

SPM1012 : Telecommunication and Networking

Topic 1 : Introduction to Telecommunication

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Introduction to Telecommunication

At the **end** of this session you would be **able** to:

Describe the **definition** of communication and communication process

Detail the **communication technology** development

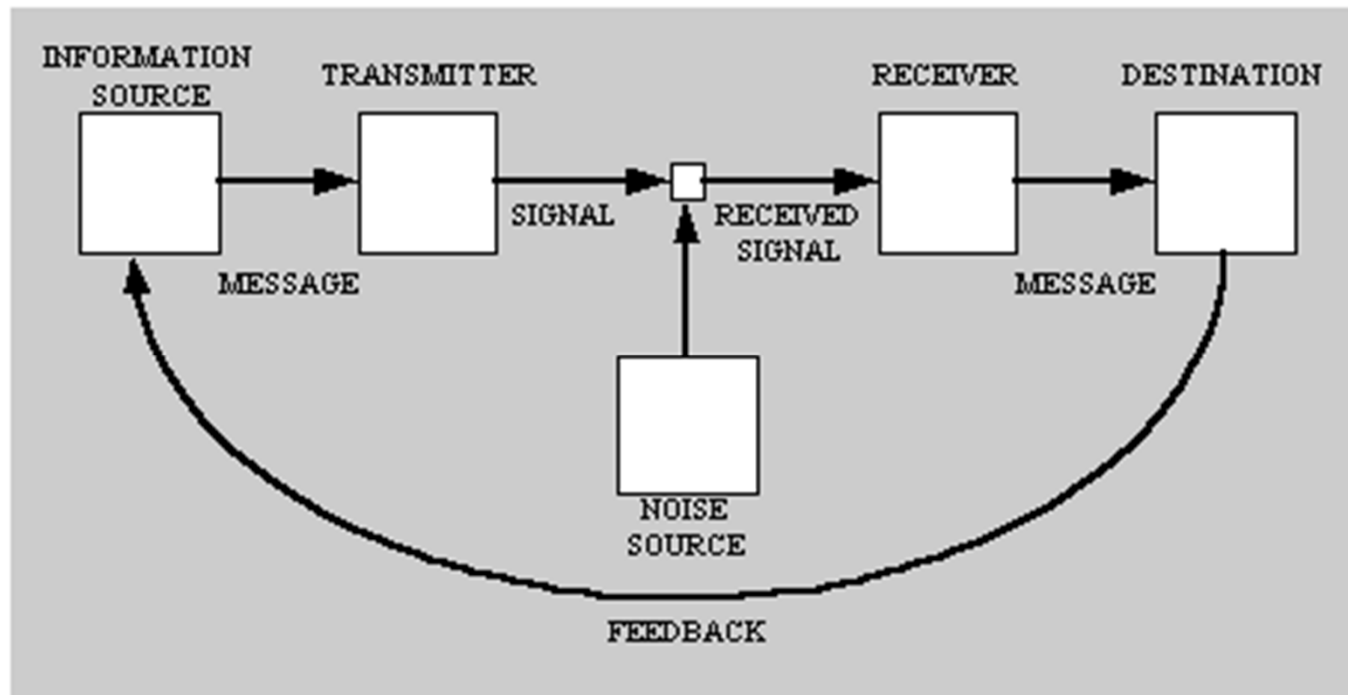
Discuss six **elements** of computer and communication systems

Introduction to Telecommunication

What is Communication?

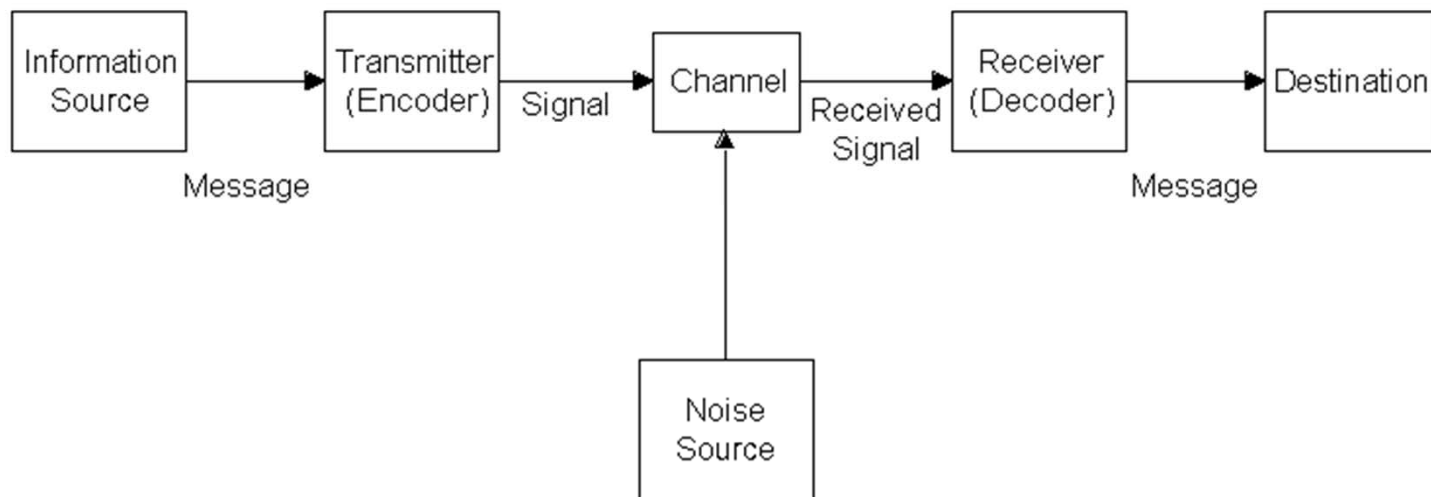
- Communication is the **imparting, conveying** or **exchange** of **thoughts, messages, ideas, knowledge** or **information** by **sign** and **sounds** like **speech, signals, writing** or **behaviour**

Communication Models



Communication Models

The Shannon-Weaver Mathematical Model, 1949



What is **telecommunications**

Communication over a **long** distance
(tele = far off)

Telecommunications refers to the transfer of **data**
(communications) from a **transmitter** to a **receiver**
across a **distance**

Data/code represented by some form of
electromagnetic energy – electricity, radio waves,
lights – transmitted through medium- wire, cable,
atmosphere.



DATA?

Development of Communications Technology & Computer Technology

Visual History of Telecommunication

<http://www.youtube.com/watch?v=aBuAujwygLw>



Development of Communications Technology & Computer Technology

The Future of Mobile Media and Communication

<http://www.youtube.com/watch?v=FScddkTMITc&feature=related>

THE FUTURE OF MOBILE MEDIA AND COMMUNICATION : TEASER

HTTP://WWW.YOUTUBE.COM/WATCH?V=GDIUSOCDCXO&FEATURE=CHANNEL



The Six Elements

- The elements of computer and communications technology
 - People
 - Procedure
 - Data/Information
 - Hardware
 - Software
 - Communications/Connectivity



The Six Elements

1. People

- peopleware- user of the computer
- most important elements in communication
- built, analyse, and develop the system.
- operate the computer



The Six Elements

1. People

- Two categories of people involved in computer and telecommunications
 - Professional
 - Those who have gone through specialised training in theory and technical aspects
 - e.g. : programmer, computer engineer, etc
 - End user
 - Those who only know how to use without special training in the field.
 - e.g. : clerks, teachers, etc,



The Six Elements

2. Procedure

- An ordered set of tasks for performing some action
- A clear specification for the sequence, timing, execution, etc. of a process.
- A **procedure** is a specification of the series of actions, acts or operations which have to be executed in the same manner in order to obtain always the same result in the same circumstances (for example, emergency procedures).

The Six Elements

3. Data

- Information stored on the computer system, used by applications to accomplish tasks
- A representation of facts, concepts, or instructions in a formalized manner suitable for communication, interpretation, or processing by humans or by automated means.



The Six Elements

3. Data

- Data is fundamentally any information of interest, but these days, the word data implies a **binary, machine-readable** representation of information.
- A **representation** of **facts** or **concepts** in an organized manner in order that it may be **stored, communicated, interpreted, or processed** by **automated** means



The Six Elements

3. Data

Unit for data

- Bit
- Byte (8 bits)
- Kilobyte (KB) – 2^{10} bytes/1000 bytes
- Megabyte (MB) – 1 milion bytes
- Gigabyte (GB) – 1 bilion bytes
- Terabyte (TB) – 1 trillion bytes
-
-



The Six Elements

Quantities of bytes		
Name (Symbol)	Popular Usage	Standard SI
kilobyte (kB)	2^{10}	10^3
megabyte (MB)	2^{20}	10^6
Gigabyte (GB)	2^{30}	10^9
Terabyte (TB)	2^{40}	10^{12}
petabyte	2^{50}	10^{26}



The Six Elements

4. Hardware (equipments/devices)

- hardware-refers to any **physical objects** that are part of the **computer system**
- The basic operations of a computer systems are : IPOS
- Computers needs hardware to operates
- 5 categories of ICT equipments/devices:
 - Input
 - Process
 - Output
 - Storage
 - Communication
- They are.....



The Six Elements

5. Software/Program

- Instructions that controls the functioning of the computer
- The instructions executed by a computer, as opposed to the physical device on which they run
- parts of the computer that have no material form; programs, data, protocols, etc are all software. When software is stored in hardware that cannot easily be modified (such as BIOS), it is sometimes termed firmware to indicate that it falls into an area of uncertainty between hardware and software
- a collection of instructions that describe a task, or set of tasks, to be carried out by a computer.



The Six Elements

5. Software/Program

- software-refers to instructions that controls the functioning of the computer
- instructions executed by a computer, as opposed to the physical device on which they run
- **software** refers to parts of the computer that have no material form; programs, data, protocols, etc are all software. When software is stored in hardware that cannot easily be modified (such as BIOS ROM in an IBM PC compatible), it is sometimes termed firmware to indicate that it falls into an area of uncertainty between hardware and software
- **computer program** is a collection of instructions that describe a task, or set of tasks, to be carried out by a computer.



The Six Elements

5. Software/Program

- Two types of program/software
 - system software – programmes that controls the computer
 - application software- programmes that enable users to perform specific tasks

Examples :

a. system software

b. application software



The Six Elements

6. Communication

- communication
- transmission of data (electronic data)
- conversion of data analog–to-digital
digital-to-analog

Thank You

