

# INFS 112: Introduction to Information Management

## Session 12 – Communications Technology

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College of Education

**School of Continuing and Distance Education**

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# Session Overview

At the end of the session, the student will be able to:

- Explain the different ways to use computers to communicate
- Discuss the impact of IT on users in different environments
- Discuss some challenges of IT in the 21<sup>st</sup> century

# Session Outline

The key topics to be covered in the session are as follows:

- Topic One - Overview of Communications Technology
- Topic Two – Impact of Information Technology
- Topic Three – Challenges of IT for the 21<sup>st</sup> Century

# Reading List

- O'Leary and O'Leary (2015). Computing Essentials 25<sup>th</sup> ed. 8
- Ten IT challenges for the 21<sup>st</sup> Century  
<http://www.techrepublic.com/blog/tech-decision-maker/ten-it-challenges-for-the-21st-century/>

Topic One

# OVERVIEW OF COMMUNICATIONS TECHNOLOGY

# Communications Technology

- In communications, people and resources connected by networks.
- Connectivity - microcomputer connected to telephone, other telecommunications links, other computers and information sources almost anywhere.
- Linked to world of larger computers and Internet.
- Most important changes in connectivity and communications has been widespread use of mobile or wireless telephones.



# Communications Technology (7)

**Communication systems** - Four basic elements.

- **Sending and receiving devices** - the communication system is able to send and receive messages in the form of data, information and or instructions.
- **Communication channel** - system has to pass through some medium –either physical wire or cable or wireless connection . Ex. telephone lines, cables and fiber optic (physical channels); Satellite, Bluetooth, microwave, infrared, broadcast radio (wireless channels)



# Communications Technology (8)

- **Connection devices** – system acts as interface between sending and receiving devices and communication channel.
- Convert outgoing messages into form which travels across communication channel. Also reverse process for incoming messages.
- Eg. Modem ( Modulator-demodulator); external or internal PC Card modem or wireless. External modem stand apart from system while internal modem consists of plug-in circuit board inside system unit.
- PC Card modem - credit card-size expansion board inserted into portable computers; wireless modem does not use cable; send and receive messages through air.





# Communications Technology (9)

- Data transmission specification - rules and procedures that coordinate sending and receiving devices by defining exactly how message will be sent across communication channel.
- Factors affecting how data is transmitted -**bandwidth** and **protocols**
- **Bandwidth** - measure of communication channel's width or capacity. Higher bandwidth, higher rate of transmission of data. Ex . of bandwidth for high-capacity transmission is Broadband. Broadband services by Vodafone, Airtel, MTN.
- **Protocols** - rules for exchanging data between computers



# Communications Technology (10)

## Computer Networks

- communication system that connects two or more computer to exchange information and share resources
- Popular computer networks - Local Area Networks (LAN) and Wide Area Networks (WAN).
- LAN connects nearby devices and WAN spans states and countries or form worldwide networks.
- **Internet** example of WAN; Organizations use Internet technologies to support communication within and between organizations through **Intranet** and **Extranet**.
- Intranet is used to provide information to employees.
- Extranet connects more than one organization.



# Video

## Communication Technology Part 1

```
<iframe width="420" height="315"  
  src="https://www.youtube.com/embed/K8GjdlZuGY"  
  frameborder="0" allowfullscreen></iframe>
```



Topic Two

# **IMPACT OF INFORMATION TECHNOLOGY**

# Impact of Information Technology

- Technology plays important role in every sphere of life – in Education, in Business, in libraries,

## **Technology's Impact on Education**

- Teaching made interactive  
Computers offer an interactive audio-visual medium. PowerPoint presentations and animation software can be used to present information in an interactive way.



# Impact on Education

- Technology has eliminated space and time constraints  
Online education and distance learning have given a new dimension to education and higher learning.
- Robust information storage  
Computers enable better and more robust storage of information.
- Information is easily accessible  
The Internet is a huge information base. It can be used as an effective tool for acquiring knowledge.



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# Impact on Education (2)

- Knowledge sharing made easy
- Increased retention of information
- Greater interest in learning
- Better presentation of information





# Impact on Libraries

## Key Impacts of Technology

- Collection Development
- Information access
- Communities and collaborations
- Training and support
- User Services



# Impact on Business

- Information technology (IT) is dramatically changing the business landscape

Key impacts of technology are:

- Business strategy - collapsing time and distance, enabling [electronic commerce](#)
- Organization Culture - encouraging the free flow of information
- Organization Structures - making [networking](#) and [virtual corporations](#) a reality
- Management Processes - providing support for complex decision making processes
- Work - dramatically changing the nature of professional, and now managerial work
- The workplace - allowing work from home and on the move, as in [telework](#)



# Impact on Governments

- Key Impacts of technology:
- collate and monitor statistical information that can be used use to combat fraud
- and manage the economy in a more informed way. IT has also had a major impact on the defense capabilities of governments, government's intelligence agencies and also led to the enactment of new legislation for IT use.



# Activity

- Describe the role of Information technology in Government, Health institutions, News agencies



Topic Three

# CHALLENGES OF IT IN THE 21<sup>ST</sup> CENTURY

# Challenges of IT

- **Globalization:** Virtually every company today must compete globally
- **Excess Workload:** Customers are becoming more demanding, especially as we see a growth in competition
- This is both a challenge and an opportunity. Demand for science and IT professionals is growing at a 5% annual rate, while those deciding to earn Computer Science related degrees is in a downward trend.
- **Change:** It has been said that the only constant is change.



# Challenges of IT (2)

- **Cultural Differences:**
- **Outsourcing and Off Shoring:**
- **Project Management**
- **Meeting Customer Expectation**
- **Planning**



# Activity

- Discuss other challenges you envisage to happen with the advancement of information technology





# References

