1 The secret of happiness

The psychologist is **Mihaly Csikszentmihalyi**. He is **fascinated by happiness**. When he was a child he noticed that adults are not always happy. He went to **study psychology**. He found strange that to study human behavior they *study rats*. He's original aim was to achieve happiness for himself, so he's started to study creative people such as misucians, artists, because are **people who devoted their lives to doing what they want to do**. Later he expanded the study by inventing a system called "**the experience sampling method**". Everyone has an electronic pager[1] that beep eight times a day. Every beep they have to *write down what they are doing*, *where are they*, *how much are concentrating and how they felt*. This test, tested in more than 10k people, showed that people are more happy when they are concentrating. After 30 years of research he discovered that people wants a minimum amount of money to be happy, but above that **line**, people's happiness has very little to do with how much poorer or richer they are. So he found that **concentrating is the key** for happiness. In order to concentrate you need a challenge that matches your abilities. The way to remain continually happy, therefore, is to keep finding new opportunities to improve your skills.

2 Steve Jobs's life

- First story => **Connecting the dots**

He dropped out of Reed College after the first 6 months, but then he stayed around as a drop-in for another 18 months, so why he really quit? It started when he is biological mom sign the adoption papers, because his new parents promise at his biological mom to get him to the college. He naively choose an expensive college, and they were spending all of parent's savings for his college. Hi didn't know what to do in life and he had no idea how college was going to help him figure it out. So he quitted,

1 **Electronic pager**: cercapersone elettronico

and then he could stop taking the required classes that didn't interest to him and begin dropping in on the ones that looked interesting. Reed College at that time offered the best calligraphy instruction in the country. So he decided to take calligraphy class to learn how to do it. None of this had even a hope of any pratical, but 10 year later, when they were designing the first Macintosh computer, he was the first computer with beautiful typography. So you can't connect the dots without looking backward.

- Second story => **Love and loss**

He was lucky. He and Wozniak started Apple, but Steve Jobs got fire from his company that he started. How that is possible? Well, as Apple grew they hired someone who he thought was very talented to run the company with him, but their vision start to collide and they have a wrangle2. When they did, the Board of Directors not sided Steve.

During the next 5 years, he started NeXT and Pixar. He fall in love for a women who became his wife, Laurene. Apple bought NeXT so he returned to Apple.

He is pretty sure that none of this would have happened if he hadn't been fired from Apple. He is convinced that the only thing that kept him going was that he loved what he did. You have got to find what you love. So keep looking until you find it. Don't settle.

- Third story => **Death**

He was diagnosed with cancer. The doctors told him this was almost certainly a type that is incurable. Later he had surgery and he was fine. No one wants to die. And yet death is the destination we all share. It is life's change agent. It clears out the old to make way for the new. Our time is limited, so don't waste it living someone else life. When he was young, there was an amazing publication called "The Whole Earth Catalog". On the back cover of their final issue were the words: "Stay Hungry. Stay Foolish". And he has always wished that for himself.

3 American dream

The main meaning of American Dream is that it doesn't matter where you are from, how much money does your family have, because what matters is that **if you work hard you can achieve success**. Every person is responsible for their own life. We shouldn't rely on any other else to do your work for us.

It is this that so many people, all over the world, found so great: if you came to America and try hard, they could find a better life.

The main Americans values are:

- **freedom of the individual** (freedom of speech, religious freedom, no discrimination)
- self-reliance[2]
- self-discipline[3]
- self-sufficiency[4]

If you follow these values you will succeed in your job and life.

But it is just a dream… Anyway, there are some cases in real life, like **Arnold Schwarzenegger**: he was born in Europe and immigrated to USA, and now he is famous.

3.1 Definitions

James Truslow Adams: "The American Dream is that dream of a land in which life should be better and richer and fuller for everyone. It is a dream of social order in which each man and woman shall be able to attain[5] to the fullest stature of which they are innately capable, and be recognized by others for what they are."

2 **Self-reliance**: fiducia in se stessi
3 **Self-discipline**: autodisciplina
4 **Self-sufficiency**: autosufficienza
5 **Attain**: raggiungere, ottenere

Thomas Wolfe: “To every man, regardless of his birth, his shining, golden opportunity – the right to live, to work, to be himself, and to become whatever thing his manhood and his vision can combine to make him”.

3.2 The declaration of Indipendence

All Men are created equal. They are endowed[6] by their Creator with certain unalienable Rights, among these life, Liberty and the Pursuit of Happiness.

3.3 Comparison between “I hear America Singing” Walt Whitman and “Let America be America again” J. Langston Hughes

– I hear America singing

Is a poem by the American poet **Walt Whitman**. Though the poem was written on the eve of the Civil War, it **represents a vision of America as a harmonius community**. Moving from the city to the country, and the land to the sea, the poem envisions America as a place where people do honest, meaningful, and satisfying work, and celebrate that work in **song**.

– Let America be America again

Is a poem written by Langston Hughes. Hughes wrote the poem while riding a train from New Yok to Ohio and reflecting on his life as a struggling write during the Great Depression.

In the poem, Hughes describes his own disillusionment with the American Dream and suggests that the **USA has failed to fulfill**[7] **its promise of freedom and equality for all people**.

6 **Endowed**: dotato/dotata
7 **Fulfill**: adempiere

3.4 Is the American dream still possible?

Many people have criticized the all American Dream theory because is:

- untrue
- makes people believe things that are not likely, so it gives people an **unrealistic hopes of life**

In the USA **many people are poor**, especially:

- african americans
- hispanics

Many people lives in ghettos, where there is a lot of crime and bad education and bad job opportunities.

Great historical figure, among these **Martin Luther King** and **Malcom X** spoke about this and try to make american people aware of the fact that the American Dream is not certain fairly or equally among all people.

There are a lot of other problems, such as a lot of people are out of jobs because of on going economic crisis, and have huge debts, most can't afford health insurance.

4 Reading – Information Tech

4.1 The dark side of the Internet

The Internet is a **public land**. Anyone can come along. Thus, just like the rest of the world, cyberspace is not a perfectly safe place. New technologies have created new criminal opportunities and new types of crime. **Hackers** are opportunists: they attack individuals as well as websites by using variety of software and malicious programs. But contrary to popular belief, most hackers are not malicious. They penetrate

a network, with **exploit**, and then will report the problems to the makers. **Crackers**, instead, try to create as much damage as possible, for profit or simply for fun. A cracker may attack ISPs for several reasons. One the most popular way to attack ISP is called **smurfing**. In this attack, the cracker floods the ISP with so many garbage packets that all the provider's available bandwith is used up. Crackers can also take over people's computers with **viruses** which can damage the guest computer. In some cases, they will take over a person's computer and then demand a ransom from the victim, promising to restore access to the data upon payment. This form of malicious software, or **malware**, is known as **ransomware**.

4.2 The anatomy of a phishing scan

Spam is an unsolicited junk email that commercial companies send out. **Spammers** collect people's recipient addresses from publicly accessible sources, use programs to collect addresses on the web, and simply use dictionaries to make automated guesses at common username at a given domain. **Phishers** are nothing more than tech-savvy con[8] artists and identity thieves. They use spam, fake websites, and other techniques to trick people into divulging sensitive information. To hide the identity of the phisher, attacks are sent from a network of thousands oz **zombie PCs**, called bots, whose owners do not know they have been turned into zombie. These zombies send thousands email containing a message that seems to be written by a well known company. Phishing and cracking security measures seem like hard work to some, which is why lazier cybercriminals turn to **cybersquatting**: the practice of registering, selling or using a **domain name** with the intent of profitting. Basically, they will buy up a domain names that use the names of existing businesses in order to then sell the names to those businesses for a profit.

4.3 Guide to healthy computing

Today's **computing ergonomic devices** aim to put less stress and strain on muscles, thus reducing the user's risk of fatigue in hands, wrists, neck,

8 **Tech-savvy con**: imbroglione esperto di tecnologia

arms and eyes. A well-designed **work area** in only part of the solution, though. You must also adopt proper working habits and techniques. In the worst case, poor workplace design and/or improper use of devices may contribute to injuries. Today more and more people use laptops as desktop computers and this trend will continue. Unfortunately, certain ergonomic features are compromised for the sake of portability.

If you are an occasional user, you should sit in a comfortable chair with your laptop in your lap to allow the most neutral wrist posture. If you are a full time user, you should put your laptop in front of you on your desk and make sure that your work area is designed so that your eyes can comfortably see what the need to see. This may require some additionals tools, such as **docking station** or a **laptop stand** to raise the laptop. To improve visual comfort, your monitor should be positioned at a comfortable distance. To minimize the effects of glare adjusts its **brightness/contrast controls**. Luckily, most screen now have an **antiglare coating**. Adjust your chair and posture to accommodate multiple positions instead of sitting in a single “correct” upright positions.

When working is alternate settings such as coffee shops, meeting rooms, etc, you may not have much control over the environment. If the main thing you will be doing is reading, then be sure to open the screen to a comfortable **viewing angle**. If is typing and an appropriate work surface is not available, consider supporting you laptop using a briefcase or a book and create a footrest out of a backpack. If you are travelling on an airplane, you can choose an exit row seat or an aisle seat to make it easier to get up and stretch periodically.

4.4 Type of area networks

There are thee main type of networks:

- **LAN**: is made up of **nodes** (usually computers) located in the same building
- **WAN**: connect smaller networks over an entire country or world
- **MAN**: incorporates elements of both

To become part of a network a PC uses a **network interface card**. Communications signals pass from the PC's RAM and through the connection to a LAN's backbone, the part of the network that carries most traffic. The backbone and the connection leading to and from it might use **twisted-pair wires**, **fibre optic cables**, radio waves, etc.

In a **client/server network**, one computer is the file server, which contains programs and data files that can be accessed by others. Usually servers are faster than client PCs. To operate they use what is called NOS (Network Operating System). The clients run the gamut from **fat clients**, computers that run most programs from their own hard drives to inexpensive **thin clients** that might not have hard drive at all. **Dumb terminals** consists of a monitor, a keyboard, and the bare minimum of hardware needed to connect them to the network. They use the server's CPU to perform all functions.

In a **peer-to-peer network** there is no central server. Instead, all computers on the network act as servers to every other node. At the same time, all computers on the network acts as a clients to all the other PCs.

4.5 Network topologies explained

The way that data moves from one node to others in a network determines its **topology**.

In a **bus topology** every PC is connected with the same cable. The information travels in this cable until it reaches the destination. This topology is inexpensive and easy to set up while a damage or failure in the main cable will cause the wall network to fail. Every PCs see all the data on the network, meaning that there is a security risk.

In the **ring topology** the nodes are daisy-chained to a giant ring of cable. Data travels through the ring in the same direction from one node to the other grabbing a token. This topology has no risk of data collisions and is very fast. However, if the main cable fails or any device is faulty the whole network will fail.

In the **star topology**, several nodes are connected to the center of the star, where there is a hub, switch or router. Each of them has different capabilities. A hub receives incoming data packets from different nodes and temporarily places them in a memory buffer if the hub is busy. The packet is sent to every other node regardless of the packet's address. A switch is similar but it knows which of its connections lead to specific nodes. Thus information is sent only to the computers which are supposed to receive it. If one PC fail then all others will continue to work, but it is expensive because of cables. Also hub, switch and router are important, which bring more cost.

The **tree topology** integrates multiple star topologies onto a bus. It supports future expandibility, it is fault tolerant and easy to troubleshoot. Obviously, the installation of new hardware and additional cable makes it very expensive.

4.6 Network standards and protocols

To be able to transfer data between different computers, it is important to define **standards** and **protocols**. Protocols are the formal rules and procedures that need to be followed to allow data to be transmitted, received and correctly interpreted. The OSI model was developed in 1984 by International Standards Organization. But it is not a communication standard, it is just an agreed method that determines how data is sent and received.

For any data to travel through a network, it must pass through **seven layers** (called **protocol stack**, in which every layer attach it's own header):

- **Application layer**: the only part that provides service directly to the end user. The layer converts a message's data into bits and attach it's header identifying the sending and receiving computer
- **Presentation layer**: translates the message into a language that the receiving computer can understand (often ASCII). It also attach it

header specifying the language as well as the compression and encryption schemes

- **Session layer**: opens communications. Communication can be full duplex, with both computers sending and receiving, or half duplex, with each computer taking turn to send and receive
- **Transport layer**: subdivide the data into segments and creates checksum tests. The transport header identifies each segment's checksum and its position in the message
- **Network layer**: selects a route for the messagge. It forms segments into packets, counts them, and then adds a header containing the sequence of packets and the address of the receiving computer.
- **Data link layer**: supervises the transportation.
- **Physical layer**: encodes packets into the medium that will carry them (i.e. an analogue signal)

The receiving computer will process the message reversed (physical layer to application layer).

4.7 Internet's protocol

The internet is a packet-switched network, which means that when you send information across the internet, the data are broken into small packets and then recombined. This is the job of two protocols on the internet: TCP (Transmission Control Protocol) and the IP (Internet protocol), commonly referred to as TCP/IP.

For a number of reasons, including hardware limitations, data sent across the Internet must be broken into packets 1.500 characters each. Each packet is given a header. As TCP creates the individual packets, it also calculates and adds to the header a checksum. Each packet is put into separate envelopes which contain addressing information telling to IP where to send data (currently there are 2 versions of IP: IPv4 and IPv6).

After travelling through a series of routers, the packets arrive. On arrival, the TCP calculates a checksum for each packet. It then compares it with the one sent in the packet. If the checksum do not match, TCP know that the data in the packet has been corrupted. It then discards the packet and asks the original packet to be retransmitted.

4.8 The fundamentals of the Ethernet

Ethernet is not a single product, but rather a technical standard develop for network communications by Xerox, DEC and Intel, which the rest of the computer community have adopted. All nodes are attached to a LAN. Each node has a unique address. When a node wants to send data it use the **network interface card**. The card listens to be sure that no other signals are being transmitted along the network. It then sends its message to another node through the network card's transceiver. The transceiver broadcast the message. The message includes the address of the message destination and source, packets of data to be used for error checking, and the data itself. Each node ignore the message if the destination IP is not it's own. If a node detects its own address in a message, it send an **acknowledgment** to the sender. When two nodes send messages simultaneously, a collision will occur. The first sender to detect a collision sends a special signal that jams the network so that all nodes will know that the network is blocked. Transmission from all nodes is halted, and each node waits a random length of time before trying to resend its message.

4.9 Digital telephone connections

ADLS (Asymmetric Digital Subscriber Line) is a technology for transmitting digital information at a high bandwidth on existing phone lines (*POTS*, the plain old telephone system). The "asymmetric" in ADSL refers to the fact that the speed at witch data is downloaded is faster than the rate at which data is uploaded.

A compatible ISP is necessary to receive ADSL service, as is an ADSL modem. The modem may be provided by the ISP, or it may be purchased separately by the end user.

The term ADSL refers to the modems being used, not to the lines themselves. More confusing still, ADSL modems aren't really traditional modems. They don't attach to a serial port, as traditional modems do. And they don't dial your telephone number. Instead, they provide an always-on connection to the internet when they are plugged into your PC and turned on.

ADSL divides the phone lines into three **channels**: one for receiving data, one for sending data, one for talking on the telephone.

Standard ADSL offers download speeds up to 8 Mbps and upload speeds up to 384 Kbps. ADSL 2+ is a newer version of ADSL, which delivers download speeds up to 20 Mbps and upload speeds up to 850 Kbps.

R-ADSL (Rate Adaptive DLS) uses a special modem that can adapt to changing line conditions, varying the speed as needed.

VDSL (Very high bit-rate DSL) provided a much faster data transfer rate than ADSL. It offers download speeds up to 52 Mbps and upload speeds up to 2.3 Mbps, but is not as widely available, and is only able to achieve such high speeds very close to a hub. This is a problem in rural areas.

4.10 Optical fibre, the way of the future

While copper wire cables remain the most common mode of Internet transmission, the use of optical fibre is rapidly growing in popularity. A **fibre optic cable** is a network cable that contains strands of glass fibres inside an insulated casing. The two primary types of fibre cables are called **single mode** and **multi-mode fibre**. Single mode fibre uses very thin glass strands and a laser to generate light while multi-mode fibres use LEDs. Fibre cables bring several advantages, for example traditionals network cable requires special shielding to protect it from electromagnetic interference, whereas the physical properties of glass and fibre cables avoid the most common issues with copper wire. It offer

much faster data transmission (speeds up to 10 Gbps). While most fibre is installed to support long-distance connections between cities and countries, many Internet providers have invested in extending their fibre installations to suburban neighbourhoods for direct access by households.

4.11 Wireless networking

The most popular way of connecting to the Internet wirelessy is via a family of techonologies called **WiFi** or **IEEE 802.11**. There are some different standards for 802.11 denoted by the alphabetical letter a, b, g, n. However standards are always being updated. The latest revision of the 802.11 is 802.11ah. This standards targets lower energy consumption and creates extended **range** WiFi network that can go beyond the reach of a typical 2.4-5 GHz network. Other standars, 802.11 ax/ay/az, are still in the approval process. Newer WiFi standards are compatible with older ones.

A key component of an 802.11 network is an **access point** or **AP**. The AP consists of a radio transmitter and receiver operating in either the 2.4 GHz radio band or the 5 GHz range, as well as an interface to a wired network.

To become part of the network a computer, also called a “station”, must have a transmitter/receiver in a matching bandwidth and must be equipped with an 802.11 compatible **wireless network card** so that it can communicate with the AP. When a station connects to the network, it sends a **probe request** identifying itself. If an AP picks up the probe request, the AP broadcast an **ACK** (acknowledgment) **packet** confirming that the data has been received. Stations are not limited to communicating only through the access point. The 802.11 standard also allows them to communicate with one another, unaided, on a point-to-point basis.

4.12 Wireless networking

Bluetooth named after the Danish king Harold Bluetooth. Is a wireless technology. Each bluetooth device has a radio module, a microchip that can send and receive radio signals in the 2.4 GHz radio band. Inside the chip is a link controller that does the actual work of identifying other

Bluetooth devices. They examine each other's Bluetooth profiles, called piconet. After a link is established between master (the device responsible for initiating the link) and slave (the device receiving the data), Bluetooth sends short bursts of data. Bluetooth uses frequency hopping to survive in a noisy radio frequency environment. The transmitter changes their frequencies constantly - 1600 times a second. In this way, the chance of interference is very small.

4.13 Bring the Internet to your mobile phone

The main way mobile phones access the Internet is through a protocol and its associated markup language. The protocol is called the **Wireless Access Protocol** (WAP), it's associated markup language is called the Wireless Markup Language (WML). When you click the button to access to Internet, the phone looks for the nearest cellular antenna to transmit the request. The cellular antenna is called a **base station**. The phone **scans** nearby base stations and **locks on** one that is either the closest or has the most powerful signal. The base station look at MSN and ESN to ensure that the phone is allowed to use the cellular network. The gateway sends the request for the web page on to the web server. The HTML page is converted to WML and then sent to your mobile phone.