INFORMATION TECHNOLOGY

Information technology (IT) benefits the business world by allowing organisations to work more efficiently and to maximise productivity. It has to do with computer applications which concern the production of goods, the organisation of office work, and the provision of services and marketing.

IT can improve the production of goods and services thanks to the following systems and applications:

• **Computer Aided Manufacturing (CAM),** an accurate and faster system of production in which the computer controls the machinery and contributes to the reduction of labour costs.

• **Computer Integrated Machinery (CIM),** a system in which the computer controls the whole production line with the use of robots to perform routines or dangerous tasks.

• **Computer Aided Design (CAD),** an application software used to generate models and 3D drawings which reduce the need to produce physical models, or prototypes.

IT systems make it possible to work remotely, outside the office environment. Teleworking is a growing trend: people can work from home or while they are travelling. As regards the provision of services, IT may offer:

- an **Electronic Point of Sale (EPOS**), a system that allows payments with credit and debit cards in shops to speed up transactions and sort out information about stock levels;
- an **Automated Teller Machine (ATM),** to deliver cash or make deposits 24 hours a day;
- **handheld computers** to take orders in restaurants or to work out what is wrong with machinery;
- **Radio Frequency Identification (RFID)** to identify or locate goods. Data are transmitted by a portable device, called tag, read by a RFID reader, and processed according to the needs of i particular application;
- a **bar code**, a sequence of bars and spaces on goods, identification cards, and postal mail us i to identify a particular product number, person, or location.

FUTURE DEVELOPMENTS OF IT

Cloud computing is a way to manage data, hardware and software requirements online. All the data and business applications can be stored externally, in the cloud, and be accessed with a computer,

smartphone or tablet, via an Internet connection. It can help reduce hardware and software costs and the need for in-house IT support. There are three main services available:

1. **Platform as a Service (PaaS),** which involves using software hosted on remote servers.
2. **Infrastructure as a Service (IaaS),** which allows businesses to use virtual hardware resources to build their infrastructure.
3. **Software as a Service (SaaS),** which involves the use of online application development to build and adapt applications for specific business needs.

COMPUTER NETWORKS

A network is a system with two or more computers linked together to share resources, software, data or an Internet connection. There are two types of network according to the way in which they operate:

1. **peer-to-peer**, only suitable for small networks, when all the computers have equal status and can share resources, i.e. a common printer in a school lab;
2. **client-server**, for large organisations, with one more powerful computer, the server, which is in control of the network and which stores data and programs, made available through the network to all client computers.

THE INTERNET

The Internet is a global network of computer networks, i.e. billions of computers and electronic devices all around the world. It is also a network of physical cables, which can include copper telephone wires, TV cables, and fibre optic cables. The Internet is different from the Web because it is a physical network, while the Web, or World Wide Web, is a collection of different websites that you can access through the Internet. With the Internet it is possible to access almost any type of information, communicate with anyone else in the world and much more. You can do all this by connecting your computer to the Internet, which is also called "going online". The most common way to get connected is by using an ADSL connection with a normal phone line and a modem. In order to view web pages and interact with Internet resources available on the Web, you need a type of software called web browser (e.g. Internet Explorer, Google Chrome, Mozilla Firefox, Windows Edge, etc.), while to send and receive emails, you need an email client.

In order to work, the Internet uses protocols. **Protocols** are standards or rules to define the structure of data and how they are transmitted. The most important protocol is TCP/IP, Transmission Control Protocol/Internet Protocol, which consists of other protocols, such as:

- **HTTP (HyperText Transfer Protocol),** for sending web pages;
- **FTP (File Transfer Protocol),** for sending all types of files;
- **POP (Post Office Protocol)** and **IMAP (Internet Message Access protocol),** for sending and receiving emails.

SOCIAL NETWORKS

Social networks are online communities of people who use dedicated websites to share interests and activities, socially interact with other members, and foster the development of online communication. To be part of a social networking site and benefit from the different options offered to members, it is necessary to sign up and give personal details. It is then possible to create and join groups in a virtual social playground in which members can interact in a variety of ways: through chat lines, instant messaging, emails, videos, voice chat, file sharing, blogging, and discussion groups. The success of social networks, which has made them one of the prevalent uses of the Internet, has contributed to change the main purpose of the Internet itself: from a tool for archiving and transmitting data to a tool that facilitates relationships and collaboration, and the addition of content by the users. Social network technologies are the new Web 2.0. According to the members, social networks can be divided into three categories:

1. **public social networks**, with free access for everybody who may be interested;
2. **customer communities**, with access granted by companies to their customers employee;
3. **social networks,** with access restricted to staff members.