

Digital means of communication and their practical importance

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Abstract:

The beginning of the history of the digital age is 2005, when man was able to store information in digital form.

Communication technology has been characterized by rapid developments and has directly affected the social, cultural and economic lifestyle of man.

Digital technology is one that uses pulses " bits in a digital way" without the need for paper.

This technology has helped to automate many processes in various fields, as robots have helped speed up manufacturing processes and in the field of education, providing students with many applications to help them focus.

Keywords: Communication technology, Digital revolution, Internet.

ملخص:

إن بداية تاريخ العصر الرقمي هو عام 2005 أين تمكن الانسان من تخزين المعلومات بالصيغة الرقمية. إن تكنولوجيا الاتصال تميزت بتطورات سريعة وقد أثرت بطريقة مباشرة للثورة الرقمية على نمط الحياة الاجتماعية والثقافية والاقتصادية للإنسان. التكنولوجيا الرقمية هي التي تستخدم النبضات " البتات بطريقة رقمية " دون الحاجة للورق. وقد ساعدت هذه التكنولوجيا على أتمتة العديد من العمليات في مختلف المجالات إذ ساعدت الروبوتات على تسريع عمليات التصنيع وفي مجال التعليم وفرت للطلبة العديد من التطبيقات لمساعدتهم في التركيز.

الكلمات المفتاحية: النسوية : تكنولوجيا الإتصال، الثورة الرقمية، الأنترنت.

1- Introduction

Humanity has gone through several revolutions, the latest of which is the revolution of communication and information technology, and as a result of these developments, the demand for this technology has increased, and therefore it has become the most important resource compared to classical resources, communication technology has been characterized by rapid developments and direct effects of the digital revolution on the human lifestyle in many fields (economic, social, cultural).

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1/ Technology:

The word technology has a Greek origin and consists of ¹, (techno) means skill and art, (logy) means study or science.

Hence, the word technology collectively defines the science of skill and the science of application (the science of technical skill), that is, it performs work based on prior plans and performs them with skill and mastery.

2/ Communication technology:

It is the efforts made by man and the way of thinking that he uses to transfer information, skills, experiences, ideas and human and non-human elements available through the discovery and innovation of technological means that help in the process of delivering information with ease.

The term digital revolution is used to describe the current era, and this is after the integration of information technology² and communication.

Digital communication is the basic skill of most of the work that an individual must write within the framework of concepts, production, delivery and reception of means of communication in their jobs; as digital communication is the ability to create effective communication from various digital means.

The digital revolution through the Internet and electronic media has contributed to activating cultural practices and activities to protect diversity.

Based on the above, we come to raise the following problem:

Digital communication is one of the forms of communication that depends on the use of technology, from here we wonder:

What is the concept of digital communication? And how did it originate?

We have divided our study into the most important axes:

Introduction

First axis: Definition of Digital Communication

Second axis: the emergence of digital communication.

Third axis: the different types of digital communications.

Fourth axis: Digital Communication Means.

Fifth axis is the importance of digital communication.

Sixth axis: Digital Communication Objectives.

Seventh axis: Elements and Features of Digital Communication.

Conclusion

First Axis: Definition of Digital Communication³

1 - Digital Communication Technology, Ancient Encyclopedia: <https://areq.net>, accessed on 15/09/2023, at 21H25.

2 - Faris Mohammed Al-Amarat, Digital Communication and its Role in Cultural Diversity, Home Studies New Education 10/10/2019, <https://www.new.edu.com>, accessed on 25/09/2023 at 11H08.

3 - Public Space: Definition of Digital Communication, https://elearn.univ_oran1.dz, accessed on 16/09/2023 at 21H40.

Digital communication is one of the concepts that have developed significantly in many fields of media, social and psychological sciences, and it is a type of modern communication that depends on 03 basic rules: the first rule (parties to the communication process), the second rule (digital technology), and the third rule (technical skills and the human dimension).

Idiomatically: digital communication is: "the process in which remote communication occurs between two or several parties who exchange information between them, and this information is encoded and processed, and then the transmission and reception occurs using digital communication devices and means to achieve certain goals".¹

Procedurally: Digital communication is: "the ability to communicate effectively from various digital means, or in other words, communication is carried out using digital systems, and depends on electronic means through digitizing information or converting it from (texts, images, sounds) into numbered electric waves, making it easier for him to send, store, process and control them."

Kristi Aho defines digital communication as: "The basic skill of most of the work that an individual must acquire within the framework of concepts, production, access and reception of the means of communication in their jobs and lives; digital communication is the ability to create effective communication by means of digital means."

There is a second definition of digital communication: "the social process in which communication takes place remotely between parties who alternate roles in broadcasting and receiving various communication messages through digital systems and their various means to achieve certain goals".²

The term digital revolution is given to the current era after the integration of information and communication technology, and technically the word (digital) means that letters and sounds are transformed into digital data that can be stored, processed and sent by computers.

The concept of digital communication refers to those social processes by which a clear concept of communication is defined between the parties to the communication process, provided that all parties contribute to the development of the communication message by taking advantage of digital systems, and working to avoid them in order to achieve various goals and objectives.³

1 - Mohamed Abdel Meguid, Media Theories and Trends of Influence, 3rd Edition, Alam Al-Kutub, Cairo, 2004, p. 104.

2 - The concept of digital communication, <https://engmohamadb.github.io>i...github.pages>, Accessed on 17/09/2023 at 22H20.

3 - arabi3e any Arabic, what is the concept of digital communication, <https://e3arabi.com>, accessed on 18/09/2023 At 19H10.

The definition of digital communication is primarily based on the use of digital systems and their innovations as the only and basic means of communication between its parties, and this concept leaks from the concept of communication through the computer **Putter Media Ted Communication**, or **assisted communication computer**, or **Based communication computer**, all of which emphasize the role of the computer in the communication process.¹

Some definitions of digital communication

Digital communication, sometimes called “digital communication”, is a field of information science related to the use of all digital media: the web, social media, or mobile devices.²

Digital communication is the digitization of information a three-dimensional communication ecosystem through:

- Mobile terminals: touch.
- The web: allows to dematerialize the info.
- Social media: allow interaction.³

Second axis: the emergence of digital communication⁴

In the fifties of the last century, the invention of the microchip that led to the development and invention of a home computer, and in the sixties of the last century, the web was invented to be the most powerful transformation in the 21st century, as mobile phones and personal computers spread.

The first seed⁵ that contributed to the emergence of digital communication was the invention of the telegraph in 1938 by Samuel Morse, a device that relied on electrical impulses to transmit messages The invention of the camera in 1840 before the computer followed.⁶

The digital communication system is based on sending signals in a limited range of transmitter and receiver, analyzing the signal using a special processor for analog filtering, and the information may be encoded to reach the receiver.⁷

In the eighties, scientists came up with the possibility of presenting analogue signals in the form of a digital signal, and since then digital technology has gradually begun to replace old traditional analog equipment.

Communication has developed and opened the way for huge leaps that have formed points of communication progress, which are:

1 - Muhammad Abd al-Hamid, previous reference, p. 103.

2 - Digital communication, wikipedia, <https://fr.m.wikipedia.org> , accessed on 28/09/2023 at 19:38.

3 - Digital communication, University of Versailles saint quentin en yvelines introduction, <https://www.studacu.com> , accessed on 28/09/2023 at 22H30.

4 - The Birth of Digital Communication, <http://tech.mawdoo3.com>, accessed on 14/09/2022 at 21H12.

5 - « A Brief history of digital Transformation », supply chaine beyond, retrieved 27/12/2022, edited.

6 - « digital communications time line », time toats retrieved 31/01/2022.

7 - « digital communication system », science direct retrieved edition 27/01/2022 edition.

1- The invention of the transistor in 1948 by American scientists (Pratat, Brayden, Shockley) and their receipt of the Nobel Prize in 1956 (reducing the size of transceivers in communication systems).

2- Reaching the manufacture of small-sized high-density integrated circuits, thanks to which it was possible to reduce the size of computers to become a small personal computer that can be carried.

3- The American scientist (Shannon) was able to lay the foundation for digital communications, which are characterized by their high efficiency.

third axis: the different types of digital communications¹

There are many different types of digital communication, which can be classified by the nature of the data being transmitted or by the method of data transfer.

1/ Digital communications according to the nature of the data:

- Digital voice communication: These communications transmit visual data (television and video broadcasting).

- Digital text communications: These communications transmit text data (e-mail, instant messaging).

- Digital data connections: These communications transmit general digital data (computer files and applications).

2/ Digital communications by data transfer route:

- Digital wired communications: data in these communications is transmitted through wires or cables.

Digital wireless communications: The data in these communications travels over the air.

- Digital optical communications: The data in these communications travels over optical fibers.

Examples of digital communication applications:

Smartphones: Smartphones use digital communications for voice and video communication, use the Internet and run applications.

Computers: Computers use digital communications to connect to the Internet, exchange data, and operate.

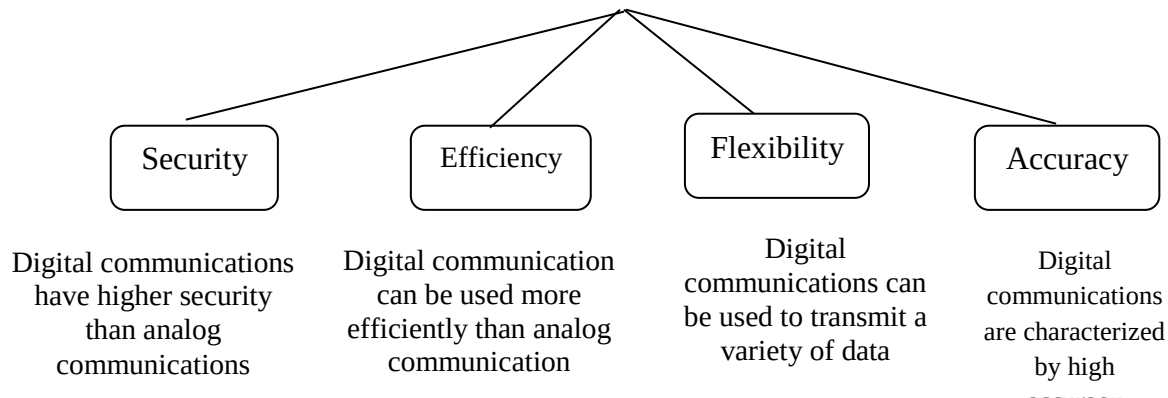
Televisions: Televisions use digital communications to receive television broadcasts and connect to the Internet.

Social networks: Social networks use digital communication to communicate between people.

E-commerce: E-commerce uses digital communication to buy and sell products and services.

1 - What are the different types of digital communication, <https://ar.quora.com>, accessed on 25/09/2023 at 18H40.

Digital communications have many advantages, including:



Fourth Axis: Digital Communication Means¹

Digital TV: Digital television is characterized by the sharpness of sound and image clarity and image quality, in addition to the possibility of multiple and simultaneous program broadcasts at the same time, the ability to store programmatic materials and the ability to communicate between the communicator and the user via SMS and e-mail, and among the services provided by digital television (video on demand, advertising service, electronic program guide service, sports matches service, chat service, computer games service).²

HDTV: Since 2009 the FCC has provided a request from bass television stations exclusively in digital format, and many digital televisions are multimedia devices that show games, photos and movies as needed, and deal with stored media such as CDs and DVDs (Digital Versatile Discs).

Other electronic communications include a wide range of technologies, including remote controls, keyless access devices, walkie-talkies, Bluetooth earphones, GPS satellites, cash registers and affiliation cards among the many technologies that digitally connect with people and other devices.³

Digital radio: The idea of digital radio goes back to the Lebanese-American (Noah Samara), who launched it in 1999 in his global group World Space, putting an end to the history of dishes in the signal points, replacing them with accurate antennas that capture signals directly, and instead of converting image and sound into waves, the new technology converts them into a series of numbers that can be transmitted through the air and then received by the radio antenna.⁴

1 - Samah Khalis Al-Hithi, Digital Means of Communication, a research paper by a master's student, a press platform for the future media Digital, 17/12/2020, Faculty of Mass Communication, Iraqi University, <https://mediaroid2014.blogspot.com>, History Accessed on 22/09/2023 at 21H40.

2 - Mustafa Yousef Kafi, Interactive Media, Dar Al-Hamid for Publishing and Distribution, Amman, 2016, p. 41.

3 - Forms of digital communication: <https://e3arabi.com>, accessed on 25/09/2023 at 10H20.

4 - Yasser Khader Al Bayati, Digital Communication Rising Nations and Surprised Nations, Dar Al-Bedaya Publishers and Distributors, Amman, pp. 141, 142.

Digital cinema: It is a new technique in representation and presentation represented in dealing with images on the principle of zero and one (bit and byte).

It is the technology of photography, montage, distribution and display, the digital film is distributed by digital hard disk or by satellite to cinemas or home television, and the display is done by digital devices.¹

Digital cinema was established in 2002 as a joint venture between a number of cinema studios (Disney Jux, MGM, Bramont, Sony) with the aim of developing specifications and standards for digital cinema with the development of standards Especially with the General Association of Cinematographers, from which he produced a number of films, including a film by Walt Disney entitled "The Man".

Digital Theater: Theater that relies on the data of digital technology in the construction of its artistic processing media for lighting, scenery and sound effects (theater of digital technologies)²²⁰ in order to avoid confusion with the concept and seek more accurate conceptual definition.

Digital book: In light of the digital revolution, the book has shifted from its paper form to its electronic form and spread widely among readers and writers, so it is possible to read the contents of the book on a computer or handheld devices, or using dedicated devices such as (iPhone, Android, and Mac).³

Smartphone: The first phones to use digital communications began as 2G phones in the early nineties, digital phone technology developed, and the first text message was sent in 1993, and in 2001 digital phone communications began from the third generation, which made broadband communication practically for multimedia (voice, internet, GPS '**Global positioning system**'), and 4G phones appeared later in that decade.

Internet and e-mail: E-mail was introduced in the seventies, and since that time it has evolved to be one of the forms of digital communication, and in the nineties digital communication through computers connected to the network was of limited use in academia, government and business to be used by the public, and was advertised on the Internet for the first time in 1994.

The means of digital communication vary between text and visual:⁴

Email: One of the easiest means of written digital communication.

Instant messaging: Text messages that allow communication over phones.

1 - Abbas Mustafa Sadiq, New Media: Concepts, Means and Applications, Dar Al-Shorouk for Publishing and Distribution, Amman, p. 280.

2 - Al Mada Newspaper, what is Digital Theater, 2017, <https://almadapaper.net/?view>, accessed on 24/09/2023 at 22H10.

3 - The official website of the Arab Center for Strategic Economic and Political Studies, digital book and paper book, Features and bets, 2017, <https://democraticac.de/?P:48153#ftm6>, accessed on 22/09/2023 at 22H30.

4 - The Birth of Digital Communication, <https://tech.mawdoo3.com>, accessed on 24/09/2023 at 21H15.

Websites: Websites are used to bring in users and settle content.

Social media: allows quick communication, chat and interaction from its applications: Facebook, WhatsApp, and uses SMS, voice and videos.

Video chat: Zoom app that enables live video chat, text messaging, and interaction.¹

Researchers identified needs followed by digital media in several categories.²

The Internet is one of the most saturated and complex media because it contains different media and various services, and resorting to using it to satisfy a specific need may generate other needs, as information takes the researcher to other information without feeling that the user finds himself meeting all his needs easily.

1/ Uses: The use of modern technology is as follows:

Communication with the other: This is achieved through the various means of communication available on the Internet (e-mail, Facebook, Twitter, news groups...) through which the user becomes a sender and a receiver at the same time.

Search websites: It means the dependence of users or researchers on various electronic sources such as websites, electronic newspapers in order to meet the target needs, whether it is an educational process or entertainment needs.³

2 / gratifications: The Internet achieves a set of gratifications for its audience, which are:

Discover with is new to the outside world Browsing and exploring

Fifth Axis: The Importance of Digital Communication⁴

Digital communication plays an important and influential role on all communication determinants through which a huge amount of administrative information is dealt with and developed in a way that contributes to access to all means with a communicative and social context, which seeks to ensure clear goals in a media environment that seeks to deal with the elements of digital systems and how to identify clear terms in the social dimension and their importance in media and communication studies.

Media institutions also contribute to identifying links related to democratic processes that help develop the areas that digital communication seeks to achieve

1 - Yasser Abdel Rahman, Information and Communication Technology, previous reference, pp. 131, 133.

2 - Ben Amrouche Farida, Digital Communication: A Study in Some Theoretical Foundations of Uses and Gratifications, Algerian Journal For contact, Volume 17, Issue 23 of 01/01/2015, University of Algiers 3.

3 - Hassan Imad Makkawi. Sami El-Sherif, Media Theories, 1st Edition, Cairo University Center for Open Education, Egypt, 2000, p. 220.

4 - <https://e3arabi.com>, previous reference, accessed on 18/09/2023 at 19H50.

by addressing the levels of digital communication, through which media technologies are dealt with in a way that achieves all types and forms of different means of communication, with the importance of developing them according to the media and communication components.

The importance of digital connectivity is as follows:¹

- Helping individuals to obtain information.
- Get news from different, diverse and fast sources
- Provide the opportunity for distance education and skills acquisition.
- Make new friends, spend leisure time and have fun.
- Civilizational openness and cultural communication with other cultures.
- Serving humanitarian causes worldwide.
- Contribute to changing the negative golden image in the West about Arab-Islamic societies and culture.

Sixth Axis: Digital Communication Objectives²

Digital communication aims to:

- The need to identify targeted media and supervisory means that emphasize all conscious requirements with different characteristics in determining jobs.
- The need to determine the spatial and temporal location that helps to arrange the media and work to participate in an effective manner capable of identifying elements with different and varied journalistic and communication choices, and working to select them according to the media audiences.
- The need for diversity in all advanced digital and innovative means, through which the ability to provide opportunities for communication processes is increased in order to conform to the nature of media messages that meet the needs and desires of the masses.

The objectives of digital communication can also be classified into:

Technical Objective:

It lies in preserving documents and information and protecting them from damage through archiving them.

- Preservation of written heritage.
- The possibility of converting information from writing archives, where its system is changed into many digital formats in the language that the computer understands and can return.
- Decentralization of information.
- Automated precision by designing digital systems to monitor continuous channel change and path correction.

1 - The concept of digital communication, functional behavior, previously mentioned site, accessed on 22/09/2023 at 20H03.

2 - <https://3arabi.com>, previous site, accessed on 18/09/2023 at 19H30.

- Control the echo problem and achieve acoustic compatibility in order to eliminate the problem of interference in the future.

Seventh Axis: Elements and Advantages of Digital Communication

Firstly: Elements of Digital Communication

The elements of digital communication differ from other forms of communication only by digitizing them by digitizing the source making the connection, as well as the receiver and by digitizing the message.

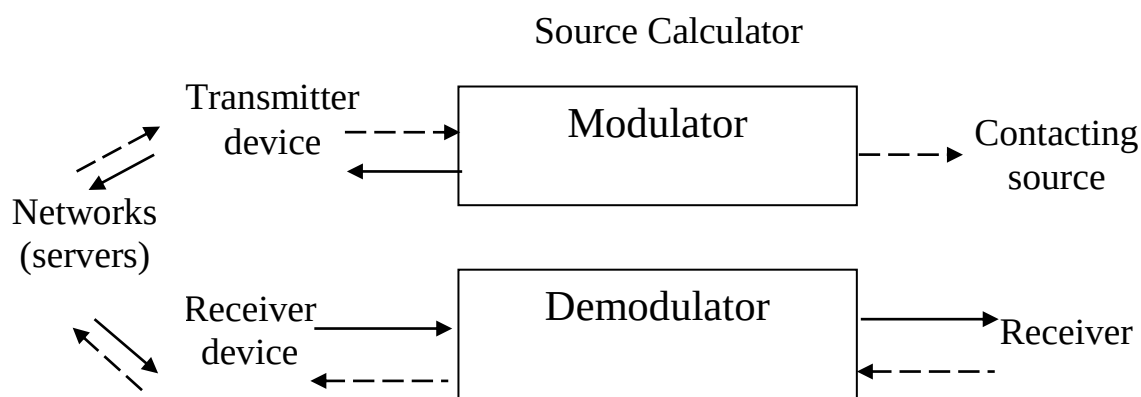


Figure 01: Elements of digital communication through networks

Source: Mohamed Abdel Hamid, Communication and Media on the Internet, First Edition, Alam Al-Kutub, Cairo, 2007, p. 41.

Secondly: Advantages of digital communication

Digital connectivity has a set of advantages, which are:¹

- Digital communication controls system elements in a single digital circuit without interference.
- Digital communication transmits information over long distances through fiber optic connections.
- Digital communication is intelligent, as it corrects the path of the transmitted signal and achieves sound and echo harmony.
- Digital communication is flexible and comprehensive, as it transmits unified data from text, voice and image with extreme accuracy.
- It is safe in communication transmission and is therefore used in military systems.
- Digital communication has a license compared to other communication systems.

1 - Yasser Abdel Rahman, Information and Communication Technology, First Edition, Al-Manhal, Janadriyah Publishing and Distribution, January 2017, pp. 131, 133.

- Enables speech and video to be combined and transmitted via a shared message.

Conclusion:

Digital communication is one of the forms of communication that depends on the use of various means of technology, and is referred to as digital communication channels.

Since communication is a link between individuals and groups, this has led to the emergence of social and human relations between them.

Digital communication is the use of online tools such as email, social media, and SMS to reach other individuals in order to share the message.

Digital communication is the technology of transmitting various information, whether data or data in the form of electronic signals, and the latter carries data in the form of (text writings, drawings, images or video clips and sounds).

Digital communications have many advantages, including (accuracy, flexibility, efficiency, security)

Recommendations:

- Directing studies and research in the field of informatics and artificial intelligence to solve problems in the field of digital business and the digital economy.
- Qualifying specialists and researchers in fields related to digitization to accelerate its acceleration.
- Conducting training courses for all actors in the digital communication process.
- Sensitize citizens to the importance and role of digital communication in sustainable development.

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