

The Open University of Tanzania
Faculty of Business Management
Master of Business Administration (MBA)
OBS603: Information Technology and Computer Applications

Introduction

In the current world, information is one of the important resources that needs proper management. Information and other technologies make things once though impossible to be practical. It has been able to link several organizations around the globe, like airline reservation systems, banking information systems, attending classes without physically moving from one location to another. In business, internet is changing the way the business is conducted: through advertising, transactions and others. Due to these and other factors it become important for managers to be well informed about what is happening in the areas of information and information technology.

Furthermore, there is no sign in the near future that indicates that the developments of information technology will slow down, but to the contrary, there are several indicators which shows the opposite (that more developments will come soon). This technology affects all people, organizations and countries. The level of economic development, geographical location of a country, type of business the organization is in are not making information technology not to be important. It is of these and other factors that make this knowledge a must for all managers.

This technology emerged from science and engineering and it moved to other areas, including business. For the moment, this is one of the functional areas in any business school.

The objective of this course is to make you knowledgeable users of computer resources as opposed to data processing experts. Specifically, you are expected to demonstrate the basic understandings of:

1. Organizational and technical foundations of information systems.
2. implications of information technology/information systems to individual, organization, or the society
3. Commonly used applications packages, especially, word processing, spreadsheets, statistical, etc. in meeting information needs of individuals, organization of the society in large.

Course Prerequisite

One would like to know what are the prerequisites for this course. The main knowledge one should come with is knowledge in. Very basic knowledge in inferential statistics and simple mathematics of finance will be assumed to some extent. However, the ability to scholarly articles thoughtfully and intelligently is **absolute** essential for this course.

Course Contents

Topic 1: Introduction

Objectives

At the end of this topic, students must be able to:

- Explain the importance of information systems in business undertakings
- Discuss the importance of IT in competitive advantages
- State the challenges of managing information systems in organizations.

This will cover the basics of information, information technology/information systems, its importance in the management of organizations, challenges and opportunities, strategic role of information systems, organizations and business processes.

1.1 Importance of Information Technology and Information Systems in business

Information technology is important for the current world because it forms the basis of:

- Competitiveness
- increasing efficiency
- effectiveness
- appearing the organization to be using state of the art
- The business world is changing where customers want specialized services that in most cases are IT based, like Internet Banking.

1.2 Changes in Organizations as a result of using IT

There are several challenges in using IT, which in turn make the usage of IT unsuccessful in many organizations. Some of these are:

- Perception about the IT
- Knowledge about IT
- Lack of other supporting facilities
- Lack of role models in using IT
- Lack of after sales services
- Crackers and hackers who access the system and temper with data
- The technology is changing fast sometimes faster than individuals can cope or change.

1.3 Definition of Terms

There are several definitions, but for start these definitions are important.

- Data is a collection of facts, figures, and others which not yet analyzed.
- Information is a processed data that is data that has given the meaning.
- Technology is the process and tools used to transform inputs to outputs.
- Information technology is technology that is used to transform data into useful information.
- System is a set of interrelated components that work together to accomplish the same goal.

1.4 Strategic Relevance of Information Technology

One important reason for studying IT is its strategic relevance. There are five ways to outdo the competitors in business. This is based on accounting concept of profit to be the difference between revenue and costs. The strategic management scholar argues that the competitiveness is obtained on five areas. These are:

- Reducing bargaining power of customers: the higher the bargaining power the customers are the lower the revenue obtained, and hence less profit.
- Reducing bargaining power of suppliers: The higher the bargaining power the suppliers are, there is a chance that they will demand high prices while at the same time providing goods and services at lower quality, and hence eating some of the anticipate profit the organization might make.
- The threat of substitute products: When the customers can switch from one product to another, there is a chance that they will move and hence reduce the anticipate revenue the organization could make.
- The threat of new entrants: When new entrants enter the business, there is a chance that they will attract some of the customers, who in turn will reduce the revenue of the organizations.
- The last concept is the jockeying of the position among contestant. In this case the organizations compete on price, product introduction, advertising, and quality.

Information technology can assist in all of these.

1.5 Importance of IT in Decision Making

Despite the advantage of IT in strategic/competitiveness, but also it is important in decision making process. It assists in:

- Storing and retrieving data quickly
- Assist in providing timely data, that is tracking the problem when it occurs.
- Ability to present information in different formats
- Being able to filter data

1.6 Challenges in Using Information Technology

There are several challenges in using information systems. Some of these are:

- Data security and controls
- Problems in coping with changes induced by IT
- Increases the level of competition form local to global.
- Technology choice: there are two technologies: most appropriate or most up to date. Therefore there are several factors to be looked at.
- Technology is multi dimensional. The successful implementation of IT requires both technology, organizational and technology issues to be taken into considerations.

Laudon and Laudon (2004), Chapter 2 and 3

Turban et al (1996), Chapter 2 and 3

McLeod and Schell (2004), Chapter 2

Topic 2: Computer Technology - Hardware

Objectives

At the end of this topic candidates should be able to:

- Explain the meaning of hardware and its components processing, input, output and storage devices.
- Discuss the management challenges in hardware systems.

2.1 Hardware Definitions

- Hardware are physical components that form a computer system.
- They use binary systems in processing as opposed to decimal system used by human beings.
- They process data in several ways batch, online or real time systems.

2.2 Processing Devices

Processing device also known as a central processing device has three main parts:

- Control Unit
- Memory unit also known as primary storage
- Arithmetic and logic unit which performs all logic and arithmetic operations in computer.
- One can add clock for synchronization of operations.

The performance of central processing device ins measured in terms

- Capacity of memory unit to store data (measured in megabytes)
- Processing speed of the system

Several ways the computers can process the data. These include

- Multiprogramming
- Parallel processing
- Time sharing
- Multiprocessing
- Multitasking
- Distributed processing

2.3 Input Devices

These are all devices that send data to the central processing units. These include but not limited to:

- Keyboards
- Mouse
- Magnetic ink character recognition devices
- Optical character readers
- Touch screen
- Digital scanners
- Voice input devices
- Pen based input
- Track ball
- Sensors
- Joystick

2.4 Output Devices

- Printers
- Plotters
- Voice Output Devices
- Computer output microfilm
- Video (Screen)

2.5 Storage Devices

These are all devices that accept data from the processing devices.

- Magnetic tapes
- Magnetic disks
 - Floppy disks
 - Hard disks
 - Fixed Hard disks
 - Removable hard disks and Zip drives
- Optical Disks
 - Compact disks (CD)
 - Digital versatile disks (DVD)
- Storage in Network

2.6 Communication Devices

Just to introduce that one can also discuss these hardware systems here but has been left to data communication systems,

2.7 Computer Types

- Mainframe, minicomputers, personal computers, super computers and work stations
- Analog and digital computers

Reference

Laudon and Laudon (2004), Chapter 6
 Turban et al (1996), Chapter 5
 McLeod and Schell (2004), Chapter 5

Topic 3: Computer Technology: Software

Objectives

At the end of this topic the candidates should be able to:

- Define the software
- State the two main types of software systems and their implications in the management of information technology.

3.1 Software

Software are all instructions that command the computer what to do. There are two types of software systems, systems and applications software.

3.2 Systems Software

These are software the manages computer resources. They can be divided into three main categories:

- Operating systems
- Utility software
- Device drivers
- Programming languages.

These are closer to computer hardware.

3.3 Application Software

These are software systems that solves management problems. Some examples of these are word processing, payroll and others.

3.4 Programming Trends

There are several trends in software creation, these include

- Object orientation
- Use of CASE tools

3.5 Computer Software Piracy

How does the software piracy hampering the development of computer industry?

- Reasons for piracy
- Legal limbo on software piracy
- Tackling software piracy.

Reference

Laudon and Laudon (2004), Chapter 6

Turban et al (1996), Chapter 6 and 7

McLeod and Schell (2004), Chapter 5

Topic 4: Word Processing

Objectives

At the end of this topic the candidates should be able to:

- Explain the concept of word processing and its importance in text management.

Word processing are essentially text management software systems.

4.1 Definition

Essentially there are five issues that word processing can do:

- Creating a text document
- Edit a text document
- Save text documents
- Retrieving text documents
- Printing text documents

4.2 Tools in word Processing

- Spell checkers
- Grammar checkers
- Table of contents creation
- Index creation
- Inserting tables
- Automatic date insertion
- Mail merge
- Macros
- Type facing like bolding and italicizing
- Auto summarize
- Auto correct
- Macros
- Headers and Footers
- Footnotes and Endnotes
- Printing envelopes
- Data sorting
- Auto format
- Data protection through passwords
- Book marking
- Hyper linking

4.3 The Impact of Word Processing in Office Productivity

How does the availability of word processing improves office productivity in text management in

- Handling customers
- Managing texts
- Preparations of standard letters

References

User manuals for word processing

Topic 5: Spreadsheets

Objectives

At the end of this topic, the candidates should be able to:

- Explain the concept of spreadsheets and its importance in management of organizations.

These are software systems that assist in managing data, which are primarily quantitative.

5.1 Definition

Spreadsheet is software that contains rows and columns where several operations can be done. Examples of spreadsheets are Excel and Lotus 123.

5.2 Tools in Spreadsheets

- Graphing
- Data sorting

5.3 Functions in Spreadsheets

- Arithmetic functions
- Financial functions
- Date and time functions
- Statistical functions
- Database functions
- Lookup functions
- Text functions
- Information functions
- User defined functions
- User defined functions

5.4 Add on features

- Analysis tool pack
- Goal seeking
- Scenarios
- Auditing
- Report manager
- Solver

5.5 The Impact of Spreadsheets in Office Productivity

How does spreadsheets assist in:

- Budgeting
- Planning
- Organizing
- Controlling

Reference

User manuals for spreadsheets

Topic 6: Communications Systems

Objectives

At the end of this topic the student should be able to:

- State the importance of data communication systems in business.
- Explain the main components of a data communication systems.
- State the challenges of data communication management and the ways to cope with those challenges.

6.1 Why Data communications

Many business activities can not be done without data communication facilities. These include Internet, facsimile systems, telephone, mobile systems and others. The main aim of data communication systems is to facilitate data/information sharing among individual, organizations, and society as whole.

6.2 Components of Data Communication Systems

There are four main components of a data communication systems.

- Data communication terminals: these are devices that input, output, store or process data in the data communication systems. These include computers, mobile phones, and others. These devices could be smart (being able to store and process data), intelligent (some limited processing abilities) or dumb terminals (just used for data entry into the system).
- Data communication software: these are computer programs that controls the process of sharing data within the data communication systems.
- Data communication channels. These are channels through which data passes from one location to another. These include fiber optics, satellites, twisted cables, infra red rays and others.
- Data communication control devices: these are all devices that control the functioning of the data communication systems. These include modems, multiplexors, controllers, compressors, network cards, and others.

6.3 Local Area Networks and Wide area Networks

This topic looks at one of the classification of networks based on geographical coverage, small or wide area.

6.4 Intranet, Extranet and Internet

Another classification of data communication is based on firewall, to what extent outsiders are allowed to use the data in the network. In this system is classified into:

- Intranet
- Extranet
- Internet

6.5 The important of data communication Systems in business

Data communication facilities facilitates

- Data sharing
- Making the job to be done not to be associated with places
- Telecommuting
- Teleconferencing
- Group support systems
- Advertising

6.6 Challenges of Managing Data Communication Systems

- Data security and controls
- Crackers and hackers
- Selection of the appropriate systems
- Keeping the systems in the functioning state

Reference

Laudon and Laudon (2004), Chapter 8

Turban et al (1996), Chapter 9

Topic 7: Computer Technology: Internet

Objectives

At the end of this topic the candidates should be able to:
Explain the concept of Internet and its main features.

7.1 What is Internet and Its Features

Internet is a connection of computers around the globe for the purpose of sharing information. It uses special protocols called TCP/IP. It started in military, but it has a lot of usage in business as well at the moment.

In order for one to access the information on the Internet he must have a universal resources locator (URL), an address of the Internet location of must search the Internet.

7.2 File Transfer Protocol

This is one of the features of Internet that makes transmitting of file from one location to another possible.

7.3 E mail

This is sending electronic mails from one location to another. One can send mail to one person, or a group.

7.4 Telnet

This is remotely log in into the system.

7.5 Gopher

A tool for locating information stored in the Internet.

7.6 Usenet

On line forums whereby people share information and ideas on different matters.

Reference

Laudon and Laudon (2004), Chapter 9

Turban et al (1996), Chapter 9

Topic 8: Electronic Commerce

Objectives

At the end of this topic the candidates should be able to:

- Define the term electronic commerce and its implications for business.
- Explain the implications and challenges in managing electronic commerce.

8.1 What is an E commerce

This is doing the business using Internet. It can be advertising, transactions, fund transfers and others.

It lowers transaction costs and increasing efficiency in business performance.

8.2 Implications and challenges

The electronic commerce requires well-established financial services

- It requires good city planning
- It requires sense of trust
- It requires good legal system to cope with changes happening in the business as well as in technology.
- And others.

8.3 Limitations of electronic commerce in Tanzania

There are several problems that hinder the adoption of electronic commerce in Tanzania. Some of these are:

- Low level of technology application.
- Weak legal system to deal with problems emanating from electronic commerce applications
- Lack of role models in the application of electronic commerce.
- Etc.

Reference

Laudon and Laudon (2004), Chapter 4

Turban et al (1996), Chapter 4

McLeod and Schell (2004), Chapter 3

Topic 9: Database Management Systems

Objectives

At the end of this topic the candidates should be able to:

- Explain several concepts associated with database management systems.
- Apply proper methodologies in designing a database system.

9.1 Definitions

Database management system is a software system and procedures that assist in creation, updating, querying, saving and retrieving data.

Data hierarchy is

- Bits
- Byte
- Record
- Field
- File
- Database

9.2 Type of databases

There are three types of databases:

- Hierarchical
- Relational and
- Network

The main concern for this course is relational databases.

9.3 Relational Databases

These present data in form of tables of relations. Thereafter, data can be used in different formats.

9.4 Tables

A table is an object that stores data in records (rows) and fields (columns). Data in the tables could be unique (not allowed to repeat from one to another like an account number, while other data can be not unique, for example, several people can use the same address.

9.5 Relationships

The relationship in database is the way data are related from one table to another.

9.6 Forms

A form is an object in the database management systems on which you place controls for taking actions or for entering, displaying, and editing data in fields.

9.7 Queries

A query is a question. A query in a database collects data from different tables and put them together to appear as if they come from the same table.

9.8 Reports

A report is that that has been collected from different tables and formatted to the required ways so as to be useful for decision making.

9.9 Macros

A macro is a set of actions that has been recorded and issued at once, i.e. automating the process.

9.10 Modules

A module is a collection of declarations, statements, and procedures stored together as one named unit.

9.11 Security features

Data need to be protected against any damage. Some of these include:

Use of passwords

- Disconnecting the database if it is not used
- Allowing different level of data access. Some will be allowed to edit, while others to update, and other just to view the data.

9.12 Datamining

This is the process of establishing some relationships between data element within the database. It uses the knowledge of statistics.

Reference

Laudon and Laudon (2004), Chapter 7

Turban et al (1996), Chapter 8

McLeod and Schell (2004), Chapter 6

User manuals for database management systems.

Topic 10: Other Topics in Computer Applications

Objectives

At the end of this topic the candidate should be able to:

- List and explain other application software. Specifically statistical, presentation and desktop publishing software
- Select the most appropriate software for any task.

10.1 Statistical packages

- What is "statistics"?
- Importance of statistics in decision making
- Examples of statistical packages: SPSS and others
- Specific application of statistical packages in solving statistical problems
 - Mean
 - Standard deviation
 - Mode
 - Median
 - Counting
 - t, z tests
 - others

10.2 Presentation and Graphics Packages

- What is "presentation and graphics software"?
- Importance of presenting data in terms of charts
 - Pie charts
 - Histograms
 - Scatter diagrams
 - XY graphs
- Examples of statistical packages: SPSS and others

10.3 Desktop Publishing

- What is "desktop publishing"?
- Importance of desktop publishing in modern offices.
- Examples of Desktop publishing software like PageMaker, Adobe Writer, and others
- Example of usage in
 - Preparation of brochures/announcements
 - Preparation of invitation cards
 - Typesetting
 - And others

Reference

User manuals of the software listed.

Topic 11: Other Technologies and Recent Developments in IT

Objectives

At the end of this topic the candidate should be able to:

- Explain recent technologies that are of importance to management.
- Describe the capabilities of these technologies and explain their impact on decision making process.

11.1 Group Support Systems

- This allows a group of people to meet at the same or different times and at the same or different locations.
- They make meetings to be more productive by forcing members to concentrate on the agenda and not on any other distracting activity.

11.2 Artificial Intelligence

- This is an attempt to capture human intelligence and put it in the computer systems.
- It uses backward or forward chaining in reasoning.
- It acts as a human advisor in a small area of expertise.

11.3 Recognition systems

- This is an extension of artificial intelligence system in order to be able to identify/recognize objects/shapes.

11.4 Knowledge representation and coding

- This is an attempt to represent brain in the computer.
- The challenge is how to code knowledge and put it into the computer systems.
- There are several ways representing knowledge like
 - Predicate logic
 - Fuzzy logic
 - Production rules
 - And others

11.5 Expert Systems and Neural Network Systems

- Expert systems and neural network systems are examples of artificial intelligence systems.
- Expert systems act as a black box in knowledge processing while neural networks act as a white box in knowledge processing.
- They both have limited expertises in small domain of knowledge.

Reference

User manuals for these systems.

Course Assessments

One test	20
Course paper	30
Final Examinations	50
Total	100

Course textbooks

There is no single book in which one will find the all topics covered. Therefore, students are advised to read as many introductory textbooks on information technology/information systems. Most of those books are available in the library.

The main textbooks:

Kenneth C. Laudon and Jane P. Laudon (2004 or better edition). Management Information Systems
Prentice Hall publishers, Eighth Edition

Turban, McLean and Wetherbe (1996 or a more recent edition). Information Technology for
Management Eighth Edition published by John Willey and Sons, 1996.

McLeod, Raymond and Schell, George (2004): Management Information Systems, Prentice Hall
Publishers.