

## Role of Information Technology for Good Governance and Society

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**Abstract:** For developing countries, Technology is considered to be a lever for development. The development of Information Technology (IT) has a wide potential in all aspects of the societal development. Especially, for any developing country, IT has brought an overall change and growth. The developing countries need to focus on 6Cs of IT i.e. Computer density, Communication, Connectivity, Cyber laws, Cost and Commonsense to emerge as an effective and well governed country in twenty first century.

**Key words:** Information Technology, Electronic Governance, Bluetooth, Video on Demand, 6Cs

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### INTRODUCTION

The hardware and software technology has undergone rapid changes in the past decade. Due to the potential demand in applications domain, the processor has been faster than ever before. Hardware peripherals have tried to keep pace with these faster processors. To make this hardware usable effectively, software demand has also increased in many folds. Thrusts have been given to make software machine independent, reusable and distributed in nature.

In this study, we have attempted to briefly review the aspects in advancements of digital technology, its impact in the society, and also tried to peep into the technological changes in future.

**Technological Revolution:** In early years, telephones, the postal service, printed material and films were the most reliable sources of information. Most of these equipment are mechanical in nature. Today, we are in the era of digital technology, where computer is the leading equipment to handle information. The computer underwent miniaturization due to innovations in base technology, memory and storage systems and processor design. CMOS technology has matured to permit much higher densities, resulting to a shorter wire lengths for interconnecting gates and faster clock rates [1]. Due to the advancement in VLSI technology, memory architecture and storage capacity has been improved. As a result, the performance gap among mainframe, mini and personal computers has been substantially reduced. The growth in these technologies is still on to fulfill the objective of doubling the processor speed in every eighteen months.

In spite of the improvements in single processor performance, it has been insufficient to meet the growing demands for scientific computing especially in the areas of weather prediction, drug design, molecular modeling, spacecraft launching modeling etc. To meet the computational need, parallel architectures based on Single Instruction Multiple Data Stream (SIMD), Multiple Instruction Multiple Data Stream (MIMD)

principles are designed to work with nearly tera-flops of computing power at a remarkable cost. To exploit the parallel architectures, there has been a substantial advancement in programming paradigm in the form of parallel and distributed algorithms.

The above two revolutions really cater the need of generating the information in best effective manner at one destination. Information is considered as a vital resource and needs to be distributed and disseminated among the people in order to increase the value of information. The need of dissemination has really given birth to the communication revolution. Advanced Research Project Agency (ARPA) net is the first communication network came into existence in US, Department of Defense to exchange military and national security of information. During the last decade, lot of work has been done to bring a best communication media, the Internet, the network of networks. Today, every enterprise is a part of Internet. The current era is rightly told as the era of Internet.

**Information Technology:** Knowledge is power and information availability in desired shape enhances the knowledge [2]. Information is a vital resource of any entrepreneur and also needed in every aspects of life. Information is considered to be a by-product of processed data and computer is the prime medium for processing the data in effective and efficient manner. In the current days, we cannot conceive any information system without the use of computers. Earlier, Information was considered as a collection of text, but the definition no longer holds true as it comprises of more and more multimedia based i.e. video, audio, and text. This has extended the utility of computers further and voice and video became the integral part of the computer. As there has been a tremendous need of quality of information, a new technology called Information Technology (IT) has emerged.

Information technology is referred to the technology that is used in information generation, presentation, and dissemination among the most potential users to utilize information that help in taking decision for the problem

they encountered in the real environment. Over the last two decades, the world has witnessed unprecedented revolution in every aspect of information technology. The revolution comprises of convergence of three revolutions, namely Electronics, Computing and Communications. Convergence connotes simplification, commonality and unification. In a system with multiple elements, convergence implies ease of operation and enhanced productivity, leading to lower cost as well as deeper and more distributed functionality [3, 4].

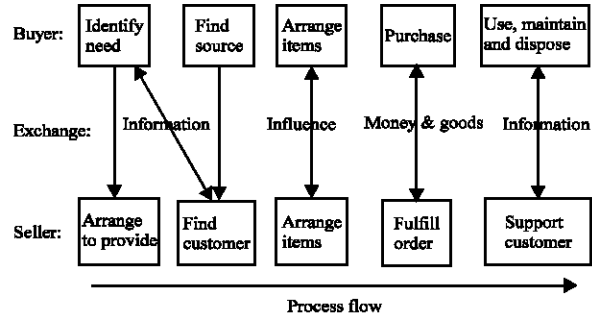


Fig. 1: Electronic Commerce Model

**Internet:** Internet is the name for a vast, worldwide system consisting of people, information, and computers. It helps millions of people to communicate, to share the information across the globe. In just few short years, the Internet has expanded from a limited access academic and research network into a pervasive, multipurpose electronic medium. It has become a popular medium for communication, advertising, business etc., in addition to academic and research uses. Internet access has become free to the users in some countries, where advertisers pay for it. The cost of Internet access is falling everyday and days are not far off when rural people can also be able to access the Internet. Over the years, TV is getting digital, and telephone is getting wireless. This will bring a radical change from 'broadcasting for masses' to 'broadcasting for individuals' and the concept "programs on demand" will be available to each Internet subscriber. The Internet is a real boom to the information technology to bring radical changes in the society [3, 4].

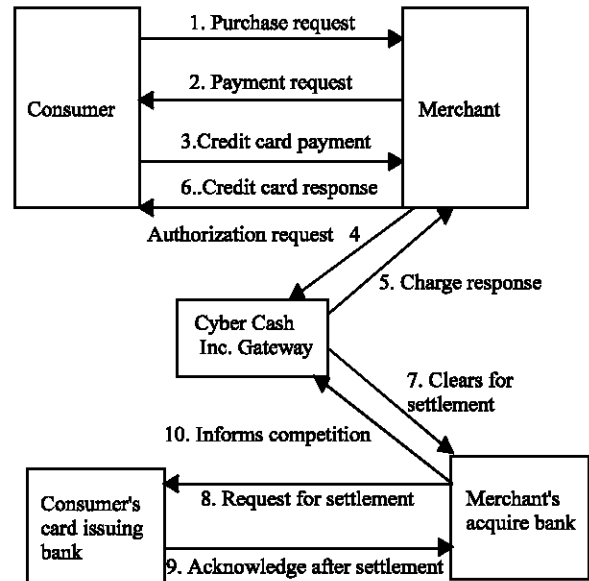


Fig. 2: Cyber Cash Gateway Charge Response

**IMPACT OF IT ON SOCIETY**

**Business:** The use of Internet provides a global infrastructure to support commerce. Today, E-Commerce is a buzzword. E-Commerce is defined as the application of information technology to support business processes and exchange of goods, services or information between suppliers and customers [5]. The E-Catalog along with valuation can be made available in enterpriser's homepage for customers search. Figure 1 depicts a typical model of E-Commerce. Money is the medium of exchange in every business. In conventional settlement and subsequently in credit card payment system, money gets physically transferred from buyer to the seller. Internet has brought a new concept of payment known as E-Payment system. A typical model of an E-Payment system is shown in Fig.2 [2]. IT has also brought the concept of paperless office and virtual office environment. This brings a total change in work culture.

**Education:** The web based education system is quite popular among the students, which is an outcome of advancement in multimedia technology. This leads to instruction-on-demand and helps the students to study during when he is on move or desires to study in free time. Online examinations and online interviews are set to enter in a big way.

**Entertainment:** The concept of virtual reality is widely used in entertainment. Movie on demand will change concept of current day television broadcasting. Toy robots are available in the net to replace the physical toys.

**Banking:** Computerization in banks improves the customers' satisfaction as well as the employees' satisfaction. The normal bank timing can become practically round the clock. When all nationalized banks will be computerized and networked, customer can transact from any branch. The advantages of Automatic Teller Machine (ATM) have already brought the concept of 24 hours banking time in major cities, which gradually will be extended to all people. New facilities like home banking will evolve and one can transact with banks by sitting at home or office.

**E-governance:** The Govt. offices can be linked by network, so that customer can get single window

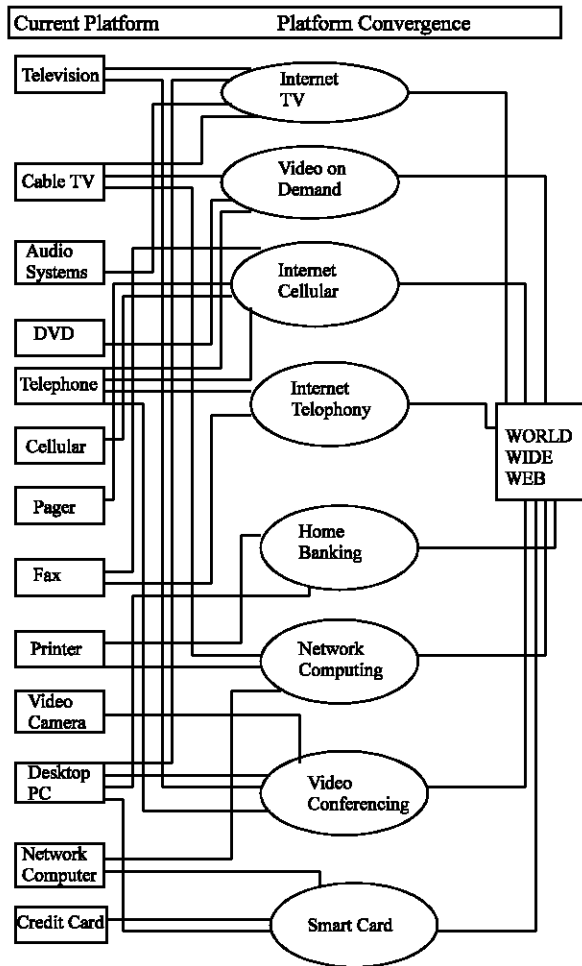


Fig. 3: Convergence of Electronics Systems with WWW

clearance. As all the offices will be hooked together, information relating to offices will be available with single button click. This will make the officers/workers more responsible in their workplace and as a result work culture will improve. Corruption level will also be substantially reduced.

**Agriculture:** Application of digital technology is also quite useful in the field of agriculture. More work can be accomplished quickly, cheaply, and precisely. Onsite field measurements, data analysis, farm management and control are realizable. The increase in food production is achieved through better and effective utilization of available resources. Microprocessor based systems help in better management of fertilizer performance measurement through soil electronics. IT based techniques are best suited for irrigation scheduling and scientific water management. IT based dairy management, livestock, and poultry production is also quite popular and shows improved results [4].

**Other Areas:** The role of IT can be very well felt in railways, hospitals, law, security, and defense applications. Computerized stock exchanges provide online trading, the jobbing difference, controlled price

fluctuations and become more transparent. Paperless offices and digital-cash technology reduces the use of papers and chemicals, which in turn reduce the destruction of trees. The net effect will help in pollution control. With the introduction of virtual office and on-line purchase there will be a minimization in travel, which indirectly control environmental pollution.

### FUTURE OF DIGITAL TECHNOLOGY

In the twenty-first century, access to the Internet and World Wide Web (WWW) will be a universal pipe through which all information will flow. Information will no longer be a resident part of a Personal Computer (PC), but on the network. All the applications and appliances will become web enabled. The current platforms will be converged to new appliances [6]. Fig. 3 depicts a prototype of such evolving platforms. Internet addresses are getting exhausted and to accommodate more users, IP V.6 protocol is in the fray. Microprocessor technology will grow further due to rapid advancement in VLSI technology. Internet access will be quite faster with the availability of higher bandwidth. The emergence of Bluetooth Technology has enabled the hardware and other electronics devices to be on or off by mobile software commands. Introduction of this technology will further make our daily living more comfortable.

### CONCLUSION

With the advancement in digital and information technology, life style of every individual has become different. Irrespective of rich and poor, every one in the globe is becoming closer to each other. The digital technology is still rapidly advancing and has a long way to go. The application of this latest technology to serve the common and distressed people is still a challenging task. It is expected that in near future, this technology will achieve this goal and mitigate the differences among people.

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