

Chapter-7

Applications of ICT

Information and Communication Technology

Information and Communication Technology (ICT) has brought a tremendous revolution in our lives. With the support of Information Communication technology we are proceeding towards economic prosperity. E-commerce in the form of electronic commerce, sending mail through e-mail are made possible with ICT. Information Communication Technology is growing through E-governance related to online government work, bank transactions by E-banking, E-education for online educational contents etc. New entrances of development are open due to multi-dimensional uses of Information Communication Technology.

In India, the field of Information Communication Technology is growing rapidly. In this field the pace of development has been speed up by research on its uses. Under the ICT exchange of information, data and knowledge has been spread out in every field of human life. The effect of information technology has clearly visible on our economic, political, social, cultural, educational, professional and many more fields. There are continuous experiments in this area with the help of electronic and digital apparatus. In this period of economic liberalism, the concept of global village has succeeded because of the information communication technology.

In this new era electronic media like E-commerce, E-medicine, E-education, E-governance, E-banking, E-shopping etc. are developing. Today Information Communication Technology has become symbol of power and development. Everyone needs to be meaning fully benefitted by this knowledge of science and technology.

Uses of Information Communication Technology

E-governance

E-governance is also known as E-government, Digital Government, On-line Government or Connected Government. The process of boosting of access and delivery of government services for benefit of common citizens, businessmen, and employees with the uses of technology, is known as E-governance.

E-governance is a form of E-business in government, in which process of delivery of E-services and its structure are vested. E-government incorporates the facility of accessing of desired services by interaction with government through electronic media.

The ultimate goal of E-governance is to encourage the participation of general public in governance through e-mail and internet and to make the governance simple, easy and convenient. E-governance indicates e-democracy, where all the interactions between general public and government are done in electronic form. E-governance uses innovative techniques of computer and communication technology – like internet for providing quality and value-based services to the public.

The main purpose of e-governance is to provide better facilities to the public by government through Single Point Delivery System.

The main services provided by e-governance –

E-citizen: Under this the government provides facility of issuing birth and death certificate to citizens, issuing ration cards and passport, depositing the water, electricity and mobile bills and depositing tax through Integrated Services Centers.

E-transport : Under this government provides the facility of motor vehicle registration, issuing driving license, depositing tax and fees etc. to citizens.

E-medicine : Under this government provides the better health services to citizens by establishing network of hospitals situated in different parts of country.

E-education : Providing educational facilities by radio, television etc. to citizens of different parts of country especially on distant places.

E-registration : Under this government provides the facility of registration of properties and depositing stamp duty.

E-secretariat : Establishing network between various government secretariat and government departments whereby governance process becomes easy due to exchange of information between various components of government.

E-police : Under e-police two types of databases are prepared. In first type of database information about police officers are kept, whereby at the time of necessity any person in any geographical area having any expertise in any skill can be searched out easily. The information about criminals, information regarding crimes done by them previously, ways to commit crimes and information about their identification marks etc. are kept in other type of database, whereby all the available information about criminals from any corner of country can be accessed easily, whenever it required.

Besides database e-police provides facility of entering online First Information Report (FIR) and knowing its status online.

E-court : Under this database of all the cases and appeals are prepared and make it available on internet. By this type of arrangement appeals to the High Courts and Supreme Court can be avoided, because by this judges of High Courts and Supreme Court can pronounce judgements on the basis of facts entered in district or session courts, which are available on internet. Besides this it provides the facility of entering the facts about cases and online verification of finger printing, scanning etc.

E-democracy : E-democracy is a concept of e-governance, which endeavors the citizens to change their role from informer to partner in governance.

Advantages of E-governance

E-governance has following advantages –

- ◆ It provides the opportunity of improving the quality of services provided to all citizens.
- ◆ It simplifies the facility of providing services to citizens.
- ◆ It deletes the various layers of government management.
- ◆ Make it easy to accessing information for citizens, entrepreneurs and low cadre government employees.
- ◆ Provides services to citizens and entrepreneurs within short term (few minutes or seconds) in spite of several days or weeks.
- ◆ Makes the enterprise process of government body transparent, simple and value seeker.
- ◆ Makes the internal and external processes rapid responsive to the citizens according to their needs.
- ◆ Provides capacity of executing jobs easily and skillfully to government employees.
- ◆ It ensures the participation of citizens in governance by knowing their opinions through online services.
- ◆ Makes the administration free from bribery and mediators.

In this age of information communication technology Government of India and Government of Rajasthan have, time to time, expressed their commitments of providing skilled, transparent and responsible administration to the citizens at every level of governance and are constantly trying to redefine the governance as e-governance.

Digital India Programme

'Digital India' is a new initiative of Government of India, whose purpose is to change the India digitally strong socially, economically and by knowledge.

Digital India is a comprehensive programme which covers several government ministries and departments. It incorporates different ideas and concepts in a solo and extensive vision, so that each of these ideas could be seen as part of a larger goal. Digital India programme is coordinated by the Department of Electronics and Information Technology. However, this has to be done by the entire government.

Digital India vision is centralized on three main aspects. These are – (1) A digital infrastructure for every citizen based on utility, (2) On-demand operation and (3) Digital empowerment of services and citizens.

Utility of Programme

Digital infrastructure has these facilities for every citizen – A high speed internet connection as a main utility for accessing services; such a unique, on-line and certifier for every citizen origin place, which marks the digital identification; such a facility of mobile phone and bank account by which citizens can share digital and financial matters; Easy access to shared service centers; shareable private space on public cloud and safe cyber-space.

It is the right of all the citizens that all the services related to all the departments and courts are available on-line or on mobile app at every time. Other services – Ease up in business through digitally changed services, electronic and caseless financial transactions, decision support system and taking advantage of radio for development.

Making digitally empowered to citizens along with universal digital literacy, availability of everywhere easy digital resources, and availability of digital resources services in Indian languages, making all the rights of digital platforms and portability collaborative through cloud for good governance. Citizens could be able to fill their government documents or certificates without their presence.

Plans of Digital India Programme

There are nine pillars included in Digital India Programme –

1. Broadband High-way
2. Universal access for mobile connectivity
3. Public Internet Access Programme
4. Improvement in government through e-governance technique
5. Providing e-kranti services in electronic form
6. Information for all
7. Electronic production
8. IT for services
9. Fast yield Programme

These are all mixed programmes, which are connected to all ministries and departments.

Under the Digital India Programme we have to work out with several existing plans, whose expansions have been reorganized and recentralized. To promote cloud and mobile technology, to concentrate on transformative process reconstruction and improvement in processes. This programme is based on standards of intra-operative enterprise and integrated service delivery, which will be implemented in a synchronous way. The purpose of Digital India is also to promote production of electronic devices and portfolios of producers and services and to increase the possibility of employment for youth in country.

E-Mitra

E-mitra is an e-governance plan created by Rajasthan Government to take advantages of various government schemes on-line and off-line in all the districts. Now there is no need of visiting again and again government offices, colleges or schools for obtaining birth-death, marriage, caste certificates; applying for government services; obtaining new water and electricity connections and depositing fees. These all facilities are now available on e-mitra kiosk and e-mitra mobile app. State government has connected 105 services, related to various departments, to the e-mitra portal. To use these services any citizen can go to e-mitra kiosk and can apply for obtaining the service or these services can be used by downloading the e-mitra mobile app.

E-mitra do not provide only the facility of depositing water and electricity bills,

they are providing several dozen of similar services. There are ten types of certificates including birth-death certificate, caste certificate, minority certificate, handicapped certificate, duplicate registration certificate, police clearing certificate etc. Besides these for issue of learning license and new driving license or duplicate driving license; renewal of driving license, driving license of new category and for international driving permit can be applied on e-mitra.

There are so many services including domicile certificate, medical reimbursement of pensioners, police verification, verification of domestic servants, verification of tenants, depositing monthly instalments of housing board, plans of social welfare department and duplicate registration certificate (RC) are available on e-mitra.

There are application forms for several schemes, including social welfare department, revenue, discom, and agriculture, are available on e-mitra. At e-mitra can also be applied for new water-electricity connection, Indira Aavas Yojana, work allotment in MNREGA, amendment in voter ID.

E-Commerce

The meaning of e-commerce or electronic commerce is trading through internet. E-commerce indicates, that wide range on-line trading functions, in which products and services are purchased and sold. E-commerce is related to all those commercial activities, in which two or more than two parties (Businessman or customer) interact each other with electronic media in spite of physical contact or physical exchange. E-trading, E-banking, E-shopping etc. are also part of e-commerce.

Due to infestation of global economy e-commerce or e-trade is making components of trade strategies and acting as catalyst in economic development. The use of information communication technology (ICT) in trade has brought revolutionary changes between trade organizations and between trade organization and an individual. The use of ICT in trade has increased the production capacity and customer participation while decreased the cost of product. The ICT based commerce has given new heights to constantly changing commercial environment, whereby the definition of electronic commerce has become more extensive. The comprehensive definition of electronic commerce is as below –

The E-commerce is called the origin of trade activities between trade organizations and between trade organization and an individual; and the use of electronic communication media and digital information processing techniques.

Under the e-commerce customer selects the desired product on the website of commercial concern, which manufactures and sells the product. The customer has to

make the payment of product through credit card, debit card or internet banking. For this, there is facility on seller's website, where customer provides the number of his credit card or debit card and other information. Seller makes the on-line verification of these information and determines the deal. Seller sends the item on the address told by buyer through courier or transport. The payment amount is transferred from buyer's account to seller's account.

Advantages of E-Commerce

Following are the main advantages of the e-commerce –

- ◆ Buyer can compare the specifications and rates of goods/services before selecting them by visiting the websites of different sellers or service providers. Whereby all the information about items to be purchased and many options for their selection become available to the buyer.
- ◆ From e-commerce the chain of mediators between producers and buyers becomes smaller and it reduces marketing cost. Whereby the manufactures provide the opportunity to buyers of purchasing goods/items comparatively on lesser rates.
- ◆ In e-commerce the exchange of business information is carried on-line by internet, which reduces the cost and time of exchange of business information.
- ◆ Business through e-commerce does not require expensive show rooms, commission agents and sales men. Consequently the marketing cost decreases in comparison to traditional business, and marketing becomes convenient, easy and effective.
- ◆ In e-commerce the information about products and services are available on website of commercial organization. So any body from any part of the world can get products and services through these websites. In this way a worldwide market is available to traders.
- ◆ E-commerce has made transparent the process of obtaining license, other activities pertaining to government and procurement process.

Internet Banking

If we look at history, we will find that the process of making every job/work more accessible, speedy and easy using latest technology is continuing. Now internet banking is no longer a new thing. It has been years of beginning of its use in India and millions of people daily make banking transaction through internet.

What is Internet Banking?

The services provided by any bank from any location, through computer, mobile or any other device through internet are called internet banking. For this, the Bank make website and mobile app and make them available to the customers through internet.

Internet banking is known by several names, such as online banking, mobile banking, net banking, e-banking etc., but all these mean the same. In mobile banking, we complete the bank's work on the mobile phone via internet.

What are the benefits of Internet Banking?

Internet banking gives us the freedom of the hassle of going to the bank branch for almost all of its banking transactions and services. Through this we can do all the banking activities at home or from anywhere –

- ◆ Send money from someone else's account to your account - Through internet banking, we can send money immediately to any other person's account. Nowadays, banks are providing many types of new services, in which the person receiving the money does not require to have a bank account, he can only withdraw money from any ATM using his mobile.
- ◆ Get information about the balance of your account.
- ◆ Check the bank statement of the transactions in your account.
- ◆ Open a new FD or other account.
- ◆ Mobile recharge.
- ◆ Paying electricity, water, dish TV and other bills at home.
- ◆ Downloading account statement.
- ◆ Order the Cheque Book.
- ◆ Online purchasing.
- ◆ Demand for any available banking service from the bank or filing a complaint.
- ◆ Viewing or making changes to account information.
- ◆ Make stock market and other various investment online.
- ◆ Booking bus, train and other tickets with internet.

- ◆ Making tax and other payments online.
- ◆ Filling up the form for online demand draft (DD).
- ◆ View the details of loans and other accounts.
- ◆ Buying life insurance, auto insurance and other banking services and products online.

How to use Internet Banking?

- ◆ You must contact your bank to use internet banking.
- ◆ After filling the form for this service in the bank, the bank will issue you 'User ID' and password for Internet Banking.
- ◆ After this you will go to your bank's website via internet.
- ◆ The link for 'internet banking' will be given on the bank's website, clicking on it will ask you to enter the user id and password.
- ◆ For the first time on logins / registrations, most banks ask you to set a new password, here you set a password which is difficult for others to guess, but you can easily remember it.
- ◆ After entering the correct user id and password, you will be able to access your bank account through internet and use banking services.

Precautions to be kept during the use of Internet Banking

Nowadays, through fishing by hacking techniques internet fraudsters are hurting the people by hacking their bank accounts, so it is necessary to take very precautions in the use of internet banking.

- ◆ Do not tell the password issued to you for internet banking, this password is the key to your bank account.
- ◆ Do not write your password anywhere, it increases the likelihood of getting into someone else's hands.
- ◆ Always open the internet banking link by visiting the bank's website, do not use internet banking any time with the link received from any other e-mails, SMS etc.

- ◆ Do not tell your bank account password, or other secret information when calling any person.
- ◆ During the transaction from the bank, you will also be sent a temporary password (OTP - One Time Password), which will be for one time use only. Do not tell it to anyone
- ◆ Make 'Log out' after using the internet banking account. Enter your mobile number and e-mail ID in the bank, so that you get the information about all the transactions happening in your account immediately
- ◆ Keep your debit card, ATM etc. safe, inform the bank immediately after it is lost.
- ◆ At the time of using internet banking in your browser, note that the address bar has become green, the address has https and not only the http and padlock (icon of locks) is visible or not.
- ◆ All these are essential for safe transactions. Do not conduct online transactions without them. By clicking on Padlock you can see the security certificate for that website
- ◆ Always type the correct address of your bank's website and pay attention to it. Like the State Bank of India's online banking website is <https://www.onlinesbi.com/>. If you type something else in its place or search for it by a search engine, then you can access any other website which is not related to that bank (like <http://ww3.sbionline.com/>)
- ◆ Avoid either lottery or any reward related e-mail SMS etc. Never reply to them. You can also complaint about them in the institution from whom they claim to receive e-mail.
- ◆ Minimize the use of internet cafes and shared computers for internet banking and if you are using a café or shared computer, keep changing your password regularly.
- ◆ Keep your computer or laptop with the latest anti-virus, as viruses and other malware can send information about your computer and your internet usage to the hacker.
- ◆ If there is any kind of information or suspicion, call the bank's phone number immediately and make an immediate notification.

Considering these things, full and safe benefits of Net Banking facility can be availed.

E-Learning

E-learning is also known as Electronic Learning, Distance Learning, Distance Education, Virtual Learning, On-line Learning, On-line Education and Web based Training. Rendering learning, training or education programs through electronic means is called e-learning. In e-learning, training, educational or learning material is provided by using computer or electronic device.

In E-learning, the subject is rendered by the internet, intranet / extranet, audio and video tape, satellite broadcast, interactive television, CD-ROM etc. Distance education is the basis for the development of e-learning. E-learning can be demanded. It resolve the difficulties of time, attendance and travelling.

Modes of E-Learning

Nowadays there are many ways available for e-learning. An apprentice can use one of these modes or a combination of more than one mode to enhance their knowledge, according to their requirement and convenience. Some of the modes available for e-learning are as follows:

- ◆ Purely Online – In this type of e-learning the trainee receives study material by communicating through the computer.
- ◆ Synchronous - In Synchronous Learning Trainees and instructors are physically distant, while interacting with each other in real time. Such as listening to live radio broadcasts, watching live television broadcasts, audio / video conferencing, live satellite broadcasts, online lectures etc.
- ◆ Asynchronous - Trainees and trainers are physically distant in asynchronous learning, and they do not have interaction in real-time. Such as study materials available on the Internet or CD-ROM, study materials available on audio / video tape, e-mail messages etc.
- ◆ Instructor led group
- ◆ Self-study
- ◆ Self-study with subject matter expert
- ◆ Blended E-learning

- ◆ Web based e-learning
- ◆ Computer based e-learning (CD ROM/DVD)
- ◆ E-learning through Video/Audio tape.

Advantages of E-Learning

The main advantages of e-learning are:

- ◆ As long as the trainee does not understand the subject matter, he can reconsider it.
- ◆ It is interactive and the trainee can get training at the speed of their understanding.
- ◆ Training rendering is easy and cost-effective.
- ◆ Learning is Environmental Exploratory and Collaborative.
- ◆ The trainee can receive training at any time according to his convenience.
- ◆ Training material can be accessed through any web browser software available on any platform (e.g. Windows, LINUX, Mac etc.).
- ◆ Training material can be cheaply distributed worldwide.
- ◆ Training is given on the internet so the travel time and expenses are saved.
- ◆ The instructor can easily make changes in the content.
- ◆ Access to content can be easily controlled.
- ◆ There are many easy options are available to the trainees for paying the training fees.
- ◆ Direct access to other training resources is available to the trainee.

Disadvantages of E-Learning

The main drawbacks of e-learning are:

- ◆ The trainee should have basic computer information.
- ◆ The process of training is limited due to bandwidth and browser.

- ◆ Only the limited formatting of content is possible in available browsers nowadays.
- ◆ It takes time to download training applications and content.
- ◆ The assessment and feedback of the trainee are limited.
- ◆ It takes time to prepare training material and the initial cost of preparing it is high.
- ◆ Computer knowledge is necessary for preparing the training material.

E-Designing

Development of Information and Communication Technology has provided new dimensions to designing. With the help of various software used in Computer Aided Design - CAD, all types of designs can be prepared in short time and with accurate measurements from architectural design to engineering design. Now in the fashion designing, the utility of information and communication technology has started to be abundant.

Important Points

1. Information Technology today has become a symbol of power and development. Any area of our life is no longer untouched by information technology.
2. E-government incorporates the facility of accessing of desired services by interaction with government through electronic media.
3. The ultimate goal of E-governance is to encourage the participation of general public in governance through e-mail and internet and to make the governance simple, easy and convenient.
4. E-governance uses innovative techniques of computer and communication technology – like internet for providing quality and value-based services to the public.
5. Digital India' is a new initiative of Government of India, whose purpose is to change the India digitally strong socially, economically and by knowledge.
6. Digital India is a comprehensive programme which covers several government ministries and departments. It incorporates different ideas and concepts in a solo and extensive vision, so that each of these ideas could be seen as part of a

7. E-mitra is an e-governance plan created by Rajasthan Government to take advantages of various government schemes on-line and off-line in all the districts.
8. State government has connected 105 services, related to various departments to the e-mitra portal.
9. E-commerce indicates, that wide range on-line trading functions, in which products and services are purchased and sold.
10. E-trading, E-banking, E-shopping etc. are also part of e-commerce.
11. The use of ICT in trade has increased the production capacity and customer participation while decreased the cost of product.
12. The services provided by any bank from any location, through computer, mobile or any other device through internet are called internet banking.
13. Rendering learning, training or education programs through electronic means is called e-learning.
14. In E-learning, the subject is rendered by the internet, intranet / extranet, audio and video tape, satellite broadcast, interactive television, CD-ROM etc.
15. With the help of various software used in Computer Aided Design - CAD, all types of designs can be prepared in short time and with accurate measurements from architectural design to engineering design.

Multiple choice questions

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- (c) E-banking (d) E-café
3. In which scheme facilities related to different departments become available on a same place?
- (a) Digital Bharat (b) E-commerce
- (c) E-mitra (d) E-suvidha
4. It makes the chain of mediators smaller between manufacturer and buyers.
- (a) E-governance (b) E-police
- (c) E-democracy (d) E-commerce
5. Which resource is not used in e-learning?
- (a) Video Conferencing (b) Books
- (c) Digital Study Matter (d) None of the above

Very Short Type Questions

1. What is the process of promoting access and execution of government services through ICT?
2. What is the name of the scheme launched to empower India with digital content?
3. Name the center where facilities related to different departments become available at one place.
4. What does it mean to make a purchase through the Internet?
5. What is the temporary password received from the bank during internet banking?

Short Type Questions

1. What is a single point rendering mechanism?
2. What services are provided under e-Transport?

3. What is the purpose of e-police?
4. What do you explain by digital empowerment?
5. Define e-commerce.
6. What is internet banking?
7. Why should not Internet banking be used in cyber cafe?
8. What does the correct online learning mean?
9. Name the tools used in e-learning.
10. What is Asynchronous Learning?

Essay Type Questions

1. What is E-Learning? Explain the advantages and disadvantages of e-learning.
2. What precautions must be maintained at the time of internet banking?
3. Describe the benefits and risks of internet banking.
4. What is e-commerce? Explain its benefits.
5. In the traditional way, which would you prefer in governance and e-governance? Answer with an astrike.