and absorb modern methods of work, and although the organizations spend huge amounts of money in this regard, there is reassurance by decision-makers, as they consider it a fertile and rewarding long investment. The range with positive returns increases performance, so what you spend today will reap tomorrow.

As for the comprehensiveness of the training, which takes two sides as for the first it includes: (i) all administrative levels by teaching team members skills that enable them to work collectively and adopt the spirit of challenge and responsibility, (ii) raise the level of skill of executives who represent the first line of contact with what is happening in the environment, (iii) lead to the success of work in the organization inevitably, (iv) recognizes the necessity of comprehensive training for all disciplines and jobs in management, (v) guarantees job specialization as well as empowerment and raising the skills of workers (Grohmann, 2015).

It needs interrelated processes and sub-stages as the success or failure of one of them depends on and affects the success and failure of the other. This can be achieved by accurate assessment of training needs as it is the sum of deviations between the job and its incumbent. Further, the use of scientific training methods and timelines and the inclusion of participants in the training process to create a healthy climate that leads to effective learning. It is done by taking into account the various financial capabilities such as budgets for training and material programs, educational aid and training aids, spatial preparation of training rooms, various human capabilities, training staff members, training program planners, trainers, lecturers, and trainees.

The only constant in the world of globalization is change. The human resources department had to cope with this phenomenon to benefit from its positives and avoid its negatives and to be itself management of change. It is necessitated the adoption of all methods of renewal and diversification of skills and methods focusing on teamwork skills and making it a joint and integrated work (Choi & Yoon, 2015). It changed the orientation like training and development programs to be in line with the new design and it also contributes to preparing workers to adapt to the new situation. Thus, all its variables and make it always on the alert for the total of these existing variables and work hard the training of departmental directors and heads.

This approach is no longer confined to working in the first line of the organizational hierarchy but rather includes all administrative levels. It is no longer the directors and chiefs who close

the door on himself and this pattern has ended and a term has passed and this has led to creating an organizational structure based on a culture that accepts change in the organization and everyone's participation in success.

2.4.4 The Training Aims

Training is a change in an individual's behaviour to bridge the knowledge, skill, and directional gaps between current performance and performance at the required level. This has led many to believe that human resource development is based on one activity. Such as the training an essential matter due to the requirements of the spread of the mechanism, automation, and advocating for the rationalization of business methods (Silva et al., 2017). This has been the reason why many institutions send their employees to carry out training courses regularly as a retrofit and developmental method for their performance.

It can be said that the training aims to pay attention to the performance of workers and to achieve the goals of the organization at the same time. What should be as a prerequisite for a kind of intermarriage and merging between the ruler goals and the method of performance adopted by the organization. It is considering that training is a studied process that directly affects the psychological and personal factors of the trained worker through its endeavour to modify the trends, enriching the knowledge, and skill style of each worker (Bonaretti et al., 2017). It is necessarily produces what is called support experience and thus coordination of effective and successful performance in the activity of one or several presents and future activities.

The performance has a direct relationship to efficiency and effectiveness as the two pillars of performance as training is an investment aimed at improving production efficiency, increasing profits, and doing the right things and in a proper way to achieve the desired goals. Therefore, the corresponding meaning of effectiveness and training seeks to achieve effectiveness and efficiency together. Training has an impact on an individual's performance given the evident relationship between the level of performance, the individual with his ability. and willingness to work (Idowu, 2017). So, these two factors are the right engine for training and the secret of the institutions success in upgrading the performance of their members. Some of the training aims are as follows (Barbar et al., 2019). Avoiding weaknesses and developing strengths in the organization's current performance. Provide human resources with new knowledge and skills to enable them to perform modern business in the future. Raise the level of skill and human morale of human resources at work. The individual's desire to work given that the increase in

his production depends on his desire. Providing the self-motivation of the individual to increase his efficiency and improve his production in terms of quantity and quality by educating him about the goals of the project and its policies. Providing the opportunity to find out all that is new in the field of scientific and technical development.

Training has always been to some extent the optimal method to upgrade performance regardless of some variables and the factors. They have become besides training at present the hidden picture of performance including the general environment of the organization and its goals, structure, and all the applications used in it. Further, the pattern the prevailing leader especially after the possibilities for the capabilities and skills of individuals required to perform. The performance itself being required have not appeared, thus, there is no need for training but rather organizational and social aspects of behaviour to ensure the performance of workers.

Today's institutions intend to use different management strategies to increase performance. Among these strategies is the activation of human resources and the involvement of workers in management and their decision-making processes through the empowerment of human resources (Zainal et al., 2020). It is not a weak choice and every institution has used empowerment and paved it. It is an organization that has realized that there are goals that cannot be achieved without involving its employees and it needs their information, experiences, skills, and joint efforts to achieve these goals.

This concept was adopted at the beginning of the twentieth century as it gained an important intellectual and organizational dimension. As a result of the continuous development in the environment and the increasing complexities facing institutions, intending to adapt to conditions, shortening time and decision-making. It can be said that the empowerment of individuals aims to improve the overall performance of the institution as a cultural practice that encourages individuals to take personal responsibility and develop how they perform their work. It is by delegating responsibility to make decisions to the lowest level whenever possible and the effectiveness of managers is measured by the performance (Naznin & Hussain, 2016). Those who fall in the scope of their supervision more than their performance as individuals and the leader's job is to enable others to work most efficiently and effectively.

As for some people, it is considered that empowerment and a psychological feeling in the first place derives its strength and effectiveness from the availability of an appropriate environment in support of workers, and a leadership committed to sharing information and decision-making.

it aims to (Clarke & Higgs, 2016). The increased motivation to reduce errors and a sense of responsibility. The increase the opportunity for creativity and innovation, and thus increase productivity, as a result of the pride of the worker himself and self-esteem. Reducing the burden on senior management and devoting them to strategic planning, developing business plans, and the ability to the competition. Empowerment is a simple and complicated concept at the same time, it is simple in inviting workers to perform their jobs and it is complicated realistically in terms of training workers on empowerment. Reducing command and control responsibilities. Empowerment, then, is the philosophy of giving leadership and decision-making to the lowest levels of a peaceful structure and easing administrative responsibilities at the higher levels.

It contributes to improving the quality of institutions that will enjoy high performance and by including serious human resources with high performance. It also exploited all its capabilities and enthusiasm to reach the desired goals of the organization as well as the personal aspects of the worker at the same time (Kang & Lee, 2021). It increases the confidence of each citizen psychologically and functionally on his performance and he feels that an integral part of the administration in which he works because of the weight and the great responsibility he carries out.

The effective management of change is the real challenge for every organization in the world of modern business as a rapid and continuous adaptation to the developments of the ocean has become one of the crucial matters on the one hand and a measure of the institution's flexibility and continuity on the other hand after speed and modernity has proven its control and put the competencies of managers and employees at stake.

The application and use of technology in organizations that depend on traditional administrative treatments have become ineffective in the globalization environment. They are in actual need of fundamental administrative processes that cause breakthroughs in achievement. Moreover, they also need to re-design the organization to facilitate the use of technology and teach all levels of the institution (Clarke & Higgs, 2016). It raises the level of performance to ensure maximum benefit from the services and activities at the corporate level. Further, it also avoids wasteful and inefficient activities and cannot achieve this only through reorganization engineering.

Reengineering is defined as fundamentally rethinking as well as a radical re-engineering of the organization's operations to achieve enormous improvements. Contemporary perspective is

performance measures such as cost, quality, service, and speed. The re-engineering aims to ensure the flow of the organization's operations and adapt to the current market reality. The concept of re-engineering for administrative processes has emerged and represents an administrative means concerned with the structure and design of basic operations. It also built the roots to rebuild them both for reform and mostly for the fundamental development of institutional performance, cost control, and the high quality of products.

2.5 ELECTRONIC EMBODIMENT OF HR FUNCTIONS

The electronic embodiment of the functions of human resources management contributes to providing the management of the organization as a whole with facts and information effectively and efficiently at the appropriate time and place. In the sense that the institution conducts its daily work but electronically depends on the use of telecommunications and Internet networks with its clients to achieve its goals by performing featured. There are three types of organizations that adopt electronic business which are as follows (Elhazzam, 2015):

Institutions supported by e-business: They are institutions that seek to build the capabilities of e-business using the Internet in the sense of modernizing their methods without compromising the overall strategy of the organization. Possible institutions with e-business: In which the institution enables its individual to carry out their work and jobs more efficiently and effectively, by adopting the method of communication through electronic links and supporting them with the necessary information, but it is not sold through its website in the sense of adopting technology as communication methods and building relationships that are None. Comprehensive e-business institutions: They are institutions that are fully present on the Internet to be managed by them they are called virtual institutions, and they are exposed to huge profits as well as piracy and other losses.

2.5.1 Remote Work and Electronic Routing

It can be said about electronic management is that the process in which institutions adopt new technologies from computers and networks in their organization. Their works and they are concerned with production, customers, internal management, and business management. Moreover, it depends on the nature of the institution.

In this context, it is no longer sufficient for the manager to be familiar with the computer culture, however, it is to understand that dealing with the various components of information technology from operating data, programs, and communication network. Moreover, the questions is how

to coordinate and integrate them into an integrated system? how to manage them in the most appropriate form of organization? how the type of management depends mainly on the office automation system based on information technology in performing tasks to speed the completion of work, raise productivity? How to save the data and communication flow through fax, e-mail, electronic notepad, voice mail, and meetings collective video (Leung & Zhang, 2017). The desktop publisher learned and quality of these documents and methods help to solve problems, make decisions, and the system became handles are automatically neutral. Further, as soon as the data and information sufficient provide whittling about achieving goals with a high degree of efficiency and effectiveness.

The electronic management of human resources is defined as a set of policies for managing human resources that use new ICT especially the internet. In this regard, a new concept emerged during the seventies is the concept of the virtual office where it became possible for individuals to work inside their homes without moving to the company. This method aims to reduce costs, waste time and energy by reducing the proportion of workers' transfers, and exchanging information direct remote and coordinated and sustainable follow-up.

It is a project specifically designed to combine increased performance with an enhanced lifestyle and for successful remote work. This is a culture of remote management and planning is required as an inevitable result of organizational transformations thanks to information technology. The relationship between performance and quality of life emphasized that it contributes to increasing productivity, reducing costs, and employee satisfaction.

2.5.2 Electronic Recruitment

The staff of the information technology department in the organizations has always been self-sufficient and working separately from other departments. However, in the recent years' integration has begun between it and the various departments and functions of institutions. Particularly, the human resources management and its functions such as employment, advertisement for vacancies increases, trying to attract the best human elements through the internet in contemporary organizations.

The introduction of new ICT to the recruitment process within the institutions to eliminate the barricading barriers establishing the parameters of transparency. The principle of neutrality at work, improving relations between the institution and the persons nominated to occupy jobs via the internet under the principle of individuals. The individuals are the most valuable assets that

increase excellence in institutions (Abia & Brown, 2020). They use internet-based systems, advertising to speed up recruitment processes, and advertising takes several images such as attractive websites, web pages, and advertising on regular tapes or using graphics.

The role of these advertisements lies in informing individuals with all the detailed information about the company, nature of its business, strategies, services, and information about the job in terms of its specifications, requirements, and salaries. On the other hand, it is very important and motivating to break into the field of work if it is compatible with the conditions or leave for others without wasting time. In general, re-employment has several advantages, including (Abia & Brown, 2020). The expedites the procedures and expands the investigation regarding prospective employees. It is considered an effective way to develop the image of the company. The extraction of highly skilled applications and take measures and achieve harmony between procedures and the current situation, to amend the system according to need. Low costs, wide ad space, and easy access by many people and to provide impartiality and impartiality.

Further, the reinforcing the direct relationship between the manager and the candidate that allows reducing the number of intermediaries who usually represent additional expenses—for instance, the services they provide while any worker who does not have a specific position accepts any remuneration offered to him or in exchange for his working hours to satisfy the agency and prove his skill with match the vacant position. Eliminating geographical barriers as the candidate's E-CV is easily accessible and transmitted in all geographical locations via internet network engines.

2.5.3 Training and E-learning

In a globalized society with intense competition, it has become necessary for institutions to form and train to hire them quickly and at lower costs because of the rapid aging of their information and skills. Moreover, it is their necessity to renew them as a competitive advantage for many institutions (Gil et al., 2019). The ICT has contributed significantly and the existence of a centre for internal training in any institution. Moreover, it has become a point of comparison and a guide to the efficiency of the system in it that is allow them to adapt to contemporary developments. It also gives them the ability to use it without difficulty without prejudice to the conditions of work. Moreover, the managers must have sufficient training that takes into account all social indicators when adopting a new system. This training has been brought to

light by the emergence of employment difficulties resulting from the speed in covering the workforce deficit and the lack of meters.

E-training has several synonyms including e-learning, distance learning, virtual learning, and e-training (Numonjonov, 2020). Given the benefits that this type of education shows at the global level, a focus was devoted to it at the world summit on the information society for the year 2003. It stated that the centre of human progress and the source of its well-being and has stimulated the promotion of the use of ICT in the education and training stages of the human resource. Internet plays significant role in education such as raising educational standards for everyone, the emergence of new methods of teaching, and extending the election cycle due to the intensity of diversification.

It is stated that electronic training is nothing but training based on the computer network as the learner receives the set of materials and programs listed through specific websites of certain educational institutions. It is to note that the latter benefits from feedback whether for improvement, development, or change completely depending on the circumstances. It is the process of training and training using the internet and it requires the presence of specialists in this field. The process of electronic training increases the ability of employees to reach the required degree of development and development and gives the opportunity of individual learning through the information device via the Internet or intranet in a way fast and low cost.

As the key to efficiency lies in the art of interconnection and the ability to establish relationships via technology remotely that focuses on content more than the tool. Thus, such qualities appear only in remote formation that contributes to the integration of society among itself through the intranet open on the outside. The characteristics of training and distance learning, convenience between the lecturer and the student, flexibility, effectiveness, multiple options in the delivery of the subject, and interaction between the student. Further, it provides several benefits such as (Martin et al., 2019). The reducing the total costs related to the training process through self-training or employee networks. It allows greater flexibility for the organization by enabling the managers to ascertain the content of the training process, and it aims to make it more uniform and uniform throughout the world.

Attracting new skills or retaining the organization's frameworks by proposing new programs whose main focus is the promotion and sustainable development of their skills, thus improving the image of the institution. Increase the effectiveness of the training process and be formed

during business hours. Cancel the time factor by following lessons at any time and reconciliation between the formative process and professional activity at the same time. The possibility of developing plans to develop the skills on demand in line with the objectives of the company. E-learning saves 70% of the time and money compared to traditional training, as it is a new project in which the procedures and motivation of employees must be harmonized. Integration of media in the infrastructure of the e-learning system, ease of updating learning materials, and exceeding the potential for loss.

The twenty-first century is surrounded by different types of communication information technology that represents the code of life and its miracle in the continuation or disappearance of institutions. The latter has contributed to the spread of many expressions such as virtual, digital, distance, and whoever thinks that these are just hallucinations is inevitably part of a lost world. Being able to use ICT after gaining a strategic stake and weapon to achieve outstanding performance and make rational decisions in any institution whatever its nature is. Since it injects any ICT with the idea of modernity and transgressing the idea of routine with human resources to become more adaptive and better skill than before (Gil et al., 2020). The credit goes to training whose philosophy has changed in our time and thanks to the various measures that institutions voluntarily undertake. Moreover, it is necessary to keeping pace with globalization and achieving a competitive advantage at the level of their organization. The degree of success when possessing electronics and embodying it on the level of jobs in institutions cannot be measured by the results not even by the ICT itself, because such facts need proofs of the same level.

2.6 THEORETICAL FRAMEWORK

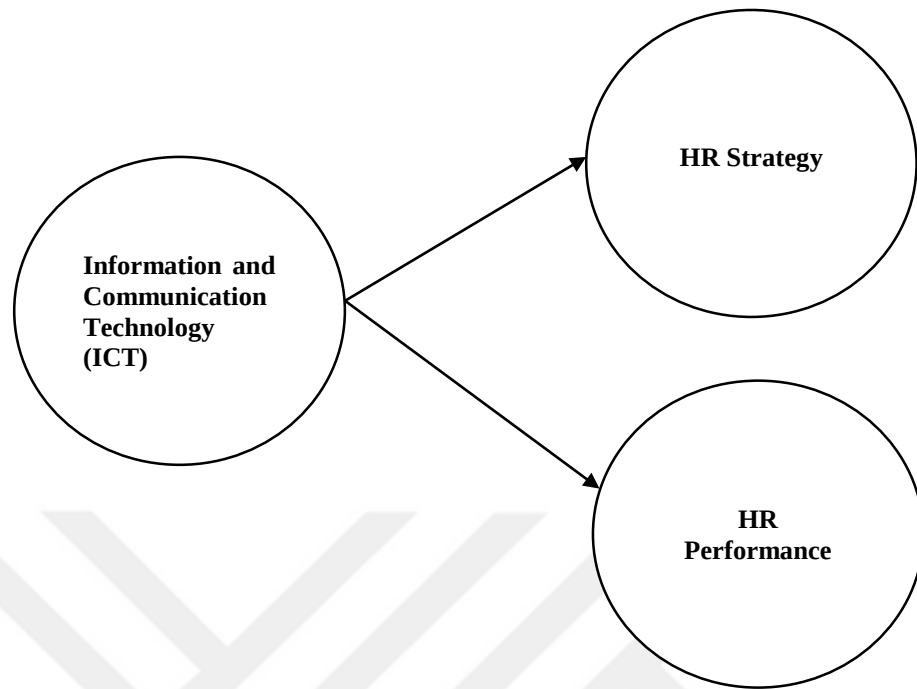


Figure 2.1: Theoretical Framework

2.7 HYPOTHESES

The study derived following hypotheses from the theoretical framework.

H1: The application of information and communication technologies (ICTs) positively impact the human resource strategy of an organization.

H2: The application of information and communication technologies (ICTs) positively impact the human resource performance of an organization.

3 METHODOLOGY

3.1 RESEARCH DESIGN

The study has used the quantitative research design to test the proposed theoretical relationships in the form of hypotheses. It is to note that research design mainly consists of quantitative and qualitative methods, however, quantitative method is more suitable for this study. The availability of the measurement scales was also favorable to conduct a survey to take a snapshot of the phenomena in a time. Moreover, quantitative research design identifies the theoretical relationships to test them mathematically (Creswell, 2017).

Survey is the most common method to collect the data for a quantitative research design from a broad population. The administration of questionnaire to collect the responses is easy compared to the interviews. The study will use a quantitative research method. It will statistically test the relationships between the variables proposed in the theoretical model using structural equation modeling. Quantitative research tries to identify trends and measure the relationships using mathematical models (Creswell, 2017). Moreover, it is a useful way to find the relationship between the variables and test the hypotheses.

It is pertinent to mention that the study has used two dependent variables and one independent variable. The nature of the model is multivariate instead of linear regression; therefore, IBM SPSS has limited support to test such models—for instance, the multivariate statistic uses the groups and their comparison. However, this study has not differentiated the sample into different groups on the basis of anything. Thus, the trial version of IBM SPSS was not very useful to conduct the data analysis. Therefore, this study has used the SmartPLS 2.0 (free version) to test the theoretical model. The software is built for structural equation modelling and extremely reliable to test the complex models.

3.2 RESEARCH SAMPLE

The study has used the convenience sampling to conduct the responses from the employees of an electricity production company in Baghdad. The sample size was all the employees of the Baghdad electricity company. However, the response rate was 171 which was valid for the analysis.

3.3 MEASUREMENTS SCALES FOR THE STUDY

The study has used three measurement scales to measure each variable. The details of the reliability, validity, and factor analysis of the scales is provided in the data analysis section.

3.3.1 ICT Measurement Scale

The measurement scale for ICT variable consisted of 4 questions. The ICT scale was adopted from Piabuo et al. (2017).

Table 3.1: ICT measurement scale

The use of ICT assures the efficiency of Human resource planning (HR planning)
ICT usage for HR functions ensure better training and development (training and development)
The use of an online platform for selection and recruitment ensures accuracy of information (selection and recruitment)
The use of computers for weekly planning of work assures efficiency of workers (HR evaluation and compensation)

3.3.2 Human Resource Strategy Measurement Scale

The measurement scale for human resource strategy consisted of 9 questions. This scale was adopted from Gurbaz and Mert (2011).

Table 3.2: HR strategy measurement scale

HR strategies are effectively integrated with this organization's strategy
HR practices are integrated to be consistent with each other
HR strategy will become a more important influence in this organization's strategy in the future
This organization matches the characteristics of managers to the strategic plan of the organization
This organization modifies the compensation systems to encourage managers to achieve long-term strategic objectives
This organization changes staffing patterns to help implement business or corporate strategies
This organization evaluates key personnel based on their potential for carrying out strategic goals
Job analyses are based on what the job might entail in the future
HR seen by the senior management as a cost to be minimized or source of value creation

3.3.3 Human Resource Performance Measurement Scale

The human resource performance measurement scale consisted of 13 questions. The scale was adopted from Na-Nan et al. (2018).

Table 3.3: HR performance measurement scale

Tasks are performed attentively and correctly
Tasks are completed as per the specifications and standards
Materials and tools meet the set criteria and standards
Quality inspection is conducted prior to the delivery of goods or services
Products or services meet the expectations of customers
The units of output are in sync with the number of employees
The units of output meet organizational expectations
The units of output under my responsibility correspond to my skills and ability
The quantity assignment is always fulfilled
Tasks are normally completed on schedule
Tasks are carried out within a reasonable amount of time
The delivery of goods or services is conducted in a timely fashion
Workers achieve time-related organizational goals

4 DATA ANALYSIS AND DISCUSSION

It is important to mention that the study has used SmartPLS 2.0 (free version) to conduct the data analysis. It is also necessary to mention that the study has two dependent variables, therefore, the multivariate regression analysis was required to test the hypothesized relationships. The IBM SPSS has the ability to test the multivariate regression, however, there are no groups in this study. The use of SmartPLS 2.0 is effective and reliable to test the complex models. Further, the software is developed for structural equation modeling, therefore, the results are divided into two sections. First, the study tested the measurement model to evaluate the reliability and validity of the indicators and constructs. This suggest whether the data is useful for the testing the hypothesized relationships or not. Second, the structural model tests the theoretical model and the hypotheses using multivariate regression. The evaluation and presentation of the results follows are systematic process. Table 4.1 illustrate the demographics of the sample.

Table 4.1: Demographics

Variables		Frequency	Percentage
Gender	Male	137	80.1%
	Female	34	19.9.7%
	Total	171	100%
Job Grade	Fix-term Work Contract	20	11.7%
	Officer	103	60.2%
	Senior Employee	48	28.1%
	Total	171	100%
Degree	Diploma	30	41.8%
	BA	141	52.4%
	Total	171	100%
Experience	Less than 7 years	130	76.0%
	More than 7 years	41	24.0%
		171	

4.1 MEASUREMENT MODEL

The measurement model evaluates the items and constructs on the basis of reliability and validity. The reliability is tested using the composite reliability and Cronbach's Alpha while the validity is measured using the average variance extracted (AVE). It is to note that the exploratory factor analysis (dimension reduction) indicated some items of constructs are not significant. The figure measurement model (initial results) is referred to the appendix. The figure clearly show that four items of each scale are negative and insignificant. Therefore, the study has removed these items to make the data more reliability and valid for hypotheses testing.

4.1.1 Internal Consistency Reliability

Traditionally, the measurement of the internal consistency reliability is measured using the Cronbach's alpha—this measure is the starting point of the data analysis. The Cronbach's alpha measures the *“intercorrelations of the observed indicator variables”* (Hair et al., 2016). The values of the Cronbach's alpha are between 0 and 1 as the values which are close to 1 are more reliable. The measure depends on the number of the items in the scale; therefore, it is better to utilize other measures to compute the reliability. For instance, composite reliability is also a measure to evaluate the reliability of the data. It also uses the same scale of 0 and 1 and values close to 1 are more reliable. Particularly, the values that falls in 0.60 and 0.70 considered significantly high, however, the threshold can be 0.40 (Hair et al., 2016). Table 4.2 illustrate the values of Cronbach's alpha for the scale while Table 4.3 presented the values of composite reliability.

Table 4.2: Cronbach's alpha

	Cronbach's Alpha
HR Performance	0.8270
HR Strategy	0.8350
ICT	0.6973

Table 4.3: Composite reliability

	Composite Reliability
HR Performance	0.8590
HR Strategy	0.8735
ICT	0.8248

4.1.2 Convergent Validity

After ensuring the reliability of the data, it is necessary to evaluate the convergent validity. The convergent validity test is used for the estimation of the positive correlations of the same construct (Hair et al., 2016). It is evaluate using the average variance extracted (AVE) and factor loadings of the indicators. It is pertinent to that the initial examination of the constructs and indicators indicated that several indicators had very low factor loadings (see appendix). The indicators with low factor were removed to improve the data validity for hypotheses testing. After the removal of the indicators with extremely low values, the overall quality of the model has been improved. Figure 4.1 and Table 4.4 illustrate the factor loadings are not satisfactory for the model testing.

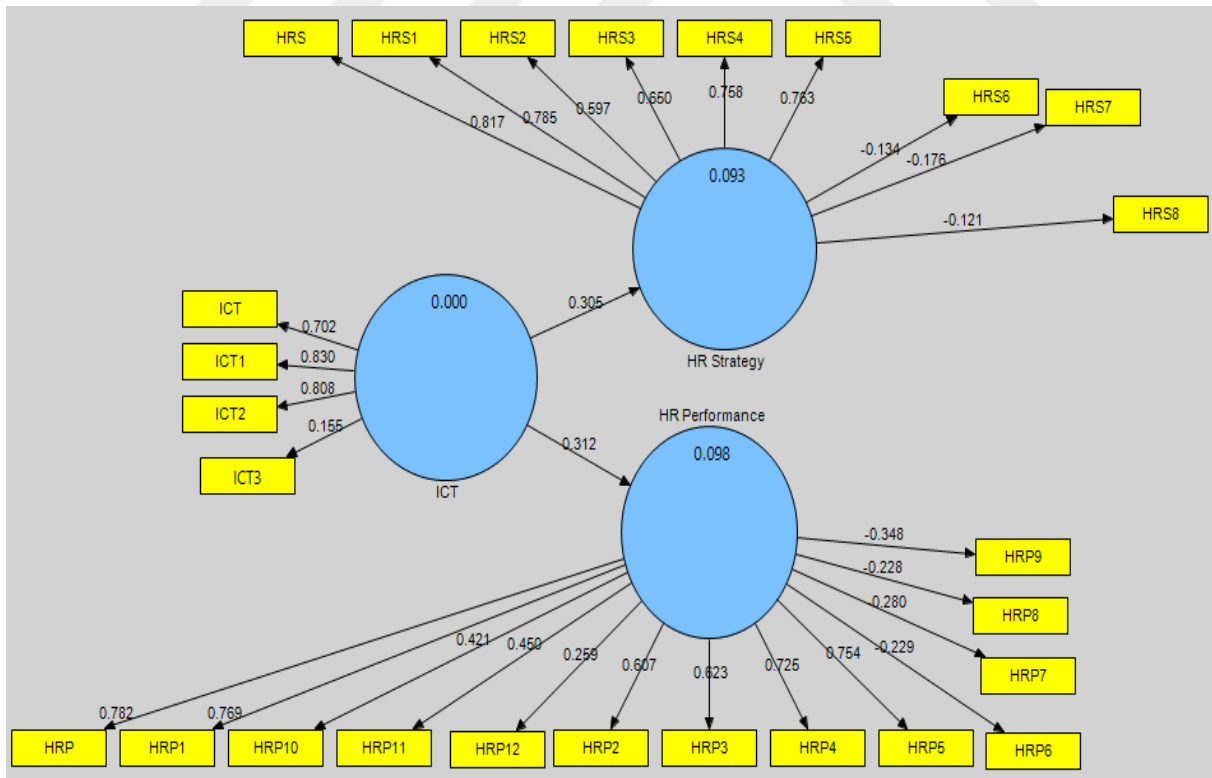


Figure 4.1: Measurement model

Figure 4.2 present the actual model used for the structural relationships. Figure 4.2 illustrate the factor loadings after deleting all the items less than 0.40 of threshold.

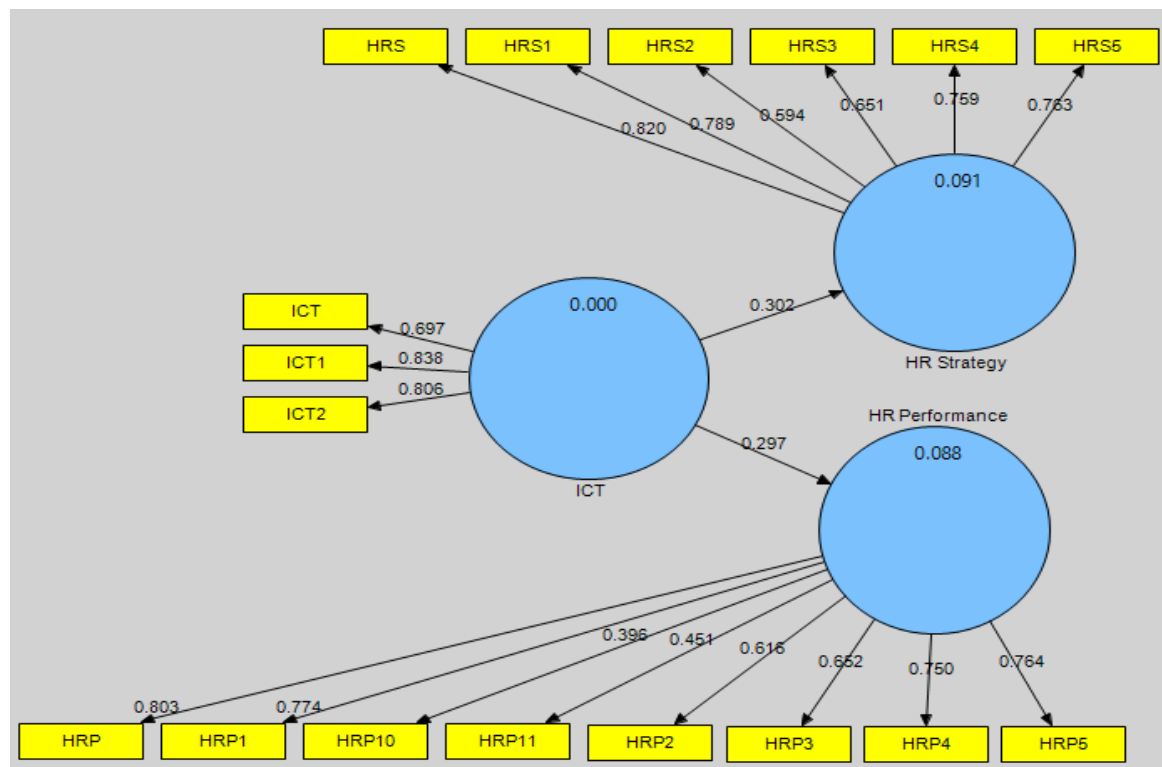


Figure 4.2: Measurement Model (treated for low factor loadings)

The next measure that evaluates the convergent validity is average variance extraction (AVE) that indicate how much variance a variable explains and how much remain the error term. The values of the AVE for the independent variable that explain the variance on dependent variable are sufficiently satisfactory illustrated in the Table 4.5.

The next measure that evaluates the convergent validity is average variance extraction (AVE) that indicate how much variance a variable explains and how much remain the error term. The values of the AVE for the independent variable that explain the variance on dependent variable are sufficiently satisfactory illustrated in the Table 4.5.

Table 4.4: Average variable extracted (AVE)

	AVE
HR Performance	0.4442
HR Strategy	0.5381
ICTs	0.6122

The measurement model illustrated in Figure 4.1 indicated the insignificant factor loadings that were later removed based on the suggested criteria—for instance, all the values low than 0.4 were removed except HRP11 (0.395, t -value = 2.16) Hair et al., (2017, p. 133). The item was theoretically important since Hair et al. (2017) indicated that *“another consideration in the decision of whether to delete an indicator is the extent to which its removal affects content validity”* (p. 113). It is to note that the attached outputs (structural model provides Outer Model T-Statistics indicated the all the items were statistically significant). Therefore, the final measurement model Figure 4.2 illustrated the final version used for hypotheses testing.

The final evaluation of the internal consistency reliability of the measurement model exceeds thresholds except for AVE for HR performance which was close to 0.5. The AVE 0.4442 deliberately carried forward based on the value of composite reliability 0.8590 which is above the threshold of 0.6. The constructs validity is acceptable if it has composite reliability above 0.6 even if the AVE is less than 0.5 (Lam, 2012; Hair et al., 2009). Moreover, Fornell and Larcker (1981, p. 46) indicated that *“the researcher may conclude that the convergent validity of the construct is adequate, even though more than 50% of the variance is due to error”*. Therefore, the HR performance AVE value 0.444 is acceptable for hypotheses testing.

4.2 STRUCTURAL MODEL

The successful evaluation of the measurement model ensured the reliability and validity of the constructs. Therefore, the next step is to test the theoretical model and the hypotheses. The structural model tests the relationships using regression analysis—for instance, this model is tested using multivariate regression since there are two dependent variables. The results of the multivariate regression output the path coefficients (beta) and ability to predict the relationships.

SmartPLS use bootstrapping procedures to estimate the relationships. Moreover, the degree of freedom is 5% and t -value for significance is 1.96. Figure 4.3 illustrate the structural model with t -values such as t -value 4.7747 for $ICTs > HR\ strategy$. Moreover, it is pertinent to note that all the indicators of the constructs are also significant.

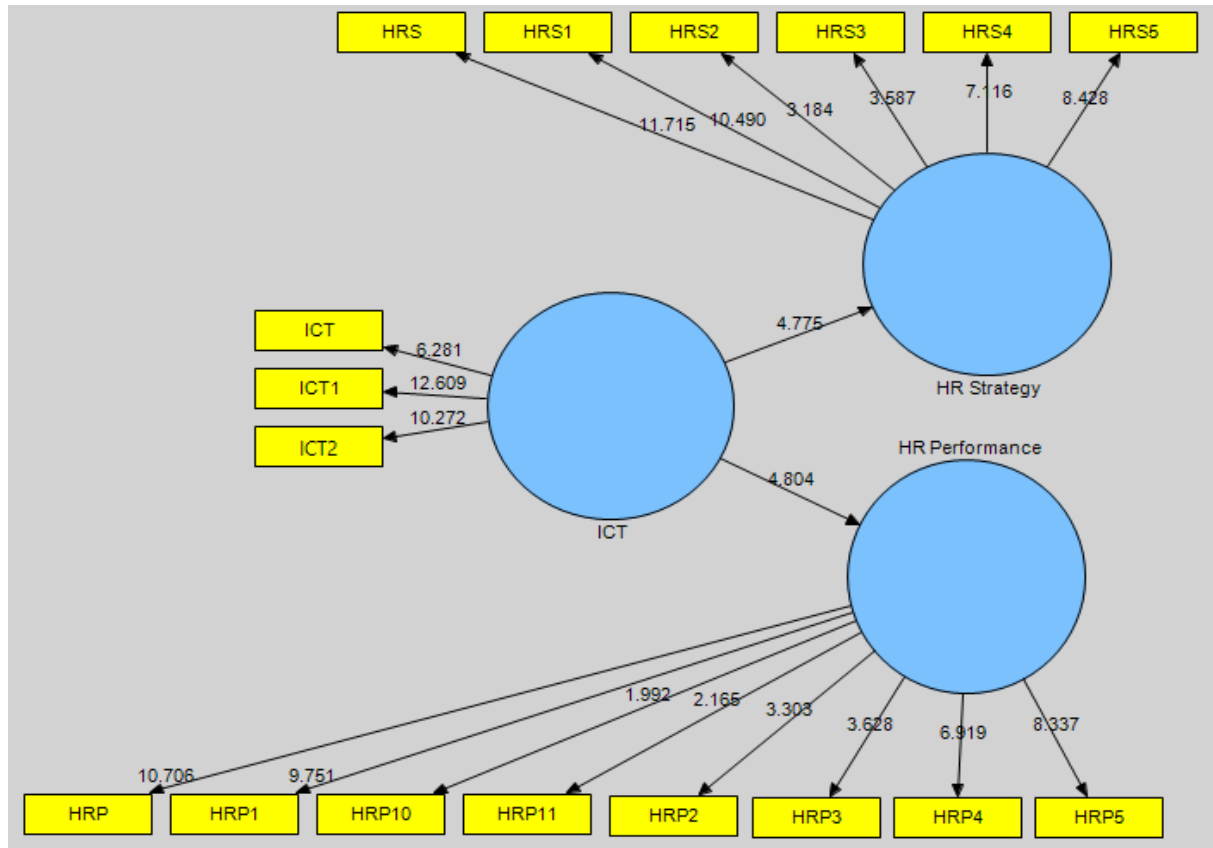


Figure 4.3: Structural model

Table 4.6 presented the path coefficients (beta) for two hypothesized relationships. The first relationship is *ICTs* -> *HR Performance* has path coefficient = 0.2970, t-value = 4.8042, and p-value 0.000. Similarly, *ICTs* -> *HR Strategy* has path coefficient = 0.3015, t-value = 4.7747, and p-value = 0.000. The results indicated that ICTs explain the HR performance by 29.70% and ICTs also explain the HR strategy by 30.15%.

Table 4.5: Path coefficient

	Path coefficient (beta)	T-values	P-values
ICTs -> HR Performance	0.2970	4.8042	0.000
ICTs -> HR Strategy	0.3015	4.7747	0.000

Table 4.6: R-square

	R-Square
HR Performance	0.0882
HR Strategy	0.0909

4.2.1 Hypotheses Testing

The study derived following hypotheses from the theoretical framework.

H1: *The application of information and communication technologies (ICTs) positively impact the human resource strategy of an organization.*

H2: *The application of information and communication technologies (ICTs) positively impact the human resource performance of an organization.*

The H1 indicated that ICTs (ICTs) impact the human resource strategy. The results of multivariate regression indicated that H1 is accepted as *ICTs -> HR Performance* has path coefficient = 0.2970, t-value = 4.8042, and p-value 0.000. Moreover, R-square indicate that human resource strategy is being explained 0.088 percent by ICTs. The result has low value because there is only one independent variable that is explaining HR performance. The H2 indicated that the application of ICTs (ICTs) impacts the human resource performance. The results suggested that *ICTs -> HR Strategy* has path coefficient = 0.3015, t-value = 4.7747, and p-value = 0.000, and R-square = 0.0909. It indicated that H2 is also statistically significant and accepted.

4.3 DISCUSSION

The results established the facts that reflect the prominent impact of the use of ICT on the HR performance and HR strategy. Therefore, the improvement in the communication methods, data transmission, and providing a collective communication pattern improves the human resource performance (Piabuo et al., 2017). Moreover, the using of networks between users contributed to the enhancement of relationships and interests and thus improving the work environment and this type of advanced technologies at the company level relieved the many pressures resulting from daily and frequent routine business.

It also eliminated the overlap between jobs and the conflicts that caused them, as well as procrastination in the completion of tasks and the spread of the so-called immediate work and

this raises the morale of the employee and increases his self-confidence and capabilities. The ICT and its impact on human resources management that there are positive results of ICT on the human resource related to upgrading the level of managers through accurate information, saving effort and time (Bourke & Crowley, 2015). Moreover, the contribution of ICT to knowledge management providing speed, efficiency, job merit, quality of information and performance of functions as well as the flexibility of communication through networks.

The impact of the use of ICT on the performance of human resources that there is a great interest in human resources management in ICT and full awareness of its importance and that e-service actually have a clear impact on human resources management and all affiliated branches. The standard economic study of the impact ICT on the economic performance of the organization has demonstrated that decision-making by ICT provides quality in decisions. Moreover, dedicating the human effort, and buying time by reducing movements through offices and raising productivity and improve performance.

Accuracy of information also contributes to avoiding the costs resulting from frequent errors, eliminating a large number of papers and bureaucratic procedures, and narrowing workplaces. The study emphasized the importance of informatics in raising the amount of transparency and reducing the opportunities for administrative corruption, routine work, and raising the qualifications in addition to reducing administrative levels (Grant & Yeo, 2018). It is to note that the Iraqi institutions have not really merged as an electronic administration since they are an integral part of an integrated economic fabric which is still taking shy steps in advancing the new technology. This does not prevent this from having an impact. It is prominent in reducing advertising costs, circulating information, improving the image of the institution, and the quality of its products.

Reliance on ICT has always been of the utmost necessity to achieve economic leadership and confront challenges, and create a distinctive administrative reality that cannot be interpreted with different interpretations. Therefore, it is necessary to adapt these technologies and the extent of their complexities and full awareness and awareness of them provides leadership convergence and linking jobs, job tasks and the emergence of so-called job specialization and roles renewable per employee. The reason behind is the effects of ICT on each human resource management function by increasing levels of coordination and interaction between organizational units to ensure flexibility and control thanks to the internet (Nagano, 2020).

Possessing the skill of ICT and dealing with the Internet networks that provide services of a complete electronic communication nature, has become an integral part of the tasks of the worker.

Information technology and its applications in the field of archives which dealt with the active role of informatics in overcoming difficulties and facilitating daily work. It reduces the use of paper material, automating information, and easily storing and retaining it while providing the element of reassurance. Moreover, it also facilitates retrieval with high accuracy and conducting training courses to handle digital documents. Also, converting the archive into an electronic format has become the goal of every institution recently.

The challenge has become for Iraqi institutions, investing in the human factor as an effective engine in achieving economic, social, technology, and even organizational development are undisputed. After it was considered the weakest link in various sectors besides investing in technology and knowledge economy, and this necessarily makes the company (Hadi et al., 2018). Organizational climate on the job performance of workers revealed that the organizational climate holds many images such as technology leadership, communication, empowerment, incentives, and active role in upgrading the performance of human resources.

Training in the institution is a vital bridge between the human resources strategy, upgrading its performance, and establishing ICT at the organization level to take advantage of its benefits. Moreover, the work in one way or another to draw the training path, and build a career ladder through succession in job roles. For each worker, the art of diversifying the experience and confidence in occupying any position directed to it by the administration grants it given that training corrects the gaps left by new and outdated technology at the same time by analysing the needs of the organization itself.

It was of the utmost necessity for each institution to evaluate the training and undertakes how to prepare the training file and develop special contracts for it with some employees. Moreover, it is required to work hard to create the training environment that helps to exchange experiences. The role of training is one of the approaches to technological adaptation of the human resources management in the institution (Fabris, 2018). The positives that the training courses have left as an impact on the performance of human resources. The study also proved that the majority did not receive training on the new technology that led to poor results for despite full awareness of the technical devices and internet networks and their benefits. The necessity of training as a

haven in the optimal and better use of ICT and its various applications based on the results reached in his study that the ICT applications in the institution are still in their early stages.



5 CONCLUSIONS, LIMIRATIONS, AND FUTURE DIRECTIONS

There are several aspects related to the environment surrounding the organization that impact the decision to implement the ICT. Moreover, how internal environment and organizational climate adopt for the improvement in the HR performance and HR strategy. In this context, the impact of the organizational climate on the job performance of workers that the organizational climate holds many images such as technology, leadership, communication, empowerment, incentives, and the effective role in improving the performance of human resources at the level of all organizations.

The administrative obstacles that is leadership and intransigence of business heads are among the most important obstacles in implementing electronic management. Alongside, the financial, human, and finally technical obstacles in the sense that administrative culture is intransigent in abandoning traditional management. It may also reject novelty and the nature of change and that it is important technology and equipment are not available for electronic administration.

All organizations have become obsessed with popularizing the use of modern technologies because of the effective role these technologies play and are keen to indigenize them in a way that is due to their added value by maximizing levels of economic performance as well as the performance of human resources. Particularly, the ICT is used and directed effectively and within the main objectives of the strategy general of the organization.

Modernization has become an integral part of the institutions' strategies and the development of their competitiveness, and this approach is a serious attempt by Iraqi institutions to build a real base that achieves the qualification of human resources, and at the same time, it is the adoption of a strict policy to train their employees to use ICT on the one hand and set conditions for their mastery. As the most important item in recruitment is what makes us say that the development of human resources requires a conscious will for two things (i) the company must be aware of providing it with all that is new in ICT (ii) creating training courses to refine these capabilities.

To obtain the results of the use of ICT and as a result of the spread of the immediate work culture and facilitate administrative processes efficiently and electronically lies in achieving transparency and quality of information. Further, it also bypasses paper-based processes and their accumulations in addition to achieving better performance flexibility at work and

identifying administrative gaps as well as providing job convergence and enabling the employee to make decisions from on the one hand and specialization on the other hand through training.

This does not happen by chance but rather that the Electricity Production Company in Baghdad is one of the living models for Iraqi institutions in terms of challenges between obtaining ICT as well as enhancing human resources as well as developing their performance by obtaining conscious ideas and conscious awareness of new technologies in clear effect. Thus, to adapt in the pace of change to obtain a great competitive advantage whether through a qualified human resource or processing modern technology for the Iraqi institution. Moreover, it seeks to transform its management into pure electronic management of human resources.

The impressive success of new knowledge and advanced technologies, which opened several doors that were closed, has become a turning point that has transferred technology and its desired results from a mere scientific hypothesis to a reality that already exists. It has been working hard to complete the work with ease and speed and with almost no errors. Moreover, it is converting documents to their currently recognized digital form that is noticeably widespread through e-books and virtual libraries to from a functional point of view. It is also facilitating communication between different groups in the field of work as well as daily life on the part of relationships.

Based on this and through the results of the study obtained it is suggested that the expanding and developing the communication infrastructure in a manner that is more compatible with the requirements of the modern given that the life cycle of ICT is very short. The mainstreaming the use of ICT in all institutions with all its various points, at the national level whether services or education and not only the economic aspect. Moreover, the senior management's commitment to the necessity of change and providing the means of liquidity and means to implement the electronic management of human resources which guarantees the continuation of high performance of its resources within its overall strategy.

It is to note that adopting methods that enable knowledge of the problem before it occurs with regard to cases of damage to electronic devices of long use and the availability of so-called systems that are able to repair themselves and consider them a viable project and not just ideas. Further, the education of the employees and progressing in creating a new generation of

employees that accepts innovation in the methods used to manage human resources in the sense of generalizing ideas that we consider electronic management for all workers at all levels.

It is also suggested to include the training programs to change women's perception of ICT instead of being satisfied with the routine aspect of various job jobs. Moreover, paying attention to the system of barriers between levels of administrative personnel because of its psychological impact on supporting capabilities and raising the level of performance of human resources. The planning training programs that are in line with employees' working conditions. In addition to making sure that it is sufficient and of an advanced level to reach its desired goals. It is also attracting and enlisting the help of experts in the field of ICT to set up training sessions that would lead to confidence in the psychology of workers.

It can be said that every idea presented to us must be researched and studied in a serious and in-depth manner. Perhaps the surface treatment at times and the scarcity of intensive scientific research and studies dealing with ICT and the performance of human resources at other times makes us always in need of more studies and research to test the effectiveness of technologies at all levels and all departments at the national level.

5.1 LIMITATIONS

The study has few limitations such as the limited resources (time limit and scope of the study). It limits the study to only one organization, however, the survey from multiple organization may provide better understanding and generalizability. It is to note that the diverse sample represent the organizational climate and produce varied insights. Second, the study has not used any moderator or mediator to explore the relationship between the variables. For instance, the age of the company can be a moderator that may have an impact on the relationship of ICTs and the performance of HR and organizational strategy. Furthermore, the training of the employees and the infrastructure of the organization may be used a moderator.

5.2 FUTURE RESEARCH DIRECTION

It is pertinent to mention that limitations of the study and results suggest some future research directions. First, a diverse sample size of from multiple organizations will produce unique insights—the sample can be taken from the same sector or industry. However, it is possible to take the sample from different sectors or industries to see the difference in the results. Moreover, a diverse sample can also provide basis for comparative analysis. Second, a sample that belongs to different roles and positions of the employees can also be an interesting

moderator. It is important because the usage of the ICTs in the organization varies on the basis of designation of the employees, therefore, there can a difference in the opinion of the sample. Last but not the least, the resources an organization have is significant since it is the major factor that help organizations to develop an ICT environment, thus, it is antecedent to ICTs and ultimately impact the organization strategy and the performance of the human resource.



6 REFERENCES

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