The Advancement and Confluence of Communication and Computing Technologies

V.Parimaladev[1*], S. Pankayar Chelvi [2]

[1,2]*Assistant Professor, Department of English, Rathinam College of Arts and Science (Autonomous), Coimbatore*

Abstract — Modern communication technologies' effects on society are a common context for studying ICT. The development of the services sector, which includes the banking, transportation, logistics, and retailing industries, will be significantly influenced by information and communication technology (ICT). Technology is now considered essential for many commercial and economic operations as a result of globalization. Nowadays, information and communication technology affects every facet of human existence. They perform in business, education, entertainment, and workplace settings. New communication and information technologies have a significant impact on the way the world is changing. The way we live our lives is significantly impacted by the creation, advancement, and application of information and communication technologies in today's dynamic world. Researchers, educators, and students around the world have a difficulty as well as an opportunity as a result of these ubiquitous technologies. Nearly every element of human existence has been impacted by the advancement and convergence of computer and communication technologies, together known as information and communication technologies or ICT.

Keywords — *Economic Operations; Commercial; Human Existence; Education; Entertainment.*

1. Introduction

The dietary patterns of the world population have been on transition due to the high consumption of ready-to-eat foods, which have increased levels of fat and sugar, and lower intake of unprocessed foods, such as fruits, vegetables, tubers, and cereals (Monteiro *et al*., 2011). The potential cause of the pandemic of overweight, obesity and rapid rise of related chronic diseases especially in under developed countries is the corresponding increase in the production, processing and consumption of readily available 'fast' or 'convenience' ready-to-eat or ready-to-heat processed food and beverage products (WHO, 2010). Ultra-processed foods are defined within the NOVA classification system, which groups foods according to the extent and purpose of industrial processing. NOVA is a food classification system developed by researchers at the university of Sao Paulo Brazil (Monteiro *et al.,* 2011).

The 1970s saw a "evolution" in information technology. Its foundational ideas, however, date back to the military-industry collaboration during World War II, which advanced electronics, computers, and information theory. In order to further automation and replace labor with machine power, the military continued to be the primary source of funding for research and development after the 1940s. Application of ICT for social, economic, and political development is known as "information and communication technologies for development," with a focus on impoverished and marginalized individuals and communities. Often seen as the application of technology to achieve a greater good, ICT for development is based on the concepts of "development, growth, progress, and globalization." Technologies that offer telecommunication-based information access are referred to as information and communication technologies. Although mostly focused on communication technologies, it bears similarities to information technology. The internet, wireless networks, cell phones, and other communication devices fall under this category. Social networking sites like Face and instant messaging, for instance, let users from all over the world to stay in touch and communicate frequently. People can also use these technologies to connect in real time with people in various countries. ICT is one of the amazing gifts of contemporary science and technology, and it has significantly altered the field of library and information science. It has ushered in a new era for library communication and made knowledge more widely accessible across geographic boundaries.

Programming languages, databases, communication networks, artificial intelligence, knowledge bases, analysis and design techniques, and computer programs are some of the ICT technologies. ICT has long had an impact on practically every aspect of human endeavor. Information can be electronically stored, retrieved, manipulated, and transmitted with the aid of ICT technologies. The idea of libraries has been completely transformed by information and communication technologies. Libraries are adapting their functions to fulfill the needs of patrons who could not obtain the information they wanted through conventional library methods. ICT is now widely known to include both hardware and software that make it easier to electronically gather, process, display, and transmit data.

1.1 What is ICT

The convergence of computer networks with phone and video networks over a single link system is also referred to as information and communication technology, or ICT. The telephone and computer networks can be combined under one unified system of cabling, signal distribution, and management, with significant financial incentives. communication equipment, which includes satellite systems, radios, TVs, cell phones, computers, network hardware, and so forth, along with the different services and appliances that go along with them, such video conferencing and online education. A popular phrase for the technologies used to gather, store, edit, and communicate information is information communication technology.

ICT is the broad use of computer-based technology and the Internet to provide communication and information services to a variety of users. Technology that helps people generate, gather, organize, and share information in a multimedia format for a variety of uses is known as information and communication technology (ICT). All communication devices and applications, including satellite systems, radios, televisions, cell phones, computers and networks, hardware, software, and so on, are included in the phrase information and communication technology (ICT). ICT is essential to the country's development both now and in the future. ICT has an impact on every aspect of life, including libraries. A wide range of technological instruments and resources are used in information and communication technology.

1.1.1 Advantages of ICT

- *Globalization* - Travel and lodging expenses can be reduced using video conferencing. ICT has not only improved international relations and facilitated cross-border trade, but it has also made it possible for businesses to become highly efficient by integrating into a single, interconnected global economy.
- *Cost effectiveness* - It is undoubtedly less expensive to send an email than to make a phone call. Technology has also contributed to the automation of business processes, which has greatly reduced their cost.
- *More Time* - Simply click the items you want to buy online, make your payment electronically, and have your goods delivered straight to your house without having to move a muscle.
- *Creation of new jobs* - The creation of new, exciting, and active jobs has been the greatest benefit of ICT. Among the many new job opportunities made possible by IT are web designers, system, hardware, and software developers, and computer programmers.
- *Education* - Education options previously unattainable for earlier generations have been made possible by computers, their programs, and the internet. From

home, a person can finish their degree online. Maintaining a career while pursuing a degree is feasible.

1.1.2 Disadvantages of ICT

- *Blackmail* – Using the internet to threaten someone with harm in order to get money or other valuables from them.
- *Unemployment* - Employers save a ton of money when they use computers in place of human resources, while employees lose their jobs since they are no longer required.
- *Privacy* – While communication has become faster and more accessible thanks to information technology, privacy issues have also arisen. Regarding their previously confidential information becoming public knowledge, from email hacking to cellular signal interception.
- *Computer virus* - Worms, malware, Trojan horses, spam—all of these—can cause havoc and disturb our day-to-day routines.
- *Social media* - They lost interest in outside activities and social interaction as a result of their addiction to phones, iPods, and gaming consoles.

1.2 ICT and Education

All governments aim to provide the most comprehensive education possible for their citizens within the constraints of available finance. Because of the pivotal position of ICT in modern societies, its introduction into secondary schools will be high on any political agenda. This book gives a practical and realistic approach to curriculum and teacher development that can be implemented quickly and cost effectively, according to available resources. The curriculum is designed to be capable of implementation throughout the world to all secondary age students. The programme of teacher professional development relates closely to the ICT curriculum, and particularly to the stage of development that schools have reached with respect to ICT.

1.3 Computer Technology

The Jacquard loom (1805), the ancient Chinese abacus, and Charles Babbage's "analytical engine" (1834) are just a few examples of the enormous variety of machines that have been a part of computing history. The topics of digital, analog, and mechanical computing architectures would also be covered. Scientific and engineering fields continued to use mechanical devices, like the Marchant calculator, well into the 1960s. An analog computer's relative advantages over a digital computer were hotly debated in the early days of electronic computing systems. In fact, systems of finite

difference equations emerging in oil reservoir modeling were frequently solved by analog computers as late as the 1960s. Large-scale computations could ultimately be handled by digital computing systems because of their superior power, affordability, and scalability. These days, digital computers rule the computing world in every capacity—from the handheld calculator to the supercomputer—and are widely used in daily life.

This short overview of the history of scientific computing is thus restricted to the domain of digital and electronic computers. The capabilities of computer hardware and software have changed dramatically. In order to study computer facilities and equipment, both historical and contemporary, it is important to consider the applications that have shaped these technologies. To meet the ever-increasing demands of modern society, everyone must now comprehend the capabilities, limitations, and possible applications of computers in their various fields of expertise.

1.4 Network Technology

Businesses and educational institutions are the main users of networking technology, which facilitates data flow between large and small information systems. Depending on the requirements of a business, end users can share information via an internet connection and send files, messages, and other data through email or other channels through networking. The use of networked systems to transmit diverse data, communications, and resources in different parts of the world—whether via fiber optic cable, satellite, or wireless connections—is known as network technology.

Kinds of Networks that are in use currently,
- Personal area network
- Wireless local area network
- Campus area network
- Enterprise private network

1.5 Communication Technology

Today, information and communication technology is a ground-breaking element in the field of education. In our daily jobs, we also utilize information and communication technology. India's introduction of information and communication technology dates back to December 2004, when the country launched its national secondary education program. The English language is where the word "communication" first appeared, which consists of Communists speaking Latin. Our voice and language are the best means of communication. Communication is now far simpler because to information technology. The most popular tool for this is the internet. We can quickly and at any time exchange information over the internet. Creating a

shared understanding between the sender and the recipient is what is meant by the word communication. Put another way, communication is an attempt at participating in the ideas, emotions, and attitudes of another person. "Communication" and communication are the foundations of communication.

1.6 Digital culture and digital literacy

The way people live, work, play, and learn has changed as a result of computer technologies and other elements of digital culture. This has had an impact on the global distribution and production of power and knowledge.(14) Graduates with less exposure to digital culture are becoming less competitive in both the domestic and international markets. Thus, curriculum frameworks now take digital literacy—the abilities to find, evaluate, and produce information as well as the critical use of new media for full engagement in society—into serious consideration.(8) The integration of information and communication technology (ICT) into education is fostering digital literacy in many nations.

1.7 Satellite Communication

An artificial satellite known as a communication satellite is designed to transmit and amplify radio communications signals between a source transmitter and a receiver located at different points on Earth through the use of a transponder.

The creator of the communications satellite is frequently credited to Arthur C. Clarke. There are many applications for satellite communication because we utilize it for so many different things. For example, satellite television is used for television, internet, radio, and the military. The satellite, positioned in the orbital system to transmit signals, is a significant component in satellite communications. An antenna and transponder are typically installed on satellites to aid in communication. The satellite's primary source of power is solar energy, which is continuously collected by its solar panels.

1.8 Fiber optical communication

Fiber-optical communication is a technology that uses optical fibers as light points to transmit data from one person to another. An electromagnetic wave carrier is created by light, and it carefully transports the data. Since its initial development in the 1970s, fiber optic technology has transformed the telecommunications sector and significantly contributed to the emergence of the information era.Since Alexander Graham Bell created fiber optic connection in 1880 for the Photo phone, it is not a novel concept. Optical fibers have largely supplanted copper wire communication in core networks throughout

the developed world due to their advantages over electrical transmission.

2. Conclusion

Information and Communication Technology (ICT) has evolved into a transformative force that shapes nearly every dimension of modern human life. From its historical roots in early computing and wartime technological advancements to its present role in global communication, education, business operations, and social development, ICT has become indispensable. Its impact extends across sectors such as banking, logistics, retailing, transportation, and especially education, where digital literacy and access to information determine competitiveness in an increasingly knowledge-driven world.

ICT offers tremendous advantages—greater efficiency, expanded educational opportunities, the creation of new job markets, and enhanced global interconnectedness. At the same time, it presents challenges including privacy concerns, unemployment due to automation, cyber threats, and the rising influence of social media on human behavior. These complexities highlight the importance of responsible integration, balanced policies, and continuous learning.

Furthermore, advancements in communication technologies—from networking systems and satellite communication to fiber-optic transmission—have revolutionized how information is shared and accessed across the globe. As technology continues to evolve, societies, educators, researchers, and governments must adapt thoughtfully to harness ICT's full potential while mitigating its drawbacks.

Ultimately, ICT is not just a set of tools but a driving force behind social, economic, and cultural transformation. Its responsible and innovative use will continue to define the progress, connectivity, and development of future generations.

References

[1] K.M.P(2018).use of ict resource and service atstate University libraries in Gujarat a study.
[2] Okada(2012),CICEHiroshimaUniversity,JournalofInternational CooperationinEducation, Vol.15 No.2 (2012) pp.169 – 193.
[3] LavinaSharmaandAshaNagendra(2016),IndianJournalofScience andTechnology,