



## Networking Technologies ..Types, Characteristics and Areas of Use

تكنولوجيات التشبيك .. أنواعها ، خصائصها ومجالات استخدامها

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### Abstract :

Information and communication technologies in their various branches have witnessed great developments in recent years, and here we refer to networking technologies, mainly represented in satellite technology, the Internet and smart phones. As a result of this tremendous development, a group of new media of all kinds has spread remarkably, to enter into all activities and sectors of economic, social, cultural and media life.

The diversity of areas of use of these modern technologies and their intrusion into all fields is a result of the diversity of the public's use of them, its goals and objectives that it wants to achieve from behind this use, and on the other hand due to the advantages and services that it achieves for humans in a short time and with less effort, and this is what made it become part of his daily life.

**Keywords:** media and communication technologies, networking technologies, new media, satellites, the Internet, smart phones, the user.

### الملخص :

شهدت تكنولوجيات الإعلام والاتصال بفروعها المختلفة تطورات كبيرة في السنوات الأخيرة ، وهنا نشير إلى تكنولوجيات التشبيك و المتمثلة أساسا في تكنولوجيا الأقمار الصناعية والإنترنت والهواتف الذكية . وكنتيجة لهذا التطور الهائل ، انتشرت مجموعة من الوسائط الجديدة على اختلاف أنواعها وبشكل لافت ، لتدخل في كل نشاطات وقطاعات الحياة الاقتصادية ، الاجتماعية ، الثقافية والإعلامية ، فتتنوع مجالات استخدام هذه التقنيات الحديثة واقتحامها لكل الميادين هو نتيجة لتنوع أنماط استخدام الجمهور لها و غاياته وأهدافه التي يريد تحقيقها من وراء هذا الاستخدام ومن جهة أخرى نظراً للمزايا والخدمات التي تحققها للإنسان في وقت قصير وبجهد أقل وهذا ما جعلها تصبح جزءاً من حياته اليومية .

الكلمات المفتاحية : تكنولوجيات الإعلام والاتصال ، تكنولوجيات التشبيك ، الوسائط الجديدة ، الأقمار الصناعية ، الإنترنت ، الهواتف الذكية ، المستخدم .



## 1. INTRODUCTION

Communication and information technologies have known great developments through different historical stages, which gave them an important position in various fields of economic, social, cultural life, including the media. These technological developments have led to the spread of advanced, easy-to-use and highly effective means and devices in achieving distinguished services in a short time and with less effort

Every day that passes these media do not stop growing and developing. This rapid growth is reflected in the multiplication of the number of users across the world, which has reached billions of users of various forms and types of these new pillars and means, and whose usage patterns and goals and objectives they want to achieve through this use differ.

These new technologies have contributed to networking the world and forming virtual communities that share many advantages granted to them by the new media revolution that followed in the communication space, and perhaps the most important feature is the feature of unlimited temporal and spatial presence in which millions of users exchange data and information quickly and instantaneously.

Which makes the communication process as if it is an endless network of action and immediate reaction, and this is what made researchers call these technologies the technologies of networking, which are mainly represented in satellite technology, computer and the Internet, down to the smart phone technologies that caused a qualitative leap in communication.

In this research paper, we will try to provide a scientific presentation of what networking technologies are, their types, areas of use, the advantages and services they provided to the audience of their users, and accordingly we will try to answer the following problem: **What are the areas of using networking technologies? And what advantages do you give to the audience of users?**

For this purpose, we will try to answer the following questions:

- 1 What are the types of networking technologies?
- 2 What are the areas of use of networking technologies?
- 3 What are the advantages and characteristics of networking technologies?

**Study Objectives:** This study aims to achieve the following objectives:

- Knowing the types of networking technologies
- Knowing the areas of use of networking technologies
- Knowing the advantages and characteristics of networking technologies



### **the importance of studying :**

The importance of the study is highlighted by the novelty of the topic in question and its importance in all sectors of social, political, economic, cultural, and scientific life.

This bifurcation that characterizes networking technologies necessitates us, as researchers in media and communication sciences, to study all its aspects related to concepts, terminology, patterns and areas of use for these new communication media, and this is in order to achieve the largest percentage of benefit that serves societies and avoid the negative effects of the unstudied uses of these media, which are predominantly in character. Entertaining.

### **Study methodology and tools:**

The methodology used in this study is to use methodological methods imposed by the importance of the study and its general objective, as it was imposed by the treatment, discussion and then analysis of the subject presented for treatment, which calls for the necessity of choosing the appropriate research method and tools that the problem raises, namely:

The survey method, which "is considered one of the most prominent methodological methods in the field of media studies, and which represents an organized scientific effort to obtain data and information about the phenomenon or group of phenomena in question."

It is also useful from this methodological approach in studying the problem and deconstructing it into its hierarchical elements, in order to reach useful connotations, and to draw conclusions that help to carry out the analysis to reach results (Roger mucchielli, 2006, p17).

The study, then, followed the descriptive survey method, through an inventory of the most important scientific contributions that touched on the topic of networking technologies, new media and communication, and the areas of their use in the lives of societies and various human activities.

To achieve this, we relied on the observation tool and readings of the references that preceded us in raising this topic.

As for the tools used, the researcher touched on the research contributions related to the study questions

And by using scrutiny and analysis to draw conclusions, accordingly we can address the main axes that make up the subject presented for treatment.

We will try to address the types of networking technologies and clarify and dismantle this new communication concept, and then we will be exposed to the areas of use of these new technologies, their advantages and communication characteristics as follows :

## **2. The concept of networking technologies and their historical development:**

### **2.1 The concept of technology:**



Technology is a word of Greek origin, consisting of two syllables, the first syllable: Techno, which means craft, skill, or art, and the second: Logy, which means science or study (Makawi, 1993, p 14). Hence, the word technology means the science of performance or the science of application; Many scholars have cited many other definitions of the word technology, and we will present some of them as follows:

Technology is "a comprehensive process that applies science and knowledge in an orderly manner in several fields to achieve purposes of practical value to society. Technology is defined as the optimal use of scientific knowledge, its applications, and adaptation to serve the human being and his well-being. (Aref, 2015, p 141) "

The common concept of the term technology is the use of the computer and other modern devices, and this view is limited in vision, as the computer is a result of technology, while the technology intended by this course is a way of thinking and solving problems, and it is a method of thinking that leads the individual to the desired results (Al-Mazahra, 2014, p 27), that is, it is a means and not a result. And it is the way of thinking about using knowledge, information, and skills, in order to reach results to satisfy human needs and increase their capabilities.

## **2.2 The concept of networking:**

Interweaving in its linguistic meaning means bringing things together. A form of communication is a process that encourages the exchange of information and ideas between individuals or groups who share a common interest. This may be for social or commercial purposes.

"It is the exchange of information and ideas between people who have a common profession or a special interest, usually in an informal social environment. (Aref, 2015, p 147)

Networking is that communication process that takes place between a large number of individuals connected to each other using modern devices and technologies that allow them to exchange a huge amount of data and information at one time and from several places with less effort.

## **2.3 Networking technologies:**

It is the employment of new communication and media technologies in the field of information exchange between the public of users who seek to achieve pre-established goals through its use of these technologies and its joining its various networks, which it uses in all fields of its daily social, economic, social, political, cultural, religious and media life.

These technologies are called networking technologies because they have contributed to linking millions of users to each other thanks to their advantages and communicative



characteristics based on interaction and transcending temporal and spatial boundaries. It has also gained the quality and advantage of networking through its diverse areas of use and includes all sectors of the user's audience life.

### 2.4 Types of networking technologies and their historical development:

In ancient times, in which man relied on agriculture for his livelihood, many primitive means of communication were used, some of which still exist today, such as “Al-Barah” and “Tabla” and other means ... etc., and after the emergence of the Industrial Revolution Which relied on the machine in Britain and then spread to the rest of the European countries. Cities were established based on industrial activity, and their population density increased due to the migration of rural residents to it in search of work and livelihood. The written press appeared as a means of media resulting from the invention of printing, and then radio in the twenties of the century and then television in the fifties to form the old communication technologies.( Nabil , 2015 )

And after the outbreak of the Cold War between the United States of America and the Soviet Union, which can be considered the beginning of the era of the electronic explosion, as technology witnessed in various fields of development that contributed to improving human living conditions. It also contributed during the two world wars to the destruction of countries and the killing of human beings.

New media technologies appeared and Communication (New Information and Communication Technologies) (Fadeel , 2015 , p 13 ) which had great credit for the expansion of the communication network and the dissemination of information between individuals and groups in record time and without any error, no matter how long the distance, as these technologies were represented in computers, satellites, the Internet and smart phones .

In order to know the position of communication technologies among the rest of the technologies, we will review their classification as follows:

- ❖ **Creative technologies:** It includes every technology capable of adding a technological element to what exists previously, such as biotechnology, which includes genetic modification processes to improve certain types of fruits, for example, smart materials that are used to facilitate human work and provide him with comfort, such as a home It contains an automatic control device for doors and lighting, for example, and nanotechnology that is used to enlarge images hundreds of times in order to detect certain diseases, for example.( Andy , 2016 , p 15 ) .
- ❖ **Destructive technology:** It includes every technology that cancels the technologies that came before it, such as what is familiar in the field of computers with its hardware and software, which as soon as new advanced products appear within it, and previous products are abolished.( Theodore ,2012 , p 28 )

As for networking technologies, they are management and use technologies that are characterized by speed, security, and quality. They are not creative or destructive technologies. Their motto is (people make the least effort to obtain the greatest benefit).



Networking technologies have been linked in terms of their appearance to the electron, which has been relied upon to improve human life conditions instead of the machine since the beginning of the second half of the twentieth century. It is realistic, but it cannot be touched by touch, but rather integrates and interacts with it through the screen of an electronic device through which texts can be read, sounds and images are seen, whether static or moving.

After identifying the historical development that accompanied the emergence of communication and networking technologies, we will present their classification as follows

➤ **Computer technology:**

The computer is the first information and communication technologies or networking technologies that appeared during the forties of the last century, and it witnessed development in terms of manufacturing materials used in its manufacture and technologies contributing to the modernization of its components, and this is evident through the four generations witnessed by the development of the computer starting from the era of computers Vacuum valves (1945-1956) through the emergence of transistor computers (1956-1965) and the invention of integrated circuit computers (1965-1971) and the end of the era of microprocessor computers that are used in our time along with laptops.( Jumaa , 2013 , p 123 )

A computer is an electronic device that processes information in an automatic way by receiving it as data and ending with storing it or outputting it to the user in multiple forms (text, audio, image, video), and it is linked to the computer by basic terms:( Al-Drouqi , 2008 , p 6 )

- ✓ Data: Any input that a computer can handle
- ✓ Processing: It is all the processes of organization, modification and transformation that are applied to the data by the computer
- ✓ Information: is everything that results from data processing inside a computer
- ✓ Storage: is the process of retaining information resulting from the processing process in storage devices and accessories
- ✓ Output: is the process of showing information in a form that the user can use or benefit from

A computer is a multi-use device unlike other electronic devices that benefit humans in a specific field, and the reason for this is due to its distinctive capabilities that are similar in describing human capabilities, as a person can learn to perform a new profession, a computer can be programmed to perform a task He was not able to do it before, and that is only by the availability of two necessary conditions: the physical accessories that allow the user of the device to enter data or use its outputs and benefit from them, and the programs necessary to use the physical accessories to perform the specific task.



The computer has performed the function of media by disseminating various information to individuals and institutions depending on storage media such as hard disks, floppy disks and compact discs, and this is similar to the paper holder in performing the function of media by means of newspapers and books, for example, then new technologies and applications appeared that enabled the computer To become an effective and indispensable means of communication and information.

➤ **Satellite technology:**

They are transmitters and receivers that travel in outer space orbit outside the Earth's gravitational field and move with the Earth's rotation, and they are able to re-transmit signals to any point on the Earth's surface. The first idea of the possibility of using satellites goes back to "Arthur Clark" who mentioned it in An article he wrote in 1945 AD in which he predicted the possibility of placing satellites revolving in orbits synchronized with the movement of the Earth, and thus the usual obstacles represented in the terrain in general could be avoided.( Hamdi , 2011 , p 18) .

The invention of this technology has been reached to get rid of the problems of transmission and transmission due to natural obstacles such as heights and mountains during the Cold War in order to ensure that the information that is sent to the receiving party, and this technology remained monopolized in the military field until the emergence of network technology.

➤ **Internet technology:**

The term Internet is a translation of the English word "Internet", which is originally an abbreviation for two words, Interconnected and Networks, that is, it means (internetwork) or (between networks) or (network of networks), and therefore the Internet is known as a huge network that includes Small networks distributed throughout the world, which in turn include millions of computers, in order to transfer and exchange information between them.( Al-Sayed , 2004 , p 19) Like other famous technological inventions, its use after its first appearance was limited to the military field only, and its first nucleus was invented with the idea of providing a communication system that does not have a main control center in order to ensure the continuation of the work of this system in the event of the destruction of some of its parts, which is what was embodied in The Advanced Research Projects Agency Network (ARPANET),

Then this network, which was considered primitive over the years, developed and its use remained the monopoly of the US Department of Defense, which benefited from it in linking its military bases across various countries to exchange information until the fall of the Soviet Union at the end of the eighteenth century, after which it launched the Internet in its current form for civilian use. As a technology that can network the world(Shaheen , 2015 , p 43 ) and a group of terms have been associated with the Internet after its development has been completed, perhaps the most prominent of them are:



www is an abbreviation for the term World Wide Web, which means the World Wide Web HTTP is an acronym for HyperText Transfer Protocol, which is a system that allows the transmission and transmission of information on Internet pages

IP Adresse is an abbreviation for Internet Protocol Adresse, and it is a protocol that is linked in terms of functionality with another protocol symbolized by TCP, which is an abbreviation for Transmission Control Protocol, meaning that they are two protocols that work together (TCP/IP), the last of which is TCP used to send information By dividing it into packets over the Internet, while the IP protocol allows each device connected to the Internet to be named so that the destination of information can be determined each time it must be sent, by 4 triples of numbers that make up a number less than 256 in each of the four spaces.( Khairbek , 2000 , p 75 )

The company responsible for providing the Internet across the world is (ICANN) and its name is an abbreviation for Internet Corporation Assigned Names and Numbers, where this company works to provide domain names for websites such as (com, net, org, gov, info ... etc.) and It also provides the IP addresses of the computers connected to the network according to certain technical systems, and the Internet includes a very large number of sites that represent enormous information that needs large storage spaces, Huge Servers are the ones that provide these storage spaces, as they are considered a type of supercomputer Which are used to store information circulated over the Internet. There are 13 servers of this type around the world, ten of which are located in the United States of America alone, distributed as follows:

- 07 maids are located in California - 03 maids are located in Washington  
The remaining three are distributed as follows:

- A servant is located in Japan - Two servers are located in Europe

There are also devices called proxy devices that look like huge servers and have less technical capabilities that give Internet service to providers in a group of countries, and providers are the ones who provide Internet service to customers in a country like the Internet service provider (Djaweb) in Algeria, the service provider It provides the Internet for small servers, such as those found in institutions, for example, and provides the Internet for ordinary users in their homes.( BATES ,2011 , p 37 )

➤ **Smart phone technology:**

A smartphone is a portable device that works according to a sophisticated operating system that combines the provision of traditional phone services and personal computers in a professional manner that allows its user to receive information, communicate with people and accomplish various tasks.( Secondary Industrial Institutes , 2016 , p 9 )

The history of smart phones dates back to 1992 when (IBM) unveiled the Simon phone, as its role was not only to receive calls, but also to set schedules, world time, address book, memo, e-mail, and from here the process of sending and receiving began over the internet.





After that, the manufacture of smart phones followed and gradually began to pull the rug out of traditional phones whose role is limited to transmitting voice, SMS and some simple services.( Aljazeera Encyclopedia , 2016 )

Telecom companies have worked to provide mobile phones with new services and tools that eventually led to the emergence of mobile phones that mix the functions of the computer and the phone, and provide advanced services at various levels: business and communication, and receiving news and information to begin the harbingers of the participation of the user of this new type of phone in the process of producing stories News and dissemination through these new technical supports.

Smartphones have developed amazingly in short periods of time as they support more advanced additional features such as scratch-resistant touch screens, and built-in high-resolution cameras.

Smartphones have opened up very broad horizons in the field of communications, allowing talking with others, sending text messages, making video and audio calls, communicating with others, producing content and sharing it through various social networks and satellite news screens.( Bukhanchush , 2019 )

### **3. Areas of use of networking technologies:**

#### **3.1 Domains of using computers:**

The old and new portable computers are used in all areas of life. Among the most important uses are:

##### ➤ **Educational uses:**

The use of the computer is the first step on the way to getting rid of the traditional methods of education, by developing new ways to practice the educational process. It has become easy to search for any amount of information and data by the student through the use of advanced computer technologies.( Farjoun , 2004 , p 13 )

The computer is also used to store information and allows it to be retrieved at any time when needed. The use of computers in the field of education has led to the development of the students' mentality by allowing the student to innovate and create by using the various programs offered by the computer, which led to an increase in the efficiency of education as well as an increase in the cognitive achievement of students.

The computer has also become an essential factor for conducting various scientific research in many scientific fields such as physics, chemistry, and others, as it is used to analyze and sort data and obtain results. The computer is an important means for distance education, as it allows a person to learn anything from anywhere in the world while he is at home by choosing the thing to learn and start learning immediately.( Al-Mousa , 2012 , p 27 )

##### ➤ **Industrial uses:**



The computer is one of the operating foundations upon which any factory of any kind is based. Hardly a single factory is devoid of a computer, whether this factory is for cars, electronics, or even heavy industries.

The computer has been widely used in industry by developing various design programs, which are called CAD(Kasban , 2016 , p 73 ) , and these programs have been used to draw different designs, whether simple or complex designs, and then enter them into auxiliary programs called CAM, in order to complete the manufacturing process. The use of computers in industry has enhanced the accuracy and speed of production as well as the control over the final specifications of the product.

The computer is involved in driving all machines and equipment, which can produce any type of product in large factories or large companies that produce various goods. The computer or the computer has the ability, through the modified programs that it works in the industrial field, to give different orders on all kinds of machines in order to carry out different work, which can save a lot of manpower that was supervising those machines. Perhaps one of the most important uses of the computer in the field of industry is that it can measure in different ways the quality of the products that can be produced, and the programs that the computer works with make the production wheel fast and advanced, and these programs can organize the production process in many forms.

➤ **Engineering uses:**

In the past, engineering work drained the time and effort of engineers to carry out study, conclusion and experiment.

Until the appearance of the computer, which became bearing a great burden on the shoulders of the engineer, due to his ability to perform multiple functions in all engineering disciplines, by providing a set of programs that facilitate the work, such as the Autocad program . (Suleiman , 2012 , p 19)

➤ **Commercial uses:**

The computer is used in the field of commerce more than any other field as it is used to perform complex calculations without effort and in a very short time. Most business transactions between companies have become completely dependent on the presence of a computer. It is also used to calculate budgets, profits, payments, receipts, salaries, covenants, etc., and international institutions and banks. It is widely used in conducting operations, issuing checks, and transferring amounts electronically between banks, monetary institutions and individuals.( Azzam , 2012 , p 94 )

Due to the technological development witnessed in this era, the computer has been used in the field of electronic commerce and is also used for marketing products and companies in what is known as electronic marketing, and thus the presence of the computer has become associated with the success of the business process.



### ➤ **Medicinal uses:**

The computer is widely used in the field of medicine, especially with regard to the heart and brain, in order to conduct the necessary analyzes and tests such as electroencephalography. The computer is also used to diagnose many diseases as well as monitor the daily condition of patients.

Computers are used in the manufacture of many medical devices such as control devices, so the computer has become the third arm of doctors when performing delicate operations. Also, the computer is used in many laboratory devices that analyze samples that explain the emergence of some diseases in human life . (The General Organization for Technical and Vocational Training, Computer Techniques in Medicine , 2018 , p 13 )

### ➤ **Agricultural uses:**

Agriculture in the modern era has become highly developed. In past ages, man used to do agriculture, irrigation, water diversion and all the things he could need by himself, meaning that there are no types of supports that can help him in those works. But with the development of technology, there are many modern means and technologies that can save effort and hardship for humans in agriculture, in addition to equipment that can do many of the things that people used to do by themselves in the daily life they live.

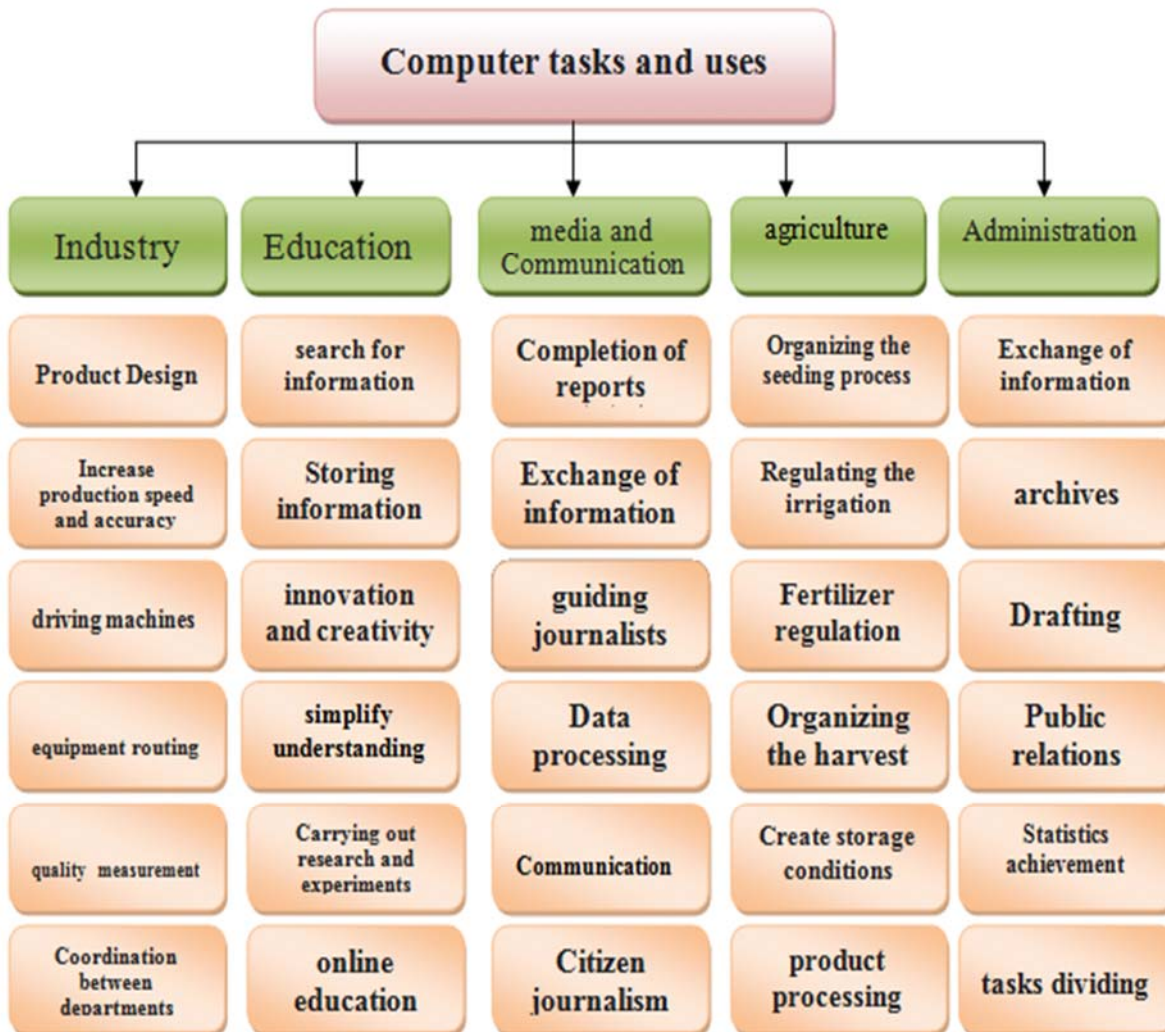
Perhaps one of the most important uses of computers in the field of agriculture is the following: “Irrigation and farming systems in modern times have become a lot of equipment that can help a person to carry out the irrigation process that he may need on his own agricultural land, and man uses these Equipment in order to get plenty of time.Perhaps one of the most important things that a computer can enter in the agricultural field is that it controls many machines that can harvest agricultural crops, which people used to harvest themselves in the past, and this is what can It saves a lot of time and effort for a person.( Al-Qahtani , 2013 , p 6 )

### ➤ **Administrative uses:**

All institutions and departments, including media institutions and public administrations, depend in their work on desktop computers, which have become in the institution an interconnected network consisting of a number of devices connected to each other, through which employees exchange various data and information, and they edit various administrative documents and news reports using this device .



To summarize the above, we will review the most important areas of computer use in the following illustration:



**Diagram showing areas of computer use**

### 3.2 Areas of Internet use:

Since its inception, the Internet has changed and developed many areas. Here we review the 10 most prominent areas and changes that the world has witnessed:

➤ **Communication :**

In order for a person to communicate with others, he had to call, send a message, or go to his place. Then, he had to wait for a response, which slows down the communication process. Today, there are other methods of communicating in real time with others, such as social media platforms, email and video.( Obaid , 2017 , p 14 )

➤ **the shopping :**



To purchase any product, one would have to physically go to a store, but that all changed with the Internet. The shopper can now buy any product and ship it over the Internet, and even compare prices between more than one store and a platform to choose the best in moments.( Abu Fara , 2018 , p 51 )

➤ **search :**

Google, Wikipedia and other sites made it easy to search for any information to learn more about any topic. With the push of a button, anyone can turn from ignorant of a particular topic to knowledgeable about it.

➤ **education :**

The Internet contains private lessons and universities that operate online around the world. Instead of having to travel and change location, or register in an institute for strengthening in a specialty, a lot of knowledge can be gained by browsing academic pages on the network.( Saadeh , 2013 , p 27)

➤ **News and weather:**

To find out what the weather was like, everyone had to wait for the newscast. Today, this can be known through the smartphone, which includes this information automatically according to the country for each user.

Whereas newspaper and television were the only source of news, today anyone can read all the websites and search according to their interests in minutes. It is also possible to watch channels via live broadcasts if there is no television nearby, and the Internet user can produce news contents and share them over the network to reach millions of users.

➤ **Entertainment:**

Instead of renting movies and waiting for them to be shown on the channels, today series and movies can be watched via Internet sites and live broadcasts.

➤ **Banking sector:**

To find out the bank balance, one had to visit the bank in person. While today, most banks have online applications that guarantee the user all the information about his accounts, his balance, and even his loans. It can also pay via smart apps.

➤ **Travel :**

During travel trips, the map was an essential presence to know the destinations. The traveler also had to wait in a long line to get the plane ticket and specify destinations and prices. With Google Maps, GPS devices, and travel agency websites and apps, all of that has changed. Today you can book a flight and pay online.( Othman , 2012 )

➤ **Creating relationships:**

Today there are apps dedicated to dating and meeting new people. Social networking sites have also made it easy to meet with people from different places and countries.

➤ **Searching for job offers:**

To get a job, everyone had to wait for advertisements in newspapers or visit company headquarters to apply. Today, anyone can publish through social networks the news that he is



looking for a job in order to find many links. In addition to recruitment sites, companies advertise jobs through their websites and pages on social media.

The most important areas of Internet use can be summarized in the following diagram:

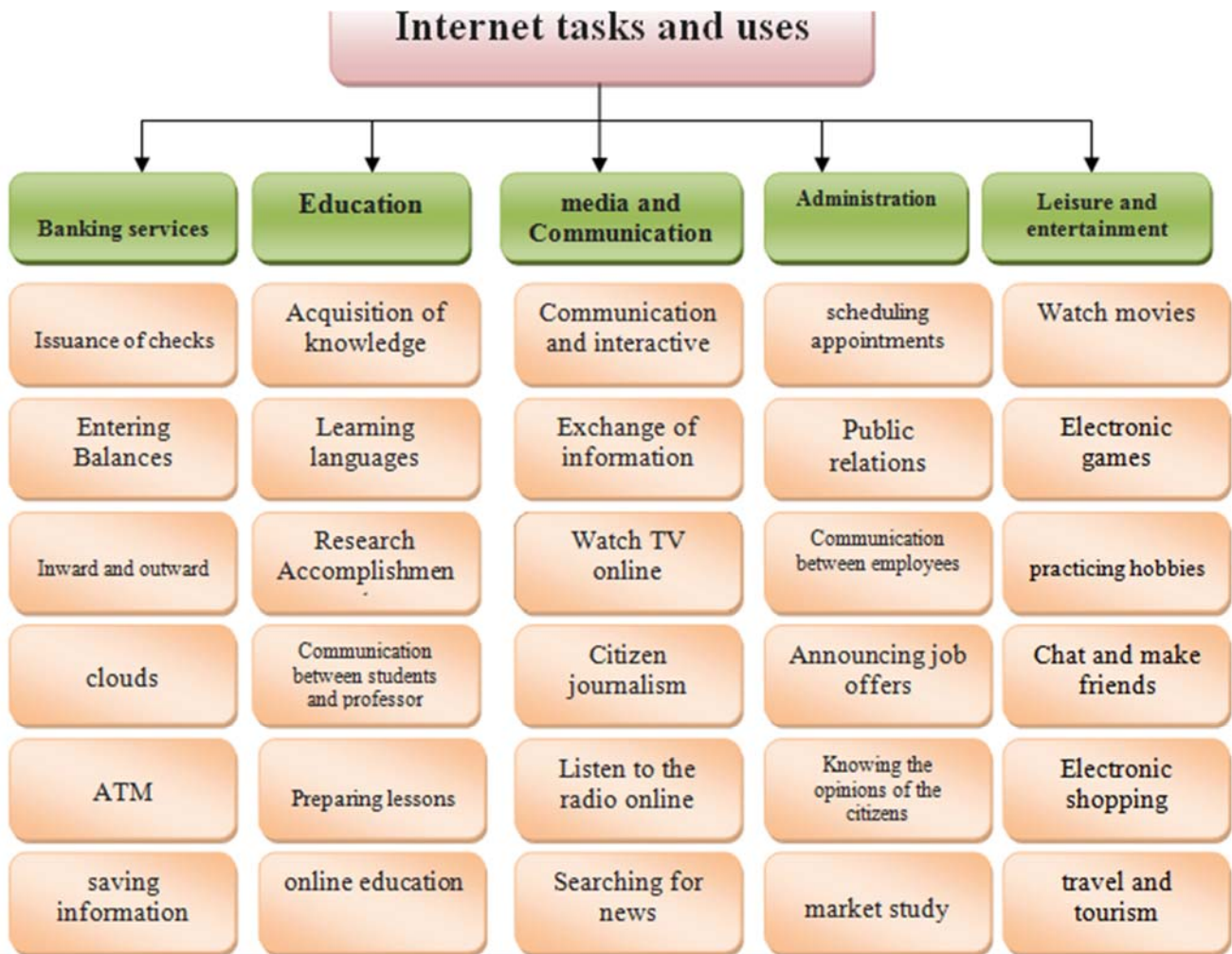


Diagram showing areas of Internet use

### 3.3 areas of use of satellites:

#### ➤ Media and Communication:

About a quarter of satellites are in television and telecom service. Forty years ago, the United States began the first satellite transmissions, followed by Europe ten years later. Currently, more than half of television viewers depend on a dish on the roof of the house to watch their favorite satellite channels. At the same time, these satellites take on other tasks



besides transmitting television broadcasts, such as telephone communications and the Internet. (Hashem , 2016 , p 38 )

➤ **Navigation:**

It is a system that uses satellites to provide geographic location information. The system allows small electronic receivers to determine their location (longitude, latitude, and altitude/geographical altitude) with high accuracy using time signals sent from satellites by radio. The system can be used for navigation or to track the position of something with a receiver (satellite tracking). The signals also allow the electronic receiver to calculate local time with high accuracy, allowing time synchronization. Satellite navigation systems operate independently of any telephone or Internet reception, although these technologies can improve geo-location information.( Al-Dulaimi , 2014 , p 64 )

➤ **Weather:**

Satellites are used in meteorological monitoring, either by satellites in polar orbits, revolving around the Earth at certain periods to photograph weather phenomena that fall under its path, or by static or geographically fixed satellites, over a certain area, to follow up on weather phenomena that occur in its area.

The weather over a large area can now be obtained by satellite images, day and night, using infrared radiation. It is also possible to obtain a realistic picture of the distribution of clouds over a large area at the time of taking the picture .

From the analysis of clouds captured by satellites, the centers of atmospheric depressions and the centers of rotating tropical cyclones are determined. By comparing the successive images, the movement and growth of atmospheric depressions can easily be determined, and thus the expected changes in the weather can be known well in advance of their occurrence.

It is possible to measure the temperature of the sea water, by comparing these images with other standard images. Experimentally, it was found that there is an error of about 1-2 degrees Celsius in this image, which is a big mistake, and attempts are currently being made to obtain the least possible error when measuring the temperature of sea water by satellite.

➤ **Earth Observation :**

Satellites that monitor the Earth around the clock send images of natural disaster areas and help rescue teams a lot. Many are familiar with Google Earth images, which make us able to see our neighbours' garden. Some of these maps were taken ten years ago.( Al-Dulaimi , 2014 , p 66 )

➤ **Scientific research :**

In scientific research, satellites are showing what they can really do. The missions such as measuring the gravity of the Earth and the height of mountains or the surface of the sea from the simple tasks of these satellites. Some of them can today see deep places in the universe and observe the stars and the sun. It constitutes 10 percent of all satellites



### The International Space Station

The space station is also a satellite in which astronauts conduct scientific research. Compared to the small space capsule used to return to Earth, the International Space Station has a large area.

➤ **The war :**

Yes, a satellite war can be fought as well. The United States and Russia are actively supplying missiles to their satellites. Many countries are also developing anti-satellite missiles.

➤ **Espionage:**

The first spyware and photography programs from space began in 1960 in a joint project by the CIA and the US Air Force, and this project was called Corona. More than 100 satellites were launched to spy on the Soviet Union, as the first satellites were orbiting in the polar orbit of the Earth in Specific paths and take pictures of the Earth from specific places and then send the film that contains the pictures to Earth by a capsule that the satellite throws to Earth and is later taken by the team on Earth to develop it and get the information in it.. The following picture is the first spy picture taken from space to Earth In history, it is for Mischmidta Airport in the former Soviet Union..

It should be noted here that espionage techniques have developed very dramatically in recent decades and modern spy satellites have become great capabilities as they are able to capture images and live and direct broadcasts and send them directly and in real time to the earth to any point determined from the ground control center where modern satellites move at a great speed parallel to The speed of the Earth's rotation to position itself in the places to be photographed.





The most important uses and missions of satellites can be summarized in the following diagram:



A comprehensive diagram of the areas of use of satellites



### 3.4 Uses of smart phones:

Gartner has identified 10 highly influential uses of AI-powered smartphones to enable manufacturers to deliver greater value to their customers:( Without writer , 2012 , p 19 )

Recognize user feelings: Emotion sensing and emotional computing systems allow smartphones to detect, analyze, and respond to users' moods or emotional states.

- **Natural language understanding:** Through continuous training and deep learning applied to smartphones, smartphones' speech recognition capabilities will be improved, while at the same time understanding users' exact intentions better. Augmented reality and AI vision for the future: Apple has introduced ARKit into iOS 11, which provides new tools for developers to help them add augmented reality features to apps more easily. Google also announced the ARCore AR tool for developers, which is specific to the Android operating system, and the company plans to include augmented reality technologies in 100 million Android devices by the end of next year.
- **Device management:** Machine learning will improve the performance and efficiency of devices in standby mode. With many sensors, smartphones will be able to better understand user behavior and learn what suits them, such as being able to decide when to use an app.
- **Determine user behavior and personal characteristics:** Smartphones can collect a lot of data about user behavior and personal characteristics. Through this, users can get more protection and assistance dynamically depending on what activity they are performing and the usage environment they are in.
- **Prohibited content detection and monitoring:** Forbidden content can be detected automatically, objectionable images, videos or texts can be marked, and various alerts can be activated to inform the user as well.
- **Portrait Photography:** The advantages of portrait photography here include smartphones that can automatically produce beautiful photos based on the user's own aesthetic preferences.
- **Voice Analysis:** A smartphone's microphone can continuously capture real-world sounds, and then the device's artificial intelligence capabilities can identify these voices and guide users, or activate certain events.
- **Our digital lives depend on the smartphone:** smartphones will become an extension of users, being able to recognize them and predict their next steps. Smartphones will understand who you are, what you want, when you want it and how you want to do it, as well as carry out tasks under your supervision.
- **User authentication:** Through security, machine learning, and biometrics technologies, as well as user behavior, the user experience will be improved and self-service capabilities enhanced.( Without writer , 2012 , p 21 )



➤ **Geolocation:**

The majority of smartphones contain the Global Positioning System (GPS), as this technology has helped improve communications and transportation around the world, by locating locations and addresses around the world. The GPS is one of the navigation applications that allow the user to reach his destination with ease, through the directions given by the application, whether the user is a driver or a pedestrian, and saves the user the trouble of asking people how to reach his destination, and this application helps to avoid crises Traffic by displaying places crowded with traffic.( Hawass , 2018 )

Providing privacy This feature provides security and confidentiality of the contents of the phone, and enables the user to perform multiple activities on the phone without anyone knowing about them, as it provides protection for the phone's images through passwords, and the user can also send messages confidentially and privacy, and conduct transactions over the Internet. Phone lock is an application that has this feature, so no one can access someone's phone, unless they have the phone's password.

➤ **Increased entertainment:**

Smartphones are one of the sources of fun and entertainment, through which the user can listen to music, play electronic games, watch movies, and read e-books via the Internet, and smart phones work to kill boredom, as they contain several applications that provide entertainment and fun. Downloading or listening to music from its sources anytime and anywhere, as well as videos, and the ability to share music and videos with friends.

➤ **Enhance communication:**

Smartphones help their users to keep in touch with people without having to be in the same place. All that is required is to download a social networking program, such as: Facebook, Twitter, or WhatsApp, and it is also possible to make voice calls or Video calls without any cost, and smartphones allow easy access to social networking program accounts, and also give the ability to access e-mail and respond to messages without the need for a computer.

➤ **Other uses for smartphones:**

There are many other benefits of smart phones, including the following: Smart phones can act as an electronic library. Smartphones help build vocabulary and language skills. Smartphones are an educational tool for children. Smartphones are important for online shopping.



The areas of use of smart phones can be summarized through the following scheme:

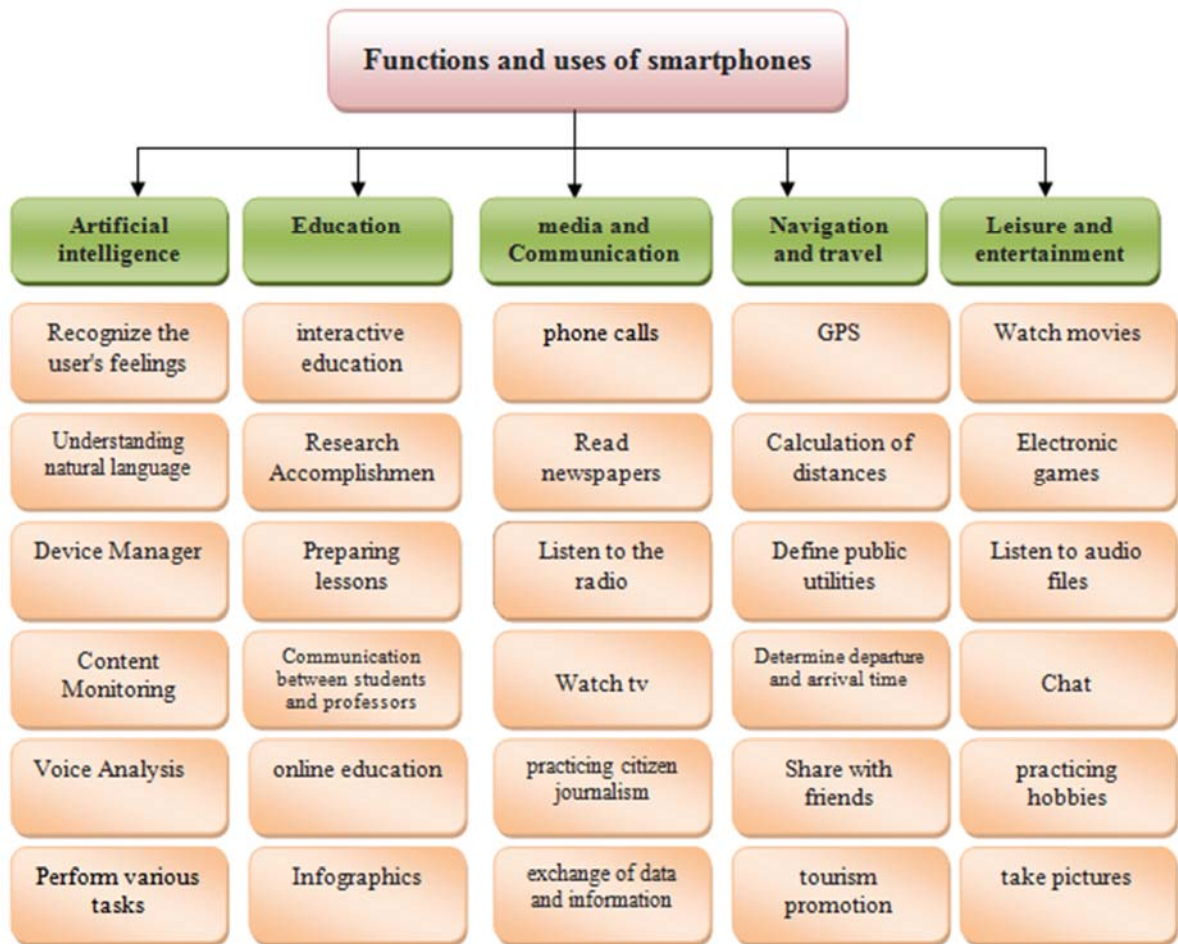


Diagram showing the areas of use of smart phones



### 4. Conclusion :

Networking technologies of all kinds (computers, satellites, the Internet and smart phones) have played an important role in human life, through their entry into all fields and sectors that benefit from the distinctive interactive and communicative advantages and services of these advanced technologies in order to advance the wheel of production in various institutions. And improving the level of service, so that the first and last beneficiary is the society of its various sects, which is today in direct contact with these modern technologies in its daily life, with which it writes its goals and objectives and seeks to achieve them with the least effort and time and with the greatest amount of results.

It should be noted that networking technologies have acquired the character of interlacing through the technical integration between them. for the smartphone.

On this basis, the user realizes the best way to use these technologies in a way that achieves what he wants and avoids all the obstacles and problems he was facing before the emergence of these modern technologies.

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