AN INTRODUCTION TO INFORMATION AND COMMUNICATION TECHNOLOGY

Timeframe:	6 hours
Learning outcome:	• Explain Information and Communication Technology (ICT) concepts, terminology and definitions.
Recommended reading:	• National Centre for Technology in Education. 2007, ICT Glossary, http://www.ncte.ie/documents/advicesheets/30Glossary(June07).pdf (accessed 6 December 2012).
Multimedia:	• Hillam, J. 2011, What is Business Intelligence?, [video] YouTube, http://www.youtube.com/watch?v=LFnewuBsYiY (accessed 6 December 2012).
Section overview:	In the first section of this manual, we will revisit some of the aspects we discussed in the first year of your studies. We will define ICT and review the components of an ICT system in an organisation. We will then briefly look at the business value of ICT in organisations and the basic terminology used in the ICT world.

Definition of Information and Communication Technology

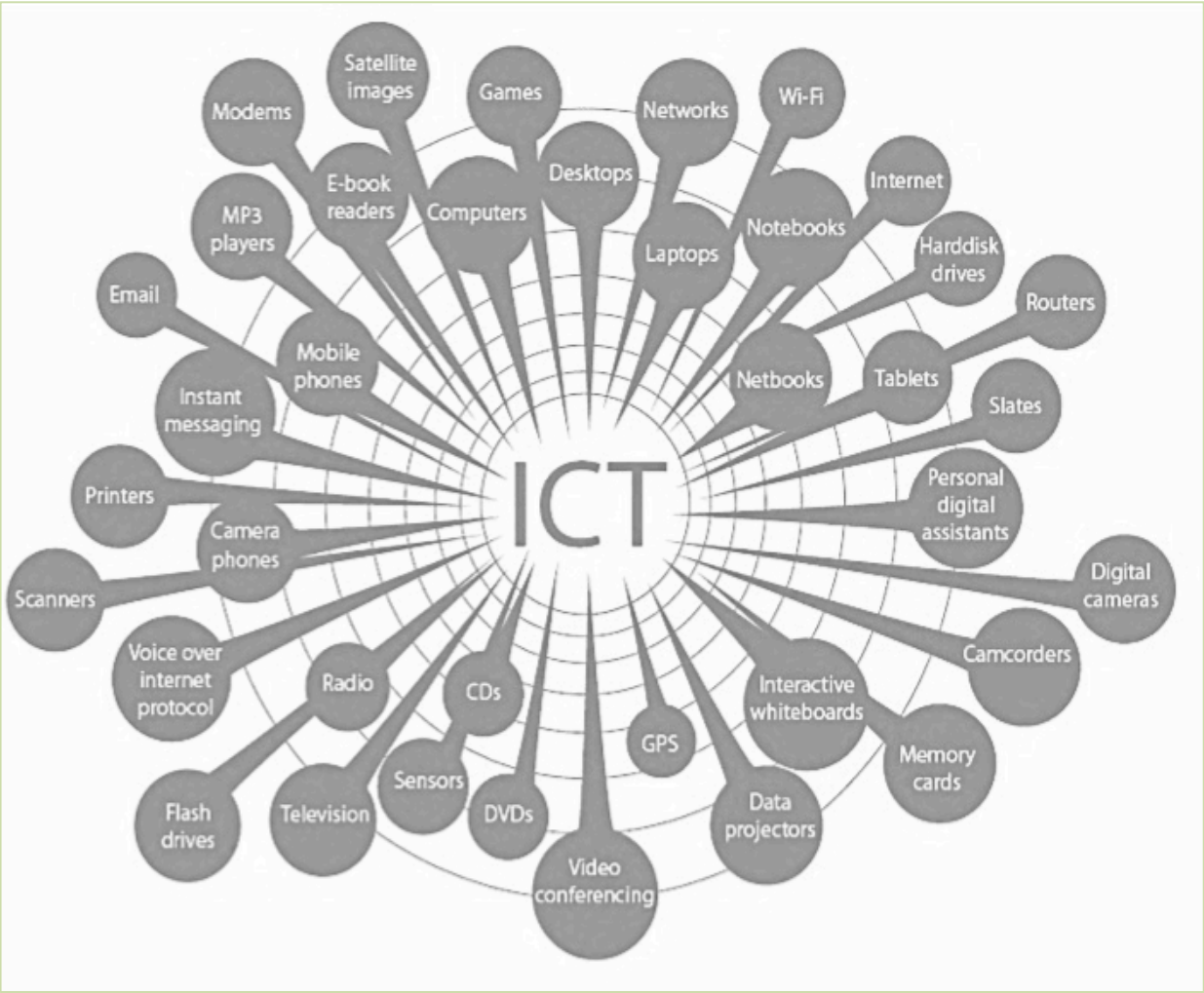
In your first year, you studied the principles of information and communication technology (ICT). We mainly focussed on the "information" part of the concept, describing how you should conduct research and evaluate information you receive. We also discussed the "communication" part of the concept through our exploration of professional business writing. We touched on the "technology" part of this concept in the last section of year 1 by discussing software and hardware concepts and managing information systems.

Before we continue, let us again define the concept of Information and communication technology:

> Information Communication Technology (ICT) is a term that describes types of technology that are used specifically for communications. It is like Information Technology, but ICT focuses more on technologies that deal with communication, like cell phones, the Internet and wireless networks, among other things.
>
> (Young, 2012)

ICT develops, implements and supports the technology-based services that support the core functions of any business. UNESCO Bangkok (2012) illustrates the components of ICT as follows:

FIGURE 1: COMPONENTS OF ICT



(UNESCO Bangkok, 2012)

Job descriptions very rarely omit the requirement of computer literacy or knowledge of how to operate specific computer software programmes. These skills ensure that employees are economically viable and can add value to an organisation. It is also true that organisations use one, or many of the equipment identified in **Figure 1**. Technology has ensured that we communicate efficiently and effectively with our clients and suppliers. The effective management of this technology can be described as ICT management or Management Information System (MIS).

In the next section, we will revisit the components of ICT you studied in your first year.

Review of the Components of a MIS System

In the first year of your studies, you learnt that a computer consists of hardware and software. The hardware consists of the computer parts, which are visible, and software consists of the programmes that make the instructions you give the computer understandable. Computer hardware components consist of the following:

TABLE 1: COMPUTER HARDWARE COMPONENTS

Input Devices	Output Devices
Keyboard	Monitor
Scanner	Projector
Touchpad	Printer
Mouse	Plotter
Trackball	Speakers
Joystick	Earphones
Microphone	
Stylus	
Camera	

(IT desk.info, 2011: 2)

Computer software types include the following:

- Operating systems (like Linux, Microsoft Windows, Mac OS X);
- Application software (office programmes, web browsers or antivirus programmes).

(ITdesk.info, 2011: 3)

We further discussed the different networks used in the business environment. Can you remember what the following networks are used for?

Task Questions

Briefly discuss what the following networks are used for in the business environment:

1. LANs (Local Area Networks).
2. WANs (Wide Area Networks).
3. The Internet.
4. Intranets.
5. Extranets.
6. The World Wide Web (WWW).

Networks used in the business environment include the following:

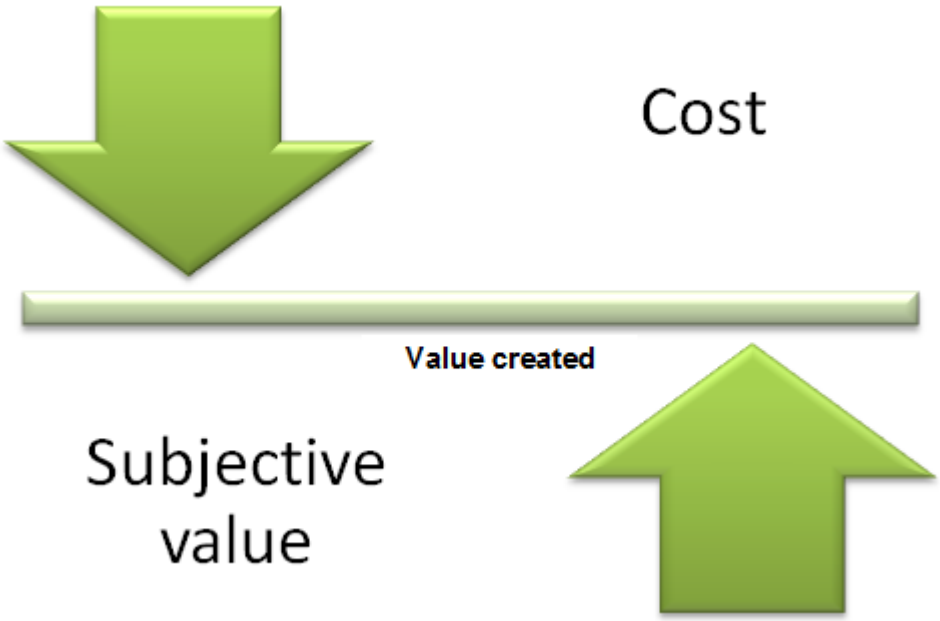
- Public Switched Telephone Network (PSTN), a public telephone system used in the business environment;
- ISDN (Integrated Services Digital Network); and
- ADSL (Asymmetric Digital Subscriber Line).

(ITdesk.info, 2011: 4)

Business Value

Effective use of an ICT system could add value to your organisation. For value to be created, the cost and subjective value must carry equal measures. This is illustrated in **Figure 2**.

FIGURE 2: BUSINESS VALUE CREATED



(Etzkorn, 2011)

Information systems can add value to an organisation as they can be used to control stock, improve communication, keep accurate records and ensure efficient production, and as a marketing tool.

Let us look at these aspects individually (**Table 2**):

TABLE 2: ICT AND BUSINESS VALUE

Improving communication	Communication can be improved through the use of mobile phones, emails, the Internet and an intranet.
Accurate records	Different software programmes can improve workplace efficiency. For example, MS Project is used to manage projects and Pastel is used for managing accounting records.
Marketing	ICT enables the following improvements: • Sufficient and quick market research • Collection of information about competitors • Reduced delivery times through the use of GPS and route-planning software • The Internet can be used for promotional strategies
Production	Production can be improved by the use of robotics CAD/ CAM and CIM systems
Stock control	Stock control in business becomes more adequate with the use of electronic point of sale (EPOS), electronic data interchange (EDI) and electronic funds transfer at point of sale (EFTPOS).

(Adapted from: BBC.co.uk, 2012)

ICT management ensures that all the different aspects of information, communication and technology add value to the business, save time and costs, and support the organisation's strategic objectives.

Effective ICT management should assist in the transfer of data to usable information in the organisation. This is usually referred to as "business intelligence" (BI).

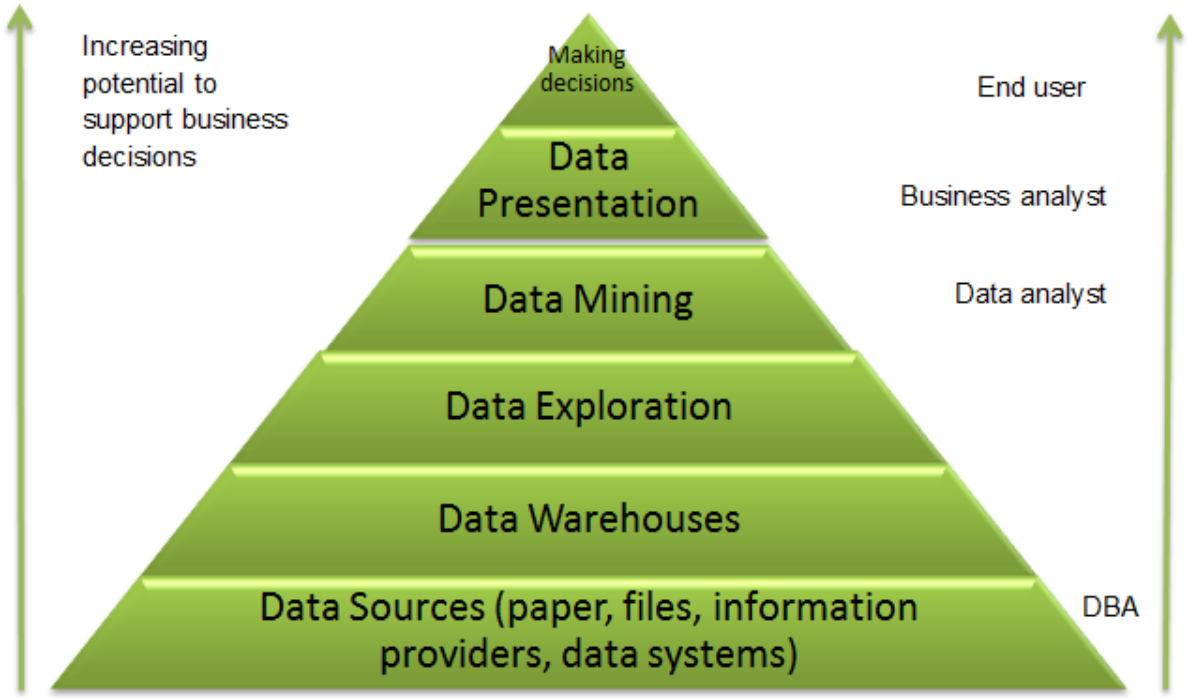
Business Intelligence

Laudon and Laudon (2012: 79) describe business intelligence as:

A contemporary term for data and software tools for organising, analysing and providing access to data to help managers and other enterprise users make more informed decisions.

BI systems are used by all the employees in an organisation. They are used to extract data, store data and analyse data – a process that creates usable information for the organisation's employees to apply. **Figure 3** illustrates the BI process:

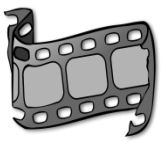
FIGURE 3: THE BUSINESS INTELLIGENCE Process



(Pechenizkiy, 2006:20)

Data is stored, maintained and secured with the use of technology. BI cannot, therefore, be practised without an effective ICT system.

Watch the clip below, which introduces the concepts central to business intelligence:



- Hillam, J. 2011, What is Business Intelligence?, [video] YouTube, http://www.youtube.com/watch?v=LFnewuBsYiY (accessed 6 December 2012).

Have you noticed the ICT components of Business Intelligence? We will discuss this concept and how it can be managed in the next section of the study guide.