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KARABUK UNIVERSITY
SOCIAL SCIENCES INSTITUTE
DEPARTMENT OF BUSINESS ADMINISTRATION

**UTILIZATION OF INFORMATION TECHNOLOGY OF EMPLOYEE
EFFECT ON WORK PERFORMANCE : AN EVIDENCE FROM LIBYAN
YOUTH AND SPORTS MINISTRY**

THESIS MASTER'S PROGRAM

Prepared

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TABLE OF CONTENT

TABLE OF CONTENT	1
THESIS APPROVAL PAGE.....	4
DECLARATION	5
FOREWORD	6
ABSTRACT.....	7
ÖZ (in Turkish).....	8
ARCHIVE RECORD INFORMATION	9
ARŞİV KAYIT BİLGİLERİ (in Turkish).....	10
SUBJECT OF THE RESEARCH	11
PURPOSE AND IMPORTANCE OF THE RESEARCH	11
METHOD OF THE RESEARCH.....	12
RESEARCH PROBLEM.....	12
SCOPE AND LIMITATIONS.....	13
CHAPTER ONE: BASICS OF INFORMATION TECHNOLOGY	
1.1 Information Technology Era	15
1.1.1 The Concept of Information Era and Its Characteristics.....	15
1.1.2 Characteristics and Features of Information Era	15
1.1.3 Challenges of Information Era.....	17
1.2 Information Society	21
1.2.1 The Concept of Information Society.....	22
1.2.2 The Characteristics of the Information Society.....	23
1.3 Information Technology.....	25
1.3.1 The Concept of Information Technology	25
1.3.2 The Role and Characteristics of Information and Communication Technology	30
1.3.3 The Functions of Information Technology.....	32
1.3.4 Applications of Information Technology.....	34
1.3.5 The Infrastructure of Information Technology.....	36
1.3.6 The Challenges of Information Technology.....	39

1.4 Information Networks	41
1.4.1 The Characteristics of the Information Network	41
1.4.2 Types of Information Networks	41
1.4.3 Protection and Security of Data and Networks	45
1.5 Summary of the Chapter.....	49
CHAPTER TWO: PERFORMANCE OF EMPLOYEES	50
2.1 The Performance and Its Elements	51
2.2 Evaluating the Employees' Performance	54
2.3 The Importance, Goals and Use the Evaluation Results of the Employees' Performance	58
2.4 The Use of Performance Evaluation Results.....	60
2.5 The Standards and Management of Evaluating the Employees Performance	61
2.5.1 Evaluation Standards of Employees' Performance.....	61
2.5.2 Managing the Process of Evaluating the Employees Performance.....	62
2.5.3 The Effect of Information and Communication Technology on Increasing the Employees' Performance.....	73
2.6 Summary of the Chapter.....	74
CHAPTER THREE: RESULTS, CONCLUSION AND RECOMMENDATIONS	
3.1 Research Sample and Population.....	75
3.2 Research Tools and Data Collection	77
3.3 Analyze the Research Results	77
CONCLUSION	105
RECOMMENDATIONS	108
REFERENCES	109
LIST OF FIGURES.....	118
LIST OF TABLES.....	119
APENDIX A	121
QUESTIONNAIRE OF THE STUDY.....	121
APENDIX B	123
ABILITY ON USING THE INFORMATION TECHNOLOGY TOOLS.....	123
APENDIX C	124




EXPERIENCE ON USING THE INFORMATION TECHNOLOGY TOOLS	124
CURRICULUM VITAE	125



THESIS APPROVAL PAGE

To Karabuk University Directorate of Institute of Social Sciences

This thesis entitled " **Utilization of Information Technology of Employee Effect on Work Performance : An Evidence From Libyan Youth and Sports Ministry** " submitted by **Nassrdin ELWAHAYSHE** was examined and accepted/rejected by the Thesis Board unanimously/by majority as a MBA thesis.

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DECLARATION

I hereby declare that this submission is my own work and that, to the best of my knowledge and belief, it contains no material previously published or written by another person or material which has to a substantial extent been accepted for the award of any other degree or diploma at any university or other institute of higher learning, except where due acknowledgement has been made in the text.



Nassradin Moftah A.

ELWAHAYSHE

19\07\2018

“I declare that all the information within this thesis has been gathered and presented in accordance with academic regulations and ethical principles and I have according to the requirements of these regulations and principles cited all those which do not originate in this work as well”

Nassradin Moftah A. ELWAHAYSHE

FOREWORD

I would like to submit and express my sincere gratitude to my supervisor Prof. Dr. Süleyman Dündar. Also, I would like to submit this research to my father soul and to the dearest human in the life who is my mother and to my supporter and to all of my friends in my alienation who were special friends and sisters.



ABSTRACT

One of the consequences of technological development and the transition to the global economic system is that electronic systems, which have become a feature of this age, become widespread throughout economic, social, cultural and institutional fields according to the active role played by technology. Rather than generalizing the use of electronic systems, it is of utmost importance for all institutions to use locally to gain added value by increasing the overall economic performance and, in particular, the performance of human resources, by effectively using and directing information and communication technologies within the context of the greatest goals of quantitative strategy and economic growth has become a priority. The main purpose of this study is to examine the importance of information technology in our day and the effect of human resources on the business life of these technologies. For example, the influence of Libyan Youth and Sports employees on the use of information technology and business performance in working life has been examined.

As a result of the analysis of the data obtained by the questionnaire survey on the use of information technology techniques, the ability of the workers of Libyan Youth and Sports Ministry to use the information technology tools is found to be at a good level. Therefore, a chi-square analysis and a regression analysis are performed to investigate the effect of each information technology technique on the performance of the study. It is determined that the ability of employees to use information technologies is a positive influence on their performance. As the level of employees' ability to use information technology techniques increases, business performances also increase. There is a strong positive correlation between the ability to use information technology techniques and business performance.

Keywords: Information and Communication Technology, Human Resource Management, Performance Evaluation and Information Technology.

ÖZ (in Turkish)

Teknolojik gelişim ve küresel ekonomik sisteme geçişin sonuçlarından birisi de teknolojinin oynadığı etkin role göre bu çağın özelliği haline gelen elektronik sistemlerin ekonomik, sosyal, kültürel ve kurumsal alanların tümünde yaygınlaşmasıdır. Elektronik sistemlerin kullanımını genelleştirmek yerine, özellikle nicel strateji bakımından en büyük hedefler içerisinde ve ekonomik büyüme çerçevesinde bilgi ve iletişim teknolojilerinin etkili bir şekilde kullanılması ve yönlendirilmesi ile genel ekonomik performansı ve özellikle de insan kaynakları performansını arttırarak katma değeri kuruma kazandıracak yerel şekilde kullanmak bütün kurumlar için bir öncelik haline gelmiştir. Bu çalışmanın temel amacı, çağımızda bilişim teknolojisinin önemini bu teknolojileri kullanabilen insan kaynaklarının çalışma hayatında işlerine etkisini incelemektir. Örnek olarak, Libya Gençlik ve Spor Bakanlığı çalışanlarının bilgi teknolojilerini kullanabilme ve çalışma hayatında iş performanslarına etkisi incelenmiştir.

Bilişim teknolojileri tekniklerinin kullanımı ile ilgili yapılan anket çalışmasıyla elde edilen verilerin analizi sonucunda, Libya Gençlik ve Spor Bakanlığı'nda çalışanların bilişim teknoloji araçlarını kullanabilme yeteneklerinin iyi düzeyde olduğu görülmüştür. Bu nedenle, her bir bilişim teknolojisi tekniğinin çalışma performansına etkisini incelemek amacıyla ki kare analizi ve regresyon analizi yapılmıştır. Çalışanların bilişim teknolojilerini kullanabilme yeteneklerinin onların çalışma performanslarına pozitif etkisi olduğu belirlenmiştir. Çalışanların, bilişim teknolojisi tekniklerini kullanabilme düzeyi arttıkça iş performansları da artmaktadır. Bilişim teknolojisi tekniklerini kullanabilme ile iş performansı arasında güçlü pozitif bir korelasyon vardır.

Anahtar Kelimeler: Bilgi ve İletişim Teknolojisi, İnsan Kaynakları Yönetimi, Performans Değerlendirme ve Bilgi Teknolojisi

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ARŞİV KAYIT BİLGİLERİ (in Turkish)

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SUBJECT OF THE RESEARCH

Our study deals with the utilization of information technology of employee effect on work performance where the tools of information technology which are used in most information technology sectors will be described. The employees must be familiarized with these technologies in terms of use in order to achieve the goals of information and communication technology. The research will include a questionnaire which will be distributed on a wide sample of employees in order to know the benefit and ability of using these technologies in correct and useful way.

PURPOSE AND IMPORTANCE OF THE RESEARCH

The research importance and goals can be summarized by the following points:

1. The main purpose of this study is to to remove the ambiguity and clarify the visions towards the subject of information and communication technology and some common terms such as the information and communication and the information society where this field of study is considered one of the most important issues which must be taken into consideration for any organization aims to guarantee its survive in today's competition.
2. Refer to the current situation and provide an image about it and how the information technology is affected us and everything around us.
3. Provide a vision about the nature of the human resource in the information era and what are the requirements which must be provided at this resource to the success in the information era.
4. Give an image about the reality of using the information technology in the Libyan ministeries and organizations and how they effected the employee work at these organizations.
5. Give recommendations about the extent of applying the information technology at the Libyan Ministry of Youth and Sport and the suitable recommendation to promote the level of its application and get benefit from its features.

METHOD OF THE RESEARCH

This study depended on the descriptive analytical curriculum as it is the most suitable curriculum to this type of studies which is based on collecting and display the scientific material by the use of different analytical tools in order to be able to cover all of the subject sides. The main tools which have been used at this study including the use of many researches, studies, including the Arabic and foreign resources in addition to the reports and different documents which include information associate with this topic. As well as, we depended on the applied curriculum in the preparation of the study by collecting the data from the study sample by using questionnaire in order to accomplish the field study. We used two statistical measures in order to analyze the questionnaire of our study where the first one is the Chi square measure to know the relationship between the ability of using specific technique and its usefulness in their job. The second measure is the Regression Analysis to evaluate the relationship between the dependent variable (the ability on using the information technology techniques) and the independent variable (the usefulness of those techniques in the job).

RESEARCH PROBLEM

There are many directions in the administrative units which promote the need into the necessity of finding a system for information including the direction to increase the specialists, divide the work, the emergence of new styles in the decision making, the direction towards applying the decentralization in the management and the emergence of the globalization and transform towards the economic services. However, if we checked most of our institutions, we can find that a manager does not use the computer in analyzing the administrative problems which they face but they use the computer to perform their routine job such as printing, save files and documents. Therefore, it became representing one of the main challenges which face the companies that require the necessity to exploit the styles and modern technologies not only to achieve the competitiveness advantage only but to preserve its survival, continuous and enhancement to perform the administrative operations in the organizations.

SCOPE AND LIMITATIONS

Our study will focus on the effect of information technology on the performance of employees of the Libyan Youth and Sport Ministry and thus we will not discuss the impact on the employees of another institutions where we will focus in collecting the data by the questionnaire which will be distributed on a large sample of these employees at that institution.



CHAPTER ONE: BASICS OF INFORMATION TECHNOLOGY

Information technology can be defined as the science of entering the electronic machines in order to construct developed computer systems to manage the human and physical resources better. In the last years, the world economy passed by substantial changes because of the rapid development of this technology especially that the dynamics of developing the information and its products and the opportunities of business development are based exactly on the use of information technology and internet. This enabled the growth of the role and importance to use the Information and Communication Technology (ICT) in the business process and management in the new economic circumstances or the digital economy. In most cases, the computing technology is looking as it is considered a system that consist of people, hardware and software to collect the information, organize, analyze, evaluate and distribute in the suitable time to take decisions. Moreover, it is organized computing system that enable to collect, bring and process data from different resources to provide the necessary information and manage the decision making (Hicks, 2003: 25).

Information and Communication Technology which is known as ICT became the main tool in the modern commercial activities in the world (Dimovski and Škerlavaj, 2004: 636). The main contribution of information and communication technology has focused in the last decade on the management processes especially in the organizational commercial processes. As well as, the information and communication technology has gained high importance when the matter is associated with the success and effectivity of the commercial business that help the business processes in the following fields (Berisha, 2015: 2-3):

- Information technology effects positively on decreasing the cost of management because its application optimize the quality of management;
- The growth of incomes is facilitated through the communication between the managers by providing the time and quality of communication inside the institution;

- Through the institution information and internal networks, the distribution between workers and managers in the suitable time and same time effect the growth of their knowledge;
- Information technology works on decreasing the workers in the professions which do not require the knowledge;
- Information technology increases the demands on workers in the field of knowledge;
- The use of information technology effects the growth of incomes.

From this presentation, it became clear that information technology and ICT has a great influence on reducing costs and increasing the quality of management of business processes.

1.1 Information Technology Era

1.1.1 The Concept of Information Era and Its Characteristics

The information era is considered the latest evolution of mankind and it is starting from the beginning of the second half of the twentieth century where everybody depend on the information development in basic way by the well exploiting of information technology and the provided opportunities to gain and exploit the information to generate the energy. The information era is an era for informative society where the earth and the capital are not anymore the strength of the society like the previous eras (industrial and agricultural) but the information became the strength of the modern society (Fathy, 2000: 34-46).

1.1.2 Characteristics and Features of Information Era

- **Characteristics of Information Era:** The information era differs from the previous eras as it depends on expanding the services of the infrastructure in basic way on the information system with advanced technology and one of the most important characteristics which characterize by the information era can be summarized in the following points (Otaibi, 2010: 6-8):
 - a) **Explosion of Information:** The produced information in the modern era is considered more important than what has been produced in all of the human

history and the information is increased with high averages according to the modern developments and the emergence of new specialists, the interference of human knowledges and the growth of produced and consumed powers. It is noticed that the information balance does not decrease but it is accumulated configuring the phenomenon of the information explosion.

- b) **Increase the Importance of Information:** There is not any activity which face the human without entrance of information where it became emerged in all of the activities and fields as it represents the material for new sectors of the society and its elements which configuring the information industry or knowledge industry. It became looked as a basic resource which can be sold and purchased as the case in electronic database or the reports.
- c) **Technological Innovations:** The emergence of the technological innovations in processing the information is included the modern development in information technology such as the photograph images, video, radio and television where they were the available means to store, send and display the information but there are more developed means have been added represented by the computers which differ in their diversity of main functions by the transformation of information, store and display.
- d) **Increase the Societies and Organizations Which Completely Depend on the Information:** The emergence of organizations which completely depend on the information became a phenomenon which characterize the modern society and the examples which can be explained of these organizations represented in the newspapers organizations, news agencies, receptions, banks, insurance companies and others.
- e) **Human Resource Systems:** The emergence of human information processing systems which depend on both human and machine depending that each one of them is considered information processor.
- **Features of Information Era:** The information era includes many features which makes it differs from the previous eras and these features including the follow (Al-Salimy, 2001: 53):

- a) The control of information on different fields on the life and the emergence of information industry as it is considered the basic pillar in the economy construction.
- b) The emergence of services as they are considered the most important part in the economic activity.
- c) The emergence of intellectual activities according to their clear effect on the business organizations.
- d) Increase the quantities of information in configuring the goods and services.
- e) The extensive investment to the computers and communication technologies.
- f) The rapid growth in the software programs.
- g) The high and rapid production of information and associate their production with the users in local, regional and global networks.

1.1.3 Challenges of Information Era

The organizations in the information era face many challenges which must be dealt firmly and it may include on local or international variables or both which may be illustrated in three groups.

1.1.3.1 Economic Challenges

These challenges are represented in everything which associate with the economic environment whether it is local or foreign including:

- ❖ **Money:** It is considered the main source of challenges that face the information technology. In fact, there are many system life cycles are appeared because the information technology projects are always exceed the budget. Within this context, money has two sides in the project including the expenses and incomes. In order to make the projects achieve incomes, there must be extended costs whether in terms of time or human force (effort and operation cost) that translate at the end into money. Thus, there are main three challenges follow from this resource of challenges which are the budget, expense legislations and price of expending currencies. Moreover, the issue associate with project may be attributed to the budget and wrong calculations in the project time, the efforts necessary or the promises provided by the sealing management (Millett, 1996:

214-222). Nevertheless, in terms of the project time, for example, if it is ten months, it is not necessary that completion of the project may require ten months. At this context, there are many reasons which cause the delay and there must be emergency plan insert in its correct position (Cadle and Yeate, 2004: 251). Furthermore, in terms of approximating the required effort of the project, there are many justifications must be determined despite of the main reason behind the human mistake and wrong technical approximation. For instance, what the programmer X can do in 19 hours while the programmer Y may take 25 workhours. Consequently, suggestion of the expenditure rules which may be attributed to the governmental routine especially when dealing with the governmental agencies which can be a challenging source to implement information technology projects. It must be mentioned that this feature is not included in the original approximation of the scheduled project time. The most important issue that this concept may be reflected that it is a delay, cost and unknown in terms of effort. Therefore, the adequate financing and financial independence are considered two basic issues in implementing the information technology projects (Plattner, 2004: 190).

- **Globalization:** It means the new market and especially for those who are economically well developed. This is the fact and information technology is considered one of the techniques which have been promoted by the new market at this world where the competition is increasing day by day. This basic argument content may be found in many other sectors whether inside the private or public sector. The globalization is raised a revolution in the internal management and also it is facilitated the interaction between the countries, regions and continents that contributed in achieving the profitability. It is the philosophy of the private sector which motivated the efforts in order to get benefits from all of the means including information technology to make the companies survive. In spite of that the globalization and information technology was widely acceptable as two sides in one currency but the researchers stated that there are three factors which intersect with the inevitable movement towards the globalization. Firstly, the increased power for specific technology is defective. Secondly, the failure of the technology imperialism to overcome on all of the barriers in reconciling between

all of the developed context or the application field. Technology is not neutral in terms of cultural side but it is developed in the cultural side and in terms of the rich countries of information, information technology applications holds this cultural context within its designs. The cultural developed technologies such as management and offices systems impose the user compliance to the culture design. However, this leads at the end to cultural clashes when applying the systems outside the design context (Sunarno, 2001: 63).

1.1.3.2 Human Challenges

These challenges include the following (Al-Wazzani, 2001: 187):

- **The Importance of Human Element:** The vision towards individuals have been changed in amazing way in the last decades from considering as a cost element to confiding them as the most important elements where without this element any goal cannot be achieved from the desired goals where the equipment, machines and devices and each of the technology means are just inert elements without the human element which means that the human element is considered a basic resource which has its talents and ability that make it characterize from the rest of the resources. The strength of the organization is measured by the type of its individuals. This is on the partial level while on the whole level, the human resources are looked as the development mean and its value where the human are the source of ideas and the main source to generate the added value.
- **The New Role of the Human Resources:** In spite of the difficulties which face the organizations in obtaining the necessary resources (moneys, developed technology and etc.) there are another difficulties which face them and these difficulties are represented in the formula of the workforce and increase their aspirations towards higher levels of wages and features and higher degree of participation in the decision making process.

1.1.3.3 Technological Challenges

This set can be tabulated by the following points:

- ❖ **The Technological Development:** The technological field has witnessed unprecedented developments starting from the ninetieth of the last century

especially in the field of information technology and electronics where this field is characterized by the following (Henridou, 1992: 62):

- a) The high speed in the technological developments.
- b) The product lifetime is so short.
- c) The competition is international and very strong on the level of prices which take to decrease when increasing the efficiency of these products.
- d) The suppliers of the raw and basic materials are very limited in the world.
- e) It has applications on all of the different sectors where there is not field of the life which has not used its applications.

It must be mentioned that the management and business field is considered one of the fields which has effected and clearly get benefit from the development which occurred at this field. Thus, it is compulsory on the business organizations to follow the technological developments as they became a source to achieve the competitiveness advantage where the concept of organizations with horse power is appeared which means the organizations able to fulfill the customers' needs speeder than the competitors and thus, they can be able to achieve the competitiveness advantage (Al Omar, 2008: 23).

❖ **Interest in the Information as a Basic Resource:** The information became plays a strategic role in the current era in all of the fields and activities (marketing, production, deposit, research and development) where the new form of the modern successful organizations are those which controlling this resource that allow to develop the continuous creativity and construct relationships which enforce the modern organizations to provide this resource to all of the organization members in what is known as the knowledge management. The most important challenge at this regard is the informative challenge where the modern organizations must be supplied by two types of cultures to deal with this strategic resource as follow (Ahmed, 2008: 54):

— **Computer Culture:** Which means to understand the computer terms and know the strength and weakness factors and some ability to use it especially for non-specialists.

- **Information Culture:** Which means to understand the use of information in each stage of the decision making stages and the places of getting them. It must be mentioned that the information culture is not necessity to depend on the computer culture. Also, it is not the computer but it wider and more comprehensive and important.
- ❖ **The Inevitability of Development:** The previous variables impose on the organization the continuous development and diversity in the modes, products, and investment in the new energies in order to guarantee the customer service and achieve the competitiveness advantage.

1.1.3.4 Environmental Challenges

The organizational environment is determined as it is less obvious factor and environmental factors which cannot be controlled such as the organizational environment, change, behavior, unsuitable abilities, poor coordination and responsibilities distribution, competition on activities, system and unexpected resources (Ikavalko, 2002: 415-418). The other barriers which have less importance were the existed conflicts that lack the strategic commitments, the situation of the senior and middle management which include the interaction and direction of the executive institution or the lack of understanding towards the benefits (Wilson, 1989: 245-258).

1.2 Information Society

The terms of information society has been suggested in order to refer to the post industry society where the information plays a significant role. Also, it is the concept of information economy. Nevertheless, there is no general deal on one definition or on specific characteristics. During the last half century, there were many efforts in order to place the basic concepts of information society and in any direction. Many thinkers stated that the information society will be developed in many definitions which have been suggested over the years. There are five basic characteristics of the information society including technological, economic, sociological, spatial, and cultural characteristics where at the next section we will describe each of these characteristics briefly (Nath, 2009: 4).

1.2.1 The Concept of Information Society

The information society can be defined as all of the activities, resources and facilities associate with the information in the production, distribution, organization and investment and include the production of information and the research activities on their different curriculum. As well as, it includes the creative efforts and authorship which directed to serve the educational, cultural and implicational goals. Moreover, it is defined as (Gabry, 2003: 9):

- a) The transformation from industrial society into knowledge society where the information is the motivated power to the individual which control the society.
- b) The society where its individual are busy in producing information, collect, store, process or distribute them. As well as, the production of information configures the research activities based on their different fields in addition to the efforts and development and creative on their different levels. Moreover, it includes the creative efforts which directed to serve the cultural, educational and application goals.

In addition to what we stated above, there are others who see that the information society has been used as a sign for everything starting from the personal computing to the phone services until the distance learning and operating and the information network by all of its types and electronic business and others. Also, the information society has been defined as the society which depends basically on the information and communication network with computers which means that it depends on what is called “intellectual technique” which consists on new goods and services with the continuous increase in the informative workforce which base on maximizing the concern of thought, human brain with computers, communication and artificial intelligence while (Webster) defines the information society through five corners as follow (Schraff, 2005:10):

- a) **The Technological Definition:** It is the definition which focus on the technical discoveries and the association of each of the distant communication with the computers.
- b) **The Economic Definition:** It is the definition which focus on the role of information in the economy in general.

- c) **The Functional Definition:** It is the definition which refers to the functions and modern activities which are based on the intellectual and informative activities.
- d) **The Spatial or Network Definition:** It is the definition which is focusing on the places by developing the networks.
- e) **The Cultural Definition:** It focuses on the extent of the media and communication effect on the daily life.

From the previous results, it can be looked to the information society as that society where its activities depend basically on information by deploying the information technology, process and broadcast into the society elements in order to get benefit to solve their problems and perform their simple and complicated business. So, the information society is a society which is based on information technology which represent its infrastructure and the information represents its resources and the communication represents its main activity.

1.2.2 The Characteristics of the Information Society

Through the previous definitions, it is clear that the information society is basically depends on the available information as it is considered investment resource, strategic good and provided service and a field to the human resources. Also, it depends on its development on the information, computers, and communication networks which means to depend on the intellectual technology which include goods and services and the most important characteristics which distinguish it from the other societies as follow (Fathy, 2000: 20-21):

- The centralization of the workforce and the economic activities at this society in the informative activities by focusing on the intellectual and knowledge efforts where at some developed countries it reaches into more than 50% from the summation of the workforce in the traditional economic fields where the educational sector in the information society represents the greatest percentage in addition to the researches sectors which it works with characteristics that differ from the previous societies.
- The emergence of the information sector as an important sector form the economic sectors where the production of information, prepare and distribute

became a main economic activity in many countries in the world where in all of the information societies we find that the information sector is rapidly grow.

- Considering the information as an economic resource where its importance is not less than the other resources and it must be interested where the organizations work on exploiting the information and increase its efficiency and develop the renew and innovation by enhancing the type of provided goods and services.
- The highly use of information between the public community where the people use the information in extensive manner in their activities as consumers and they use the information to particle their rights and responsibilities in addition to create the information systems to expand the availability of the education and culture to all of the society individuals.

1.2.3 The Information and Information Technology Sector

The information technology sector offers services and products that support the effective operation for the today world which is based on information. It is considered an integral part of the operations and services that provided by the infrastructure of other vital sectors. Information technology sector consists of small and medium companies in addition to the multinational large companies. It is different from other vital infrastructure which consist of limited physical assets and can be determined easily, information technology sector is a sector which depended mainly on functions and it does not include the psychical assets only but it also include virtual networks and systems that facilitate the main abilities and services in each of the private and public sector. The function of information technology sector includes a set of operations that consists the creation of products and information technology services. As well as, it supports the ability of the sector to produce and provide products, services and high practices that characterize by the flexibility towards the threat and can be retrieved quickly. So, the guarantee is a basic issue to achieve the vision of the sector. Therefore, it is basic side for all of the vital functions and these functions are not restricted on the geographical or political borders which increase the ability of determining its distributed and virtual nature. This distribution highlights the increased need to the international collaboration and organize for the

activities of risks evaluation, effective security practices and design and implement the security programs (Miller, Ozment, Durkovich, 2016: 2).

1.3 Information Technology

The large and rapid development in the information and communication technology has effected in all of the economic, social and political fields. As well as, it is contributed to shortcut the distances and time, increase the communication speed and the freedom of information flow without restrictions or barriers and the information at this era became a marketing good and a basic resource in the economic, social, administrative, political, scientific and cultural development which produced high growth in the societies which depend on the information and it is transformed into industrial societies and the information became the raw materials for most of the societies. The information technology as other modern terms have not witnessed by a unified definition where the researchers differed about the determination of its concept according to the vision of each one of them about it. As well as, it is characterized by unique characteristics which allow to occupy the forefront at the current era (Al-Daoui, 2008: 17).

1.3.1 The Concept of Information Technology

Before describing the concept of information technology, we must define the two terms of the technology and information:

❖ **Technology:** The origin of technology terms is an old a Greek word which derived from two word which are (techno) and means the skill and the word (logy) and means the science and study. In general, it means organize the technical skills and the concept of technology is associated with the industries for a long time and there is not a unified definition which can be depended as a unique definition to the technology but it is diversified and differed including (Al-Daoui, 2008: 17):

- a) It is a set of knowledges and accumulated experience, tools, physical and organizational means which are used by the human in performing specific job or function in the fields of our new life to fulfill the physical needs both on the level of the individual or society.

- b) The technology seeks in general in order to change the raw materials into ready goods through the methods, modes, tools, equipment and everything associate with this transformation. As well as, the technology works on achieving economic goals by proving all of the practices, methods, modes, rules, scientific knowledge in order to facilitate the design of products, production procedures, develop the facilitation methods or the organization information system (Alain, 2002: 16).
- c) The summation of the machines, systems and control means, transfer the energy and information are created for the purpose of production, research and war.

Through the previous definitions, the technology can be defined as the process of transforming the raw materials by their different types into benefits and goals.

❖ **Data and Information:** These two terms can be illustrated as follow (Alain, 2002: 16):

- a) **Data:** The data is defined as a set of facts, messages, signs, opinions or directions. As well as, they are defined as a set of unorganized facts in the form of numbers, words and symbols which are not associated with each other which means that they have not real meaning in the behavior of the entity that receive them or abstracted facts which have not processed and they represent the raw materials.
- b) **Information:** The definitions which associate with information are varied and the most important definitions as facts and organized data which classify a situation or specific problem and some specialists define it as everything which hold knowledge and change our vision to things. Moreover, it is defined as data has been processed in order to achieve specific goal which lead to take the decision. From the results above, it is clear that the information is a set of organized data in some way with meaning which can get benefit. This means that the terms of information is associated with the terms of data and the difference between the information and data is clarified in Table 1.

Table 1: The Difference between the Information and Data

Data	Information
A set of signs and symbols which separated from each other and resulted from the process of notice and watch.	A set of relationships between the associated data with each other and resulted from the data operating.
The data is not beneficial to the decision maker in its raw form.	It consists of data with meaning and benefit for the decision maker
They can be collected by all of the means of data collection in random form from specific phenomenon	It can appear in many forms including tables and data structures.

Source: Alain, 2002: 16.

Moreover, in addition to the above results, the information includes another features which can be summarized and explained as follow (Alain, 2002: 16):

- **Timing:** They are the suitable information in time and available in the need time.
- **Clarity:** The information must be clear and free of ambiguous.
- **Accuracy:** It means that the information is free of collection and registration mistakes in order to be benefited in approximating the future like hoods and help the management in imagining the real situation.
- **Validity:** It means that the information is suitable, flexible or fit the beneficiary demand.
- **The quantitative measurement:** It means the quantities measure of formal information resulted from the information system.
- **Flexibility:** It means that the information is suitable and adopt with the desires of the beneficiaries.
- **Non-bias:** It means not to change the content of information which effect on the beneficiary or change the information in order to be compatible with the goals and desires of the beneficiaries.
- **Obtaining Possibilities:** It means the possibility of obtaining the information easily and rapidly which means that the information can be obtained easily.
- **Comprehensiveness:** It means that the information is comprehensive to all of the requirements and the beneficiaries' desires and it must be completed without extra preference's which make it loses its meaning.

- **Subject to Review:** It is relatively logical feature which associate with the agreement between the benefices in order to review the process of checking the same information.

The information can be in many types depending on many classifications. However, there are two important classifications as they are characterized by the generalization and all the types of information are included under them as follow (El Serafy. 2009: 297):

- **Formal Information:** It includes all the types of information which effect in the organization missions such as the governmental, legal and budget legislations and the internal organizational forms which means that these information which pass within the official frameworks and each shortage or shortcoming within this information refer to the lack of the information system of the organization.
- **Informal Information:** It includes all of the studies or the experts' opinions and the external information which help effectively on accomplishing the task and the functions of the organization and allow to achieve its goals. The source of this information may come from inside or outside of the organization where at some case it may be used as a basic mean in the case of lack of information from the organization.

Moreover, the information is also classified according to the management point of view and the classification can be summarized as follow (El Serafy. 2009: 297):

- **Accounting Information:** It is resource of the resources which are available inside the organization and reflect its activity according to what include of different financial data, financial lists and final accounts.
- **Administrational Information:** It is the information which necessary for the decision maker and it may take the form of reports and they are divided to the following forms:
 - **Strategic Information:** It is the information which associate with long-period of time and works on achieving the desired goals and the information is always associate with future and the variables which effect on the organization. This information helps the organization to adopt with its

environment such as the information about the competitiveness situation of the organization in the market, the decisions of the new product and expansion.

- **Functional Information:** It includes the information associate with operating the operations and daily duties of the organization such as monitoring the store and the production programs.

The information comes from different resources and in general there are two different types of resources as follow (El Serafy. 2009: 298):

- **Internal Resources:** It consists of persons such as supervisors and the head of departments and manager by their different levels inside the organization where the information is collected whether are depending on formal base according to the events which really occurred or based on informal way through the informal communications and discussions.
- **External Resources:** It is implemented through the continuous relationships of the organization with its surrounding environment and they are different resources including general, special, national and international resources.
- ❖ **Information Technology:** The information technology can be defined as the use of modern technology in order to perform the process of storing and retrieving data whether in the form of digital, text or voice data. The information technology can be defined as the devices, equipment and styles used by the human and can be used in the future in obtaining the digital and voice data and also process this information in terms of its registration, organize, order, store, retrieve, display, copy or reach in the suitable time for its desires and includes the store, retrieve and communication ethology. Furthermore, the information technology includes all the types of technology which are used in operating, transfer and store the information in electronic form and it includes the computer technology, communication means, Networks, fax and others which are used in the communication process (Ebert, Griffin, 2007: 398). Also, the information technology can be defined as a set of elements and abilities which are used in the data and information collection, store and distribute by the use of computer technology with high speed and efficient to form beneficial thing which help on the development of the societies. In accurate and wide form, the information

technology is the mating and bonding between the developed computers technology and the different communication technology which through great quantity of information are sent with high speed in spite of the time and place reaching to the information networks (Mustafa, 2007: 327).

Through the previous definitions we can conclude the following:

- Information technology is a field of the technology fields which interest in information processing.
- Focus of the polarization operations, store, process and the communication process.

Therefore, it can be said that the information technology is a set of tools and equipment which allow to receive the data and information, store and process and then retrieve by the use of multiple software and then reach across the communication devices into any place or received in any location and retrieve at any time without barriers and restrictions.

1.3.2 The Role and Characteristics of Information and Communication Technology

Information and Communication Technology (ICT) has been defined by various scholars from different perspectives. Mueen, Asadullah, Raed and Jamshed (2013) defined ICT to include electronic network-embodying complex hardware and software-linked by a vast array of technical protocol (Mueen, Asadullah, Raed and Jamshed, 2013: 200-207). Ufuophu and Agobami, (2012) observe that the ICTs include internet, satellite, cable data transmission and computer assisted equipment. ICT, however are facilities, tools or resources that could be used to process, store, preserve, access, retrieve and disseminate information with ease. It could be seen as the engine for growth and tool for empowerment, with profound implications for education, change and socio-economic development (Ufuophu and Agobami, 2012: 13-14). The role of the information and communication technology lies in the following points:

- **Organisation of Information:** The officials of the organization need to obtain basic information about the students and flows of lecturers for

instance, the classification of data for employees according to gender, level, the origin status, the performance etc. This data can be organized and saved by the use of different tools or software including Microsoft Access and Excel in order to organize the data in a form that facilitate the accessibility, store and retrieve easily from the small computer.

- **Computation and Processing of Paper Work:** Information and Communication Technology (ICT) is used different maps to draw the activities of the academic workshops such as the number of teaching weeks, perform the continuous evaluation tests and others. The supervisors inside the institution can use Microsoft Access, Excel or other simple applications in order to collect the registers of events, preserve them, promote the events in the institution and issue logos for the employees meetings and other activities.
- **Enhancement of Effective Communication:** Through the installation of the computer and internal communications, it became easy on the official in the institution to use the services of phone, fax and other communications tools in order to change the thoughts and exchange the information, transfer and receive messages and understand within dependent relationships across the international borders.
- **Enhancement of Planning:** The manager of the institution can use the information and communication technology in order to plan and take decisions based on the accurate and easy facts. As well as, it is possible to use the information and communication technology in order to planning the total expenses budgets and plans to substitute each of the equipment and or institutional facilities.
- **Improvement of Monitoring:** The users in the institutions can use the small computers in monitoring different fields in the institutional system such as the use of continuous monitoring and evaluate the learning of students and their accomplishment in the institution (Liverpool and Jacinta, 2013: 1380-1384).
- **Managed Instruction:** This is an approach through the officials in the institution in order to use the computer in scheduling the workshops, subjects, space, installation and employees monitoring, record the attendance and

reports and retrieve the employees' information. This allow the demographic generation of data and produce results on the internet and insert workshops and registering across the internet (Liverpool and Jacinta, 2013: 1380-1384).

Information and communication technology consists of a set of characteristics which enable them to enjoy with high and increased abilities and effects in different fields and the most important of these characteristics as follow (Gates, 1999: 113):

- **Access to Information is Independent of Time and Place:** It is available when it is needed. Also, the accumulated store of associated information is available all of the time and not only when it is needed.
- **Information can be Constantly Updated at Little Extra Cost:** Therefore, tendencies to misinformation because of obsolescence of information are alleviated.
- **Information Flows Can Easily be individualized:** By the use of hypertext markup on the web, the consumers can use that part only and load the comprehensive information which suite to them. This leads to the contradicted concept for the singular communication.
- **Information can be Interactive without Capacity Constraints:** Customers can ask questions and obtain adapted computer-mediated answers. Information and Communication Technology offers effective channels for after-sales interaction. Seller supports at the consumption period can be of conclusive significance for the full product qualities use.

1.3.3 The Functions of Information Technology

From the results above, it is confirmed that the information technology helps on providing the required information to the beneficiary in accurate and suitable time and the most important functions of information technology is as follow (Hussein, 2006: 39-44):

- **Obtain the Data:** This can be achieved through the store of information to be dealt with later.

- **Processing:** It is the process of transforming the shapes of information and data and analyze them according to their association with the computer and the processes includes many operations as follow:
 - a) **Data Processing:** The data include symbols, raw numbers, messages and other and transform them into beneficial information.
 - b) **Information Processing:** It is the process of transforming the information into different shapes with more details, diversity and accuracy and it will be final information which is clear and targeted.
 - c) **Text Processing:** It means to formulate a document texts such as reports and news and the text processing systems work to help in entering the data and texts and display them in attractive way.
 - d) **Voice Processing:** It means the process of light information where these processors are witnessed a great development which allow the individuals to talk directly into the computer system in order to direct him and implement specific procedures.
 - e) **Image Processing:** It means the process of transforming the information into shapes which can be managed or transformed between the individuals and other computers.
- **Create and Generate Information:** The information technology is always uses to create the information through the processing and create the information means to process the data and organize the information in useful form whether in the form of numbers, texts, or voices and sometimes it regenerates the information in original form and in another times, it is transformed in new form.
- **Store the Information and Data:** Through the process of storing the information and data, the computers or other devices save the information in order to be used in another time. The stored information and data is placed in storing media such as Magnetic disks and CD-ROMs which can be read by the computer when needed and the commuter will change the information and data into a form which take smaller size than the original resource. For example, the voice information does not store in the form of voices as we know but in the form of code which take smaller size and can be used by the computer.

- **Retraining:** It means to place and copy the information and data for the purpose of future processing or to be transferred into another user and thus, the computer user must save the titles of the media which stored as information and make them ready to be retrieved and processed (Hussein, 2006: 39-44).
- **Transfer:** The transfer of information from one location to another for example, the mobile phone or the computer which connect to the internet send the discussion and information from one location to another and this is done by depending on different media such as the satellite, fiber optic and etc.

1.3.4 Applications of Information Technology

Every day the people use the computer devices in different ways where the computers and other electronic devices became increasingly accessible. They stills more powerful as tools to process the information and also easy to be used. People increasingly depend on devices which support information technology in order to perform simple tasks such as remaining the phone number to complex phone. Information technology has applications in all of our life sides and the most important of these applications as follow (Vivek, 2009: 2-3):

- **Science and Engineering:** The technological development in many fields such as the vital fields is highly depending on the use of computer and other devices which can be controlled by the use microprocessors. Through the use of computers, meteorologists can predict the weather status in the future by using a mix of weather notes from many resources including the geographical information. Computer-aided design (CAD) and computer-aided manufacturing (CAM) programs have led to enhance products in different fields, especially where designs tend to be very detailed. Computer programs allow the engineers to analyze designs of complex structures including power plants and space stations.
- **Business and Commerce:** One of the greatest applications of computers is to keep and manage the commercial and financial records where most of the large companies keep the records of their employees in huge databases that managed by computer programs. Similar database programs are used in the work functions such as billing workers, following the received payments and payments

which must be conducted, following the necessary flows and elements that produced, stored, billed and sold. In fact, from the practical side, all of the companies need information in order to perform their commercial business and according to that they use computer devices and information technology. Approximately, all of the financial transactions in the world are implemented electronically. The modern techniques such as the commerce through the internet allowed approximately each person to implement routine financial transactions during the transportation and travel. As well as, the information technology enters in the economic and financial sector in general where they have huge roles at this area and the use of information technology at this field can be summerized in Table 2.

Table 2: The use of information technology in the financial and economic sector

The Applications of Information Technology	Goals
Automating the banks job	Enhance the service, adjust the accounts and support the financial control on the banks
Transfer the money electronically	Service speed and decrease the paper work in the operations of the banks
Establish the economic models	Analyze the economic systems performance and evaluate the strategies
Management the investments	Maximize the investment incomes and analyze the risks
Information systems of the financial securities market	Sending the information immediately to the dealers, extract the statistics of the time series to change the prices of shares and the other economic indicators.
The design by the help of the computer	The modification speed and the diversity of the deign experiments and save the effort which follow the design by the establishment of the automatic system by determining the list of the contents and the related materials.

Source: Hussein, 2006: 39-44.

- **Education:** The emergence of information technology has changed the term of “reading and writing”. The acquisition of computer knowledge has gained importance as the importance of reading and writing where teaching the computers became one of the basic courses in the basic level in most of the schools in the world. Obtaining more digital information every day by using the

internet allowed the information to be available to each persons in easy ways. Students increasingly depend on the electronic sources of information instead of the effective libraries in order to fulfill their needs. Also, the educational system is subject to many change by using images, videos, presentations and electronic learning to accomplish the traditional techniques. The application of the information technology in the field of education can be summarized in Table 3.

Table 3: The application of information technology in the field of education

The applications of information technology	Goals
Software to help the education and learning	Increase the teacher and student productivity in facing the inflammation of the educational material and its complexity
Educational information systems	Formulate and place the educational policies and planning and the research efforts and theorizing the field of education

Source: Hussein, 2006: 39-44.

- Governance:** The concept of electronic government is considered one of the most modern applications for information technology where it changes the life of millions people around the world. Computing the governmental activities facilitates the supervision and revision. Also, it makes the management more responding for the needs of the society. As well as, it is bridging the gap between the government and people. The techniques similar to touch screens help on distributing information about lands records, identity cards, bills and other. It even helps the illiterate to take good decisions.

1.3.5 The Infrastructure of Information Technology

We simply mention that any computer which is connecting to the internet can be represented in a set of information technology but the matter is not always at that easy and this will be clarified through displaying different components of information technology. The infrastructure of information Technogym can be summarized as follow (Kandilji, 2007: 32):

- ❖ **Data:** Data is the base to construct the concept which without the other foundations cannot be started.

❖ **Hardware and Devices:** The hardware are the tools which save, store and process the first foundation (data) and extract the required information to manufacturing the decisions and perform the business as required. According to the characteristics and high speed which enjoy by the hardware and technical capabilities which are higher than the abilities of the human and the devices related to the information technology are always mean the types of computers.

The computer can be defined as an electronic device which is designed to receive the high amounts of data in automatic way, store and process and then the ability to transform them into useful information and results which can be used according to the need and demand according to the commands and instructions which are called the operating programs. As well as, it is defined as a device which is able to implement huge amount of commands and demands according to special instructions by the use or dependence on previously stored data. All of these definition confirm that the computer device (hardware) has not importance without the existing of data and programs.

❖ **Software:** The software represents the complemented part of the system which without them the hardware has not any value. The software is defined as a set of commands and instructions which prepared by the human that direct the hardware of the computer in order to perform some task or to work in specific way adoring to accurate instruction to get a required results in specific way, the software is divided into two main parts (Mustafa, 2007: 365):

- **Operating Software:** It is representing the untouched environment which make the computer and its components effective tools to implement the commands and perform different applications and the most common software which work currently is the Windows which connected and became famous after the emergence of the micro-computers and these software are integral part in the computers where we cannot say any name on any computer without the existing of this type of software and there are operating software which belong to each type of the computers where the operating system programs are developed according to the speciation which determined by the manufacturing company of the computers and provided with these equipment to achieve the optimal use to the components of the computer system.

- **Application Programs:** They include the programs which operate in the software environment mentioned above and they are a set of commands and instructions to implement specific task and in specific specialist or subject related to the agriculture, management, science, engineering and medicine. Moreover, there are another type of software which characterize by the ease of use and no need into technological experiences with high skills because they contain on guides associate to this software in electronic or paper way which facilitate the beneficiary to use them by following guides step by step and it is also known as the friend programs which decreased the dependence on the programmers and specialists which helped on the distribution of software technology and deal with them between all the cultural and intellectual levels of the computer users. So, the organization became directing towards the dependence on the software packages in order to avoid many problems and obstacles which associated with some systems and the most important characteristics to the on-shelf software are as follow (Mustafa, 2007: 365):
 - **Documentation:** These software are documented and supported with guides for operating and thus it decreases the dependence on the programmers.
 - **Provide the Time and Software Cost:** Most of the software are known and depended and this they do not provide only the time but also the cost on the programmers.
 - ❖ **Communication Technology:** The computer is developed during the time and it became able to communities from one country to another and from one continent to another and the communications and data transformation became implemented between the computers and mobiles is done through the satellite with high speed and which means the ease of data sending (Astitia, 2006: 43).
- **Remote Communication:** The communication word is taken from the Latin origin (Communis) which means (Common) as the individual when communicate with another he will target to reach into general agreement or intellectual unit in the communication. Moreover, this word has different concepts and multi guides where it means the transport of thoughts, information, skill and directions. As well as, it is defined as the process of

transferring the information and knowledges and exchange them from the sender (information resources) to the receiver or the set of receiver (receivers) by the use of the available technologies. The communication system aims to transfer the information electronically across far distances and it consists of sender which prepare the information and transfer to the medium which can be wire or wireless where it transfers the information to the receiver and receives the sign, analyze and display according to the type of the signal). The organizations and sites seek to deal with type of information and transport them across far or medium distances in order to ensure to what is called basic infrastructure for communication which is known as all of the means and technological facilitation, legislations and rules which describe and facilities the use of different communication means in order to ensure the exchange and transfer of the information on the national, local and regional levels.

- **Wire and Wireless Communications:** It is possible to determine two basic types of the used communication means which are the wire and wireless communication (Astitia, 2006: 43).
- ❖ **Human Resources:** The previous components cannot achieve its goals without the human element and approximately most of the specialist agree at this field on the importance of human element in managing and operating the information technology which exceed the importance of the hardware at this field and it is the reason of most of the failure reasons. They can be classified as follow (Abdel Hassine, 2005: 141):
 - a) **Specialists:** They include the analyzers and system designers, the specialists of devices operators, employees' users, maintenance, specialists in the information technology and they are called "the intellectual capital" in the system.
 - b) **Administrators:** They participate in the system administration and include the officials of databases, employees to the information systems as beneficiaries to the system products (accountants, sales men, engineers, managers and consumers).

1.3.6 The Challenges of Information Technology

The use of information technology in the organizations faces some challenges which can be summarized as follow (Taha, 2007: 114-116):

- ❖ **Information Architecture Challenges:** These challenges are represented in how the organization performs the development of the information architecture, support its goals, functions and activities where the process of creating new system to the organization is far from the process of installing new computer devices where the new system require procedures which clarify how to deal and distribute the terminal workstations on the departments and units and construction communication network between the stations and departments and how to organize between them (Taha, 2007: 114-116).
- ❖ **Globalization Challenges:** The globalization phenomenon led to the growth and interference of the relationships between the organizations in the world and in the highlight of the new competition, this requires to take into consideration the cultural differences to the different application environments when designing the information system.
- ❖ **The Disparity between The Abilities of Information Technology and the Abilities of the Organizations:** It is clear that the technical development is faster than the ability of the organization to accommodate and apply this development.
- ❖ **Organizational Resistance:** This challenge is represented in the resistance of the individuals for any update in the information system or develop any existing system where they resist a fear from the threat of their organizational positions or adjust their functional skills or reduce the degree of need for them (Taha, 2007: 114-116).
- ❖ **Accelerating Changes:** The feature of this era is the speed in change and the dynamic in the movement and the disappear of the time and spatial borders between the new and old and this range reflects on the factors of the external environment and the development in the information technology can be considered of the most important changes from the business systems as they are considered one of the most important elements in forming the general strategy of the organization which try to achieve competitiveness advantage (Al Omari, 2008: 21).

1.4 Information Networks

During the last years, Information networks are studied extensively starting from the exploration of society to classify the graphs. The optimal applications for information technology involve the mining on the internet and analyze the social networks and vital information. Most of the previous researches focus on the mixed networks that include one of the nodes and one type of links. For example, social networks with friendship links and websites pages. The last development in data collection, many realistic techniques face unmixed information networks that include many types of associated objects across multiple objects. These networks are a multi networks with multiple relationships (Sun et al., 2011: 1-2).

1.4.1 The Characteristics of the Information Networks

The information network includes many characteristics which can be summarized as follow (Shawky, 2003: 153):

1. Provide the equipment and software related to create and implement the networks in any country.
2. Decrease the costs of production and purchasing the network contents continuously.
3. Provide the specialists and technicians of the network installations.
4. Share all the network devices at the same printer, scanner or internet and others which means that it provides the complemented parties.
5. Control the entering and exit of information to and from the network which provide the security element.
6. The possibility of placing the information in one device on the network where all of the parties reach it and this decreases the copy of information from one computer to another.

1.4.2 Types of Information Networks

The organizations include three main networks which are used in the organizations and they may be provided by all or some according to the potential of each organization and these networks include internet, intranet and extranet.

1.4.2.1 Internet

One of the most beneficial discoveries of the computer network is the internet in our era but it is may be the greatest one where it is possible to anyone to use the internet without the need to code or computer devices especially the laptop in addition to the possibility of access from anyplace in the world (Boaisha, 2003: 3).

❖ **Its Concept and Development:** The internet is defined by many specialists as the network of networks while the others define it as a network for the high ways and it can be defined by Bob Northen and Katy Smith as “the internet is English word which is abstracted from the term “Interconnection of net work” and it is separated into two words or things “Net work” and it means network (Boaisha, 2003: 3). The internet network is millions of computers around the world which connected to each other with the possibility to send the electronic messages between each of them in addition to exchange the files, static and dynamic photos and voices.

❖ **The Services:** The internet services can be summarized as follow (Boaisha, 2003: 3):

— **E-Mail:** It is a system for electronic messaging which means to send and receive the electronic messages and to be used conditioning the existing of electronic email and address of the receiver email which through we can send images, programs and other media.

— **Internet Phone:** The phone program can be obtained and talk by installing the voice card and microphone in addition to its provision to image of the talker.

— **File Transfer Protocol:** This protocol provides a huge library of the computer files. In addition it supplies the transfer of files between the computer devices through the internet without the need to be sent by the traditional email or fax.

— **Newsgroup:** They are a set of the group discussions and general messages which send by the individuals into the network as a mean of publishing.

— **Tele Net:** It is a system which facilitates the entrance way to the computer which exist in some place in the internet which means the provision of

communication mean and also this program gives the possibility to enter to the information library.

- **Search and Research Service:** Most of the computers on the internet provide free service which allow you to ask about the information and this service is called the search service.
- **Study the Market and Effect on the Marketing:** The internet is contributed in increasing the number of customers of the organizations in addition to the suppliers and sellers and others and study the competitors' situation and study the prices and the competitors in the highlight of the modern markets and other types of the useful information.
- **The Open Conference Services:** This service is simply the ability to perform the conference remotely through the transfer of image and voice across the internet to all the members of the conference at the same time.

1.4.2.2 Intranet

It is internal network which provided by the organizations based on their different sizes and use the services of FTP and HTTP. This network is used the internet protocol such as internet and email which allow the entrance from outside of the organization and it is a mean of calling between the employees and the organization department to perform some business. Therefore, it can be said that the intranet is a local internet network and it is simply application for the techniques provided by the internet but through a network belong to the organization (Al Sayed, 2001: 49).

1.4.2.2.1 Types of Intranet Networks

The intranet network are divided in terms of the geographic extension into two types (Comer, 2000:20-21):

- **Local Network:** The scope of this type of networks is always small, typically it covers a single building or a cluster of buildings. As well as, it is usually owned by the same organization which preserves the communicating computers. The dissimilarity in the geographical scope of LANs lead to technologies which are different from other types of networks such as WANs. Conventionally, LANs make use of a broadcast network method in stead of switching network. With a

broadcast network, there are no middle switching nodes. Reasonably there is a network interface card (NIC) which directly connects every computer to the network (medium) shared by the other computers. A broadcast from any computer is broadcast to and received by all of the other computers.

- **Wide Area Network:** WAN networks are always cover large geographical area and they always cover multiple cities or continent. WAN consists of number of switching units which associate to each other and called the directional switches. The transmission is directed from any device across those internal nodes to the directional device. These exchange points are not associated with the data content. Instead, their goals to exchange and send data until reach into their destination.

1.4.2.3 Extranet

1.4.2.3.1 The Concept and Definition of Extranet Network

Extranets are viewed as business-to-business networks and can be defined in many different ways. For example, one definition (Archer, Gebauer, 2002: 22-50) says that an extranet is an intranet that allows controlled access by authenticated outside parties. Typically an extranet will link the intranets of distributed organizations for the purpose of conducting business. This secure electronic consortium usually consists of an enterprise and its key trading partners, customers, dealers, distributors, supplies, and contractors. In its basic form, an extranet is the interconnection of the two previously separate LANs or WANs with origins from different business entities (Pavlou and El Sawy, 2002: 1-21). Third definition (Eom, 2005: 123) says that an extranet enables integration of internal corporate networks with the internet creating a new network facility that connects many organizations with mature intranets.

1.4.2.3.2 Types of Extranet Network

The extranet network are divided into three types as follow (Bakhty, 2006: 23-25):

- **Supplier Extranet Networks:** These network connect the main goods with the sub-warehouses in order to facilitate the work procedures automatically to keep

static quantity of goods in the warehouses. Thus, it decreases the probability of refusing the demands because of the lack in the warehouse in addition to many other services associate with controlling the store.

- **Distribution Extranet Networks:** This networks gives the validities to the dealers based on their dealing size and provide them the electronic demand request and automatic settlement of accounts with the permanent supply of the new products lists and technological specifications and other services.
- **Competitiveness Extranet Network:** These network promote the competition in the industrial sectors where it gives the huge and small organizations equivalent opportunities in the field of sale and purchase by connecting the big and small companies in order to transfer with each other the accurate prices and technical specifications which increase the level of service at that sector and promote the quality of products and prevent the monopoly.

1.4.3 Protection and Security of Data and Networks

At the recent period, the interest is increased by the security of databases and networks and this belongs to increase the business and the continuous hackers which exposed by these entities and the attack operations on the networks and databases which are not random operations. They are implemented in accurate and organized ways in order to get financial benefits from these organizations or banks by manipulating their accounts and information. These hackers are always attack the protection system to the devices of these organizations in order to know the gaps in the security system to their systems in order to hacking them. The persons who implement the hacking operations and attacks these system can be summarized as follow (Brynton and Hunt, 2003: 25-29):

- The employees who work at these organizations.
- The consultant employees staff and the maintenance staff.
- Competitors.
- The individuals who want to revenge from the organization or one of its employees.

- The employees who have special point of view and thus who like the famous from amateur.

1.4.3.1 Requirements of Network Security

According to the role of the networks and to guarantee to perform their roles on the best way, the following goals must be responded (Brynton and Hunt, 2003: 25-29):

- **Presence:** It means the ability to provide the necessary facilities to operate the network and place it on the beneficiary benefit in all of the levels. Thus, it must be careful on the provision of information and not to disrupt them or delete them and the operating of the devices and non-disrupt them.
- **The Safety and Secrecy of the Information:** This can be implemented by protecting the process of information store and transfer across the network and this is represented in guaranteeing the lack of changing in the stored information in the computer devices or the transferred across the network without the authorized persons.
- **Verification of Identity:** This can be implemented on ensuring the identity of the parties who authorize by the exchange operations where each of the parties must know the other party in order to avoid the disruption process. There are many methods in order to ensure the identity of the parties who connect to the network such as requesting the password and electronic signature and other.
- **Validation:** It means the provision of the process of information exchange across the network and not to let gaps at the sender to deny the sending process and vice versa.

1.4.3.2 Procedures of Network and Information Security

The information and network security and protection is a set of procedures, programs and precautionary measures which must include all the factors of the information system inside the organizations which can be summarized as follow (Brynton and Hunt, 2003: 35-37):

- **Security Devices and Accessories:** It means the work on protecting the computers from the hacking and disruption process through the work on using

protected information systems and prevent the manipulation of these information. Also, it includes the work on developing the organizations abilities in the maintenance and preserve the safety of the devices and develop in order to terminate the gaps at these equipment and work on protect them and prevent the use of equipment of the organizations computers in illegal operations.

- **The Security of Programs and Databases:** The security of programs is considered an important part of the devices security by the use of the security systems in order to operate these devices and prevent its hacking and the manipulation in the existed software. The programs are protected by the use of the style to give the authorities to some of the operators and also checking the hard disks and CD-ROMs and ensure that they are free of viruses before using them in the system and the use of security keys. One of the most important procedures in order to keep on copies of these programs in order to avoid any accidents which may occur to the original copies in the system and work on placing protection systems to prevent the modifications in the databases and also the automatic copy according to authorized and limited validities and the time of their occurrence and who made these modifications.
- **The Individual Security:** The individual are considered the basic element to construct, maintain and operate the computer. Therefore, they must be placed with limited specifications in the information system and make the control of the individual behaviors who operate at these devices. As well as, the situation requires the accuracy in the operators and also change the work positions and non-monopoly of tasks on specific employees.
- **The Communication Security:** With the development of computers and the network inside and outside of the organizations in order to exchange the information and data between the institutions and beneficiaries, the information system activity is increased inside the organizations. These communications expose to a number of hacking and stole of information and manipulation. Usually, the networks are hacked by the following resources:
 - From the internal systems and the related sub-offices.
 - Enter through the local networks to the websites of the companies or the internet network.

- Enter through networks and the collection of the modem devices.
- From the cables and phone lines.

Therefore, the organizations resort to use programs in order to protect the network from the hackers and the use of warning devices which sensitive the attempts of hacking the computers and networks and also protect the cables and the data transfer lines and maintain them periodically.

- **The security of the Buildings and the Computers Location:** It means the use of physical control in order to protect the buildings from its contents of equipment and the computer resources and information centers from stole, fair and disruption and also from the natural dislikes such as the flood and the penetration of waters and the use of electricity systems to protect the equipment from the disruption and fair because of the difference of the intensity of current electric and the use of developed protection means and check the person and their identities and prevent the entrance of non-workers into the specialized rooms to the equipment of the central computer.
- **The Legal Protection:** The laws are considered of the basic foundations to prevent the persons which perform the hacking operations and most of the countries now work on issuing laws and penalties to prevent the computer crimes as they are considered international crimes where the United Nations is taken decision in 1990 where it motivated the countries on insert the necessary procedures to reduce the computer crimes and update the international laws as they are considered the legal legislations in the information protection and there are number of laws and legislations which must be issued at this issue as follow (Rowland, 2003: 311):
 - The intellectual protection laws in order to prevent and hacking of the programs.
 - The laws of the opened records which guarantee the opening of some records trot to the public.
 - Laws of preventing the disruption of the privacy.
 - Laws of information free which through, a request is submitted to the authorities to get the required information.

These laws and legislations are issued to prevent the dangerous which expose by the information system and its databases and networks which can be summarized as follow(Rowland, 2003: 311):

- **Viruses Attacks:** They include the programs which have been designed by some programmers and specialists and work on destroy the computer system and make high damages which may reach into complete damage to the system by the performing of these viruses to copy, disappear and attack in order to destroy the system.
- Hacking the information system and database by some persons.
- The expose of the equipment to the natural dislikes.
- The hacking and login to destroy and sabotage.
- Stole the equipment and devices.
- Hacking and stole the copyrights.
- The hacking in order to distribute thoughts and unauthorized materials such as materials and thoughts with religious danger and materials and thoughts with security dangerous.

1.5 Summary of the Chapter

Since the world has changed from and industrial society into information society, the information became occupying a basic role in different human activities without exception. Later, the life has changed in all of its sides from the dependence on the human workforce into the dependence on the intellectual workforce and this transformation led to change the life, work, management, commerce and communication and created many challenges. All of this is resulted from the emergence of information technology and its use in implementing all of the procedures in the society where the information technology represent the soil which through the information society is grown.

It is well known that the rapid and huge developments in the information and communication technology made its effective tools in the field of expanding the distribution of information and facilitate the access to the larger amount of persons and beneficiaries according to what is provided of facilities through the information networks because of the huge development which occurred in the communication

world that enabled to perform the solutions of the activities including the commercial, political, educational and marketing activities. As well as, facilitate the procedures of the information system and thus, the networks became a basic element in the daily life and in order to make the network perform their work procedures on the best form, there are conditions must be available in order to preserve its contents.

CHAPTER TWO: PERFORMANCE OF EMPLOYEES

Evaluating the performance of employees is considered one of the most important functions of the employees' performance because the performance of the employees is considered the basic infrastructure to the success of the organization and its effectivity in its environment and achieve its continuous. So, the managers and individuals use continuously some of the formal and informal types in evaluating the performance. The individuals resort to that when they try to know the performance of others in accomplishing the duties and responsibilities and the same for the organizational entities they resort to this when modifying the wage systems, bonuses, promotion or for another purposes. The system of performance evaluation is considered a mean of the human resources which enable the organization to exploit optimally its human resources for the purpose of preservation. The communication is considered an important step to the success of the organization and achieve the understanding between the callers as individual and organizations. Through the information and communication systems, the organizations enabled in achieving tangible progress in the growth of the organizations and it is considered focal point which associate between these institutions according to the functions of the

administrational and technical work. So, it is considered the bridge which connect between the employees inside the organization with the external world (Gharby, 2007: 10).

2.1 The Performance and Its Elements

The concept of the performance has raised the interest of the employees and intellectuals in the field of management because the human factor is the real axis to the administrative organizations. As well as, it is considered one of the factors which lead on the level of the employees efficiency and their reach to the level of the required accomplishment according to the available resources (Gharby, 2007: 10-13)..

According to the importance of the performance, it has taken a large part of the researchers' interest and there are many definitions have been provided to the performance where it is considered a basic indicator to the judgement on the user effectivity in the organization and we can find many definitions to this concept as follow:

- The performance is any activity which lead to a result and especially the behavior which changes the surrounding at any way.
- The performance is the degree of achieving and accomplishing the skills of the individual which it reflects the possibility of achieving the required of the function by the individual.

There are always misunderstanding occur when determining the concept of the performance between the effort and behavior where the behavior refers to the exerted energy while the behavior is the action performed by the individual including the actions in the organization such as holding meetings or design a model while the performance is measured based on the results which achieved by the individual whereas the behavior is the activity which is implemented by the individuals while the behavior results are the results resulted from that behavior.

Through the previous discussion, the performance can be defined is everything issued by the user during its implement to some job by achieving and accomplishing the responsibilities which he occupies and it is approximated by the results that

obtained while the production quantity and its type or the speed and accuracy in the work (Gharby, 2007: 10-13).

The performance includes elements or components which without it is not possible to talk about the level of existing of effective performance and this belongs to its importance in measuring and determining the level of employees performance in the organizations. The researchers directed to identify on the elements or components of performance in order to reach into more contributions to support and develop the effectivity performance of employees and these contributions are what have been mentioned in showing the elements of performance through the following points (Gharby, 2007: 10-13):

The process of determining the work activities and the goals which serve them and their importance in terms of the time and the implications are in the beginning of analyzing the work components. There are many studies tried to determine the relatively static components in the work performance in addition to determining the activities and tasks which change according to the change of time that perform the work of the individual or the surrounding circumstances as follow (Al-Jabari, 2009: 39-40):

- **The Activities Which Change with Time:** They include the activities which characterize by their change with time because of the requirements of the time that lead him to change the function and duties at the end according to increase the experience of the employee to practice his work and he says for example the degree of his dependence on his manager in obtaining the consultancy and assistance.
- **The Activities Which Change by the Disparity Who Perform the Work:** This is happened according to the disparity of the way where the employees perform the work better than the other employee through what its own of features and experiences in his performance in implementing his performance and characterize him from the other employees. This difference flows from suppose that more of business has more than one way or style to accomplished and reach into its goals in addition to the duties themselves differ in the degree given the freedom of the individual in sledding the suitable performance mean. Thus, there

business which allow the individual in selecting the suitable method which suit with the feature of the individual such as the research business, teaching and administration. Also, there are other business which do not allow the individuals this freedom according to its nature as the business.

- **The Activities Which Change by the Change of the Surrounding Circumstances with the Performance:** They include the change resulting from the nature of the environment where the business are performed. So, this environment has its clear effect on the activities and different business such as sudden stopping for one of the production machines which require the stop of workers from the production process until the end of the maintenance work which related to this machine. The work crises which face the manager enforce him to transform his work in the planning and draw the policies into business which directed to face these crises and find the suitable solutions. There are multiple factors to these circumstances and situations which contribute in the performance change including variables associate with physical environment such as lighting, ventilation for workers such as supervisor, workers and the work groups through the characteristics of those workers or supervisors and their directions and culture and the style of their relationships and activity with each other. Also, it may include historical variables such as those variables where the worker exposed in the previous work and the success cases in the performance and the variables associate with composing the work activity in different crises and the nature of the work pressures which detect the performance.

The work activities are implemented by collecting the activities into skills and the skills into works where it must be based on the homogeneity and complement between all of this activities not only on the activities which belong to specific work but it belongs to the relationships between different work and the knowledge of the internal and external relationships between the activities which resulting to design the activities or even the work sometimes and the possibility to redesign the whole structure.

The features and characteristics which required in the individual who perform the work is considered the basic element in the association process between analyzing

the possibilities and its components and its test where in the highlight of the performance of static and dynamic activities, the performance which must be provided by the individual must be determined to perform these activities and characteristics which are considered the base of selection that must be based on comprehensive study to different performance sides and these sides associate with the performance and singular specifications (Razeeq, 2012: 134-135). Other researchers see that the performance elements can be summarized at the following points as follow (Attieh, 2009: 25-26):

1. **Employee Information:** It means the information, skills, and directions of employees and values which represents its basic characteristics which produce effective skill implemented by the employee.
2. **The Work (Function) Requirements:** This includes the skills, responsibilities, roles and experiences which require by specific work or function.
3. **The Organizational Environment:** It consists of internal and external factors, its structure, goals, resources, its strategic position and the used procedures while the external factors configure the organizational environment and effect the effective performance where they are the economic, social, technical, civilizational, political and legal factors.

2.2 Evaluating the Employees' Performance

Before talking about the concept of employee performance evaluation, we will determine the following terms:

- **Performance:** The performance refers to the effort which implemented by each individual in the organization and at the same time it expresses the level which achieved by the individual whether in terms of the quantity and quality of required work or the determined time to perform. The performance is defined as an evaluation operation to what has been accomplished by the individual through a period of time in terms of the of the work quality provided by him. As well as, it is defined as a practical behavior which performed by the individual in a set of individuals in an organization and represented in the work, behaviors and intended movements to achieve goal and specific goals (Hassan, 2008: 209).

- **Evaluation:** It the comparison process between what it is happened and what it must be happened and insert a judgement on the difference which exist between what it must be done in any field. Moreover, it is known as issuing a judgment in specific matter and include the evaluation in the use of standards to evaluate the extent of accuracy and effectivity of things. Furthermore, it is defined as evaluating the value of the thing or its quantity according to specific standards and the goal of the evaluation is the subjective judgement on the work which subject to the evaluation as it is meeting the standards or not, successful or failure by analyzing the direct information and interpret them in the highlight of the factors and circumstances which can effect on the work (Autre, 1993: 705-706). There are many definitions to the performance which can be summarized as follow:

- It is formal system to measure and evaluate the effect of the procedural and behavioral characteristics and an attempt to identify the possibility of repeating the same performance and behavior in the future in order to get benefit the individual, organization and society (Musa, 2005: 14).
- It is the process which through the efforts of the individuals are appreciated in fairly and justly form in order to be appreciated as their effort and produce that by getting benefit from the elements and the equipment which based on their efficiency level is compared in the business associate to them (Schuler, 1995: 306).
- The performance evaluation is studying and analyzing the performance of workers to their work or noticing their behavior during the work in order to judging on the extent of their success in their business and also to judge their potential of growth and progress of the individual in the future and holding the larger responsibilities or the promotion to another duty.
- Measuring the productivity of the individual through a period of time and stating the extent of his participation in achieving the goals of the administrative unit where he works

From the previous definitions it can be said that the evaluation of the worker performance in the organization is a formal system in the organization which through the performance of the individual is analyzed in each of the personal, physical,

technical, intellectual or behavioral features are evaluated in order to determine the strength and weakness factors and work on promoting the first one and face the second one. This is implemented in order to guarantee of achieving the effectivity of the organization. So, the evaluation process is not an end in itself but it is a mean to reach into many goals including reconsidering wage and promotion and training and the most important goal for the evaluation process of employees is to focus on the reverse feedback and it is considered one of the most important goals of the human resource in the evaluation process.

- **Performance Determinants:** The goal of any organization is to increase its production and this cannot be achieved without the better and optimal performance of its employees where they are people who see that the functional performance is the net effect to the individual effort which start by the abilities and realize the role and skills. Therefore, the performance is the results of the interrelationship between each of the follow (Weiss, 2003: 78):
 - **Effort:** It is the quantity of energy and which exerted by the individual in order to perform his work and this energy is flowing from a motivation which effect the user in order to exert specific effort. So, the motivation is the power which motivate the user to perform his work which means the motivation power and desire to perform the skills of work and this power is reflecting in the effort degree which exerted by the person and his continues in the performance.
 - **Abilities:** They are two types where the first type of gained abilities and the second one is innate abilities. The gained abilities where the environment and time play a high role in its composition and it is also effect on the innate abilities and it is through the educational and training while the innate abilities are considered brain abilities which reflect by the smart of the individual and his mental abilities which represented in physical abilities such as the body structure, fitness, movement abilities, visual acuity and hearing.
 - **Perception:** It is intellectual process which is based on selection, organization, modification, change and interpret the information which come through senses according to the impressions and standards.

- **Function:** It is everything which is associating with duties and responsibilities and what is waiting from the employee of addition at this function according to the abilities and scientific and physical potentials. In addition, everything available in the function of tools, equipment, methods, styles and modes which are used in its production process.
- **Organizational Structure:** It is everything available in the organization as organizations which facilitates the production process in the organization of tools and the administrative organizational methods including the leadership way, organize and motivate in addition the internal communication system.
- **The External Environment:** The external environment of the organization has effect on the employee performance in his organization such as the salaries which paid in the other institutions and also the status of the institution, its reputation and ability to compete and face the challenges. All of these elements effect the performance of the employees. Determinates of the employee performance are shown in Figure 1.

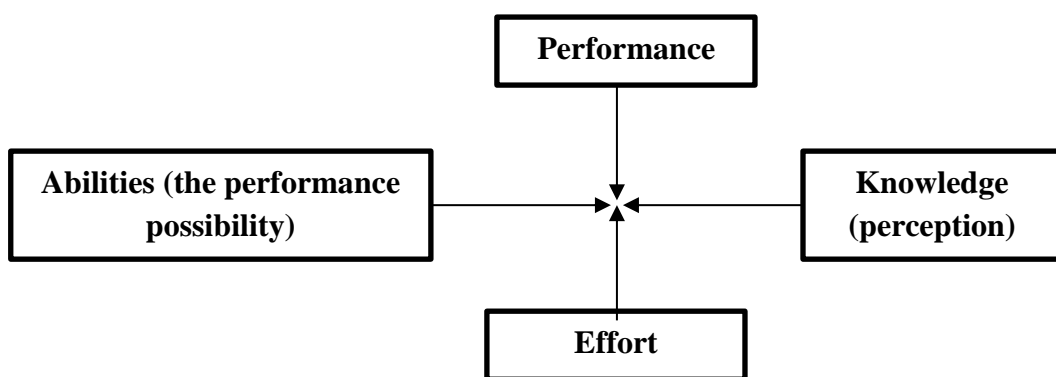


Figure 1: The determinants of employees' performance

2.3 The Importance, Goals and Use the Evaluation Results of the Employees' Performance

Evaluating the employees performance is considered one of the most important activities which implemented by the human resource management where it is based on the knowledge and analyze the differences between each one of them between what is planned and what is achieved and it is a basic mean to judge the accuracy of policies and program which produced by the organization and it is considered one of the most important goals of this system. The following steps will include the determination of its goals and use.

The importance of evaluating the performance of the human resource element is considered one of the goals which seek to be achieved by the performance which can be summarized as follow:

- **The importance**

The importance of evaluating the performance of employees can be illustrated as follow (Shawish, 2007: 87):

- It detects the abilities of the employees and thus, they will be promoted into higher functions and also it helps in transporting and placing each individual in the function which suit his abilities.
- Perform modifications in the wages and salaries where the evaluation of performance contributes in suggesting the suitable financial bonuses to the employees' where in the highlight of the information which are obtained in evaluation the performance, the salaries and wages of the employees can be increased and decreased and also it is possible to suggest bonus system to them.
- It is considered a measure or standard in evaluating the policies or other applications in the field of individuals and control the extent of effectivity of the training in the organization. Also, the performance evaluation is considered a motivation for personal developing and a measure to it and it enable the institution to achieve the following (Al Salem and Saleh 2009: 103):
 - Ensure that all of the employees have been deal in justify and the documented documents about this subject will be an important element in

supporting its position where if one of the employees have been deprived and place them in the image in front of the officials and colleagues as a preface to take decisions about their promotion into higher positions.

- The discussion between the employee and his direct manager about the evaluation results shows a side of shortcoming in the policies of the organization and its systems.

- **Goals**

The performance evaluation process includes many goals according to its importance in the policy of human resources management and these goals include the following (Heathfield, 2018):

1. The employee and the supervisor are clear about the employees goals required outcomes or outputs, and how the success of the contributions will be assessed. Your goal in employee evaluation is to motivate a high level of quality and quantity in the work that the employee produces.
2. The goals of the best employee performance evaluations also include employee development and organizational improvement. The employee performance evaluation helps employees accomplish both personal development and organizational goals. The act of writing down the goals takes the employee one step closer to accomplishing them.
3. The goals of the best employee performance evaluations also include employee development and organizational improvement. The employee performance evaluation helps employees accomplish both personal development and organizational goals. The act of writing down the goals takes the employee one step closer to accomplishing them.
4. In many organizations, numeric rankings are used to compare an employee's performance with the performance of other employees. Numeric ratings are frequent components of these systems, too.
5. The employee performance evaluation provides evidence of non-discriminatory promotion pay, and recognition processes. This is an important consideration intraining managers to perform consistent, regular,

non-discriminatory employee performance evaluations. You want to ensure equitable measurement of an employee's contribution to the accomplishment of work.

2.4 The Use of Performance Evaluation Results

The process of evaluating and using its results is considered an evidence on the extent of the effectivity and importance and in spite of that the managers, employees are not tends to them but they are convinced n the importance of his existing and the most important fields of using the evaluation results as follow (Akili, 2005: 374):

- **Promotion:** The management depends in assigning the qualified users inside the organization on the results of the performance evaluation where it is detecting the extent of the right for each individual in the promotion because the extent of the efficiency of the worker for many years is considered a subjective measure to detect about his skills, abilities and potential to occupy higher position.
- **Determine the Bonuses:** This is considered one of the beneficial means to prepare the training programs where the return to the results of the evaluations values is restricted the persons who need into training in order to increase their efficiency and abilities.
- **Recruitment and Transportation:** The human resource management depends on the performance evaluation results as a standard to judge on assigning the individual in teh job which suit with his efficiency an ability and it is also a mean to know the individuals which must be transported into another function that suit with their ability.
- **Human Resource Planning:** The human resource planning get benefit from the result of the performance evaluation in the planning process and thus, it helps its basic mission as follow:
 - In case of existing of performance evaluation results in high level of the human resource efficiency and this leads to the functional planning and increase the future workload in order to get benefit from this efficiency and exploit in production increase.
 - In case of the negatively of the evaluation results, the organization will eliminate the human resource with weak resources with new human

resources in the approximation of the organization need of the human resource in terms of the size and type. This represents the core of the human resources planning.

- **Discipline and Punishment:** It consists of the evaluation reports of punishment which obtained by the worker during the year and it is used in case of raised on the worker a complain and it may be a need to return into the previous evaluations to ensure from the possibility that the complain is correct and in case of it is proven, it may lead to freeze the functional degree, dismissal or others (Abbas, 2006: 142-144).

2.5 The Standards and Management of Evaluating the Employees Performance

The basic goal where the organization seeks to achieve is to gaining high averages of the production efficiency. Also, the function of the human resource is considered one of the basic functions which depended by the modern management in achieving the goal which lead to promote the level performance of the employees.

2.5.1 Evaluation Standards of Employees' Performance

The evaluation standards of the performance of employees can be illustrated by the following points (Mayaleh, 2015):

1. **Ambition:** Does the employee in the job explain the initiative to enhance the process, product or the general work environment?
2. **Attendance:** Does the attendance of the employee has negative impact on the department productivity or the moral? In other word, does the attendance of the employee was optimal?
3. **Attitude:** What is the satiation of the employee towards you, colleagues and work in general? Does it a joke or routine job? Does the employee enjoy by reasonable flexibility when he asked to perform specific job outside his traditional duties limit or outside the work hours in private work?
4. **Communication Skills:** Does the employee enjoys by the ability to communicate adequately with his colleagues, managers and agents? Is there any problem occurred or have been solved because of the communication skills at the employee?

5. **Department and Company Oriented:** Does the employee enjoy by vision and deeper understanding than just his special duties? Does he always talks about the management or company with great pride?
6. **Focus:** Does the employee can keep focus on the existed task? Does he face difficulties in determining the functions priorities and duties greater than the personal duties or social communication with other employees?
7. **Improvement from previous Evaluation:** Does the employee showed noticeable enhancement than the previous performance?
8. **Integrity:** Does the employee show ethical behavior in the work place? Does he respect the other employees and agents privacy?

2.5.2 Managing the Process of Evaluating the Employees Performance

2.5.2.1 Performance Management Responsibilities of Employees and Supervisors

Supervisors and employees hold many responsibilities where these responsibilities differ for each one of them. First we will describe the responsibilities of supervisors and then we will describe the responsibilities of employees. The supervisors responsibilities include the following (Peters and Austin, 2015: 3):

- Help employees on developing the singular goals and determine the efficiencies.
- Provide the employees with clear expectations and organized applicable performance measure criteria.
- Support and provide the employees resources in order to fulfill the performance goals.
- Conducting discussions to discuss the employees development.
- The provision of feedback in the suitable time.
- Perform annual and temporary evaluations.
- Determine the shortcoming which they face in the performance and provide help and support for enhancement.
- Help the employees on determining the functional development and participation opportunities.

From the above explanation, we can conclude that the supervisor is the person who is responsible on the performance of others and his role is to provide the guidelines to employees and determine the priorities, work assignment and guarantee the quality and provide help to solve problems.

While the employees responsibilities can be summerized and described by the following points (Peters and Austin, 2015: 4):

- Offer input to their supervisors in the process of performance planning that contribute in the management goals and the comprehensive tasks.
- Conduct their functional duties to achieve their goals and derivatives successfully.
- Provide the supervisors by their inputs in terms of their functional responsibilities including the list of achievements.
- Discuss the fears and questions about any part of their job or the process of performance management and provide suggestions to process any fears or questions.
- Determination and participation in the functional and training development opportunities.

2.5.2.2 The Evaluation Time

When evaluating the employees' performance, the period of time which through the performance report will be evaluated must be determined. This period of time depends on the nature and the work circumstances in the organization and the worked regulations. In general, most of the organizations prepare one annual report to evaluate the employees' performance. While some organizations prepare such reports every six months. The performance of new employees have traditionally evaluated on near periods as each two or three months where they can be placed in the suitable place and judge their validity and efficiency in the job for a long period of time. It is always that the mangers evaluate the subordinates in a narrow period which threat the evaluation process by failure. It is rarely that the mangers evaluate the subordinates during the whole period. Thus, at this condition they have to keep the records about the extent of evaluation progress in their job. Even if the second method is better but it takes longer time (Nageeb, 2005: 106).

2.5.2.3 The Performance Feedback Procedure

This process works on retrieving the expected performance information and the measured performance of employee where the employee will be able to re-correct any shortcoming. This is considered a complex and concern process for each of the employee and manager. The notes below are examples on the notes provided by the managers to the employees (Cieri, 2008: 6):

- Since my last report, this employee is reached to the bottom and started to dig.
- His men will follow him to anywhere because of the curiosity only.
- It will not allow the generation of this employee.
- This subordinate is really not so much of a 'has-been', but more of a 'definitely won't-be'.
- Works well when you are under constant supervision and cornered as a rat in a trap.
- When she opens her mouth, it looks that this is only to change both foot was before there.
- He would be out of his depth in a parking-lot puddle.
- This young lady has delusions of competence.
- He sets low personal criteria, then reliably fails to accomplish them.
- This employee must go far and the sooner he starts, the better
- This employee is depriving a village somewhere of an idiot.

Few of us feel comfortable sitting in judgment of others. The thought of challenging others with what we observe to be their insufficiencies causes most of us to shake in our shoes. If giving negative feedback is hurting, receiving it can be excruciating. Therefore, we can imagine the importance of the performance feedback process.

2.5.2.4 The Procedures of Performance Enhancement

One of the most important goals of the performance evaluation is implemented by the following steps (Baqi, 2002: 372):

- **Determine the Main Reasons to the Performance Problems:** The deviations reasons must be determined in the employees performance where the

determination of the reasons has importance for each of the management and employees. So, the management get benefit on how to evaluate the performance and whether the operation has been performed subjectively and if the decrease of the performance belongs to the employees or that the secrecy of the available resources is the main reason. Moreover, the conflicts between the management and employees can be decreased by determining the reasons which lead to decrease the skills and abilities which enjoyed by the employees.

- **Develop the Work Plan in Order to Reach into Solutions:** The work plan represents the plan which is necessary to decrease the performance problems and place the solutions by the collaboration between the management and consultants and specialists in the field of enhancing and develop the performance in other hand. The direct meetings and the opens opinions and participation in the discussion of the problems and non-secrecy in detecting the facts and information about the performance directly to the employees will contribute in placing the convinced solutions to the employees and enhance their performance and remove the performance problem.
- **The Direct Communication:** The communications between the supervisors and employees is considered important and it is necessary to enhance the communication content and its style and the suitable communication styles and examples of the effective communications at this field is to ask the employees about the reasons of declining their performance in the same period without resorting into covered sentences in addition to not hurt any one of them. These procedures and steps will promote the positive behaviors and decrease the negative reactions at the employees.

2.5.2.5 The Steps of Performance Evaluation

The importance of analyzing the performance of employees and its results justify the effort and time which consume on its preparation and pace the plans which guarantee the desired goals and always the evaluation plan includes the following elements:

— **Determine the Responsible about the Performance Evaluation:** This means the authority or person who responsible about the employees evaluation and the performance can be evaluated by any part of those parties:

- **The Direct Manager:** The direct manger evaluates the performance of his employees for many considerations for instance that the direct manger is the person who determines the goals of his administration or his department and he determines the responsibilities and duties and direct the employees. Finally, the direct manger is continuously existed with his employees and thus, he can know the strength and weakness points and he will be the best person on evaluating the performance of his employees based on real factors (Abdul Baqi, 2002: 372).
- **Self-Evaluation:** Many authors see that the best the employee is the best person who can judging his work and results and that the self-evaluation is a tool for the personal development and encourage the hold of responsibilities and decrease the methodology from the reactions of the employee and facilitate to deal in the institution. However, this method is considered unpractical because the individuals are always evaluate themselves in better than what they deserve (Nouri, 2010: 164).
- **Peer Work:** The peer means the colleague in the same job and level which they work with the individual that must be evaluated and its performance will be measured. The reason behind assigning the evaluation task to the peer work because they have enough information about the behavior, performance and the accomplishment if the individual according to their continuous close with him. Nevertheless, it is not advice to depend completely on the peer work because there is may be internal conflicts between each of them which may lead at the end to generate negative results. Therefore, it is advised that the opinion of the peer of work as a guide which help the original evaluator and give him a complete image which help to reach into subjective judgment about the efficiency of the individual which measuring his performance.
- **The Subordinates:** It means that the subordinates measures and evaluate the performance of his manager where he gives his opinion and information which he owns about his manager and everything associate with his behavior

according to the daily meeting between each of them. The evaluation and judgement is implemented about the extent of efficiency or level of his accomplishment to work. However, the full dependence on the information and opinions of the subordinates is considered unsuitable procedure because the possibility of existing of conflicts between the judge and the subordinates which make the results and evaluation not subjective. In exchange the results are beneficial that they are made the manager on knowledge about the fact of his performance and the opinions of his subordinates by him.

- **Committees' Evaluation:** A special committee may be configured which consist of the heads of departments who associate with the workers before the evaluation period where the committee study the report which provided by the direct manger and then it is submitted or modified or make an interview with the required user. The goal behind the dependence on this style is to avoid the bias and distance and not subjective personal judging.
- **Evaluation by the Experts:** Sometimes the experts of the human resource management may be used from inside or outside of the organization in order to help the people who responsible on the evaluation conditioning that the experts have knowledge on the required functional nature of the evaluation
- **Evaluation by the Customers:** Some organizations use the customer evaluation for some employees especially the employees who their deal are considered the most important factor in their performance (Shami, 2010: 92).

These parties are considered the parties who responsible to evaluate the functional performance whenever the practices of the organization is more mature, it needs to depend on more than one party to evaluate the performance of its job especially those with qualifications and high responsibilities.

- **Performance Evaluation Methods:** In spite of the diversity and difference of the performance evaluation different studies state that there are traditional and modern methods which are used for this task which can be summarized as follow (Distler, 2007: 324):

❖ **The Traditional Methods:** The traditional methods depend in the evaluation process on the personal judgement of the managers and subordinates including:

- **Graphing Method:** This method is considered one of the simplest methods and it is based on determining the number of features or characteristics which must be evaluated including quality and credibility and then determine the extent of evaluating each feature starting from unsatisfactory and non-super and the supervisors starts in his evaluation in evaluating each subordinate by placing a circle around the degree which obtained by the subordinate for each feature and then collect the degrees which obtained by each individual in all of the features .
- **Order Method:** The manger has a general idea about his individuals and thus, he will be enable to organize them ascending or descending. This methods requires the existing of a limited number of the individuals in order to be ordered by the manager. Also, it is characterized by the easy and simplicity but it lost the subjectivity and does not give accurate results because it depends on the personal judgement. Moreover, it is difficult when there are high number of persons.
- **Double Comparison Method:** The employees will be evaluated at this method by comparing each one of them with others and the number of times which the individual has been selected is the number which through the rank is determined and represented between the individuals replacing the evaluation. The number of comparison times can be calculated by the following equation:

$$\text{Number of times} = \text{number of individuals} \left[\frac{\text{number of individuals} - 1}{2} \right] \quad (1.1)$$

This method is characterized that if more than one person made the comparison process, they will always reach into the same results as if their follow another method of evaluation. It includes many shortcomings including the ease and simplicity and also it is difficult to be used in the departments which include high number of comparisons and it is not suitable to be used for the training and

promotion purposes and its purpose to select the extent of the organization success in the testing and enhancing process.

- **Compulsory Distribution Method:** This method is implemented by the supervisor through the distribution of his subordinate according to their ability and efficiency on the form of natural curve where the high percentage is located in any group in the medium category and then the distribution is included with pass percentages equally on the two parties of the curve. Thus, this method is started by supposing that most of the employees are the person with medium qualifications. So, when small percentage of them have efficiencies and exchanged with approximately the same percentage.
- ❖ **Modern Methods:** There are many criticisms have been directed into the traditional evaluation techniques according to their dependence of the personal features of the subordinates instead of the goals which can be measured. As well as, it is suffered from the personal bias of the managers. Therefore, it is starting to think in developing the traditional methods and one of the modern methods as follow:
 - **Critical Facts:** This method is considered one of the modern methods of performance evaluation which through the largest amount of facts can be collected which effect in the employee performance and the evaluator is required to notice the performance of the subordinates accurately in order to determine which of these facts have been occurred during their performing to their duties, responsibilities and functions. After finishing that, the management evaluates the employee based on the number of facts which occurred in his performance (Madi, 2007: 23).
 - **Compulsory Selection Method:** This method is based on determining the different factors associate with job and not to focus on the personal features to the function occupier and its application requires a set of terms which describe the performance of the employee in the form of binaries (one express the desired features and the other express the undesirable features). The person who is responsible on the evaluation must select from each pair of the terms those terms which more applied on the

individual performance and then translate these terms into quantitative weights by a key or secret code which is not known by the evaluator.

- **Compulsory Distribution Method:** The evaluator is required through this formula to make an evaluation to the employees and then distribute them according to percentages to determine performance levels on the form of normal distribution where the employees are divided into groups. For example the evaluator is required to evaluate about 40% of the employees in the degree of medium, 10% of them as excellent, 20% in the degree of good, 20% in a level of less than medium and 10% is unacceptable which means weak (Nasrallah, 2009: 186).
- **Management by Goals Method:** This method depends on the participation of the subordinates and managers together in determining specific goals into the next period of time conditioning the ability to measure. At the end of the determined period of time, the performance of the individual is measured based on which he has achieved of goals. This method is characterized that it is right style in evaluating the performance and allow the opportunity in the positive participation of the employees and enhance the communication between the manager and subordinates. The shortcoming of this method is that it is difficult to be applied on all types of functions and requires a lot of time, effort and experience in its application (Nasrallah, 2009: 186).
- ❖ **The Way of the Subordinate Selection by the Evaluation Results:** There is great controversy in the secrecy of the performance and not to tell the person by the evaluation results or on the intention of reports (tell the person by the report which has been occurred). Some people ensure the necessity to tell the subordinate by the evaluation which he has obtained while some opposes it with authority that may create many problems in the relationships. In the fact, the benefit behind placing report about the efficiency of the employee if the employee himself has not been obtained the degree of the report which has been issued by the management that each employee need to know what the manager expects from him and what he has really achieved and what is the opinion of his manager in his work and what are the strength and weakness

factors, the employee need to be known by the management and that is a significant motivation to preserve the level of efficiency and superior. While the employee which has been obtained on low appreciation when evaluating the performance, he needs to be known the weakness sides in his performance and this means the necessity that the reports of performance must be public in creating an atmosphere of the collaboration between the manger and the subordinates and remove the controversy between each of them. As well as, the direct manger must tell his subordinates by the level of his performance and give the advice and guides (Akili, 2005: 25-26).

❖ **Take the Correctional Procedures after Finishing the Evaluation:** The management of the individual in the organization must study and analyze the evaluation results and take the suitable procedures in order to help the development of the employees' efficiency and the policies of employees. It is noticed that will not happen in the practical life and it is stopping by saving the reports in files of employees without study and analysis. It is necessary to interest by the evaluation results because the effect the individual and the organization at the same time and the evaluation effect on changing the employees position such as their transporting, promotion or decrease their incomes. So, the organization must provide bonuses to the employees which obtained high evaluations while for the employees which obtained low evaluation, the situation require to issue punishments on them, and deprive them from the promotion or bonuses or transfer them into another function. In other hand, the evaluation effect on the organization where the valuation helps on enhancing the programs and policies of the human resource management and the evaluation results are considered a measure of success to the individual in its different policies (Akili, 2005: 26).

❖ **Difficulties Which Face the Performance Evaluation and the Ways of Processing:** The evaluation process in any method in most of the organizations accompanied with many and difficult problems and some of these problems will be described as follow (Distler, 2007: 340):

1. **Problems Associate with the Evaluator:** These problems can be listed as follow:

- The supervisors do not know well what the employees perform and then they cannot evaluate their performance in subjective way.
- They may not have clear standards to measure the performance of employees which lead into incorrect evaluations according to the difference and the diversity of the standards.
- Some supervisors are hesitating in giving evaluations to the employees especially if their evaluations are negative.
- The supervisors may fall into mistakes during their evaluations such as tend towards the medium in the evaluation and tend to soft or hard in the evaluation.
- Problems associate with the subordinates where their performance is measured by using a set of steps which are the lack of the knowledge of the worker to what is required from him. Also, the lack of ability to perform what is required. The lack of understanding by the employee to the evaluation system. Moreover, the feeling of the employee by the injustice and insecurity. Finally, Problems cause mistakes in the evaluation where the employee is not responsible on them such as the existing of features, characteristics at the employees which look like the features of the evaluator which make the last one by his bias.

2. The Ways of Processing the Difficulties Face the Performance Evaluation: at least there are four methods to reduce the effect of these problems:

- Test the correct method of evaluation such as graph scale and the features and shortcomings for each method.
- Training the supervisors to disposal the shortcomings or the mistakes of the evaluation.
- Prepare daily record which is equal the efforts where a study has been conducted in daily file which is used as a reference to evaluate the performance of the subordinates where the first training is followed by scientific session and then feedback and then group discussion which aim to support the importance of the

written descriptive reports which help to avoid the reverse results of evaluation by writing each of the novels and positive and negative effectivities which occur during the evaluation process. This system is the best of depending on the memory and especially for the long-tem.

- Ensure from the understating of problems.

2.5.3 The Effect of Information and Communication Technology on Increasing the Employees' Performance

The information technology became a motivation factor to the organizations seek in the diversification in its production and about the scientific efficiency in its performance. Thus, the organization are rapid to use the information and communication in creating new opportunities in many fields including (Araby, 2012: 31-32):

- Increase the level of the functional performance.
- Enhance the administrative decisions.
- Facilitate the procedures.
- The optimal exploitation to the available resources.
- Training the employees on how to use the information and communication technology in order to guarantee its work in the correct form which can achieve the high level of performance for the employees where the organizations seek to achieve. Thus, the relationship between the actual information and communication are represented by the following:
 1. Enhance the functional performance by accomplishing the work quickly and accurately and increase the average of the performance of employees.
 2. Decrease the functional efforts on the managers which facilitate to them the exploitation of the time in the strategic planning and draw the general policies in the organization which contribute in raising the efficiency and effectivity of the senior management.
 3. Increase the feeling of belonging and loyalty by the workers towards the organization by the provision of the opportunities on the information in the

way which contribute in promoting their participation in the decision making process.

4. Encourage the organization towards achieving the competitive advantage which promote the interest by the research and development which contribute in promoting and construct the individual abilities.
5. It leads to increase the effectivity of the organization in achieving long-term goals by the survival, growth and continuous by the learning and transfer the knowledge and enhance the decision making process and increase the communication process inside and outside of get organization and enhance the organizing method between different levels and the administrative units to accomplish the goals of the organization.
6. It lead to increase the efficiency of the organization in exploiting its different resources with least cost by the dependence on the use of computer in performing their job and activities which contribute in enchaining the quality of performance and decrease the disparity between the levels of the employees performance.
7. It helps on the use of information and communication technology and on associating the different administrative functions with each other and eliminate the duplicity and decrease the mistakes and efforts exerted which contribute in increasing the productivity of the employees and the performance level of the whole organization.

2.6 Summary of the Chapter

Through our discussion to this chapter to the functional performance from many sides which included its concept, determine the associated concepts, elements, determinants and the ways of enhancement, it is clear that this element has great importance for any organization as it is considered the final result to the associated activities. Therefore, this performance must be followed and evaluated continuously in order to enable the senior management to judge subjectively on the extent of the individual efficiency in his work. The determination of the strength and weakness factors in the performance of employees clarifies to the organization his potentials in investing the human energies. The evaluation of the performance has be addressed in

deep way where we clarified its definition, importance, goals, the elevations steps and the difficulties which face the evaluation process and the processing methods.

In order to make the evaluation process is more effective system, the human resource management must enjoy by an information and communication system in order to take the information that necessary to take the decisions and especially when evaluating the employees performance.



CHAPTER THREE: RESULTS, CONCLUSION AND RECOMMENDATIONS

3.1 Research Sample and Population

The study sample which have been chosen consist at most from the employees where most of them are employees who work in the ministries belong to the Libyan government and especially those who work in the Libyan Ministry of

Youth and Sport. They are accessed through a questionnaire and published across the internet. It must be mentioned that the number of persons who participated at this questionnaire consisted of 274 person and we collected 264 response of them. They are participated at this questionnaire through a link which sent by using different medias including the e-mail, Facebook and other medias and we assigned to them a brief review about this questionnaire in order to select the most suitable selection. The number of the descriptive variables or questions of our questionnaire include 20 question and they represent the most important Information and Communication Technology (ICT) tools which important in any organization. The tools are collected depending on their importance, usefulness and effect on the performance of employees and these questions or techniques are shown in Table 4.

Table 4: The Questionnaire Questions Which Used in Our Study

SN	Information Technologies
1	Use of MS word program (Gauri, 2008: 10-11)
2	Use of MS excel program(Gauri, 2008: 10-11)
3	Use of MS access program(Gauri, 2008: 10-11)
4	Use of MS power point program(Gauri, 2008: 10-11)
5	Online conferencing system (Lin, 2010: 12-13)
6	Enterprise content management (Kampffmeyer, 2006: 24)

7	Windows operating system (Stallings, 2005: 3-13)
8	Use of photocopy and printing machine(Nadeau, 2002: 6-9)
9	Use of Digital Document management (Avenue, 2002: 51)
10	Electronic training (Elnaga, Imran, 2013: 141-142)
11	Direct synchronous connection (Murphy, Ciszewska-Carr, 2007: 68-86)
12	Communication with the related institutions (Tankosic, Ivetic and Mikelic, 2017: 2-3)
13	Use of internet and search (Singh, 2001: 17-28)
14	Use of institution phone (Nebo, Nwankwo, Okonkwo: 2015: 135-138)
15	Use of mobile phone (Wahla, Awan, 2014: 154-156)
16	Use of the institution Fax (Shin, 2010: 4-10).
17	Use of WhatsApp, Facebook, Viber, Skype and etc. (Bria, 2012: 9-12)
18	Use of data base management systems (Elmasri, Navathe, 2011: 50-55)
19	Computer programs used in the workplace (Bhosale, Mitharam, 2013: 1-5)
20	Use of information technologies (Mutuku, Nyaribo, 2015: 49-52)

3.2 Research Tools and Data Collection

The data which have been collected through the questionnaire is hosted on the internet in the period between 28/01/2018-20/02/2018. The questionnaire is divided into two main sections where the first section includes the demographic information to each participant and the second section contains on information associate with the subject of the questioner. The second section consists of two sections where the first one related to the experience of working on the information technology tools including the hardware and software tools and the second one is the usefulness of these tools in their work area.

3.3 Analyze the Research Results

At this section we will analyze the questionnaire results which have been distributed online during three weeks. The number of persons who have participated

at the questionnaire are 274 persons and work in different institutions in Libya and the number of valid answers of them is 264 valid response.

Demographic variables of samples

This section includes demographic information about the participants in order to take their personal and professional information. This information includes Gender, Age, Educational Level, Job Title and Work Experience. The information and their percentages are explained in Table 5, Table 6, Table 7, Table 8 and Table 9.

Table 5: Distribution of Sample by Gender

Gender	Frequency	Valid Percent	Cumulative Percent
Male	228	86.4	86.4
Female	36	13.6	100
Total	264	100	

As shown in Table 5 that the number of male is 228 person with percentage of 86.4% and the number of Female is 36 persons with percentage of 13.6%.

Table 6: Distribution of Sample by Age

Age	Frequency	Valid Percent	Cumulative Percent
24-29	22	8.3	8.3
30-39	124	47	55.3
40-49	82	31.1	86.4
50 +	36	13.6	100
Total	264	100	

Table 6 shows that the large percentage of the persons locate in the age category between 30-39 where their number is 124 person with percentage of 47% followed by the persons who locate in the age category between 40-49 and their number is 82 persons with percentage of 31.1%.

Table 7: Distribution of Sample by Educational Level

Educational level	Frequency	Valid Percent	Cumulative Percent
High school degree	13	4.9	4.9
Bachelor degree	35	13.3	18.2

Master degree	174	65.9	84.1
Doctorate degree	42	15.9	100
Total	264	100	

As shown in Table 7 that the largest percentage of the participants has master degree where their number equals to 174 persons and percentage of 65.9% followed by the participants who have doctorate degree with number of 42 persons and percentage is 15.9%.

Table 8: Distribution of Sample by Job Title

Job Title	Frequency	Valid Percent	Cumulative Percent
Manager	60	22.7	23.7
Deputy manager	16	6.1	28.8
Secretary	6	2.3	31.1
Other	182	68.9	100
Total	264	100	

Table 8 explains that the largest percentage of the participants work in departments which is not manager, deputy manager and secretary and this proves that the questionnaire has been distributed to a large sample of people who work in different sectors and ministries.

Table 9: Distribution of Sample by Work Experience

Work Experience	Frequency	Valid Percent	Cumulative Percent
Less than one year	13	4.9	4.9
1-5 years	61	23.1	28.0
6-10	39	14.8	42.8
10 years and more	151	57.2	100
Total	264	100	

As explained in Table 9 that most of the participants have work experience of more than 10 years where the number of people who have work experience equal or greater than 10 years are 151 persons and their percentage is 57.2%.

Relationship Analysis

The relationships are analyzed between the ability of employee to use information technology tools and usefulness to their work performance. The whole ability of using the Information and Technology tools and the percentage to of using each one of them is shown in appendix B and the entire usefulness of all the Information Technology tools are shown in appendix C. However, in order to examine each one of these tools in terms of its use and usefulness is analyzed each one of them separately. In addition, the analysis includes two measurements that the first one is the chi square and the second is the regression analysis.

Crosstabs and Chi Square Results

The effect of employees' performance on their ability to use information technology were analyzed by the chi square test. Chi square analysis results are explained. It must be mentioned that analyzing the sample in order to get the Chi Square results are found that some cells have expected values less than 5 and so options (very bad, bad and neither good nor bad), (good and very good) and (very useless, useless and neither useful nor useless), (useful and very useful) combined.

MS Word Program

The ability to use and the usefulness of using MS word program is shown in Table 10.

Table 10: Crosstabulation of Ability to Use MS Word Program and Use Job and Chi-Square Test Result

	At your work use of MS word program		Total
	very useless & useless & neither useful nor useless	useful & very useful	

Your ability use of MS word program	Very bad & bad & Neither good nor bad	Count	27	4	31
		Expected Count	5,5	25,5	31,0
	Good & very good	Count	20	213	233
		Expected Count	41,5	191,5	233,0
Total		Count	47	217	264
		Expected Count	47,0	217,0	264,0
Chi-Square Tests					
	Value	df	Asymp. Sig. (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	115,252	1	,000		
Continuity Correction	109,949	1	,000		
Likelihood Ratio	87,026	1	,000		
Fisher's Exact Test				,000	,000
Linear-by-Linear Association	114,815	1	,000		
N of Valid Cases	264				

Table 10 shows that there are 233 persons are good and very good on using MS word program. In addition, Table 10 shows that 217 persons stated that MS word is useful and very useful. Good and very good-useful and very useful counts are bigger than expected counts. Employees' ability to use the MS word program positively effects their performance at work. The chi square test results show that the relationship between the ability of employees on using MS word program and useful at their work were found to be statistically significant at 0.05 level (Significance=0,000 < $\alpha = 0.05$).

- **MS Excel Program**

The ability to use MS excel program and the usefulness of its use in the work is shown in Table 11.

Table 11: Cross-Tabulation of Ability to Use MS Excel Program and Use Job and Chi-Square Test Result

	Use of MS excel program at work		Total
	very useless & useless & neither useful nor useless	useful & very useful	

Ability to use of MS excel program	Very bad & bad & Neither good nor bad	Count	71	18	89
		Expected Count	30,7	58,3	89,0
	Good & very good	Count	20	155	175
		Expected Count	60,3	114,7	175,0
Total		Count	91	173	264
		Expected Count	91,0	173,0	264,0
Chi-Square Tests					
	Value	Df	Asymp. Sig. (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	122,006	1	,000		
Continuity Correction	118,999	1	,000		
Likelihood Ratio	126,078	1	,000		
Fisher's Exact Test				,000	,000
Linear-by-Linear Association	121,543	1	,000		
N of Valid Cases	264				

Table 11 shows that the number of persons who work good and very good on using MS excel program is 175 from 264 persons. Furthermore, Table 11 illustrates that 173 person of the participants stated that MS excel is useful and very useful in their work. Good and very good-useful and very useful counts are bigger than their expected counts. Employees' ability to use the MS excel program positively affect their performance at work. According to the chi square test result, the relationship between the ability of employees to use MS excel program and useful at their work were found to be statistically significant at 0.05 level (Significance=0,000 < α = 0.05).

- **MS Power Point program**

Table 12 illustrates the ability and the usefulness on using MS Power Point as stated by the participants.

Table 12: Cross-Tabulation of Ability to Use MS Power Point Program and Use Job and Chi-Square Test Result

			Use of MS Power Point program at work		Total
			very useless & useless & neither useful nor useless	useful & very useful	
Ability to use of MS Power Point program	Very bad & bad & Neither good nor bad	Count	104	29	133
		Expected Count	60,5	72,5	133,0
	Good & very good	Count	16	115	131
		Expected Count	59,5	71,5	131,0
Total		Count	120	144	264
		Expected Count	120,0	144,0	264,0
Chi-Square Tests					
	Value	Df	Asymp. Sig. (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	115,886	1	,000		
Continuity Correction	113,240	1	,000		
Likelihood Ratio	127,056	1	,000		
Fisher's Exact Test				,000	,000
Linear-by-Linear Association	115,447	1	,000		
N of Valid Cases	264				

Table 12 shows that there are 133 participants are very bad, bad and neither good nor bad on using MS power point followed by 131 participants who good and very good on using MS Power Point Program. As well as, Table 12 explains that 144 of the participants stated that MS power point is useful and very useful in their work area. Very bad, bad and neither good nor bad -useful and very useful counts are bigger than their expected counts. Employees' ability to use the MS power point program positively affect their performance at work. According to the chi square test result, the relationship between the ability of employees to use MS power point program and useful at their work were found to be statistically significant at 0.05 level (Significance=0,000 < α = 0.05).

- **MS access program**

The ability and the usefulness of using MS access program by the participants are explained in Table 13.

Table 13: Cross-Tabulation of Ability to Use MS Access Program and Use Job and Chi-Square Test Result

			Use of MS access program at work		Total
			very useless & useless & neither useful nor useless	useful & very useful	
Ability to use of MS program	Very bad & bad & Neither good nor bad	Count	17	12	29
		Expected Count	5,1	23,9	29,0
	Good & very good	Count	29	206	235
		Expected Count	40,9	194,1	235,0
Total		Count	46	218	264
		Expected Count	46,0	218,0	264,0
Chi-Square Tests					
	Value	Df	Asymp. Sig. (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	38,428	1	,000		
Continuity Correction	35,279	1	,000		
Likelihood Ratio	29,273	1	,000		
Fisher's Exact Test				,000	,000
Linear-by-Linear Association	38,282	1	,000		
N of Valid Cases	264				

As shown in Table 13 that 235 participants are able to use MS access program in good and very good way. In addition, Table 13 shows that more than 218 of the participants stated that MS access program is useful and very useful in their work. Good and very good- useful and very useful counts are bigger than their expected counts. Employees' ability to use the MS power point positively affect their performance at work. According to the chi square test result, the relationship between the ability of employees to use MS power point program and useful at their work were found to be statistically significant at 0.05 level (Significance=0,000 < $\alpha = 0.05$).

- **Online conferencing system**

The ability on using the online conferencing system and its usefulness in the work is shown in Table 14.

Table 14: Cross-Tabulation of Ability to Use Online Conferencing System and Use Job and Chi-Square Test Result

			Use of Online conferencing system program at work		Total
			very useless & useless & neither useful nor useless	useful & very useful	
Ability to use of Online conferencing system program	Very bad & bad & Neither good nor bad	Count	97	13	110
		Expected Count	50,0	60,0	110,0
	Good & very good	Count	23	131	154
		Expected Count	70,0	84,0	154,0
Total		Count	120	144	264
		Expected Count	120,0	144,0	264,0
Chi-Square Tests					
	Value	Df	Asymp. Sig. (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	138,851	1	,000		
Continuity Correction	135,913	1	,000		
Likelihood Ratio	154,027	1	,000		
Fisher's Exact Test				,000	,000
Linear-by-Linear Association	138,325	1	,000		
N of Valid Cases	264				

As clear from Table 14 that there are 154 of the participants stated that they can use the online conferencing system in good and very good way while there are 110 of them are very bad, bad & neither good nor bad on using this machine. Whereas in terms of its usefulness in the work, Table 14 shows that more than 144 of the participants stated that this machine is useful and very useful in their work area. Good and very good- useful and very useful counts are bigger than their expected counts. Employees' ability to use the online conferencing system positively affect their performance at work. According to the chi square test result, the relationship between the ability of employees to use online conferencing system and useful at their work were found to be statistically significant at 0.05 level (Significance=0,000 < $\alpha = 0.05$).

- **Enterprise content management**

The ability on using the enterprise content management and its usefulness to be used in the organizations are explained in Table 15.

Table 15: Cross-Tabulation of Ability to Use Enterprise Content Management and Use Job and Chi-Square Test Result

			Use of Enterprise content management at work		Total
			very useless & useless & neither useful nor useless	useful & very useful	
Ability to use of Enterprise content management	Very bad & bad & Neither good nor bad	Count	98	20	118
		Expected Count	49,6	68,4	118,0
	Good & very good	Count	13	133	146
		Expected Count	61,4	84,6	146,0
Total		Count	111	153	264
		Expected Count	111,0	153,0	264,0
Chi-Square Tests					
	Value	Df	Asymp. Sig. (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	147,234	1	,000		
Continuity Correction	144,207	1	,000		
Likelihood Ratio	164,181	1	,000		
Fisher's Exact Test				,000	,000
Linear-by-Linear Association	146,676	1	,000		
N of Valid Cases	264				

Table 15 shows that 146 of the participants are good and very good to use the enterprise content management while there are 118 of the participants very bad, bad & neither good nor bad on using this software. Whereas the usefulness of the enterprise content management is also shown in Table 15 and shows that there are more than 153 participants stated that this software is useful and very useful to be used in the organizations and 111 of them stated that it is very useless, useless & neither useful nor useless to be used. Good and very good- useful and very useful counts are bigger than their expected counts. Employees' ability to use the enterprise content management positively affect their performance at work. According to the

chi square test result, the relationship between the ability of employees to use the enterprise content management and useful at their work were found to be statistically significant at 0.05 level (Significance=0,000 < α = 0.05).

- **The use and usefulness of windows operating system**

This software is configured an importance in most organizations in the world including Libya where the ability of using this software and its usefulness to the participants are shown in Table 16.

Table 16: Cross-Tabulation of Ability to Use Windows Operating System and Use Job and Chi-Square Test Result

			Use of Windows Operating System program at work		Total
			very useless & useless & neither useful nor useless	useful & very useful	
Ability to use of Windows Operating System	Very bad & bad & Neither good nor bad	Count	44	16	60
		Expected Count	13,9	46,1	60,0
	Good & very good	Count	17	187	204
		Expected Count	47,1	156,9	204,0
Total		Count	61	203	264
		Expected Count	61,0	203,0	264,0
Chi-Square Tests					
	Value	Df	Asymp. Sig. (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	110,252	1	,000		
Continuity Correction	106,624	1	,000		
Likelihood Ratio	98,794	1	,000		
Fisher's Exact Test				,000	,000
Linear-by-Linear Association	109,834	1	,000		
N of Valid Cases	264				

Table 16 clarifies the ability of using windows operating system where there are 204 of the participants stated that they are good and very good on using windows operating system and 60 of the participants stated it is very bad, bad and neither good nor bad on using this software. In terms of its usefulness, Table 16 is similarly

explains the usefulness of this software where there are 203 of the participants stated that this software is useful and very useful to be used in the organizations. Good and very good- useful and very useful counts are bigger than their expected counts. Employees' ability to use windows operating system positively affect their performance at work. According to the chi square test result, the relationship between the ability of employees to use windows operating system and useful at their work were found to be statistically significant at 0.05 level (Significance=0,000 < $\alpha = 0.05$).

- **Use of photocopy and printing machine**

Table 17 explains the ability and the usefulness of using the photocopy and printing machine by the participants.

Table 17: Cross-Tabulation of Ability to Use of Photocopy and Printing Machine

			Use of photocopy and printing machine at work		Total
			very useless & useless & neither useful nor useless	useful & very useful	
Ability to use of photocopy and printing machine	Very bad & bad & Neither good nor bad	Count	27	26	53
		Expected Count	6,6	46,4	53,0
	Good & very good	Count	6	205	211
		Expected Count	26,4	184,6	211,0
Total		Count	33	231	264
		Expected Count	33,0	231,0	264,0
Chi-Square Tests					
	Value	Df	Asymp. Sig. (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	89,603	1	,000		
Continuity Correction	85,259	1	,000		
Likelihood Ratio	70,931	1	,000		
Fisher's Exact Test				,000	,000
Linear-by-Linear Association	89,246	1	,000		
N of Valid Cases	264				

Table 17 explains the ability to use the photocopy and printing machine by the participants where there are 211 of the participants use the photocopy and printing machine in good and very good way. In terms of its usefulness, more than

230 of the participants stated that the photocopy and printing machine is useful and very useful in their job as shown in Table 17. Good and very good- useful and very useful counts are bigger than their expected counts. Employees' ability to use the photocopy and printing machine positively affect their performance at work. According to the chi square test result, the relationship between the ability of employees to use the photocopy and printing machine and useful at their work were found to be statistically significant at 0.05 level (Significance=0,000 < $\alpha = 0.05$).

- **Use of Digital Document management**

The ability on using the digital document management and its usefulness are shown in Table 18.

Table 18: Cross-Tabulation of Ability to Use of Digital Document Management

			Use of Digital Document management at work		Total
			very useless & useless & neither useful nor useless	useful & very useful	
Ability to use of Digital Document management	Very bad & bad & Neither good nor bad	Count	70	17	87
		Expected Count	29,3	57,7	87,0
	Good & very good	Count	19	158	177
		Expected Count	59,7	117,3	177,0
Total		Count	89	175	264
		Expected Count	89,0	175,0	264,0
Chi-Square Tests					
	Value	Df	Asymp. Sig. (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	126,896	1	,000		
Continuity Correction	123,795	1	,000		
Likelihood Ratio	130,811	1	,000		
Fisher's Exact Test				,000	,000
Linear-by-Linear Association	126,416	1	,000		
N of Valid Cases	264				

Table 18 is shown that more than 177 of the participants are good and very good on using the digital document management. While the digital document

management is useful and very useful at the job which stated by 175 of the participants. Good and very good- useful and very useful counts are bigger than their expected counts. Employees' ability to use the digital document management positively affect their performance at work. According to the chi square test result, the relationship between the ability of employees to use the digital document management and useful at their work were found to be statistically significant at 0.05 level (Significance=0,000 < $\alpha = 0.05$).

- **Electronic training**

The ability on performing the electronic training and its usefulness to the employees are shown in Table 19.

Table 19: Cross-Tabulation of Ability to Use of Electronic Training and Use Job and Chi-Square Test Result

			Use of Electronic training at work		Total
			very useless & useless & neither useful nor useless	useful & very useful	
Ability to use of Electronic training	Very bad & bad & Neither good nor bad	Count	83	20	103
		Expected Count	38,2	64,8	103,0
	Good & very good	Count	15	146	161
		Expected Count	59,8	101,2	161,0
Total		Count	98	166	264
		Expected Count	98,0	166,0	264,0
Chi-Square Tests					
	Value	Df	Asymp. Sig. (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	136,677	1	,000		
Continuity Correction	133,641	1	,000		
Likelihood Ratio	147,113	1	,000		
Fisher's Exact Test				,000	,000
Linear-by-Linear Association	136,159	1	,000		
N of Valid Cases	264				

Table 19 shows that there are 161 of the participants are good and very good on performing the electronic training and 103 of them are very bad, bad and neither

good nor bad to perform this issue as stated by the participants. It is clear from Table 19 that there is 166 of the participants stated that the electronic training is useful and very useful at the job while 98 of them stated that it is very useless, useless and neither useful nor useless in their work area. Good and very good - useful and very useful are bigger than their expected counts. Employees' ability to use the electronic training is almost positively affect their performance at work. According to the chi square test result, the relationship between the ability of employees to use the electronic training and useful at their work were found to be statistically significant at 0.05 level (Significance=0,000 < α = 0.05).

- **Direct synchronous connection**

Table 20 explains the ability on using the direct synchronous connection and its usefulness in the job as mentioned by the participants.

Table 20: Cross-Tabulation of Ability to Use of Direct Synchronous Connection and Use Job and Chi-Square Test Result

			Use of Direct Synchronous Connection at work		Total
			very useless & useless & neither useful nor useless	useful & very useful	
Ability to use of Direct Synchronous Connection	Very bad & bad & Neither good nor bad	Count	114	18	132
		Expected Count	64,5	67,5	132,0
	Good & very good	Count	15	117	132
		Expected Count	64,5	67,5	132,0
Total		Count	129	135	264
		Expected Count	129,0	135,0	264,0
Chi-Square Tests					
	Value	Df	Asymp. Sig. (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	148,577	1	,000		
Continuity Correction	145,590	1	,000		
Likelihood Ratio	167,223	1	,000		
Fisher's Exact Test				,000	,000
Linear-by-Linear Association	148,014	1	,000		
N of Valid Cases	264				

As shown in Table 20 that there are than 132 of the participants are good and very good on using the direct synchronous connection while the same number which

is also 132 are very bad, bad and neither good nor bad on using this software as stated by the survey sample. Whereas Table 20 shows that there is 135 of the participants stated that this software is useful and very useful in their work area while there are 129 of them are stated that it is very useless, useless and neither useful nor useless at their work area. Very bad, bad and neither good nor bad - useful and very useful counts are bigger than their expected counts. Employees' ability to use the direct synchronous connection is almost positively affect their performance at work. According to the chi square test result, the relationship between the ability of employees to use the direct synchronous connection and useful at their work were found to be statistically significant at 0.05 level (Significance=0,000 < α = 0.05).

- **Communication with the related institutions**

The ability of the participants on making communication with the related institutions and the usefulness of this process are shown in Table 21.

Table 21: Cross-Tabulation of Ability to Use of Communication with the Related Institutions and Use Job and Chi-Square Test Result

	Use of Communication with the related institutions at work	Total

			very useless & useless & neither useful nor useless	useful & very useful	
Ability to use of Communication with the related institutions	Very bad & bad & Neither good nor bad	Count	58	24	82
		Expected Count	23,9	58,1	82,0
	Good & very good	Count	19	163	182
		Expected Count	53,1	128,9	182,0
Total		Count	77	187	264
		Expected Count	77,0	187,0	264,0
Chi-Square Tests					
	Value	Df	Asymp. Sig. (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	99,467	1	,000		
Continuity Correction	96,570	1	,000		
Likelihood Ratio	97,769	1	,000		
Fisher's Exact Test				,000	,000
Linear-by-Linear Association	99,090	1	,000		
N of Valid Cases	264				

Table 21 explains the ability of the participants on making communication with the related institutions where there are more than 182 participants stated that their ability in making communication with related institutions are good and very good. Moreover, Table 21 shows that more than 187 of the participants stated that the communication with the related institutions configure useful and very useful according to the point of view of participants. Good and very good-useful and very useful counts are bigger than their expected counts. Employees' ability to make communication with the related institutions is positively affect their performance at work. According to the chi square test result, the relationship between the ability of employees to make communication with the related institutions and useful at their work were found to be statistically significant at 0.05 level (Significance=0,000 < $\alpha = 0.05$).

- **Use of internet and search**

This section of the questionnaire analyze the ability and usefulness on using internet and search where the ability and usefulness on using internet and search is shown in Table 22.

Table 22: Cross-Tabulation of Ability to Use of Internet and Search

			Use of internet and search at work		Total
			very useless & useless & neither useful nor useless	useful & very useful	
Ability to use of internet and search	Very bad & bad & Neither good nor bad	Count	16	7	23
		Expected Count	3,4	19,6	23,0
	Good & very good	Count	23	218	241
		Expected Count	35,6	205,4	241,0
Total		Count	39	225	264
		Expected Count	39,0	225,0	264,0
Chi-Square Tests					
	Value	Df	Asymp. Sig. (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	60,078	1	,000		
Continuity Correction	55,406	1	,000		
Likelihood Ratio	41,031	1	,000		
Fisher's Exact Test				,000	,000
Linear-by-Linear Association	59,851	1	,000		
N of Valid Cases	264				

Table 22 explains the ability on making internet and search by the participants where there are 241 of the participants stated that they are good and very good on using the internet and search. Table 22 is also shown the usefulness of making the internet and search to the institutions where there are 225 of the participants stated that the internet and search is considered useful and very useful to their institutions. Good and very good-useful and very useful counts are bigger than their expected counts. Employees' ability to use making communication with the related institutions is positively affect their performance at work. According to the chi square test result, the relationship between the ability of employees on making

internet and search and useful at their work were found to be statistically significant at 0.05 level (Significance=0,000 < $\alpha = 0.05$).

- **Use of institution phone**

The ability on using the institution phone and its usefulness to the institutions as clarified by the participants of the survey is shown in Table 23.

Table 23: Cross-Tabulation of Ability to Use of Institution Phone

			Use of institution phone at work		Total
			very useless & useless & neither useful nor useless	useful & very useful	
Ability to use of institution phone	Very bad & bad & Neither good nor bad	Count	49	24	73
		Expected Count	19,8	53,2	73,0
	Good & very good	Count	22	167	189
		Expected Count	51,2	137,8	189,0
Total		Count	71	191	262
		Expected Count	71,0	191,0	262,0
Chi-Square Tests					
	Value	Df	Asymp. Sig. (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	82,057	1	,000		
Continuity Correction	79,272	1	,000		
Likelihood Ratio	77,717	1	,000		
Fisher's Exact Test				,000	,000
Linear-by-Linear Association	81,744	1	,000		
N of Valid Cases	262				

Table 23 shows the ability of the participants on using the institution phone where there are 189 of the participants stated that they are able to use the institution phone in good and very good way. As well as, Table 23 clarifies that there are 191 of the participants stated that the institution phone is useful and very useful in the work. Good and very good-useful and very useful counts are bigger than their expected counts. Employees' ability on using the institution phone is positively affect their performance at work. According to the chi square test result, the relationship between the ability of employees on using the institution phone and useful at their

work were found to be statistically significant at 0.05 level (Significance=0,000 < $\alpha = 0.05$).

- **Use of mobile phone**

The ability and the usefulness of using the mobile phone by the participants of the survey are explained in Table 24.

Table 24: Cross-Tabulation of Ability to Use of Mobile Phone

			Use of mobile phone at work		Total
			very useless & useless & neither useful nor useless	useful & very useful	
Ability to use of mobile phone	Very bad & bad & Neither good nor bad	Count	19	6	25
		Expected Count	4,1	20,9	25,0
	Good & very good	Count	24	215	239
		Expected Count	38,9	200,1	239,0
Total		Count	43	221	264
		Expected Count	43,0	221,0	264,0
Chi-Square Tests					
	Value	Df	Asymp. Sig. (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	72,213	1	,000		
Continuity Correction	67,457	1	,000		
Likelihood Ratio	51,267	1	,000		
Fisher's Exact Test				,000	,000
Linear-by-Linear Association	71,940	1	,000		
N of Valid Cases	264				

Table 24 explains the ability of the participants on using the mobile phone where there are 239 of the participants stated that they can use the mobile phone in the job in good and very good way. Table 24 shows that there are 221 of the participants are stated that the mobile phone is useful and very useful in their job. Good and very good-useful and very useful counts are bigger than their expected counts. Employees' ability on using the mobile phone is positively affect their performance at work. According to the chi square test result, the relationship between the ability of employees on using the mobile phone and useful at their work

were found to be statistically significant at 0.05 level (Significance=0,000 < α = 0.05).

- **Use of the institution Fax**

Table 25 shows the ability and usefulness on using the institution fax as explained by the participants in the survey.

Table 25: Cross-Tabulation of Ability to Use of the Institution Fax

			Use of the institution Fax at work		Total
			very useless & useless & neither useful nor useless	useful & very useful	
Ability to use of the institution Fax	Very bad & bad & Neither good nor bad	Count	96	22	118
		Expected Count	56,3	61,7	118,0
	Good & very good	Count	30	116	146
		Expected Count	69,7	76,3	146,0
Total		Count	126	138	264
		Expected Count	126,0	138,0	264,0
Chi-Square Tests					
	Value	Df	Asymp. Sig. (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	96,719	1	,000		
Continuity Correction	94,297	1	,000		
Likelihood Ratio	103,607	1	,000		
Fisher's Exact Test				,000	,000
Linear-by-Linear Association	96,352	1	,000		
N of Valid Cases	264				

Table 25 shows the ability and usefulness on using the institution fax by the participants where there are 146 of the participants stated that they are good and very good on using the institution fax. The usefulness of using the institution fax at the work is also shown in Table 25 where there are 138 of the participants stated that the fax is useful and very useful to be used in the institution. Good and very good-useful and very useful counts are bigger than their expected counts. Employees' ability on using the mobile phone is positively affect their performance at work. According to the chi square test result, the relationship between the ability of employees on using

the mobile phone and useful at their work were found to be statistically significant at 0.05 level (Significance=0,000 < α = 0.05).

- **Use of WhatsApp, Facebook, Viber, Skype and etc.**

The ability on using WhatsApp, Facebook, Viber, Skype and etc. and their usefulness in the work is shown in Table 26.

Table 26: Cross-Tabulation of Ability to Use of WhatsApp, Facebook, Viber, Skype and etc and Use Job and Chi-Square Test Result

			Use of WhatsApp, Facebook, Viber, Skype and etc at work		Total
			very useless & useless & neither useful nor useless	useful & very useful	
Ability to use of WhatsApp, Facebook, Viber, Skype and etc	Very bad & bad & Neither good nor bad	Count	20	7	27
		Expected Count	7,1	19,9	27,0
	Good & very good	Count	49	188	237
		Expected Count	61,9	175,1	237,0
Total		Count	69	195	264
		Expected Count	69,0	195,0	264,0
Chi-Square Tests					
	Value	Df	Asymp. Sig. (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	35,801	1	,000		
Continuity Correction	33,089	1	,000		
Likelihood Ratio	30,862	1	,000		
Fisher's Exact Test				,000	,000
Linear-by-Linear Association	35,666	1	,000		
N of Valid Cases	264				

As shown in Table 26 that there are more than 237 of the participants are able to use WhatsApp, Facebook, Viber, Skype and etc in good and very good way. Table 26 also illustrated that the WhatsApp, Facebook, Viber, Skype and etc. are useful and very useful where there are 195 of the participants state that these media are very useful in their work area. Good and very good-useful and very useful counts are bigger than their expected counts. Employees' ability to use WhatsApp,

Facebook, Viber, Skype and etc is positively affect their performance at work. According to the chi square test result, the relationship between the ability of employees to use WhatsApp, Facebook, Viber, Skype and etc and useful at their work were found to be statistically significant at 0.05 level (Significance=0,000 < $\alpha = 0.05$).

- **Use of database management systems**

The ability on using the database management systems and the usefulness of their use are shown in Table 27.

Table 27: Cross-Tabulation of Ability to Use of Database Management Systems and Use Job and Chi-Square Test Result

			Use of database management systems at work		Total
			very useless & useless & neither useful nor useless	useful & very useful	
Ability to use of database management systems	Very bad & bad & Neither good nor bad	Count	72	29	101
		Expected Count	31,8	69,2	101,0
	Good & very good	Count	11	152	163
		Expected Count	51,2	111,8	163,0
Total		Count	83	181	264
		Expected Count	83,0	181,0	264,0
Chi-Square Tests					
	Value	Df	Asymp. Sig. (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	120,503	1	,000		
Continuity Correction	117,527	1	,000		
Likelihood Ratio	127,057	1	,000		
Fisher's Exact Test				,000	,000
Linear-by-Linear Association	120,046	1	,000		
N of Valid Cases	264				

It is clear from Table 27 that there are 163 of the participants stated that they are good and very good on using the database management system while there are 101 of the participants stated that they are very bad, bad and neither good nor bad in

using the database management system. As well as, Table 27 explains that there are more than 181 of the participants stated that the database management systems are useful and very useful in their work area while there are more than 80 of the participants stated that they are very useless, useless and neither useful nor useless in their work area. Good and very good-useful and very useful counts are bigger than their expected counts. Employees' ability on using the database management system is positively affect their performance at work. According to the chi square test result, the relationship between the ability of employees on using the database management system and useful at their work were found to be statistically significant at 0.05 level (Significance=0,000 < α = 0.05).

- **Computer programs used in the workplace**

The ability on using the computer programs used in the workplace and their usefulness to be used in the organizations are explained in Table 28.

Table 28: Cross-Tabulation of Ability to Use of Computer Programs Used in the Workplace and Use Job and Chi-Square Test Result

			Use of MS Computer programs used at work		Total
			very useless & useless & neither useful nor useless	useful & very useful	
Ability to use of Computer programs used in the workplace	Very bad & bad & Neither good nor bad	Count	26	12	38
		Expected Count	6,2	31,8	38,0
	Good & very good	Count	17	209	226
		Expected Count	36,8	189,2	226,0
Total		Count	43	121	264
		Expected Count	43,0	221,0	264,0
Chi-Square Tests					
	Value	Df	Asymp. Sig. (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	88,482	1	,000		
Continuity Correction	84,072	1	,000		
Likelihood Ratio	66,595	1	,000		
Fisher's Exact Test				,000	,000
Linear-by-Linear Association	88,147	1	,000		

N of Valid Cases	264			
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Table 28 shows that the number of persons who have the ability on using the work programs in good and very good way are 226. More shown in Table 28 that there are more than 221 of the participansts stated that the computer programs are useful and very useful in the work. Good and very good-useful and very useful counts are bigger than their expected counts. Employees' ability on using the work programs is positively affect their performance at work. According to the chi square test result, the relationship between the ability of employees on using the work programs and useful at their work were found to be statistically significant at 0.05 level (Significance=0,000 < α = 0.05).

- **Use of information technologies**

This software represents an important issue in most organizations in the world including Libya where the ability of using this software and its usefulness to the participants are shown in Table 29.

Table 29: Cross-Tabulation of Ability to Use of Information Technologies and Use Job and Chi-Square Test Result

			Use of information technologies at work		Total
			very useless & useless & neither useful nor useless	useful & very useful	
Ability to use of information technologies	Very bad & bad & Neither good nor bad	Count	44	34	78
		Expected Count	17,1	60,9	78,0
	Good & very good	Count	14	172	186
		Expected Count	40,9	145,1	186,0
Total		Count	58	206	264
		Expected Count	58,0	206,0	264,0
Chi-Square Tests					
	Value	Df	Asymp. Sig. (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	76,602	1	,000		
Continuity Correction	73,777	1	,000		
Likelihood Ratio	71,813	1	,000		
Fisher's Exact Test				,000	,000
Linear-by-Linear Association	76,312	1	,000		
N of Valid Cases	264				

Table 29 explains the ability on using the information technology by the participants where there are 186 of the participants stated that they are good and very good on using the information technology in the workplace. Table 29 is also clarified that the number of persons who stated that the use of information technology in the workplace is useful and very useful are more than 200 person. Good and very good-useful and very useful counts are bigger than their expected counts. Employees' ability on using the information technology is positively affect their performance at work. According to the chi square test result, the relationship between the ability of employees on using the information technology and useful at their work were found to be statistically significant at 0.05 level (Significance=0,000 < $\alpha = 0.05$).

— **Regression Analysis Results**

The effect of employees' ability to use information technologies on their performance at work was analyzed by linear regression analysis.

Y: Dependent variable (Useless/useful use of employee information technology at work)

X : Predictor variable (Ability of employee use information technology)

The values of the dependent variable (Y) were calculated mean of the answers given to the 20 questions about the application of the information technologies to their work in the survey form. The values of the predictor variable (X) were calculated mean of the answers given to the 20 questions about the ability of the information technology applications to use the employees' information technologies in the survey form.

Table 30: Model Summary Table

Model	R	R. Square	Adjusted R Square	Std. error of the estimate
1	0.627	0.339	0.390	0.668

Table 31: ANOVA Table

Model	Sum of Squares	Df	Mean Square	F	Significance
1 Regression	74.779	1	74.779	167.578	0.000
Residual	115.574	259	0.112		
Total	190.352	260			

- a. Dependent Variable: Y (Mean to use of employee information technology at work)
- b. Predicators (constant), X (Mean of ability of employee to use information technology)

Table 32: Coefficients Table

Mode	Unstandardized Coefficients		Standardized Coefficients	T	Significance
	B	Std. Error	Beta		
1 (Constant)	1.375	0.203		6.765	0.000
X	0.635	0.49	0.627	12.945	0.000

a. Dependent Variable: Y

The results of regression analysis show that there is a positive significant relationship (0,627) between the ability of employees to use information technologies and their performance at work. The coefficient value of the predictor variable is 0,635 and statistically significant. The results of the regression analysis show that the ability of employees to use information technologies is a positive influence on their performance at work.



CONCLUSION

This study is aimed to explore the ability of using the information and communication technologies and their usefulness at work in the Libyan Youth and Sport Ministry. Data were collected on questionnaire form on employee of the Libyan Youth and Sport Ministry. At this study, 20 information and communication technology tools are measured that those tools have been selected accurately as they are important to the success of any organization. The results that obtained can be summarized as follow:

1. Majority of the participants enjoy with ability and knowledge on using MS office programs which are MS Word, MS Excel, MS Power Point and MS Access and their ability on using these programs emerging between “good” and “very good” and these programs usefulness emerging between useful and very useful.
2. Ability of the participants on using the Online Conference System surrounding between “neither good nor bad” and “good” by a large extent of the participants while in terms of its usefulness in the job, they stated that its usefulness emerging between useless to neither useful nor useless in the job.
3. A large sample of the participants ensure that they are “neither good nor bad” to “good” in using the enterprise content management while in terms of its usefulness, a large sample of them stated that it is “neither good nor bad” to “good” in their institution or their work place according to their opinions.
4. The other important tool of information and communication technology is the windows operating system where the answer of this question clarified that most of the participants are “good” and “very good” on using this software and in it is useful and very useful in the job as stated by a large sample of the participants.
5. A large sample of the participants stated that the photocopy and printing machine is useful and very useful at their work place and they can use it in “good” and “very good” way by most of them.
6. In terms of the digital document management, a large sample of the participants stated that they are “neither good nor bad”, “good and very good”

on using this information and communication technology tool in another hand, they stated that it is useful to very useful at their organizations.

7. The other good tool is the electronic training where a large participants stated that they are “neither good nor bad” to “good” in the electronic training while in terms of its usefulness, the participants stated that it is neither useful nor useless, useful and very useful at their institutions.
8. In terms of the communication with related institutions, a large percentage of the participants stated that they are “good” at this action and it is considered useful to their institutions.
9. The internet and search is another important tool for the information and communication technology where the largest sample of the participants stated that they are “very good” in the internet and search and they stated that it is very useful to their organizations.
10. A large percentage of the participants stated that the institution phone is “good” and it provides usefulness to any organization while the mobile phone, a large sample of the participants stated that the mobile phone is “very good” and very useful to be used at their institutions whereas the last tool is the institution fax where this tool is “good” and useful to the organization success as mentioned by a large sample of the participant.
11. In terms of the social media which are used in the job including the use of WhatsApp, Facebook, Viber, Skype and etc. The largest percentage of the participants stated that they use the social media in “good” and “very good” way and they are considered useful and very useful according to the point of view of participants.
12. The last three most important tools which are used frequently in any organization in the world are database management systems, computer programs and information technology. In terms of the database management system, a large sample of the participants mentioned that they are “good” on using this software and it is considered very useful to their workplace. The other software tool is the computer programs where these software tools are “good” and useful to their workplace as stated by the participants while the last one is the information technology tool where a large sample of the

participants stated that the information technology is “good” and useful at their work area.



RECOMMENDATIONS

The researcher provides a set of recommendations which depend on the study results in order to be benefited at this field in promoting the direction towards the use of information technology in the Libyan Youth and Sport Ministry and these recommendations can be illustrated as follow:

- The use of information and communication technology tools in different fields of the Libyan Ministry of Youth and Sport and other public and private sectors organizations or work on expanding the work scope of using those tools by developing the current procedures.
- Provide additional budget which must be allocated in order to increase the devices and software tools to get benefit from the modern technology and get rid of the routine that has exhausted the country institutions.
- Set up training courses to the current employees inside Libya in addition to send students to study abroad in order to realize the reality and development which occur in the developed countries.
- The dependence of the internal electronic messaging instead of the paper messaging which contribute in decreasing the administrative financial consumption and the speed of job completion.
- The distant training and learning between the accounting and administrative information systems and work on associating what is available currently as a start to the gradual transform into the use of information technology.

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LIST OF FIGURES

Figure 1: The determinants of employees' performance	57
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LIST OF TABLES

Table 1: The Difference between the Information and Data	27
Table 2: The use of information technology in the financial and economic sector ...	35
Table 3: The application of information technology in the field of education	36
Table 4: The Questionnaire Questions Which Used in Our Study	76
Table 5: Distribution of Sample by Gender	78
Table 6: Distribution of Sample by Age	78
Table 7: Distribution of Sample by Educational Level	78
Table 8: Distribution of Sample by Job Title	79
Table 9: Distribution of Sample by Work Experience	79
Table 10: Crosstabulation of Ability to Use MS Word Program and Use Job and Chi-Square Test Result	80
Table 11: Cross-Tabulation of Ability to Use MS Excel Program and Use Job and Chi-Square Test Result	81
Table 12: Cross-Tabulation of Ability to Use MS Power Point Program and Use Job and Chi-Square Test Result	83
Table 13: Cross-Tabulation of Ability to Use MS Access Program and Use Job and Chi-Square Test Result	84
Table 14: Cross-Tabulation of Ability to Use Online Conferencing System and Use Job and Chi-Square Test Result.....	85
Table 15: Cross-Tabulation of Ability to Use Enterprise Content Management and Use Job and Chi-Square Test Result.....	86
Table 16: Cross-Tabulation of Ability to Use Windows Operating System and Use Job and Chi-Square Test Result.....	87
Table 17: Cross-Tabulation of Ability to Use of Photocopy and Printing Machine .	88
Table 18: Cross-Tabulation of Ability to Use of Digital Document Management ...	89
Table 19: Cross-Tabulation of Ability to Use of Electronic Training and Use Job and Chi-Square Test Result	90

Table 20: Cross-Tabulation of Ability to Use of Direct Synchronous Connection and Use Job and Chi-Square Test Result.....	91
Table 21: Cross-Tabulation of Ability to Use of Communication with the Related Institutions and Use Job and Chi-Square Test Result.....	92
Table 22: Cross-Tabulation of Ability to Use of Internet and Search	94
Table 23: Cross-Tabulation of Ability to Use of Institution Phone.....	95
Table 24: Cross-Tabulation of Ability to Use of Mobile Phone.....	96
Table 25: Cross-Tabulation of Ability to Use of the Institution Fax	97
Table 26: Cross-Tabulation of Ability to Use of WhatsApp, Facebook, Viber, Skype and etc and Use Job and Chi-Square Test Result	98
Table 27: Cross-Tabulation of Ability to Use of Database Management Systems and Use Job and Chi-Square Test Result.....	99
Table 28: Cross-Tabulation of Ability to Use of Computer Programs Used in the Workplace and Use Job and Chi-Square Test Result	100
Table 29: Cross-Tabulation of Ability to Use of Information Technologies and Use Job and Chi-Square Test Result.....	102
Table 30: Model Summary Table	103
Table 31: ANOVA Table.....	103
Table 32: Coefficients Table.....	103

APENDIX A

QUESTIONNAIRE OF THE STUDY

Use of Information Technologies

This questionnaire aims to determine the use of employees' information technologies and be useful at work. The data obtained with this questionnaire form will be used to study the master's thesis. Please tick the most suitable option for you. Thank you for your participation.

Nassradin ELWAHAYSHE
Business Administration
Social Sciences Institute
Karabük University

Gender Female Male

Your age (.....)

Education High school degree Bachelor degree Master degree
 Doctorate degree

Job Experience (.....year)

Job title : Manager Deputy director Secretary
Other

SN	Information Technologies	Your ability					At your work				
		1 very bad	2 bad	3 neither good nor bad	4 good	5 very good	1 very useless	2 useless	3 neither useful nor useless	4 useful	5 very useful
1	Use of MS word program										
2	Use of MS excel program										
3	Use of MS access program										
4	Use of MS power point program										
5	Online conferencing system										
6	Enterprise content management										
7	Windows operating system										
8	Use of photocopy and printing machine										
9	Use of Digital Document management										
10	Electronic training										
11	Direct synchronous connection										
12	Communication with the related institutions										
13	Use of internet and search										
14	Use of institution phone										
15	Use of mobile phone										
16	Use of the institution Fax										
17	Use of WhatsApp, Facebook, Viber, Skype and etc										
18	Use of data based management systems										
19	Computer programs used in the workplace										
20	Use of information technologies										

APENDIX B

ABILITY ON USING THE INFORMATION TECHNOLOGY TOOLS

	very bad		bad		Neither good nor bad		Good		Very good	
	Count	Row N %	Count	Row N %	Count	Row N %	Count	Row N %	Count	Row N %
Your Ability_Use of MS word program	4	1.5%	4	1.5%	23	8.8%	147	56.3%	83	31.8%
Your Ability_Use of MS excel program	8	3.1%	18	6.9%	60	23.0%	118	45.2%	57	21.8%
Your Ability_Use of MS power point program	22	8.4%	29	11.1%	82	31.4%	91	34.9%	37	14.2%
Your Ability_Use of MS access program	0	0.0%	5	1.9%	21	8.0%	138	52.9%	97	37.2%
Your ability_Online conferencing system	13	5.0%	25	9.6%	72	27.6%	123	47.1%	28	10.7%
Your ability_Enterprise content management	10	3.8%	32	12.3%	76	29.1%	122	46.7%	21	8.0%
Your ability_Windows operating system	8	3.1%	12	4.6%	40	15.3%	124	47.5%	77	29.5%
Your ability_Use of photocopy and printing machine	0	0.0%	13	5.0%	40	15.3%	106	40.6%	102	39.1%
Your ability_Use of Digital Document management	10	3.8%	18	6.9%	59	22.6%	108	41.4%	66	25.3%
Your ability_Electronic training	9	3.4%	20	7.7%	74	28.4%	102	39.1%	56	21.5%
Your ability_Direct synchronous connection	19	7.3%	32	12.3%	81	31.0%	97	37.2%	32	12.3%
Your ability_Communication with the related institutions	9	3.4%	18	6.9%	55	21.1%	135	51.7%	44	16.9%
Your ability_Use of internet and search	0	0.0%	6	2.3%	17	6.5%	99	37.9%	139	53.3%
Your ability_Use of institution phone	10	3.8%	21	8.0%	43	16.5%	108	41.4%	79	30.3%
Your ability_Use of institution phone	10	3.8%	21	8.0%	43	16.5%	108	41.4%	79	30.3%
Your Ability_Use of mobile phone	2	0.8%	7	2.7%	16	6.1%	83	31.8%	153	58.6%
Your Ability_Use of the institution Fax	21	8.0%	42	16.1%	55	21.1%	107	41.0%	36	13.8%
Your Ability_Use of WhatsApp, Facebook, Viber, Skype and etc.	1	0.4%	8	3.1%	15	5.7%	97	37.2%	140	53.6%
Your Ability_Use of database management systems	9	3.4%	12	4.6%	81	31.0%	98	37.5%	61	23.4%
Your Ability_Computer programs used in the workplace	3	1.1%	9	3.4%	26	10.0%	129	49.4%	94	36.0%
Your Ability_Use of information technologies	0	0.0%	12	4.6%	66	25.3%	106	40.6%	77	29.5%

APENDIX C

EXPERIENCE ON USING THE INFORMATION TECHNOLOGY TOOLS

	very useless		useless		neither useful nor useless		useful		very useful	
	Count	Row N %	Count	Row N %	Count	Row N %	Count	Row N %	Count	Row N %
At_Your_Work_Use of MS word program	3	1.1%	20	7.7%	24	9.2%	129	49.4%	85	32.6%
At_Your_Work_Use of MS excel program	13	5.0%	30	11.5%	48	18.4%	99	37.9%	71	27.2%
At Your Work Use of MS power point program	17	6.5%	29	11.1%	74	28.4%	114	43.7%	27	10.3%
At Your Work_Use of MS access program	4	1.5%	25	9.6%	14	5.4%	118	45.2%	100	38.3%
At your work_Online conferencing system	18	6.9%	53	20.3%	49	18.8%	101	38.7%	40	15.3%
At your work_Enterprise content management	5	1.9%	37	14.2%	69	26.4%	129	49.4%	21	8.0%
At your work_Windows operating system	3	1.1%	20	7.7%	38	14.6%	90	34.5%	110	42.1%
At your work_Use of photocopy and printing machine	3	1.1%	9	3.4%	21	8.0%	102	39.1%	126	48.3%
At your work_Use of Digital Document management	7	2.7%	20	7.7%	62	23.8%	99	37.9%	73	28.0%
At your work_Electronic training	4	1.5%	28	10.7%	66	25.3%	103	39.5%	60	23.0%
At your work_Direct synchronous connection	10	3.8%	38	14.6%	81	31.0%	100	38.3%	32	12.3%
At your work_Communication with the related institutions	6	2.3%	16	6.1%	55	21.1%	139	53.3%	45	17.2%
At Your Work_Use of internet and search	6	2.3%	11	4.2%	22	8.4%	75	28.7%	147	56.3%
At Your Work_Use of institution phone	3	1.1%	12	4.6%	58	22.2%	141	54.0%	47	18.0%
At Your Work_Use of mobile phone	9	3.4%	9	3.4%	25	9.6%	95	36.4%	123	47.1%
At Your Work_Use of the institution Fax	25	9.6%	47	18.0%	54	20.7%	96	36.8%	39	14.9%
At Your Work_Use of WhatsApp, Facebook, Viber, Skype and etc.	3	1.1%	34	13.0%	32	12.3%	89	34.1%	103	39.5%
At Your Work_Use of database management systems	3	1.1%	12	4.6%	68	26.1%	86	33.0%	92	35.2%
At Your Work_Computer programs used in the workplace	2	0.8%	13	5.0%	28	10.7%	112	42.9%	106	40.6%
At Your Work Use of information technologies	0	0.0%	14	5.4%	44	16.9%	117	44.8%	86	33.0%

CURRICULUM VITAE

Nassradin Moftah A. ELWAHAYSHE , I was born in 1974, Zintan- Libya. I completed my primary and secondary school education in Zintan, I got Higher Diploma degree in Electrical Engineering from Higher Institute of Training of Trainers in 1998 with valid degree. In 1999, I got a job in the Libyan Ministry of Youth and Sports in Zintan city. In 2015, the Libyan Ministry of Higher Education granted me a scholarship to complete my master degree at the Department of Business Administration in the university of Karabuk Turkey.

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