

Chapter 12

ICT and Society

e-Governance

e-Governance is the application of ICT for delivering Government services to citizens in a convenient, efficient and transparent manner. e-Governance facilitates interaction among different stakeholders in governance.

Government to Government (G2G) - It is the electronic sharing of data and/or information among government agencies, departments or organisations.

Government to Citizens (G2C) - It creates an interface between the government and citizens. Here the citizens enjoy a large range of public services.

Government to Business (G2B) - Here, e-Governance tools are used to aid the business community to interact with the government.

Government to Employees (G2E) - This interaction is a two-way process between the government and the employees. The salary and personal details of government employees are also managed through e-Governance services.

e-Governance infrastructure

In India, the e-Governance infrastructure mainly consists of State Data Centers (SDC) for providing core infrastructure and storage, State Wide Area Network (SWAN) for connectivity and Common Service Centers (CSC) as service delivery points.

- **State Data Centre** provides several functionalities. These include keeping central data repository of the state, securing data storage, online delivery of services, citizen information/services portal, state intranet portal, disaster recovery, etc. SDCs also provide better operation and management control and minimize the overall cost of data management, resource management, deployment etc.
- **Kerala State Wide Area Network (KSWAN)** has been set up as a backbone of the State Information Infrastructure (SII). It connects Thiruvananthapuram, Kochi and Kozhikode as its hubs and extends to all the 14 districts linking each of the 152 Block Panchayats.
- **Common Service Centres (CSC)** are the front-end delivery points of the government, private and social sector services for the rural citizens of India. A highlight of the CSCs is that it offers web-enabled e-Governance services in rural areas. In Kerala Akshaya centres are working as Common Service Centres.

Major benefits of e-Governance:

- It leads to automation of government services.
- It strengthens the democracy.
- It ensures more transparency and helps eliminate corruption.
- It saves time and money.

A few challenges:

- Security measures are highly required.
- Usually a huge initial investment and planning are required.

Eg: www.dhsekerala.gov.in - An official site of the Department of Higher Secondary Education, Government of Kerala.

e-Business

- **e-Business** is the sharing of business information, maintaining business relationships and conducting business transactions by means of the ICT application.
- e-Commerce covers business transaction that involve exchange of money, whereas e-Business includes all aspects of running a business such as marketing, obtaining raw materials or goods, customer education, looking for suppliers etc. Thus e-Business is an extension of e-Commerce.
- **Electronic Payment System (EPS)** is a system of financial exchange between buyers and sellers in an online environment. The financial exchange is facilitated by a digital financial instrument (such as credit/debit card, electronic cheque or digital cash) backed by a bank and/or an intermediary.
- **e-Banking** or electronic banking is defined as the automated delivery of banking services directly to customers through electronic channel. Facilities such as ATM, debit cards, credit cards, Internet banking and core banking help in transforming traditional banking into e-Banking.

Major advantages of e-Business:



- It overcomes geographical limitations.
- e-Business reduces the operational cost.
- It minimises travel time and cost.
- It remains open all the time.

A few challenges:

- If not used with caution, customers may lose valuable information like their credit card number, passwords, etc.
- Products like apparel, handicrafts, jewellery, etc are often purchased after examining physically. But in online shopping, customers don't have this 'touch and feel' advantage.

Eg: www.irttc.co.in - Indian Railway Catering and Tourism Corporation Limited web site for reservation and cancellation of railway tickets and hotels for accommodation.

e-Learning

The use of electronic media and ICT (Information and Communication Technologies) in education is termed **e-Learning**.

- **e-Learning tools:** Electronic books reader (e-Books), e-Text, Online chat, e-Content, Educational TV channels.
- Portable computer device that are loaded with digital book content via communication interfaces is called **electronic books reader**.
- Textual information available in electronic format is called **e-Text**.
- **Online chat** is a real-time exchange of text messages between two or more persons over the Internet.
- **e-Content** is the e-Learning materials that are delivered in different multimedia formats like videos, presentations, graphics, animations, etc.
- **Education channels** are the telecasting/webcasting channels which are dedicated for the e-Learning purpose.

Major advantages of e-Learning:

- e-Learning has the ability to offer courses on variety of subjects to large number of students from distant location.
- Cost for learning is much less. It saves journey time and money, instructor fees, etc.
- It provides facility to do online courses from various nationally or internationally reputed institutions.
- Time and place is not a constraint for e-Learning.

A few challenges:

- Face to face contact between students and teachers is not possible.
- Learners who require constant motivation may not be serviced adequately.
- Hands-on practical in real laboratory scenario is also a constraint in e-Learning.

Eg: www.ignouonline.ac.in - Website of Indira Gandhi National Open University, one of the leading open universities offering various courses in the distance education mode.

Information security

- **Intellectual property rights (IPR)** refers to the exclusive right given to a person over the creation of his/her mind for a period of time. World Intellectual Property Organization (WIPO) is an agency dedicated to ensure IPR.
- **Industrial property right** applies to industry, commerce and agricultural products. It protects patents to inventions, trademarks, industrial designs and geographical indications.
- **Patent** is the exclusive rights granted for an invention.
- **Trademark** is a distinctive sign that identifies certain goods or services produced or provided by an individual or a company.
- **Industrial design** refers to the ornamental or aesthetic aspects of an article. A design may consist of three-dimensional features such as the shape, surface of an article or two-dimensional features, such as patterns, lines or colour.
- **Geographical indications** are signs used on goods that have a specific geographical origin and possess qualities or a reputation that are due to that place of origin. Eg: Aranmula Kannadi and Palakkadan Matta Rice.
- **Copyright** is a legal right given to the creators for an original work, usually for a limited period of time. Copyright applies to a wide range of creative, intellectual or artistic forms of works which include books, music, painting, sculpture, films, advertisement and computer software.
- **Intellectual Property Infringement** is the unauthorised use of intellectual property rights such as patents, copyrights and trademarks.

Cyber space

It is a virtual environment created by computer systems connected to the Internet. Cyberspace is an unreal world in which communication over computer networks occurs. It is an information superhighway where individuals gather information, interact, exchange ideas, provide social support, conduct business, play games, engage in discussions and so on.

Cyber Crime

It is defined as a criminal activity in which computers or computer networks are used as a tool, target or a place of criminal activity. The victims of cyber crime lose money, reputation and face mental trauma. Cyber crimes include phishing, hacking, denial of service attacks, etc. Computer crime mainly consists of unauthorised access to computer systems, credit card frauds, illegal downloading, child pornography, cyber terrorism, creation and/or distribution of viruses, spam and so on.



Cyber crimes against individuals:

- **Identity theft** occurs when someone uses another person's identifying information, like their name, credit card number, etc. without their permission to commit fraud or other crimes.
- **Harassment** means posting humiliating comments focusing on gender, race, religion, nationality at specific individuals in chat rooms, social media, e-mail, etc. is harassment.
- **Impersonation and cheating:** Impersonation is an act of pretending to be another person for the purpose of harming the victim.
- **Violation of privacy:** Violation of privacy is the intrusion into the personal life of another, without a valid reason.
- **Dissemination of obscene material:** The Internet has provided a medium for the facilitation of crimes like pornography. The distribution and posting of obscene material is one of the important cyber crimes today.

Cyber crimes against property:

- **Credit card fraud:** Credit card fraud involves an unauthorised usage of another person's credit card information for the purpose of payments for purchases or transferring funds from it.
- **Intellectual property theft:** The infringement of IPRs comes under this category. Violation of copyright, patent, trademark, etc. are intrusions against property.

Cyber crimes against government:

- **Cyber terrorism:** Cyber terrorism is a cyber attack against sensitive computer networks like nuclear power plants, air traffic controls, gas line controls, telecom, etc. Cyber terrorism focuses on the use of the Internet by anti nationals to affect a nation's economic and technological infrastructure.
- **Website defacement:** It includes hacking of government websites and posting derogatory comments about a government in those websites.
- **Attacks against e-governance websites:** These types of attacks deny a particular online government service. This is done using a Distributed Denial of Service (DDoS).

Cyber Ethics

- Use anti-virus, firewall, and spam blocking software for your PC.
- Ensure security of websites (https and padlock) while conducting online cash transactions.
- Do not respond or act on e-mails sent from unknown sources.
- Do not select the check boxes or click OK button before reading the contents of any agreement/message.

- Do not hide your identity and fool others.
- Do not use bad or rude language in social media and e-mails.

Cyber laws

The term cyber law in general refers to the legal and regulatory aspects of the Internet. Cyber law can be defined as a law governing the use of computers and Internet.

IT Act

The Information Technology Act, 2000 is India's legislation regulating the use of computer, servers, computer networks, data and information in electronic format. The legislation has touched various aspects related to authentication, digital signature, cyber crime and liability of network service provider.

Cyber Forensics

It is the discipline that combines elements of law and computer science to collect and analyse data from computer systems, networks, communication systems and storage devices in a way that is admissible as evidence in a court of law. The goal of computer forensics is to analyse data to support the collected evidence so as to use effectively in a legal case.



Infomania

It is the state of getting exhausted with excess information. It is the excessive enthusiasm for acquiring knowledge. This may result in neglecting the more important things like duties, studies, family etc.

Questions from Previous Years' Question Papers (Computer Science)

1. (a) Name a digital financial instrument. (1)
(b) Discuss about various IPRs with examples for each. (3) (March 2016)
2. Give the goal of computer forensics. (1)
3. Explain different categories of cyber crimes against government. (3) (SAY 2016)
4. (a) An educational channel of Kerala government is _____. (1)
(b) Discuss about the schemes used in protecting intellectual property. (3) (March 2017)
5. (a) Textual information available in electronic format is called _____.
(a) e-Text (b) e-Learning (c) e-mail (d) e-Content (1)
(b) Explain Infringement. (3) (SAY 2017)

