UNIT-I

INTRODUCTION TO INFORMATION TECHNOLOGY

DATA AND INFORMATION

Data is raw material for data processing and relates to fact, event and transaction. Initial, "raw" unprocessed empiric data, data available from previous experiences.

Information is data that has been processed in such a way as to be meaningful to the person who receives it. It is any thing that is communicated readily available at the start of decision process. It is obtained from processed data or other information available outside the organization.

For example:

Researchers who conduct market research survey might ask member of the public to complete questionnaires about a product or a service. These completed questionnaires are data; they are processed and analyze in order to prepare a report on the survey. This resulting report is information.

What is Knowledge?

Knowledge is sometimes treated as an object, which can be collected, stored and shared within organizations. Another school of thought views knowledge as meaning, which means it, cannot be easily transferred unless two parties share some common understanding. Below we will briefly outline these different theoretical perspectives possessed at the start of the decision process.
- "Know-how" of adding decision value: converting raw data into information, or extracting final data from information.
- Newly acquired in the decision making process. These relations are important in a sense that the most valuable asset in decision making situation is knowledge, and any support for expanding the existing knowledge, regardless of the sequence, is adding value and quality to the decision making process.

Knowledge as Object

Most organization theorists and micro economists treat the firm as a social object to be researched using the methods of positivistic science. Organization theorist researchers look 'inside' the firm, at the structure and functioning of its constituent parts. Micro economists, on the other hand, consider the firm's parts as economic assets (constituents of the production function) and focus on the firm's relations to its input and output markets. Both, of course, deal with choice. Micro economists assume the firm's assets are costly and scarce and are interested in choosing how to allocate them, whether to trade them in the markets or combine them with the production function given.

Organization theorists are interested in changing this production function by making choices about the relationships between the organization's parts and/or resources. The methodological presupposition for both is that a firm is a member of a class of objects that have common basic properties. From this point of view, firms are not presumed to have fundamentally different properties when they differ in terms of, say, national context, size, age, technology, industry, or product mix. In terms of a theory of the firm, manufacturing firms are like service firms and global firms are like local firms. The research agenda is to reveal the properties and characteristics of this extensive class, thus establishing the theory of the firm.

Strictly speaking, information and knowledge concepts only make sense in relation to cognition. What physically is transported by informatics systems or natural communication is data, in digital or analogical format. What distinguishes data from information is the sense that only exists as the result of the cognition capacity of the receiver working on the data received. The result is that a message is received when the data received make sense for the receiver, as the result of the action of his (her) cognition faculty.

Knowledge, as information, only makes sense in relation to a cognitive capacity. Knowledge is the reunion of rules, principles, and mental models, memories in which human action is embedded. The messages received (information) may add to existing knowledge in a cognitive system. Or they may not, if they are not at the origin of memories, rules, models that influence action. A sample of data sent by a cognitive system in the intention of sending a message may immediately generate new knowledge in a receiver, just temporary information in another one and noise (lack of any sense) in a third one.

Information and knowledge differ in density and deepness. It seems like that in the cognitive space information is at the surface of cognition. As in physical systems, as long as it stays at the surface, it is volatile, temporary. As it is integrated to knowledge, it gains thickness as concepts, models, memories, sensations are continuously added to it.

Decision-Making Environment.

In making important decisions, any information sources that contain relevant important information are going to be accessed and used, if possible. As pointed out in (Saunders, Jones 1990), the decision maker uses the whole network of
Information sources and variety of available media. In most cases it is impossible to access or produce all required information, so decisions are made under circumstances of uncertainty and incomplete information.
Business decision Support seems to have common ground with other areas containing significant analytical work: scientific research, military and political intelligence, or criminal investigation.

Role of IT in decision-making

It has drawn different opinions – from “minor” to “vital”. The majority of responders had agreed that this role very much depends upon the nature of the problem. Several responses indicated the importance of both the IT-supported information sources and analytical tools. Other responses worth noting here are:
IT helps reducing uncertainty.
IT can transform decision data volumes into manageable levels.
IT has a potential to boost confidence and insure from fatal decision mistakes.
The rigid structure of IS in operation is a counterproductive factor in providing decision support.
IT is vital, but can hurt even more than help.

All people need to make decisions from time to time. Given limited time in formulating policies and addressing public problems, public administrators must enjoy a certain degree of discretion in planning, revising and implementing public policies. In other words, they must engage in decision-making Over the years, many scholars tried to devise decision-making models to account for the policy making process.
The use of computers in organizations has often been justified by reference to the ‘improved decision-making’ which will result from the use of new technology. Rarely, if ever, is any precise measurement given as to how such improvements will be judged.
Phrases such as ‘better information leads to better decisions’ and ‘what managers require is more information’ dominate the literature on management information systems (MIS).

The two dominant themes in the relationship between information technology (IT) and managerial decision-making have been the use of Herbert Simon's work on decision-making and Anthony's pyramidal structure of types of application system, the latter model leading to a powerful categorization of types of computer-based information systems (i.e. transaction processing, management information systems, decision support systems, executive information systems).

The models of decision-making employed at each level of this hierarchy are those characterized by Simon as 'objective rationality' and 'bounded rationality' and these models encourage a view of information as representing some objective reality which can be captured, stored and processed within some form of technology. Less concern has been given, however, to the role which IT itself plays in reinforcing this rationalistic view of information and decision-making.

Sometimes, it just takes a long time to involve everyone in joint decisions and resolve all their conflicting desires. Cheaper and faster communication, through e-mail, for example, helps temper this problem. But even when the transmission of information is free and instantaneous, it still takes time for people to send and comprehend the information. And no matter how much people communicate, they still won't all agree on every question. Each of the decentralized structures offers different ways to make decision making more efficient. In loose hierarchies, you, as a manager, can sometimes force decisions on people, even when not everyone agrees.

In an economic downturn, for instance, you might decide for yourself which groups to cut, instead of waiting for the groups themselves to make such a difficult decision. If you're a good manager in a loose hierarchy, you probably won't force decisions very often. Sometimes, you'll have to force a decision, such as when a decision is taking too long, when it looks as if there will never be enough agreement, or when people are spending so much time arguing they're not doing their other work. But the rest of the time, you should let people work things out for themselves.

In democracies, you can make decisions more efficiently in two ways. You can let the employees elect managers to make decisions on their behalf, as the partners of many law firms and consulting firms do in electing managing partners. Or you can let people vote directly (or via opinion polls) on the most important decisions. In markets, decisions are often made efficiently because only two parties—a buyer and seller—need to agree for a transaction to occur. If an earthquake disables one of your factories, for instance, and your company has an internal market, then pairs of buyers and sellers can start trading with each other right away to solve the problem. They don't need anyone else to agree about what to do.

But for a market to work well, everyone who participates has to agree on the rules of the game. Markets need legal frameworks to resolve disputes between buyers and sellers, and they need regulatory systems to prevent activities (like pollution, price fixing, misleading accounting, or deceptive advertising) that make the whole market less efficient. In external markets, governments usually provide the rules. But, as we saw with Visa International and e Bay, other organizations like trade associations, market makers, or standards bodies can also set rules. In internal markets, the rules are established and enforced by the managers of the company.

Quality of information

Since there is so much information out there, professionals in the field of career development have defined characteristics that are critical. Here are the key criteria used to determine the value of career information:

ACCURATE - The information must be true, verifiable, and not deceptive. Accurate career information is based on empirical data and can be validated by comparing sources or checking for internal consistency.

CURRENT - The information must be applicable to the present time. Keeping information current requires a process of eliminating the old and adding the new. While some types of information are more perishable than others, it is generally accepted that occupation and education information should be reviewed and updated at least annually to be current.

RELEVANT - Relevant information applies to the interests of the individuals who use it for the decisions they are facing. It should reduce a person's uncertainties about work and education while facilitating choice and planning. Since we live and work in local labor markets rather than in national ones, the better the description of local conditions, the more relevant it is to us. State and local information is usually more valuable than national.

SPECIFIC - For information to be specific, it must contain concrete facts. General observations are often interesting and can provide a background for further analysis, but specific facts are essential to realistic planning and decision-making.

UNDERSTANDABLE - People using information must be able to comprehend it before they can use it. Data must be analyzed and converted into words. The content of the message should avoid ambiguities and be informative to the intended audiences.

COMPREHENSIVE - The information should include all the important categories within its scope of coverage. In CIS that includes the full range of occupational opportunities, they're related educational programs of study and training, and the schools that offer them as the core. Related to that is information about money for school, looking for work, employers and industries, working for yourself, and so on.

UNBIASED - This characteristic is about the motivation or purpose for which the information is being produced and delivered. It is unbiased when the individual or organization delivering the information has no vested interest in the decisions or plans of the people who are receiving the information.

COMPARABLE - The information presented should be of uniform collection, analysis, content, and format so that you can compare and contrast the various occupations, programs of study, and schools.

These are some of the most important qualities that quality resources strive to achieve in making information useful for planning and decision-making. Oregon resources like CIS or the Oregon Employment Department's OLMIS should be the place to start, but they are not the only sources of information available nor should they be the only sources someone uses. Information obtained from lots of sources creates a better picture and is more likely to result in successful career decisions and sound educational plans. Though it can sometimes be confusing and even conflicting, each source has its own unique strengths and limitations.

IT application in various fields

In Banking

1). Technology has opened up new markets, new products, new services and efficient delivery channels for the banking industry. Online electronics banking, mobile banking and Internet banking are just a few examples.

2). Information Technology has also provided banking industry with the wherewithal to deal with the challenges the new economy poses. Information technology has been the cornerstone of recent financial sector reforms aimed at increasing the speed and reliability of financial operations and of initiatives to strengthen the banking sector.

3). The IT revolution has set the stage for unprecedented increase in financial activity across the globe. The progress of technology and the development of worldwide networks have significantly reduced the cost of global funds transfer.

4). It is information technology, which enables banks in meeting such high expectations of the customers who are more demanding and are also more techno-savvy compared to their counterparts of the yester years. They demand instant, anytime and anywhere banking facilities.
5). IT has been providing solutions to banks to take care of their accounting and back office requirements. This has, however, now given way to large-scale usage in services aimed at the customer of the banks. IT also facilitates the introduction of new delivery channels--in the form of Automated Teller Machines, Net Banking, Mobile Banking and the like. Further, IT deployment has assumed such high levels that it is no longer possible for banks to manage their IT implementations on a stand alone basis with IT revolution, banks are increasingly interconnecting their computer systems not only across branches in a city but also to other geographic locations with high-speed network infrastructure, and setting up local area.

In the five decades since independence, banking in India has evolved through four distinct phases. During Fourth phase, also called as Reform Phase, Recommendations of the Narasimham Committee (1991) paved the way for the reform phase in the banking. Important initiatives with regard to the reform of the banking system were taken in this phase. Important among these have been introduction of new accounting and prudential norms relating to income recognition, provisioning and capital adequacy, deregulation of interest rates & easing of norms for entry in the field of banking.

Entry of new banks resulted in a paradigm shift in the ways of banking in India. The growing competition, growing expectations led to increased awareness amongst banks on the role and importance of technology in banking. The arrival of foreign and private banks with their superior state-of-the-art technology-based services pushed Indian Banks also to follow suit by going in for the latest technologies so as to meet the threat of competition and retain their customer base.

Indian banking industry, today is in the midst of an IT revolution. A combination of regulatory and competitive reasons have led to increasing importance of total banking automation in the Indian Banking Industry.

Information Technology has basically been used under two different avenues in Banking. One is Communication and Connectivity and other is Business Process Reengineering. Information technology enables sophisticated product development, better market infrastructure, implementation of reliable techniques for control of risks and helps the financial intermediaries to reach geographically distant and diversified markets.

In view of this, technology has changed the contours of three major functions performed by banks, i.e., access to liquidity, transformation of assets and monitoring of risks. Further, Information technology and the communication networking systems have a crucial bearing on the efficiency of money, capital and foreign exchange markets.

The Software Packages for Banking Applications in India had their beginnings in the middle of 80s, when the Banks started computerizing the branches in a limited manner. The early 90s saw the plummeting hardware prices and advent of cheap and inexpensive but high-powered PCs and servers and banks went in for what was called Total Branch Automation (TBA) Packages.

The middle and late 90s witnessed the tornado of financial reforms, deregulation, globalization etc coupled with rapid revolution in communication technologies and evolution of novel concept of 'convergence' of computer and communication technologies, like Internet, mobile / cell phones etc.

In Communication

Rapid growth in globally competitive Indian information technology services has helped to transform the Indian economy. A large skill pool, adequate telecommunication networks, and an improving policy and regulatory environment have enabled domestic and foreign firms to expand very rapidly.

In contrast, the IT hardware segment has lagged, focuses very largely on the domestic market, and remains heavily dependent on imports of components and finished IT goods. This new report analyses recent growth of the ICT sector in India, and suggests policies to underpin further growth.

Internet intermediaries give access to, host, transmit and index content originated by third parties or provide Internet-based services to third parties. This reports develops a common definition and understanding of what Internet intermediaries are, of their economic function and economic models, of recent market developments, and discusses the economic and social uses that these actors satisfy. It is Part I of the Committee's larger project on the role of Internet intermediaries advancing Public policy objectives.

The cable television market has changed drastically in recent years. The threat to cable from non-traditional video sources has pushed cable operators to upgrade their networks to support higher bandwidth data services and new video content and applications. This report examines developments in cable markets including the growth of cable voice services, recent consolidation trends and the transitions toward all-IP infrastructure models.

The OECD (organization for economic co-operation and development) uses a "basket" methodology to compare retail prices of telecommunication services across countries. The methodology is used to compare the price of a defined consumption pattern of telecommunication services across operators in OECD countries. The baskets are reviewed and revised periodically as consumption patterns change. This 2009 revision to the basket composition is the result of discussions among operators and regulators and will serve as the basis for price comparisons for several years. The methodology is the result of several rounds of contributions and discussions among member countries and telecommunication firms. The new indicator will assist in informing policy makers and other stakeholders in this increasingly important market segment.

In Electronics

In India Electronics and Information Technology is still the fastest growing segment both in Terms of production and exports. With complete deli censing of the electronics industry with the Exception of aerospace and defense electronics, and along with the liberalization in foreign Investment and export-import policies of the entire economy, this sector is not only attracting Significant attention as an enormous market but also as a potential production base by international companies.

Hardware Sector

Control, Instrumentation and Industrial Sector
During the year 2007-08, the production in this sector is estimated to be Rs. 11,950 crore, as Against Rs. 10,400 crore in the fiscal year 2006- 07, registering a growth of 15.0 per cent in 2007- 08 as against 18.2 per cent in 2006-07. This sector of the Indian industry continues to Play a very important role towards the economic growth.

State of-art industrial electronics Equipment and systems, automation technologies, networking systems and various other stand-alone instrumentations are increasingly applied in manufacturing industries like Steel, Textiles, Cement, Power, Chemical and Refineries, etc. Transportation industries, particularly the Indian Railways are increasingly adopting latest power electronics equipment for their mainline electric/ diesel locomotives and sub-urban train systems.

Computer Industry
The Desktop PC market (including Notebooks) grossed 3.28 million units in the first half of 2007- 08 (April-September' 07), registering a growth of 11 per cent over the same period last fiscal. The buoyant mood in IT consumption was led by significant growth in notebook sales which grew by 59 per cent, while consumption of desktops grew by 3 per cent. PC sales are projected to cross 7.25 million units in fiscal 2007-08, given the strong macroeconomic conditions and buoyant buying sentiment in the market, led by demand from various industry verticals.

Electronic Components
The total production of electronic components was Rs.8, 800 crore during 2006-07, which is Expected to grow to Rs.9,500 crore during 2007-08, a growth of 8.0 per cent. The Components with major share in production were CD-R, Color Picture Tubes (CPT), PCBs, DVD-R, connectors, semiconductor devices, ferrites, and resistors. The developments in Components industries have been driven mainly by growth in consumer electronics sector.

Software sector

The Indian software and services exports including ITES-BPO are estimated at US$ 40.3 billion (Rs. 163,000 crore) in 2007-08, as compared to US$ 31.4 billion (Rs. 141,000 crore) in fiscal Year 2006-07, an increase of 28.3 per cent in dollar terms and 15.6 per cent in rupee Terms. Further, the absolute value of incremental growth (US$ 8.9 billion) in exports is Expected to be achieved by the industry this year is the highest ever achieved in a single year, In its history. This segment will continue to show robust growth in future also.
Growing at a CAGR of nearly 37% over the past four years, BPO is the fastest growing Segment of the Indian IT-BPO sector. BPO exports from India grew from US$ 3.1 billion in FY 2003-04 to over US$ 8.4 billion in FY 2006-07. Over the same period, direct employment in Indian BPO grew from 216,000 in FY 2003-04 to 553,000 in FY 2006-07.The segment is Currently growing at about 30 percent, and is expected to reach US$ 10.9 billion FY 2007-08, Employing over 704,000 professionals.

ITes-BPO Sector
The Indian ITES-BPO sector also continues to grow from strength to strength, witnessing high Levels of activity - both onshore as well as offshore. Export revenues from ITES-BPO are Estimated to grow from US$ 8.4 billion (Rs. 37,700 crore) in year 2006-07 to US$ 10.9 billion (Rs. 44,600 crore) in year 2007-08, a year-on-year growth of over 30% (in dollar terms), 18.3 per cent.

Domestic Market
The Indian IT-BPO sector is not just about exports. The domestic market holds significant Potential. The revenue from the domestic market (IT Services and ITES-BPO) is expected to Grow to about US$ 11.7 billion (Rs. 47,300 crore) in the year 2007-08 as compared to US$ 8.2 Billion (Rs. 37,000 crore) in 2006-07 an anticipated growth of about 42.7 per cent in dollar Terms and 27.8 per cent in rupee terms. The Total (IT Industry including computer hardware) Size of the Domestic market is estimated to be US$ 23.2 billion in 2007-08, a growth of 43 per Cent over 2006-07.

In Education

Information technology has found its own place in the field of education. It was earlier thought that information technology would make people more dependent on computers but it has resulted in a number of advantages. Technology has resulted in increased interaction between the students and the use of newer ways of educating them. If information technology is not used in a proper manner then it can be worse than the older technologies used in education. The students can make use of computers to do their regular practice sessions and drills, which is similar to their workbooks. Moreover with the use of information technology teachers can make their lectures more attractive and colorful helping students to understand better.

The information systems used in school are affordable and easy to be used by the school authorities as well as by the students. One of such systems is the computing system. With this system any changes in the schedule or events that are made are recorded in the system and the parents and students can easily access this information. The teachers can also post information about the homework and any changes in its schedule. These days all the schools have their own websites and this has also resulted in improved communication. Any alterations posted on the website can be accessed by both students and teachers.

Information technology especially, computers have been included as a part of the educational syllabus. It is now helping students in shaping their future for careers in technology. The basic computer knowledge gives the students the basic requirements to compete with the expanding technological world. If we would have talked 20 years ago then children were just taught computer basics and a few programs in computers.

But now in school itself students are taught various languages that are taught in graduation. With these basic skills in IT such students can easily start a career in the technology industry after obtaining higher education. Learning the basic skills at a primary level helps students in understanding and developing their concepts.

There are also vocational programs in information technology focusing on computers. These aim at software and hardware technologies and also computer theory and its applications. Students gain deep knowledge about the algorithm analysis, artificial intelligence, computer architecture, computer networking, computer graphics, data structures, high-level language programming, information technology (IT), and operating systems.

Besides, these vocational trainings can also help students in developing crucial skills necessary to achieve Bachelor or Doctorate degree in Computer Science through higher educational venues, such as universities and colleges. It is very important that the IT policies of the educational institutes should make up-to-date qualifications and integrate new pedagogic opportunities.

Information technology opens new grounds. Personalized form of teaching helps individuals to develop in their field and increase their learning power. Today the IT oriented education has become more organized and interesting as compared to the previous modes.

In Entertainment and Film industry

In today's electronic era computers have a hand in almost everything? Entertainment is no exception, in fact with the coming of digital information has made one of its greatest leaps. Movies, games, music, even books that that are simple and easy as it is have been impacted greatly by computers. But how far is too far? Music is now stolen, movies the same, games can be hacked and broken into with simple programs.

As technology continues, more and more information will be taken, changed, stolen, and laws will then be made to try to stop all of this. But all they really need is a good middle ground to work towards or land on.

With the coming of DVD's computers moved into a big portion of the video industry. But with it came the ability to take a movie off of the disk and distribute it over user sharing programs. Many companies have tried to solve this problem by adding programs and such to the disks so that the information cannot be stolen. This does not stop DVD pirating, but it does cut down on the burning of DVDs.

Technological change in these industries is proceeding at a dizzy pace, such that the previous demarcation lines between publishing, printing, broadcasting and entertainment have become increasingly indistinct. At the same time, these knowledge-based industries are linking with the computer and telecommunications industries in the process of multimedia convergence. The kinds of jobs found in printing, publishing, journalism, film, broadcasting and the performing arts are often unlike those of a decade ago, requiring different skills and changing the status of many workers -- an evolution that will continue in the coming years.

Employers in this sector are increasingly likely to be multinational, multimedia conglomerates, while the role of governments has often moved away from direct involvement as an employer in broadcasting, publishing and other areas towards a more distant, regulatory role, and workers are more likely to be in atypical employment and less covered by collective bargaining.

Vastly increased consumption of media and entertainment products and services has been a global phenomenon, affecting even some of the poorest countries, while it is a hallmark of the post-industrial, information-based economy in developed countries. This growth has been tightly interwoven with the introduction and use of ICTs, which have fostered a vast increase in the size of media and entertainment markets by increasing the number and geographical coverage of broadcast TV and radio channels, and by rapidly improving the quality and affordability of equipment ranging from radios, TVs and cassette recorders through to state-of-the-art recording and film studios and digital media of all kinds. These industries have been very dynamic, often among those at the forefront of the economy in terms of corporate earnings and growth. Indeed, many media and entertainment conglomerates have been able to spread their messages worldwide with great success and speed, in ways, which were unthinkable a few years ago.

The Global Information Society has made countries more interdependent, combining rapid deployment of information communication technologies (satellite, cable, broadcasting, telecommunications, Internet) with global economic integration and trade liberalization. However, it is evident that, in many parts of the world, he reach of such technologies is restricted by factors such as poverty, poor access to the media and communications, low levels of education and skills and inadequate investment as well as by a universal concern to maintain local cultural diversity. Internet usage in the late 1990s has been estimated at around one in six people in North America and Europe and one in 5,000 people in Africa.

A hope for the future is that improving the quality and coverage of new telecommunications infrastructures in developing countries may be relatively easy and cheap, given that new frameworks could be installed from scratch, whereas industrialized countries will have to update an existing infrastructure that is often ageing, expensive and inflexible.

The film industry is a very proficient industry when it comes to automation. The effects of computers on the end product are startling. Blockbuster affects films like "Independence Day" and "Jurassic Park" rely on computer modeling and graphics. Still, one must look at the effect automation has made on the people working in the industry. Before automation, the industry was filled with artists working with producers.

Today, while the film industry is in the third stage of automation, the mix has changed. Strong artistic background is still important, but increasing in importance is technical skills. Artists must have the fundamentals of design and be able to adapt to new technology to be successful. This has cost some artists their careers due to their lack of computer savvy. These artists are forced to work on less high-profile projects due to the "crudeness" of their work. Still, the high credentials necessary to compete have strengthened the profession.

Automation typically takes over in three stages. This is evident in filmmaking. The first stage involved the supplementation of work with automation. Backdrops, camera movement, and modeling all made the transition through this first stage. The next stage, these activities were replaced by automation, to some extent due to the increased efficiency from computers. This stage is typified by increased productivity and the replacement of previous methods. The final stage involves the creation of new functions.

In filmmaking, this translates to new effects, camera work and images. Filmmaking still uses many of the methods used before automation. Still because productivity and accuracy are important, the industry continues to look in the direction of computer automation. 3D computer graphic software is used to make computer-generated imagery for movies, etc. Recent availability of CGI(computer generated image)software and increased computer speeds have allowed individual artists and small companies to produce professional grade films, games, and fine art from their home computers. This has brought about an Internet subculture with its own set of global celebrities, clichés, and technical vocabulary.

Digital Cinema means the transmission and delivery of films to theatres electronically where the image is stored in a computer server and beamed onto the theatre screens. It uses Digital Media (fiber optics, satellite transmission, hard disks) instead of analogue media (Prints). Digital Cinema uses digital projectors instead of analogue projectors.

In Healthcare

The healthcare industry today after twenty five years, since computers started influencing our society, is standing at the threshold of a world of possibilities thrown up by technologies such as Virtual Reality, Cyber surgery, Micro - robotic Surgery and 3D image modeling. It is said that the Internet should be used for the benefit of mankind. Internet pundits have always felt that development and delivery of Medicine will be one area where this medium is likely to have immense benefit to mankind.

For e-healthcare and telemedicine to emerge as a viable alternative modality for delivering medical care and expertise there are a few preconditions that are to be met. Some of these are,

1. Adaptation of Information technology by hospitals especially in terms of networking and Hospital Management systems.
2. Increasing awareness on IT among medical professionals.
3. Better Internet access; possibility the advent of broadband in India that can transfer video files faster.
4. Standardization of various protocols (like DICOM in teleradiology) and acceptance of these protocols by the relevant equipment manufacturers.
5. Decline in the cost of telemedicine hardware to make it more financially viable.

At present, the major constraint is in terms of the financial viability of e-healthcare initiatives. However there have been several isolated initiatives from various organizations and hospitals for implementation of projects.

For example The Indian Space and Research Organization has today 32 telemedicine location in India and is investing heavily to help Indian healthcare to graduate in this technology and then use it for its own purpose in the future to monitor Indian astronauts who undertake journeys in space. Most of the developments in this field are likely to focus around the needs of ISRO. The answer to make projects financially viable also probably lies in pooling together resources by various facilities within a geographic locality and sharing the benefits and revenues thus created.

To elaborate on this point, several hospitals within a city like e.g. Salem can share a common Tele-pathology service or Teleradiology service. The benefits of such a pooled service are obvious. Investigations can be viewed by a group of expert consultants. Such a model will reduce the initial project costs and with the patient traffic from several affiliated hospitals can achieve economy of scale and thus reduce costs of trained manpower and material costs and also provide a very efficient and optimal service to the community.

In Legal field

In law computers can be used to store the databases of the crime, civil, etc. cases, which are pending for verdict or which cases are closed, also, can be used to keep the database of the criminals.

Over the last forty years, the development of legal information systems has been seen primarily as a process of automation. The technology has been viewed as enabling legislatures, courts, the professions and law schools to continue to function as they did in the world before computers existed, albeit with greater speed, increased efficiency, and reduced cost. However, the paradigm is shifting from that of automation towards innovation. Massive accessibility of information online coupled with the early fruits of research into artificial intelligence and the law, are combining to create not only hugely impressive new informational services, but also the possibility of an entirely new wave of legal knowledge systems. The difference between such knowledge systems and legal information systems is the difference between knowledge and information. While information comprises the facts that are distilled from raw data, knowledge is a further distillation of ideas, thought and beliefs from that information. An information system is simply an enormous collection of facts. By contrast, a knowledge system comprises a subset of those facts structured, processed, and presented in such a way that it can provide advice and assistance to users.

We are now moving beyond the information age into an era where machines will play a key role in helping us extract, understand and apply knowledge. In this coming era, the manner in which we learn, work and do business will be changed in ways that are unimaginable to us today.

In Medical Field

Medical practices use computers for patient files, so the information they contain is critical.
Most medical practices in the United States make use of computers in their practice. Some are quite sophisticated, with the incorporation of touch screens and off-site data storage. Appointments and procedures are all stored on computers.

When a person sees her doctor, the clinic or doctor pulls her information from the computer. Most medical clinics use proprietary software for patient scheduling. Some surgical procedures (such as some laparoscopic procedures) are computer-guided. These types of surgeries mean less downtime for the patient since the procedures are only minimally invasive.

Computer usage has changed medicine for the better. It has benefited surgeons and record keeping in a way that no other advancement has. The medical field depends on computers to

keep track of financial records as well. Many patient records are stored on computer systems, backed up, and secured to protect them in the event of computer failure.
Obviously, patient records and hospital financial information are highly secured so that no one can access them without proper authority. They have made a great impact on the medical filed. Doctors and nurses are able to use them instead of pencil and paper. It also helps with reading the charts that patients have and reading a test that a patient has had.

Computers have a significant role to play in the medicine fields. It's used in assisting the doctors during major operations. As a front office inventory management, for payroll of hospital staff for billing and accounting etc.

In Photography

Digital Technology is making its presence felt not only in the printing industry but more imminent in the field of photography. Digital technology has also offered great diversity when it comes to colors of pictures that were not possible with the use of traditional photographing machinery. Digital technology has also paved the way for express photography developing which only requires a minimum of 3 minutes to process pictures. This express picture development is great for rush picture requirements like personal id pictures as well as rush visa and passport photos.

The process of express development starts with the taking or the capturing of an image, which is a multi-process since it includes image display, as well as image printing by means of a computer and appropriate printer equipment. However, like any technology the digital technology is not without flaws, the use of an incompatible printer may have an adverse effect on the quality of the developed picture. Camera-to-computer interface are well suited for those photography activities that require the use of an external memory card. The transferring of data is also much faster and offers confirmation of the storage of quality images stored in the computer.

Likewise, it provides a room for retakes and the images are easily stored in the computer, which is a good thing since it will be much easier to choose from among the taken images the one that really stands out. The computer also plays an important role in digital photography since it helps in storing and displaying of digital images taken with the digital camera. The computer also enables for the printing of the images in various digital printers. And since digital photography makes use of high-resolution images it is vital that the computer should have a sufficient memory space as well as ample storage capacities. Likewise, a computer should also have a high-speed interface to the camera and printer and a speedy but reliable CPU in order to provide efficient image processing.

On Social life

There is no doubt that technological change brings about social change. The Industrial revolution saw many people displaced from their land, to find work in crowded city factories. Serfdom was abolished and the population shifted from villages to the cities. Strong family ties, self sufficiency and the right to occupy land were replaced with uncertain tenancy of land, dependency on trade and a weakening of the family unit.

Economically, goods and money abounded, and trade flourished. The merchant class profited from the wealth that was generated on the backs of the displaced population of urban workers. Children were sent to work in factories, in order for families to make enough money to live. The peasant class worked long hard hours in poor conditions with no security. The Industrial revolution led to the alienation of the working class and although many union battles have since led to the adoption of better working conditions, the effects of the Industrial revolution remain.

The family unit is even more vulnerable today with soaring divorce rates, high rates of teenage suicide, most of society are either heavily mortgaged to banks or paying high rents, and no one can be self-sufficient in a world governed by free wheeling free trade.
Advances in technology, is generally not equitably shared within society. People with money have more opportunity to acquire technology, which enables them to acquire even more wealth. It is also important to remember that war has been and will continue to be the driving force for technology and innovation. Power and wealth are intrinsically tied together. Technology leads to greater social economic division. Laborers are viewed as commodities and expendable.

Computer technology not only has solved problems but also has created some, including a certain amount of culture shock as individuals attempt to deal with the new technology. A major role of computer science has been to alleviate such problems, mainly by making computer systems cheaper, faster, more reliable, easier to use.

Computers are forever present in the workplace. Word processors-computer software packages that simplify the creational and modification of documents-have largely replaced the typewriter. Electronic mail has made it easy to send messages worldwide via computer communication networks. Office automation has become the term for linking workstations, printers, database system, and other tools by means of a local-area network. An eventual goal of office automation has been termed the 'paperless office.' Although such changes ultimately make office work much more efficient, they have not been without cost in terms of purchasing and frequently upgrading the necessary hardware and software and of training workers to use the new technology.

Computer integrated manufacturing is a relatively new technology arising from the application of many computer science sub disciplines to support the manufacturing enterprise. The technology of CIM emphasizes that all aspects of manufacturing should be not only computerized as much as possible but also linked together via a computer communication network into an integrated system.

In Transport and Traffic

Most of the organizations and other innovative developers are confidence enough to promote the use of the technologies in their nature of business. Definitely, the technologies can deliver the work in a more efficient way that the human intervention. Through the developing world due to the globalization and international competition, the means of the ordinary function within the organization changes. Different strategies and various combinations are emerging in the processes of the organization to deliver the appropriate service and products.

Transportation is an activity that was founded upon a three foundations. First is the transportation equipment such as automobiles, trains, pipelines, ships, airplanes, and others. Second is the infrastructure like the ports, road, networks, airports, rail lines and stations, and other line for the transportation passage. Lastly is the logistics system that involves the activities of processing the documents, schedules, information systems, and others (Abba, 2003). In the collaboration of the information technology in the industrial practices, there will be a specific role that the information technology should play.

Traffic jams in many traffic-congested cities are an annoying and harmful problem to the residents and travelers of the Cities. Traffic jams have many diversified harmful effects on the social, cultural, political and even on the economical and financial stability and prosperity of the cities. Hence, traffic jams need to be removed from these cities at any cost. This paper has addressed a convenient, cost-effective solution to the traffic problems in a traffic congested city using today's computing power and Information Technology. We propose four principal motives: a simulation, a sensor network, a real-time web site and a data mining approach. First, the simulation will consider all the vehicles, public roads, peoples, offices, and educational institutes. The simulation will study
the nature, cause, and time of people's movement and will find

an appropriate schedule for the vehicles and routes; it will also suggest new working hours for different institutions to reduce congestion. Second, an internet-connected sensor network will continuously monitor traffic density and congestion in different routes. Vehicle drivers will use this system to know the current traffic status of different routes and select the best route. Third, a real-time web site integrated with the sensor network will show the users current traffic and congestion status to plan their trips. The web system would provide a jam-less and efficient route from the source to the destination. Fourth, a data mining approach will use statistical data on congestion and traffic status provided by the sensor network so that historical trends about the traffic and congestion status of different routes can be used to reschedule vehicle routes. We hope a proper design and implementation will lessen the traffic problems in a flexible and cost-effective way. In view of this, we would propose a relatively low cost solution, which will apply simulations, wireless sensor networks, a real-time web site, and data mining approaches for traffic controls. We propose a computer simulation to find a proper schedule for the vehicles that will effectively reduce traffic jams. Besides, the simulation will provide some important design requirements for traffic control systems: the number of vehicles needed per route, the scheduling of traffic signals. Sensor networks will provide real time data about the current traffic status over the whole city. Proper utilization of the sensor data about current traffic status can effectively reduce traffic jams on the fly in near future.