

Information technology

Science, Computer Science



INFORMATION TECHNOLOGY Introduction: In simple words Information Technology can be described as the solutions used to manage data, information and knowledge, the Industry that provides solutions around those solutions, and the organizations, within companies, that are made up of the IT professionals that come from that industry. But in a complicated sense, it is the acquisition, processing, storage and dissemination of vocal, pictorial, textual and numerical information by a microelectronics-based combination of computing and telecommunications. Some of the modern and emerging fields of Information technology are next generation web technologies, bioinformatics, cloud computing, global information systems, large scale knowledge bases, etc. WHAT IS INFORMATION AND TECHNOLOGY? Informations are data, which are processed by computer as per requirement of the user. And, Technology is the making, usage, and knowledge of tools, machines, techniques, crafts, systems or methods of organization in order to solve a problem or perform a specific function. Together they form IT(information technology). IT is the area of managing technology and spans wide variety of areas that include but are not limited to things such as processes, computer software, information systems, computer hardware, programming languages, and data constructs. In short, anything that renders data, information or perceived knowledge in any visual format whatsoever, via any multimedia distribution mechanism, is considered part of the IT domain. IT provides businesses with four sets of core services to help execute the business strategy which are business process automation, providing information, connecting with customers, and productivity tools. In the 1960s and 1970s, the term information technology

(IT) was a little known phrase that was used by those who worked in places like banks and hospitals to describe the processes they used to store information. With the paradigm shift to computing technology and "paperless" workplaces, information technology has come to be a household phrase. It defines an industry that uses computers, networking, software programming, and other equipment and processes to store, process, retrieve, transmit, and protect information. Great technological advances have been made since the days when computers were huge pieces of equipment that were stored in big, air conditioned rooms, getting their information from punch cards. The information technology industry has turned out to be a huge employer of people worldwide, as the focus shifts in some nations from manufacturing to service industries. It is a field where the barrier to entry is generally much lower than that of manufacturing, for example. In the current business environment, being proficient in computers is often a necessity for those who want to compete in the workplace.

HISTORICAL BACKGROUND OF INFORMATION TECHNOLOGY: When the terminology 'information technology' is used, mistakenly it describes the entire industry. Information technology basically refers to the employment of computer hardware and software applications to manage data. The back-story of information technology precedes the invention of the computer. The abacus, used by Asians, Egyptians, Romans, and the Greek can be termed a source of information technology. Calculators, the first mechanical one built by German polymath Wilhelm Schickard, or the slide rule, developed in 1622 by William Oughtred, also comes under the heading of information technology. Another example would be punch card machines, expanded

upon by IBM in the early to mid 1900's, qualifies the term information technology. As time progress along with the advances of inventions and applied knowledge, computing took shape and became useful in a variety of ways other than calculations. Through ages, different computers were made. These were very big in size, made a lot of sound, generated a lot of heat and above all, they were very slow. Gradually, new technologies came in. vacuum tubes were replaced by transistors, transistors were replaced by microchips. Computers became small, generated less heat and sound. By the mid 1980's computer became a household appliance. Then, features like Word processing, spreadsheet analysis, desktop publishing etc. were introduced. Gradually every aspect of computer became related to a single aspect called Information technology. The term in its modern sense first appeared in a 1958 article published in the Harvard Business Review, in which authors Leavitt and Whisler commented that " the new technology does not yet have a single established name. We shall call it information technology (IT). Some of the modern and emerging fields of Information technology are next generation web technologies, bioinformatics, cloud computing, global information systems, large scale knowledge bases, etc.

OBJECTIVES OF INFORMATION TECHNOLOGY: Artificial intelligence is necessary for development of mankind . Today, the term information technology has ballooned to encompass many aspects of computing and technology, and the term is more recognizable than ever before. The information technology umbrella can be quite large, covering many fields. IT professionals perform a variety of duties that range from installing applications to designing complex computer networks and information

databases. A few of the duties that IT professionals perform may include: Data management , Computer networking, Computer engineering, Database systems design , Software design, Management of information systems , Systems management or System administration , Voice over IP or VoIP. It is necessary to cut cost in every field for betterment of Man Kind. The primary goal of IT is to be the IT Service Provider of Choice, implement and grow service management processes in accordance with IT Infrastructure Library, Implement fair and equitable cost recovery using the Financial Transparency Model, ensuring good ROI for stakeholders, Communicate with customers to clearly define their requirements and provide solutions that satisfy the community's business needs, etc are some of the primary objectives. Secondly, its goal is to establish a workforce development program to recruit, retain, and train highly qualified employees, align job profiles and performance appraisals to Mission Goals and objectives, to implement team building activities and to maintain open communications. Thirdly, its objective is to implement services for communities of interest, promote sharing of IT resources (including data, information, expertise, and technology) among agencies, develop and publish statewide policies that promote the development of information technology resources in an organized, deliberate, and cost effective manner. And finally, its goal is to improve Individual Privacy and the Privacy of Information Contained Within Systems, implement statewide security policies, standards, and identification tools to help eliminate structural vulnerabilities from the State's IT architecture and systems and, to conduct a rigorous administrative reviews and evaluation of State IT security and recovery programs. INFORMATION

TECHNOLOGY USED IN VARIOUS ORGANIZATIONS (OFFICE, EDUCATIONAL INSTITUTIONS, ETC.): Companies use networks to enable users to communicate with each other and share both files and hardware resources. The internet or the World Wide Web is a network of public and private computer networks that span the globe. Businesses use the internet for many purposes. One of these purposes is electronic mail. E-Mail brings a unique perception into the way of communication. Although, it does not replace the traditional means of communication such as letters and telephone calls, it has created a new method of transmitting information in a more efficient way. The use of intranets and extranets has also recently become more popular. The intranet is a collection of private networks within an organization. It uses network technologies as a tool to communicate between people or workgroups. This tool is to help improve data sharing within the business. The extranet is a computer network that allows controlled information to be accessible from the outside for business or education. Information technology provides companies with the ability to process large amounts of information and do so in a way which presents the information in a clear and concise manner to employees. Anticipated benefits of implementing an information technology system include improvements in productivity, better profit performance, and a higher degree of accuracy among information within the firm. The ability to share information among employees is also enhanced. Banks keep all their information regarding accounts stored in computers. Educational institutions also use information technology to teach their students. They use computer and projector to teach them different subjects. Also, students can access the

internet for all kinds of information. Classrooms became different as they include more and newer forms of technology. These technological advances are readily available for use by both students and teachers. Classrooms are seen making use of the many forms of technology that are available, including: PowerPoint presentations, electron microscopes, video conferencing, web-sites, and smart boards. These many forms of technology available serve both educational and informational purposes.

RELATION BETWEEN INFORMATION TECHNOLOGY AND OFFICE AND EDUCATIONAL INSTITUTIONS: Impact of Information Technology on Organizational Performance While information technology provides considerable benefit to organizations, the eventual dependence on technology which may result can be problematic. Tasks which were once performed manually are now automated; if the computer system is unavailable, the tasks cannot be done. Staffing becomes more difficult because the training required to perform tasks is more complex than in a manual system. Checks and balances which may have existed in a manual system are also lost (or replaced) in an automated system, and while computers eliminate some types of fraud and embezzlement, they also enable other types. Of all of these issues, the one which may be most problematic is the overreliance of companies on their information technology. When the computer is not working correctly, companies face severe difficulty. Those staff members working in departments with access to the database management system (such as accounting) are the ones who feel the direct effect of the database. Some of these workers may lose their jobs as the database system makes the entire department more efficient and productive. Companies also use networks to

enable users to communicate with each other and share both files and hardware resources. The internet or the World Wide Web is a network of public and private computer networks that span the globe. Businesses use the internet for many purposes. One of these purposes is electronic mail. E-Mail brings a unique perception into the way of communication. Although, it does not replace the traditional means of communication such as letters and telephone calls, it has created a new method of transmitting information in a more efficient way. The use of intranets and extranets has also recently become more popular. The intranet is a collection of private networks within an organization. It uses network technologies as a tool to communicate between people or workgroups. This tool is to help improve data sharing within the business. The extranet is a computer network that allows controlled information to be accessible from the outside for business or education.

RELATION BETWEEN INFORMATION TECHNOLOGY AND ECONOMIC DEVELOPMENT: Economic development is a term that generally refers to the sustained, concerted effort of policymakers and community to promote the standard of living and economic health in a specific area. Such effort can involve multiple areas including development of human capital, critical infrastructure, regional competitiveness, environmental sustainability, social inclusion, health, safety, literacy, and other initiatives. Economic development differs from economic growth. Whereas economic development is a policy intervention endeavor with aims of economic and social well-being of people, economic growth is a phenomenon of market productivity and rise in GDP. Consequently, as economist Amartya Sen points out: " economic growth is one aspect of the process of economic development. " There are

three fundamental changes that the world economy is now facing. First, tariff and non-tariff barriers are falling down. Second, business activities are being globalized. As a result, cross-border investments are actively taking place. And, as trade and overseas investment increase, one nation's economic policies and conditions greatly affect those of the other nations. In such a global economy, information technology plays a more important role than labor and capital do. Microeconomic globalization is a phase at which companies are establishing a global mechanism of production and marketing by means of the computer and communication. Macroeconomic globalization is closely related with global diffusion of information. As the world economy is integrated, now is the time we have to think about the new role of each nation and region. Considering the key role of information technology in the world economy, we will have to find solutions in the information technology, information infrastructure, and information industry. From this viewpoint, it is important to analyze the effects of information technology on the economy in general, and find the directions we should move towards. Information technology has shifted the paradigm of the economy. In a macroeconomic sense, information technology affects the patterns of production, investment and employment. In a microeconomic sense, information technology changes business activities. In other words, thanks to advanced information technology, knowledge-based workers, who create and utilize information, play a key role in economic activities. Over the past decade information technology has played an increasingly important role in the operations of Economic Development Professionals (EDPs) in the world. The use of computers, software and telecommunications promises to have a profound

impact on these operations in terms of increased productivity, analysis of data, presentation of results and the computer networking of economic development offices. However, it is also possible that the EDP may be overwhelmed by the data made available by this technology and thus the potential benefits of computers and other techniques may go unrealized. This study presents the results of a survey of EDP5 in Ontario on the use of information technology. Despite a high level of adoption we find that not only are there significant differences in information technology usage between large (over 25, 000) and small (under 25, 000) communities but the time and task allocation associated with information technology usage within economic development offices varies considerably. Furthermore, computer use has focused more on data base development and increased productivity and efficiency and less on the analytical and networking potential of this technology. In addition to yields and value added, it becomes important how much information can be converted into useful knowledge. Knowledge itself, not a physical good, will be a valuable product. So, we can easily infer that knowledge-creating organizations like research institutes and universities, will find their increased roles as a place for economic activities.

INFORMATION TECHNOLOGY IN OFFICE MANAGEMENT: The unparalleled advances in management information technology in the past half decade are bringing wholesale changes in organizational form and function unanticipated even a few years ago. Within the seeds of this revolution in technology lies potential and ubiquitous as that brought about by changes in manufacturing technologies during the days of the Industrial Revolution. Through innovative management information technologies, new and

unexpected relationships between individual and individual and between individual and task are restructuring organizations into forms impossible prior to the advent of the technologies. When introducing integrated management information system technologies that provide virtually instantaneous intra-organizational communication, electronic information storage and retrieval, and personal computing resources for decision making. Organizations are confronting significantly altered organizational forms with the help of information technology. We use the term information technology or IT to refer to an entire industry. In actuality, information technology is the use of computers and software to manage information. The information technology department of a large office would be responsible for storing information, protecting information, processing the information, transmitting the information as necessary, and later retrieving information as necessary. Information technology is a wide field, and has enabled organizations across the world to work in an efficient manner. It plays a very important role in effective management and running a business. The use of information technology in organizations is inevitable, be it any type of company like manufacturing, transportation, or in my case the medical sector. Many companies use hardware and software to collect, store, organize and process data and to distribute information. Computers have become smaller over the decades, and now personal computers are often linked together across wide geographic areas to create networks. These networks provide additional benefits to organizational performance, such as data integrity and enhanced productivity. By using a broadband network, users can share a greater range of voice, data and video services, including

videoconferencing. Software has kept up with advancements in hardware so that today's office productivity packages make it easy to create multimedia "documents" which can be sent across an internal network, or the Internet. Companies also use networks to enable users to communicate with each other and share both files and hardware resources. The internet or the World Wide Web is a network of public and private computer networks that span the globe. Businesses use the internet for many purposes. One of these purposes is electronic mail. E-Mail brings a unique perception into the way of communication. Although, it does not replace the traditional means of communication such as letters and telephone calls, it has created a new method of transmitting information in a more efficient way. The use of intranets and extranets has also recently become more popular. The intranet is a collection of private networks within an organization. It uses network technologies as a tool to communicate between people or workgroups. This tool is to help improve data sharing within the business. The extranet is a computer network that allows controlled information to be accessible from the outside for business or education. The people who deal with management of information technology in organizations are called IT professionals. IT professionals perform a variety of functions (IT Disciplines/Competencies) that ranges from installing applications to designing complex computer networks and information databases. A few of the duties that IT professionals perform may include data management, networking, engineering computer hardware, database and software design, as well as management and administration of entire systems. Information technology is starting to spread further than the conventional personal

computer and network technologies, and more into integrations of other technologies such as the use of cell phones, televisions, automobiles, and more, which is increasing the demand for such jobs. MERITS AND DEMERITS OF INFORMATION TECHNOLOGY: Like all good things in the world, information technology has some merits as well as demerits. Information Technology has made our lives easier, especially in offices and educational institutions. Use of information technology saves our time and money. Modern technology has solved many problems that people face and play an important role in the development of many countries. Modern technologies create many kinds of products - computers, cloning technology, and video games etc. Technology today has made life better and quicker in our modern society; people can't see themselves without computers, cell phones, voice mail, etc. As we look at technologies, questions are raised. The Technological progress makes our society more convenient and safe. It does not only allow for the acquisition of knowledge but also makes studying more efficient as information and learning materials could be accessed on the internet and local networks. The first and the major advantage is that medical science is very progressive and vastly available. Without the needed information technology a lot of people would struggle with their health. In addition it saves many innocent lives. The point is to spread it and reach with medicine help to the poor nations of the Third World. Secondly, the advanced information technology improves industry by making it more effective and, what is vital today, safer for environment. Moreover when we look at TV, personal computer, mobile phone or internet for instance is quite obvious that all these inventions have been made in the last 20 years. Thus the speed

of improvement is huge and unpredictable. Then, information technology has made life easier in schools and colleges. The use of power point presentations, projectors, computers and audio-visual media has made studying easy and fun. In offices, information technology is used mainly to store huge amount of data, and to do calculations of accounts. Special job oriented programs are made for different tasks of the office. Moreover, offices can use DTP (desktop publishing) to publish brochures for their clients. On the minus side there is hacking of computers and data bases of different companies which is the inseparable issue of the new technologies. The miss use of internet is damaging the young people from the inside. Information technology is the primary media of communication over the world. So, it can be easily misused to create havoc over the world. Hence the main problem is the proper use of this knowledge. Tasks which were once performed manually are now automated; if the computer system is unavailable, the tasks cannot be done. Staffing becomes more difficult because the training required to perform tasks is more complex than in a manual system. Checks and balances which may have existed in a manual system are also lost (or replaced) in an automated system, and while computers eliminate some types of fraud and embezzlement, they also enable other types. Of all of these issues, the one which may be most problematic is the overreliance of companies on their information technology. When the computer is not working correctly, companies face severe difficulty. Those staff members working in departments with access to the database management system (such as accounting) are the ones who feel the direct effect of the database. Some of these workers may lose their

jobs as the database system makes the entire department more efficient and productive. FUTURE OF INFORMATION TECHNOLOGY: Future technology information technology would stand for all of continuously evolving and converging information technologies, including digital convergence, multimedia convergence, intelligent applications, embedded systems, mobile and wireless communications, bio-inspired computing, grid and cloud computing, semantic web, user experience and HCI, security and trust computing and so on, for satisfying our ever-changing needs. In past twenty five years or so, Information Technology (IT) influenced and changed every aspect of our lives and our cultures. Without various IT-based applications, we would find it difficult to keep information stored securely, to process information efficiently, and to communicate information conveniently. In the future world, IT will play a very important role in convergence of computing, communication, and all other computational sciences and application and IT also will influence the future world's various areas, including science, engineering, industry, business, law, politics, culture, medicine, and so on. Our conference is intended to foster the dissemination of state-of-the-art research in all future IT areas, including their models, services, and novel applications associated with their utilization. Information Technology in recent years has advanced very quickly. We can remember just a few years ago using an Apple Computer where they had to type in commands for the computer to do anything. It also had very flimsy disks to run program, which could easily be damaged. Now we have computers that will almost run themselves. We no longer have to type in commands; we can either click on icons with our mouse or choose options from a menu. It can be said that

information technology is the fastest growing and advancing thing in our economy today. Almost everything is based on computers or some other form of technology to run it. Computers are constantly being updated. A computer system can be out of date in a matter of months. It's not only computer though. Things like weapons technology and mobile communications i. e. cell phones, pagers, and hand-held computers (Palm Pilots). Information Technology will continue to grow every day, every month and every year. Soon the information technology we have now will be considered antiques and no longer be used anywhere. Some think that eventually they will hit a point where they can't progress any further. But I think as long as there is technology we will continue to improve it.

CONCLUSION: Information technology has opened a new era of information for today's organization (it might be business, non-profit, educational, research etc.) and has enabled it to gather and communicate information and thus function in a more effective way. The proper use of information technology can build a nation and its improper use can destroy one. If the advantages of information technology are used properly, the world can surely be a better place.