Computer And Communication Science

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Symposium on: Effect of IT Revolution on Society and the Planet Earth:

1. Introduction

Information technology is the fastest growing industry in the global economy in the twenty-first century. Characterized by the rapid growth in the use of computers, the Internet, Cellular Phones, and Electronic Commerce, Information Technology has not only revolutionized man's way of working but also his very existence. It has opened up an infinite number of new avenues in the fields of health care, education, entertainment, communication, commerce and agriculture. The two essential components of IT revolution have been the development of computer and internet, and they have revolutionized modern civilization.

Throughout human history, technology has had profound effects on lifestyle and as the rate of progress increase, society must learn to deal with both the good and bad implications. The introduction of technology has led to a considerable shift in the learning paradigm, with new technologies being gradually integrated into the learning environment. Networking and internet are being used as tools for increasing productivity of members of the learning community and for improving the efficiency of educational institutions, and administration.

With the development of new technologies and innovations every other day, the information technology is a progressively interesting platform not just for developers, but also for the non-technical crowd. Computer based technology and information systems are wide spread in their benefits and have offered a wide spectrum of services. The primary concern of the Information Technology (IT) is to offer on effective and efficient environment that provides knowledge and solutions to the common man in a user-friendly manner. It is an integrated technology which integrates computer, magnetic storage media, television, telecommunications, industries and various software systems such that they can all be operated by it. As a result of the amount of money and the wide range of knowledge associated with it, the IT profession has become coveted in the society. The perks of the industry attract the best talents, and at present, regardless of their courses, most graduates are obsessed with IT jobs.

IT revolution has altered the very face of our planet Earth. It has resulted in easy and quick access to information and has thus been instrumental in improving communication, travel, business, entertainment, space exploration, defense capabilities, and medical surgeries, among others. Various organizations enforcing IT have spung up with time. Capable of rendering better services and enhancing their business manifold, these organizations play an integral role in our lives. While the IT has enormously been used in manufacturing sector regarding product designing and development, product modification etc, the horizons of this industry ware expanding beyond all dreams. In today's world, development is measured in terms of the advancement in the IT sector. Recognizing the benefits of the IT revolution, there is an increased demand for computer literacy in India. Currently, efforts are on to provide computer-aided education in all schools, thus ensuring that the next generation is computer-savvy. The introduction of technology has led to a considerable shift in the learning paradigm, with new technologies being gradually integrated into the learning environment. Networking and internet are being used as tools for increasing productivity of members of the learning community and for improving the efficiency of educational institutions, and administration, Internet, Internet and Extranet have been evolved to carry mail, finance and banking and other multimedia communications at minimum cost.

Recognizing the need for legislation in the previously unexplored world of Information Technology, in 2000, the Information Technology Act, was established to render a legal framework to help electronic commerce and transaction. The Department of Information Technology, Government of India, has also formulated two programs. "Education Career" and "Knowledge Career" to integrate technology into the learning environment. While the former provides connectivity to schools across the country; the latter aims at providing IT infrastructure at all the higher learning institutions in the country. Number career, the project launched by Indian Telecom Services along with IUNet is all set to link over 100 universities, schools, hospitals and corporate establishments, for enabling cheaper and instantaneous data exchange. V-cop-an ambition project to connect the police station through an all-India network is currently on the anvil. A software FACT provides fingerprint statistics with centrally located servers at the National Crime Records Bureau.

The economic value of IT depends greatly upon the level of economic progress the country has already achieved. While it has the potential to make existing processes more effective and efficient, it cannot substitute for the lack of a basic infrastructure. What is good for a developed country like the US may not necessarily be optimal for a developing country like India where the basic elements of infrastructure that support a successful economy such as educational opportunities, healthcare, electricity, drinking water, and capital are in short supply. The formulation of national policy requires the implementation of important tradeoffs between the benefits to industrial sectors, regions, and classes of people.

IT in a Educational Places

Information Technology complements traditional educational techniques, with the latest hardware and software and the latest computer languages and packages being used to teach the students. A number of computer-assisted means of education, including distance education, the virtual library, and the invisible college network have gone a long way in improving educational methodologies as well as in improving access to academic information worldwide.

IT in Hospitals

Hospital management is one of the various applications of IT. The details of a patient like name, age, disease found, blood group, height, weight, blood pressure level, etc. can be easily maintained as a database in a computer in the hospital. This results in a reduction in data redundancy and increased security of the patient's records. The applications are not limited to maintaining database alone. They are widely used for billing purposes and pay-roll management as well.

IT in Medicine

The impact of IT has been felt in the field of medicine as well. The Information and Communication Technology has led to the development of a branch known as Telemedicine, which plays an important role in solving medical problems across the globe. Ranging from medical consultations on the Internet to surgery on television, the effect that IT revolution has had in this area cannot be neglected.

IT in Banking

The IT revolution has resulted in a consistent and tremendous improvement in the banking sector. Recognizing the demands of the era, all banks have gone for 100 percent computerization. As a result of this, the transactions take place at a faster rate and the waiting time of a customer in a queue is minimized. Today, banks provide the facility of internet banking, phone and mobile banking. All the branches of banks are networked, thus increasing efficiency and transparency. Also, the cost incurred on infrastructure, furniture and employees has decreased because of the application of IT.

IT in Travel Industry

The application of IT has provided various benefits for the Travel Industry as well as the passengers. Due to the issue of computerized tickets, errors have been minimized and efficiency has been tripled. A passenger can book a ticket from any part of the country as a result of the system of outline reservations. Thus it has reduced the workload of the workers and has diminished the stress of the travelers.

IT in Shops and Malls

As a result of the increased competition, IT has also been applied in shops and malls. Whenever any product enters the shop, all the relevant information like-its name, quantity, manufacturing date, expiry date, price, etc are entered into the computer system. Whenever the sale takes place, computerized billing is provided to the customer. Thus, any product sold would result in indications to the manager/ supervisor of the shop about the quantities of product sold, number of products available in the shop and other related information.

IT in Research

The IT revolution has brought about the increase in access to scientific information and the sharing of research facilities. This increased access is particularly beneficial to scientists and researchers, uniting the great minds of the world in single platform.

IT in Marketing

The various Marketing Research Agencies involve in a lot of research activities. They conduct various surveys ranging from product development to distribution and measurement of customer response. Nowadays, the MR agencies use sophisticated statistical software packages which are specifically designed for data analysis and interpretation.

IT in Share Market

With the help of fast internet connection, purchasing and selling of share takes place in a matter of seconds. The

details of the transactions can easily be viewed by client, thus increasing the transparency of the deals. Due to the availability of online share trading, the volume of the shares traded and the turnover has consistently improved over the span of the years.

IT in Environment

Information technology has also helped expand our capacity to understand and manage physical and ecological processes including cross-border weather forecasts, disaster, warning systems and the establishment of joint projects to combat national hazards like desertification. Thus, it proves indispensable even in the field of environment.

IT in E-commerce

IT revolution has altered the very face of business operations and e-commerce. It allows us to advertise product, seek through the internet. IT boom has also revolutionized our style of living. It has made our life easy, pleasurable, and luxurious. No longer do people need to go hunting for household items in congested markets. Seated comfortably in our houses, we can conduct trade.

IT in Culture

Information technology offers tremendous possibilities for the promotion and sharing of physical and non-physical cultural heritage. The computerized programmes and musical productions have opened up avenues, not only for entertainment, but also for cultural programmes.

IT in Telecommunication

If viewed on a wider scale, the Information and Communication Technology has a major effect in the area of telecommunicates. The new forms of communication-ranging from mobile phones to teleconferencing have enabled people from different parts of the globe to communicate easily without consideration of time-lapse, weather conditions or distance on the globe.

2. Scope of IT Revolution in Various Fields:

Higher Education

Formal education needs meticulous introduction of IT related techniques to enhance the standards of teaching and thereby improve its effectiveness and efficiency. New communication and information technologies have become major resources for teaching and learning in higher education.

Web Learning

As the Internet technology was brought in, it made a revolution in information technology. The extensive use of Internet has caused a drastic change in the methods of education. It is a global network and gives the concept of global classroom where any number of students can interact with each other at any time. With access to internet, the learners have a reach to an unrestricted pool of knowledge. In this manner, internet communication is a very useful medium of imparting knowledge.

Delivery System

The knowledge and information in most of the schools are delivered with teaching aids like slide projector, overhead projector and LCD projector. Various other tools like audio-visual tapes, broadcast on radio and telecast through TV are used in distance mode of learning. Computers play a useful role in making learning material through multimedia symbiotic advantage which may be congregated by integration of various types of information such as clip art, animation graphics, music, voice and live interaction that make the deliver effective.

Networking & Library

The impact of IT on libraries is demonstrating wonderful results. The electronic libraries have optical disks which can be used at home or anywhere else through a small portable electronic reader. The applications of IT in the field of library and information management have increased the efficiency of day to day library work. Nowadays, the libraries of most universities have access to online information service, and use CD ROMs and DVDs to provide wider access. Applications such as sharing of library resources, projects and research work, faculty interaction and collaboration, student placement information and video conferencing can be administered on the Intranet.

Distance Education

The 21st century is the age of information technology. The advancement in technology has helped in improving distance education. As a result of the IT, the teaching learning process has become faster, non-conventional and interesting. In developing countries, distance education is especially important as it acts as a social catalyst by supporting the objectivist model of knowledge transmission.

E-Learning

It has major contributions in the field of e-learning. It helps bring together millions of students, living in faraway places,

giving them a common platform for learning. The Internet enables us to access an unlimited storehouse of knowledge on any subject, making it an efficient medium to gain information.

3. Problems Associated with IT

New forms of negative effects have arisen in this era as a consequence of the rapidly developing technology. Studies indicate that technology has increased the probability of diseases and disorders, such as obesity, and that they have led to social separation of singular human interaction. Pollution as well is a serious problem in a technologically advanced society. The need of the hour is a sustainable, healthy and flexible paradigm to ensure that the positive effects outweigh the negative. The IT industry has affected the world in a never-before-seen manner, and has shrunk global boundaries till the planet Earth is but a "Global Village".

Technological progress inevitable creates dependence on technology. The world is now dependent on the emerging information infrastructure for its transport, telephone, and other infrastructures. Dependence on technology has associated with it various risks, the biggest of which is the collapse of economic and social functionality.

Blackouts of long-distance telephone service, credit data systems, and electronic funds transfer systems, and other such vital communications and information processing services undoubtedly cause wide spread economic disruption, as already seen earlier in various parts of the world.

Such a wide variety of content in the digital form basically means that duplication and distribution of information becomes easier and cheaper, resulting in a mixed effect on the provision of content. The content can be distributed at a lower unit cost. On the other hand, distribution of content outside of channels that respect intellectual property rights can reduce the incentives of creators and distributors to produce and make content available in the first place.

Information technology raises a number of questions about intellectual property protection. In order to address these problems, tools and regulations have to be strengthened. Social interaction has been affected by use of computers and communication technologies. Individuals communicate with one another through computers and communication technologies, in ways complementary to the traditional face-to-face, telephonic, and written modes. The rapid rise in both computing and communications power has raised considerable concern about privacy in both the public and private sector.

4. Effect on Planet Earth

Information technology and its application substantially reduces energy and resource consumption, while accelerating economic activity by the means of high-speed information access and exchange. However, one cannot neglect the ill-effects of IT-the construction of an information technology infrastructure is energy and resource intensive, Moreover, the environmental impact of the production, use, and disposal of information technologies is certainly not sustainable to planet earth. The effect of IT is mainly categorized as:=

- ***First Order Impact:*** It refers to the effect on our planet due to the production and use of IT. It includes the problems associated with production of IT infrastructure and devices, electricity consumption by the IT hardware and the faulty methods of electronic waste disposal.

- ***Second Order Impact:*** It refers to the indirect impacts of It on the structure of economy, production process, products and distribution systems. The environment is negatively affected due to the processes of dematerialization, virtualization and demobilization.

- ***Third Order Impact:*** It refers to the indirect effects on the environment due to the increased consumption of natural resources. The higher economic growth due to IT impacts life style and value system of the people constituting the society. This too is included under the third order impact.

Conclusion

The rapid growth of the It sector symbolizes the potential of every individual to perform and shine on the widest platform available to man-Earth. Led by some visionaries with revolutionary ideas, and supported by thousands of employees and entrepreneurs, this sector embodies the potential of the spirit of human enterprise when given free rein.

It has effectively changed the very way the society and the people communicate, live, and work. However, the fact remains that it is of the little value to a large fraction of the population who still struggle to make ends. The ongoing computing and communications revolution has innumerable impacts on the modern society. Development of an infrastructure of computing and communication technology

that provides access at low cost will reduce the information barriers to an efficient market operation. The information technologies have facilitated the evolution of e-commerce and have changed the very face of business transactions. E-commerce significantly lowers the information and transaction costs for operating on overseas markets, resulting in disintermediation throughout the distribution channel, with cost reduction, lower end-consumer prices, and higher profit margins.

Effective communications have ensured that a common understanding of goals and strategies for the pervasive use of Information Technology in society. In the process of using Information Technology for better governance, empowerment of people plays an important component. The widening scope in the IT sector has opened up new channels of providing employment and opportunities to the youth. Recognizing the potential the IT services have, the use of IT in rural areas for enhancing agricultural production and standard of living is being popularized.

Information and knowledge, both are crucial to social and economic development of the society as a whole. Thus, access to information and the means to use that information needs to be extended to everyone, everywhere. The most significant feature of this Information Technology revolution is perhaps the convergence of communication and computing technologies, especially through the Internet. It is basically a medium for interaction between individuals from different parts of the globe, and a market place for all the goods and services imaginable. It is therefore rapidly becoming a source of considerable economic potential for individuals, groups, firms and nations. Thus, the IT revolution has united the inhabitants of planet Earth through the multitude of services it provides in a never-before-seen manner and has succeeded in shrinking the vast world into a "global village", the likes of which had never been imagined.

Religion and British Policy

In India the Church of England has been almost indistinguishable from the Government. The officially paid (out of Indian revenues) priests and chaplains are the symbols of the imperial power just as the higher services ae. The Church has been, on the whole, a conservative and reactionary force in Indian politics and generally opposed to reform or advance. The average missionary is usually wholly ignorant of India's past history and culture and does not take the slightest trouble to find out what it was or is. He is more interested in pointing out the sins and failings of the heathen. Of course, there have been many fine exceptions. India does not possess a more devoted friend than Charlie Andrews, whose abounding love and spirit of service and overflowing friendliness it is a joy to have. The Christa Seva Sangh of Poona contains some fine Englishmen, whose religion has led them to understand and serve and not to patronize, and who have devoted themselves with all their great gifts to a selfless service of the Indian people. There are many other English churchmen whose memory is treasured in India.

The Archbishop of Canterbury, speaking in the House of Lords on December 12, 1934, referred to the preamble of the Montagu Chelmsford reforms of 1919 and said that, "he sometimes thought the great declaration had been somewhat heartily made, and supposed that it was one of the hasty, generous gestures after the War, but the goal set could not be withdrawn." It is worthy of note that the head of the English Church should take such an exceedingly conservative view of Indian Politics. A step, which was considered wholly insufficient by Indian opinion and which, because of this, led to non-co-operation and all its consequences, is considered by the Archbishop as "hasty and generous." It is a comforting doctrine from the point of view of the English ruling classes, and, no doubt, this conviction of their own generosity, even to the point of rashness, must produce a righteous glow of satisfaction.

-Nehru An Autobiography, Oxford University Press, 1989, P.375