IT and Society

- Information and communication technologies (ICT) – almost everywhere:
  - **People** – personal computers, notebooks, smartphones, printers, car computers, Smart TVs, Internet connections, IoT (Internet of Things) …
  - **Companies** – computers, networks, various databases, e-pay systems …
  - **Government** – databases, portals, paperless communication (e.g. taxes)

Positives

- Fast communication among people, with government, business partners
- Immense amount of information and knowledge available almost everywhere
- Fun – games, online video and audio streams, education, social networks
- Creativity – CAD, graphics editors, audio processing, printing, digital photography

Negative impacts

- Digital forms of communication instead of real contact
- Simple misuse of data – stolen identity, important personal or company data
- Gambling
- Frequent and long use of digital devices – lost personal space and time, never-ending stress; problems with ergonomics
- Loss of privacy – one's activities can be monitored in multiple ways (use of computer, DNS, GPS, mobile networks …)
- Arguable potential lying in the IoT, robotics and artificial intelligence

Government

ICT usage:

- Communication with citizens
- online contacts (email, Skype, web forms)
- portals

Ústredný portál verejnej správy (Central Portal of Public Administration)

- central access point to access various e-government services
- website: http://portal.gov.sk
- Access to
  - Cadastre (kataster) – http://www.katasterportal.sk
  - Inquiry to Slovak Trade Inspection (Slovenská obchodná inšpekcia)
  - Information about various situations (how to register a new company, car; how and where to get identity documents – ID card, passport etc.)

Central Register of Contracts (Centrálny register zmlúv)

- http://crz.gov.sk/
- Published all contracts which were funded from public resources
- If the contract is not published within 3 months since its sign, it is nullified

E-tax Systems

- http://www.drsr.sk, https://www.financnasprava.sk
- Online tax form: https://www.financnasprava.sk/sk/elektronicke-sluzby/verejne-sluzby/katalog-danovych-a-colnych/katalog-formularov

Local Government Portals

- Local government
    - Municipality (e.g. http://www.regionzilina.sk/
    - City (e.g. http://www.mestocadca.sk)

Non-government Portals

- Non-profit or profit organisations
    - Social Network of Companies – FOAF (http://foaf.sk/)
    - http://dlznik.sk
    - http://porada.sk

Business. E-pay Systems and Services

E-shops

- consumers directly buy goods or services from a seller in real-time, without an intermediary service, over the Internet, from various countries
- **Positives**: instant; cheaper; access to goods, which are not available in standard shops, goods from various countries
- **Negatives**: no direct contact with goods; frauds; problems with delivery

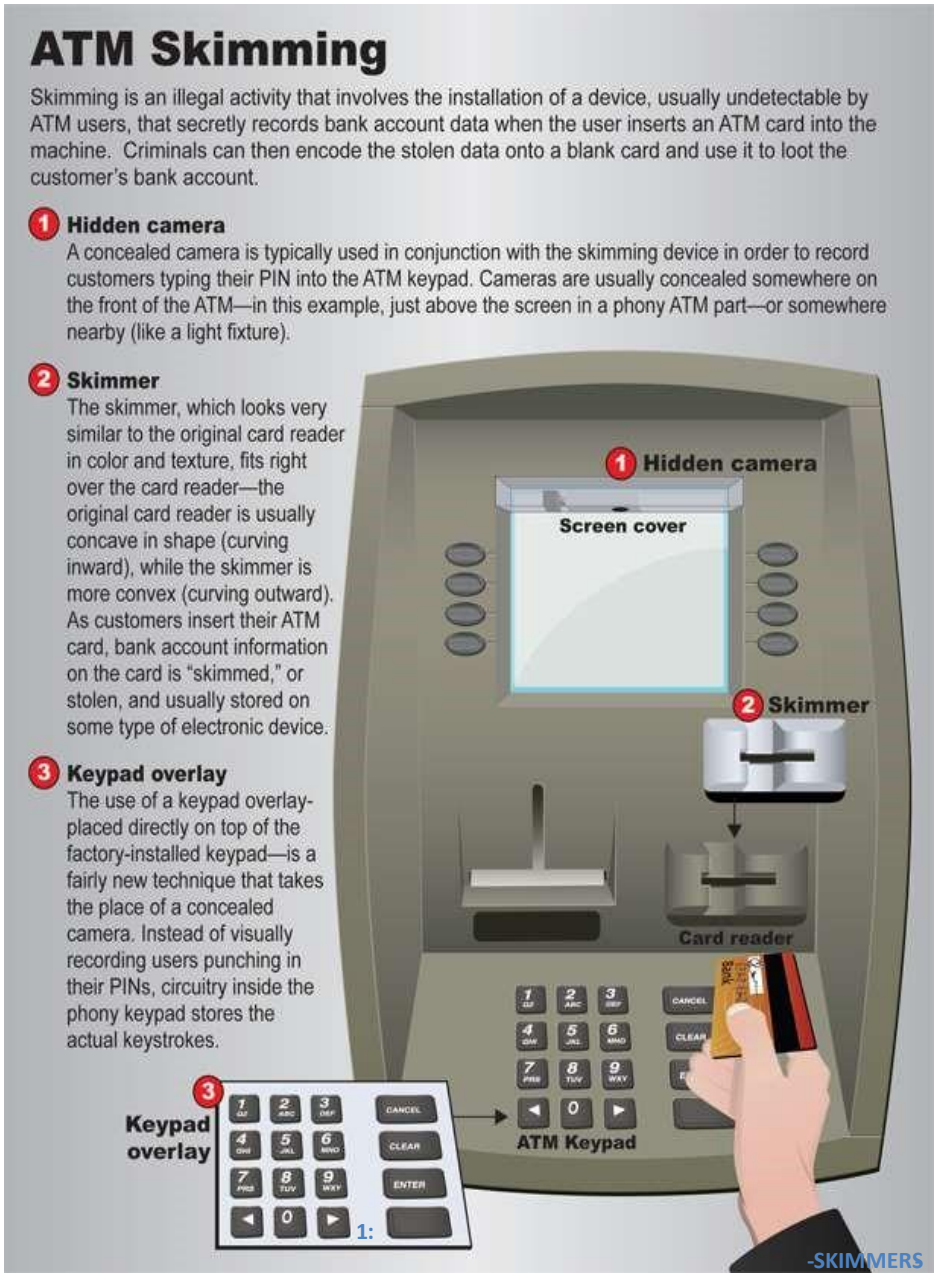
E-commerce / Online Pay Systems

- online money transfers – instant, low fees per payments
- popular systems
  - *PayPal*
  - *Google Wallet*
  - *WebMoney*

E-banking

- Banking services are delivered by way of a computer-controlled system – there is no need to visit bank's premises
- *Services*
  - **ATM** – access to cash and other service from a customized computer system with safe
  - **Credit and debit cards**
  - **Internet banking** – access to bank services over the Internet
- Threats: **phishing, pharming**

- **skimming** – for debit/credit cards operations at ATM.



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ATM skimming (source: http://extras.mnginteractive.com/live/media/site208/2013/0201/20130201_070752_BN02 GRFX.jpg

Bitcoin and other cryptocurrencies

- Anonymous, peer-to-peer electronic payment system
- Not managed by any central authority (unlike other currencies)
- Creation of bitcoins (*bitcoin mining*) – automated – by calculating difficult cryptographic problems (in 2013 25 BTC are generated in 10 minutes; the number is halved every year until the final number 21 million BTC is reached – year 2140 :-)
- Each bitcoin has its unique identifier and history of transactions
- Payments cannot be cancelled
- The value varied extremely:
    - July 2010 – 1 BTC = 0.08 $
    - December 2012 – 1 BTC = 13 $
    - February 2013 – 1BTC = 22 USD
    - March 2013 – 1 BTC = 37 USD to 48 USD
    - April 2013 – 1 BTC = massive fluctuation (266 USD, then 105 USD, then 160 USD – within six hours)
    - December 2013 – 1 BTC = 600 to 1000 $
    - April 2014 – 1 BTC = 340 to 530 $
    - March 2015 – 1 BTC = 200 to 300 $
    - January 2017 – 1 BTC = 800 to 1050 $
    - April 2017 – 1 BTC = 1210 $

    Use – varies country by country:

    - payments for electronic services (webhosting, games, music, VoIP calls)
    - e-auctions
    - e-shop payments
    - more at https://en.bitcoin.it/wiki/Trade

There are plenty of cryptocurrencies, which are more-over inspired by the Bitcoin and address various issues of the original Bitcoin – Litecoin, ZCash, Dogecoin, Ethereal …

E-auction

- Systems, which provide online form of auctions
- Best known
    - eBay.com - nowadays it offers both standard auctions as well as e-shop services based on consumer-to-consumer relationship (eBay is an intermediary only)

- Other similar services:
    - LetGo
    - Bonanza
    - Etsy
    - Craiglist
    - eBid

Teleworking

- This involves carrying out work away from the office and communicating with the employer through the use of computer and telecommunications equipment. This has obvious advantages for individuals but society as a whole benefits in terms of reduced commuting and hence savings in costs and pollution, as well as allowing employment to those working in remote areas.
- Problems: loss of private time and space (any place can become the workplace as well); workaholics; loss of data/information/knowledge essential for the company (patents, plans, strategies)
- Current trend – **BYOD – Bring Your Own Device** – employees use for work their own computers, smartphones; company helps them to pay necessary costs related to work and provides them applications for access to company IT resources (databases, emails, contacts, contracts etc.)

IT and Handicapped/Disabled People

- Digital technologies can assist disabled people (interaction with the world, government, family etc.; education; job)
- Problem: interaction – ordinary input/output devices are not suitable for them
- Solution – specific hardware and software for disabled people

Puff-sip switch

This kind of switch is excellent for someone with limited physicaly mobility.

The puff-sip switch tube is placed in the mouth, as the person sips or blows, a switch connected at the other end goes off or on.

The switch itself is then connected to the computer.

Specific software running on the computer can take this input and act on it in any number of ways.

Foot control

A foot mouse / control can be used by a person who has limited or no use of their hands or arms.

The foot mouse can be used to navigate through software programs and select things in much the same way as a conventional mouse.

Most foot mice consist of two segments. One segment will be used to control the cursor, the second segment is used to click the mouse or to select shortcuts.

Most foot mice include straps that help to hold the device in place on the foot during use. A long cable runs from the mouse and plugs into the computer via a USB port.

Braille keyboard and printer

Braille is a writing system for blind and visually impaired people. It is made up of raised dots that can be 'read' by touch.

Braille keyboard

Visually impaired persons usually prefer ordinary keyboards – sometimes there are stickers with dots representing keys in Braille.

Braille display

A braille display is a piece of equipment that connects to the computer. It reads the screen text and presents it to the user via a refreshable Braille display.

Braille printer (Braille embosser)

A Braille printer operates by embossing raised braille dots onto braille paper. Pins are pressed into one side of the paper in order to create raised dots on the other side of the paper.

Speakers/headphones

Speakers can be useful for visually impaired people in terms of text-to-speech systems.

The **text-to-speech** system takes in text as input and then outputs speech to a set of speakers.

Hint: try Narrator in Windows.

There are a number of text to speech software programs that enable any text on the screen to be selected with the keyboard or mouse. It is then spoken back to the user in a computer generated voice.

Note: visually impaired persons are one of the reasons any image n HTML should contain alt text – it is read for them so they can get a bit of information about its content at least.

The computer generated voice can sound disjointed and sometimes pronunciation can make the output difficult to understand.

The new e-book devices such as the Kindle can also speak out the book being read.

Magnifiers

It is usually software, which magnifies zones of the screen – e.g. *Magnifier* in Windows.

Eye typer

This can be used by people who cannot use a hand or foot operated mouse and a conventional keyboard.

A camera is mounted onto the computer and it is set to focus on the user's eye.

The camera determines where the user is looking and monitors movements made by the eye.

Mouse clicks are done with a slow eye blink.