

Exploring the Role and Benefits of Information and Communication Technology (ICT)

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Abstract: *The fusion of physical and digital resources used to collect, retrieve, analyses, store, produce, and transfer information is known as information and communications technology (ICT). ICT is sometimes used as a longer synonym for information technology (IT), although its use is in some ways broader. ICT is often used to refer to a larger range of forms and kinds of data and communication. This research focused on ICT and its many benefits, including its use in education. ICT have altered how we engage with one other, get the information we need, work, do business, deal with the government, and manage our social life. ICT has made it possible for enterprises to be automated, enabling customers to reach a website or voicemail seven days a week. The development of information and communication technology has resulted in notable developments and improvements in a variety of sectors.*

Keywords: *Computer, Communication, ICT, Software, Technology.*

1. INTRODUCTION

Rotating friction welding is a strong joining technique that uses the warmth that has built formed between two surfaces to achieve convergence in metal or non-metals when mechanically induced rotational rubbing motion and supplied stress are combined. All forms of technology used to manage telecommunications, broadcast media, intelligent building management systems, audiovisual processing and transmission systems, and network-based control and monitoring tasks are collectively referred to as information and communications technology (ICT). ICT has a wider range of applications even though it is often used as an expanded term for information systems (IT). The use of computers to store, retrieve, transport, and alter data or information is known as information technology (IT). This is often done in the context of a company or other organization. IT systems are often information systems, communications systems, more particularly, computer systems that are controlled by a small number of people and include all hardware, software, and ancillary devices. The phrase is often used as a synonym for computers and computer networks, but also refers to other means of information dissemination, including telephones and television. IT is seen as a part of ICT[1].

ICT is the fusion of physical and digital resources utilised for information gathering, processing, retrieval, generation, and transmission. ICT is sometimes used as a longer synonym for information technology (IT), although its use is in some ways broader. ICT is often used to refer to a larger range of forms and kinds of data and communication. In a very broad sense, any technologies that make communication easier are referred to be ICT. In light of this, the word ICT often refers to the management, consolidation, and convergence of telecom and computer infrastructure. ICT may sometimes be used to provide telecommunications services to underserved regions. Let's explore a specific carrier that may

provide a contemporary hybrid cloud architecture based on different ideas or philosophies like connection, security, and unified channels to see how this works. This kind of wireless and telecom service integration would fall under the umbrella of ICT[2]–[4].

ICT includes both the internet-enabled world and the wireless network-powered mobile world. Along with modern ICT components like artificial intelligence and robots, it also incorporates archaic technology like landline telephones, radio, and television transmission, all of which are still commonly utilized today. The list of ICT components is extensive and is expanding. Smartphones, digital TVs, and robotics are relatively recent additions compared to other components like computers and phones, which have been around for decades. A more conventional illustration of convergent technologies that represent ICT would be the combining of audiovisual, telephone, and computer networks into a single cable or wireless system. An example of an ICT implementation would be if an “internet service provider” (ISP) offered internet, phone, and television services to households and businesses through a single optical connection[5].

Numerous academics have focused on the construction industry in recent years due to its complexity and the potential of ICT to improve efficiency. The construction business is a sizable organisation in and of itself. Most construction projects include a lot of people and procedures, which necessitates excellent communication between them. The need for appropriate information management and open communication among all project participants is a key consideration. However, because of the extensive fragmentation, it is difficult to improve communication among all project participants. The process of managing enormous amounts of data with significant differences involved is made more difficult, tools of ICT as shown in Figure 1.

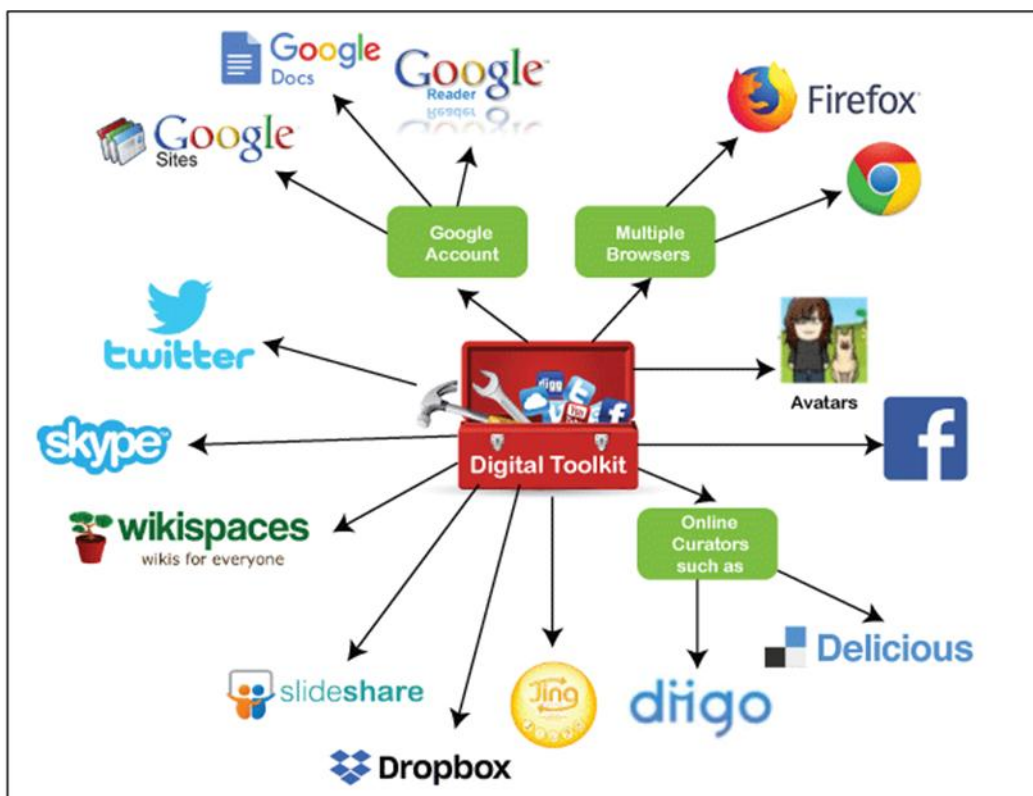


Figure 1: Representing the Tools of ICT [Source: Java Point].

The use of computer to store, retrieve, transport, and alter data and information is known as information technology (IT). This is often done in the context of a company or other organization. IT systems are often information systems, communications systems, or, more particularly, computer systems that are controlled by a small number of people and include all hardware, software, and ancillary devices. The phrase is often used as a synonym for computers and computer networks, but it also refers to other means of information dissemination, including telephones and television. A subset of information and communications technology, IT is said to exist ICT.

ICT includes both the internet-enabled world and the wireless network-powered mobile world. Along with cutting-edge ICT components like artificial intelligence and robots, it also comprises outdated technology like landline telephones, radio, and television transmission, all of which are still commonly utilized today. The list of ICT components is extensive and is expanding. Smartphones, digital TVs, and robotics are relatively recent additions compared to components like computers and phones, which have been around for decades.

1.1. Components of ICT:

Various component of ICT as shown below (Figure 2):



Figure 2: Representing the Various Tools of ICT [Source: Easy Notes].

1.1.1. Cloud Computing:

The phrase is often used to describe data centers that are accessible to several people online. Functions from central servers are often spread over several locations by large clouds, which are common nowadays. It could be referred to as an edge server if the connection to the user is reasonably nearby. Enterprise clouds are only available to one business, public clouds are accessible to numerous companies, and hybrid clouds combine all of these options[6], [7].

1.1.2. Software:

Software is a class of rules, data, or computer programmes which are used to run machines and carry out certain activities. In contrast to hardware, which refers to a computer's actual components, software is a general phrase for the programmes, scripts, and applications that operate on a device. One way to think of a computer is as having two parts: hardware and software. System software, that encompasses operating systems or any other programme that enables application software, is frequently separated from software applications, or user-downloaded applications that satisfy a patient's want or need.

1.1.3. Hardware:

When used in relation to technology, it refers to all the actual physical components that go into building a computer or electrical system. This comprises the CPU, RAM, hard disc, and display. Firmware, software, and hardware all work together to make a computer run. A computer system's hardware is only one component; another is software, which is integrated into the equipment and thus controls it.

1.1.4. Digital Transactions:

Virtual or computerized transactions between persons and organisations that don't use paper are considered transactions. An improved bottom line is the outcome of time and money-saving digital transactions. Additionally, customer experiences are improved. As tracking capabilities are improved by digital transactions, mistakes are reduced.

1.1.5. Digital Data:

Digital data is information that, through the use of certain machine language systems that can be understood by a variety of technologies, represents other types of data. A binary is the most basic of these, storing complicated audio, video, or textual information simply in a sequence of binary symbols, often ones.

1.1.6. Internet Access:

Internet service is the procedure through which individuals or businesses connect to the internet via desktop computers, laptops, or mobile devices. Users may connect at various internet speeds depending on the data signaling rates used for internet connectivity. Anyone with internet connection may use internet services or other web-based services. Dial-up internet connection marked the start of the internet's popularity. Internet connectivity technology evolved quickly, bringing solutions that were quicker and more dependable. The most popular means of internet connection right now are bandwidth technologies like cable broadband and ADSL. The geography, internet service provider, and kind of connection all have an impact on the speed, cost, dependability, and accessibility of internet connectivity.

A building project's developmental team includes workers with a broad range of knowledge, professional skills, computer skills, academic background, and workplace settings that further complicates the process. The communication is made more difficult by the distance between the construction office and the site. The area, surroundings, and project team members of each project vary, making it challenging to standardize the data. The amount and variety of information that has to be shared is likewise enormous. Data must be appropriately formatted for information transmission to be effective. Using an information management system is an effective technique to offer such information transmission. More focus is placed on ICT technologies to provide the desired objectives. ICT experts and academics have both used a variety of ICT technologies to provide the building sector answers. This essay seeks to define the function and reach of ICT that may raise productivity in the Indian construction sector.

2. DISCUSSION

The utilization of communication lines to transport different sorts and forms of data was recently expressed using ICT as well. Providing internet, phone, and television services to homes and businesses through a single optical cable is one example of how video and audio network and computer systems are connected through a common cable infrastructure, which significantly lowers costs. It will discover the numerous benefits of ICT in this blog. There is no widely accepted definition of information and communications technologies, except than creating an acronym. Why? It's difficult to keep up with ICT ideas, methodologies, and applications since they develop almost every day. When thinking about ICT, take into account all ways that digital technology may be used by people, companies, and organisations to utilise information. Any device that can store, retrieve, modify, send, or receive data in a digital format is referred to as an ICT. Just a few examples are personal computers, digital television, email, and robotics. ICT in education offers a plethora of benefits. Let's examine some of the ICT's many benefits as shown in Figure 3[8]–[10].

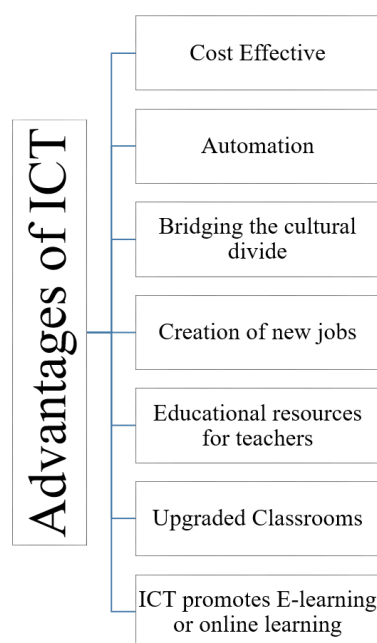


Figure 3: Illustrating the Various Benefits of ICT.

2.1. Importance and Application of ICT:

Life has been significantly impacted by ICT. Since the industrial revolution, man has started to create tools and machinery that make his job easier. With the development of technology, humanity has made a qualitative leap toward luxury and progress. Previously, work was completed in ancient offices using manual documentation and interactions, which resulted in a lengthy completion time. Since technology entered the corporate sector, agreements and transactions can now be made swiftly and anywhere in the globe. ICT so significantly affects our life. The majority of industries, including e-government, finance, education, agriculture, e-commerce, medical, military, and transportation, employ ICT. ICT is playing a crucial role because to technical advancements, sophisticated computer infrastructure, sophisticated marketing techniques, and shorter cycle times using RPA.

3. CONCLUSION

Institutions employ a range of ICT technologies to produce, manage, preserve, and share information as the use of interactive digital whiteboards in place of chalkboards in certain situations and the use of students' own cellphones or other devices for education during class time are examples of how ICT has sometimes become an essential component of the teaching-learning interaction. These methods may help students develop higher order thinking abilities, provide them original and personalized ways to communicate their understandings, and better equip them to cope with the rapid technological change that is occurring in both society and the business. Information and communication technology growth has led to significant improvements and advancements in a number of industries. Only technology will support life in the future. Today, a variety of industries have access to the Internet, which has enhanced productivity in the area of technology communication and established a worldwide market for Internet services. Information and communication technologies are all the foundations, procedures, and techniques used in exchanging information, disseminating it, and processing data using computers and other electronic devices created specifically for this purpose, as well as other forms of communication, within the bounds of accepted scientific principles and guidelines.

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