



**TECHNOLOGY is
LIBERATING US,**

PRO et CONTRA

What is technology?

- The process by which people modify nature to meet their needs and wants
- Technology is a product of engineering and science



WIKI WORLD® by Greg Williams

DISRUPTIVE TECHNOLOGY

is a technological innovation, product or service that eventually overturns the existing dominant technology or status quo product in the market. For example, automobiles displaced horses for transport. Early roads were designed for horses, not cars. Nevertheless, the potential for greater convenience, reliability and speed offered by the motor car meant that the road system was eventually redesigned in its favor.

The Eight Track marginalized the Record Player.

The Eight Track gave the ability to have music travel with you in the car.

The Cassette Tape displaced the Eight Track, giving longer play times, a smaller size of player and media, and more functionality.

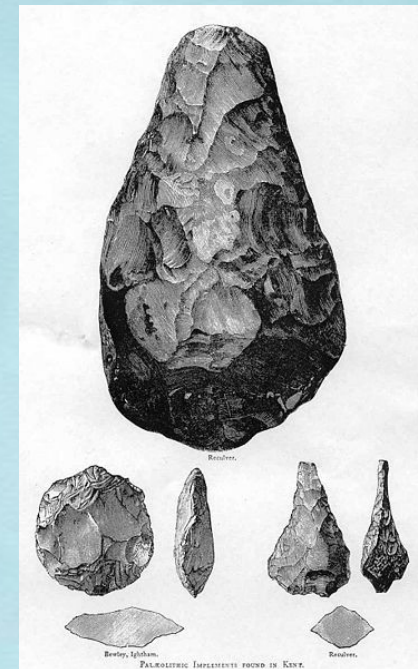
The Compact Disc displaced the Cassette Tape, giving higher quality and cheaper production costs.

The Digital Audio Player is displacing the Compact Disc. From 15-20 songs per CD to hundreds and thousands of songs in a smaller form factor, with content that can be transferred effortlessly through the Internet.

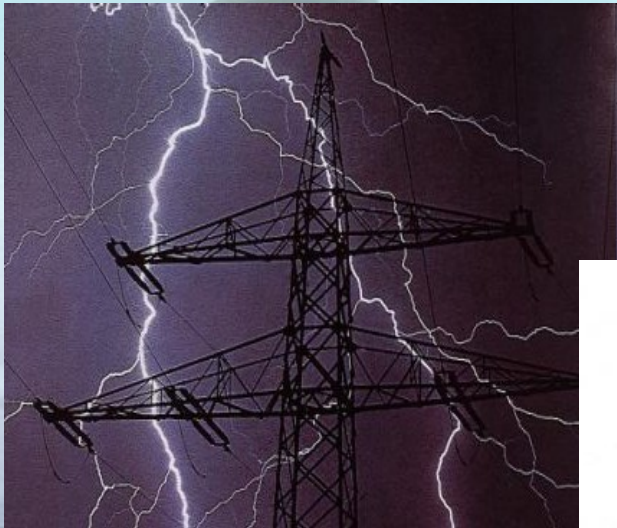
Text excerpted from the Wikipedia article *Disruptive technology*. 21 May 2007

HISTORY OF TECHNOLOGY

- The history of the invention of tools and techniques
- These certainly changed lifestyle
- **STONE & METAL TOOLS**
 - artifacts, including bracelets, axe heads, chisels (dileto), and polishing tools
 - perform a variety of tasks; chopping wood; cracking open nuts; skinning an animal



- CLOTHING
 - the fur and other materials
- ENERGY
 - FIRE
 - WIND POWER
 - ELECTRICITY

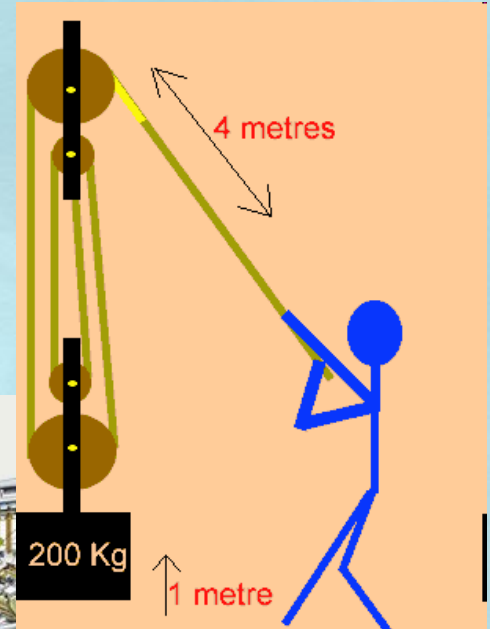
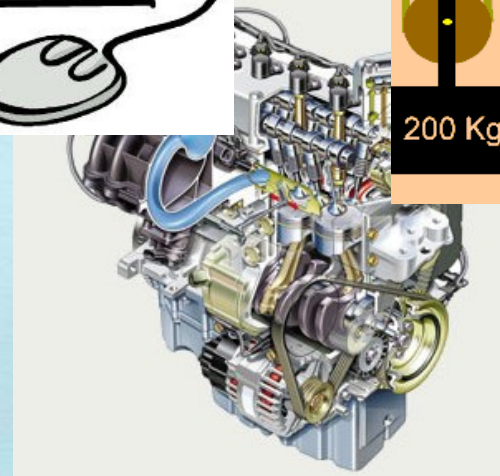


- SIMPLE MACHINES AND COMPLEX MACHINES

- the lever, the screw, the pulley

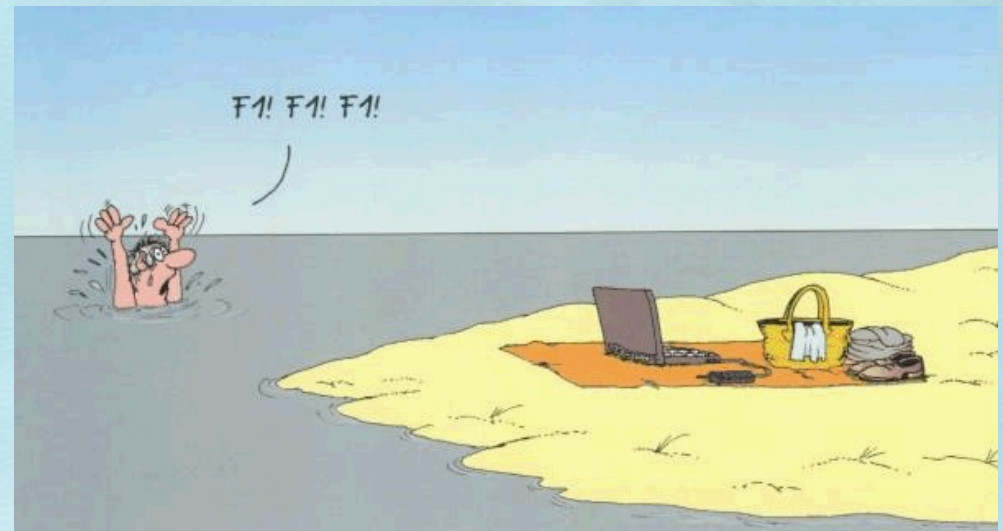
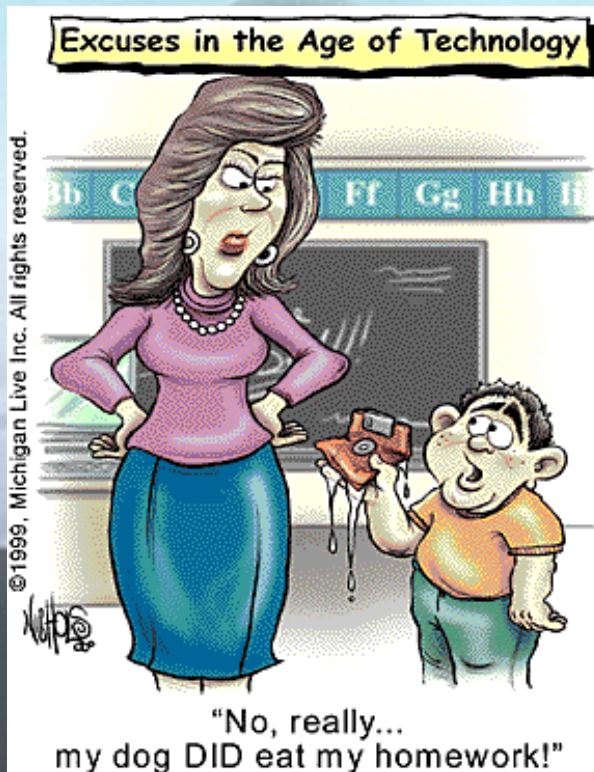
- the clock, the engine, the electric generator and the electric motor, the computer, the radio,...

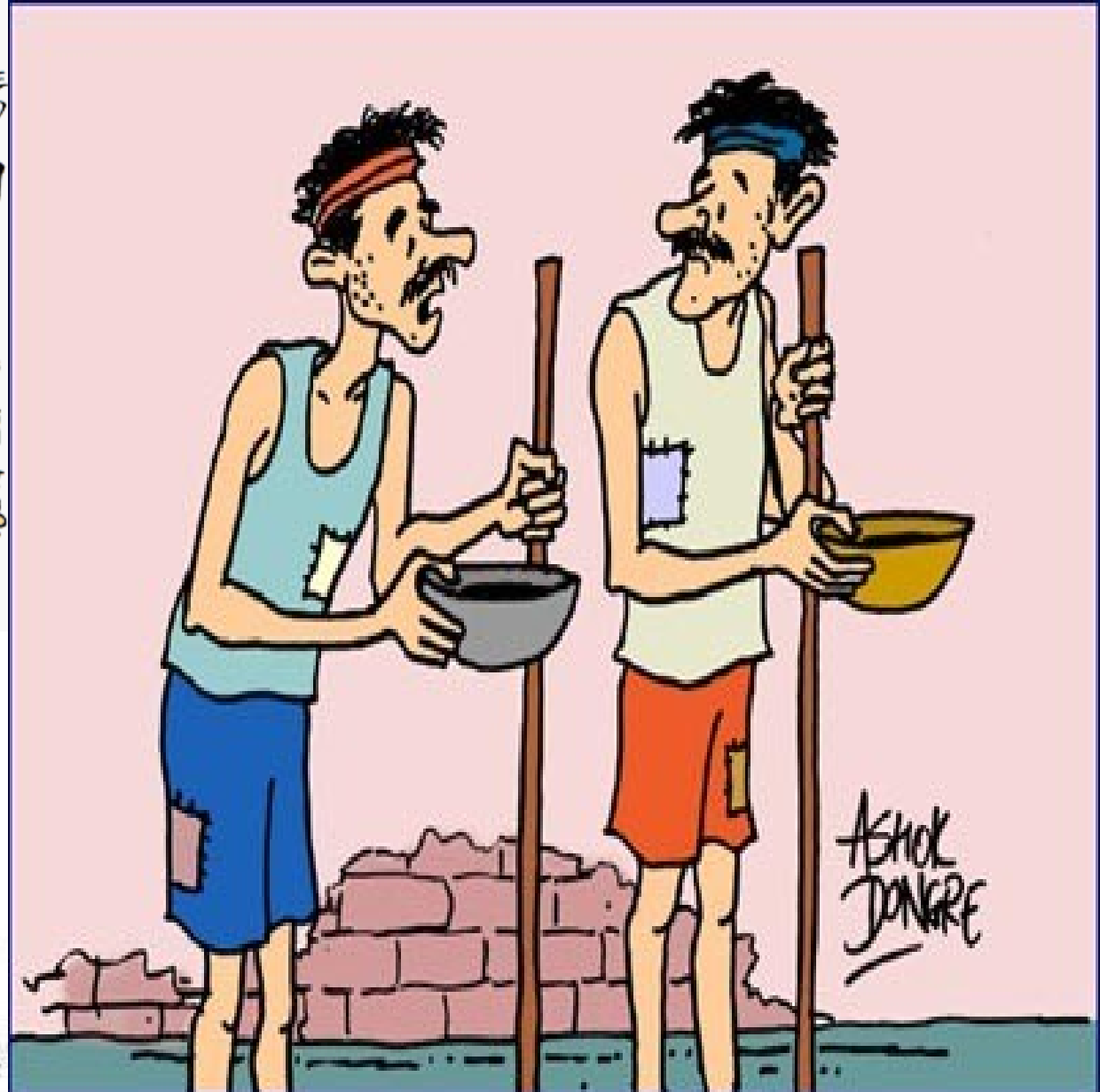
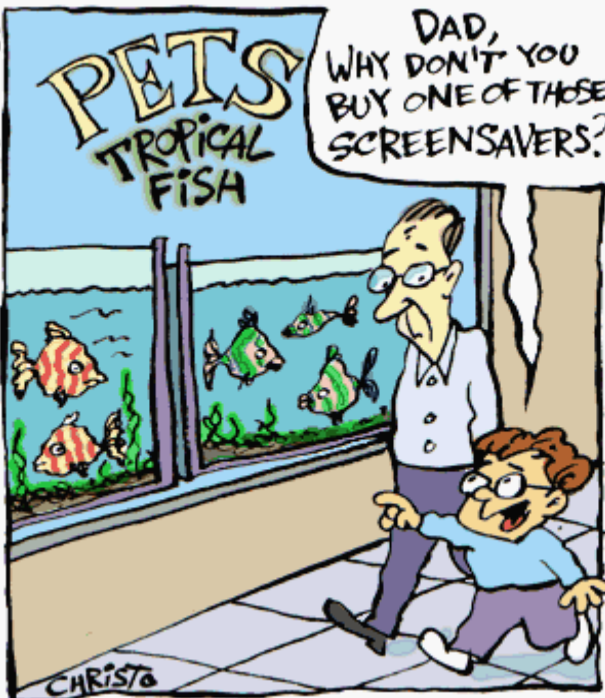
- As tools increase in complexity, so does the type of knowledge needed to support them



1. INFORMATION TECHNOLOGY

- Information technology (IT); is the study, design, development, management of computer-based information systems
- The information technology is quite large, it covers many fields.





I AM REALLY GETTING WORRIED ABOUT THE INCREASING USE OF CREDIT CARDS...

- **PRO**

- mobile phones
- internet
- television

- **CONTRA**

- mobile phones
- computers and internet
- television



1. MOBILE PHONES -pro

- communication
- functions (SMS, internet, camera,...)



1. MOBILE PHONES -pro

- SMS □ most used function
- mobile phone penetration rate
 - Luxembourg 158%
 - Hong Kong 139.8%
 - Western European 110%
- 2006 □ 80% of the world's population has access to mobile phone



2. INTERNET -pro

- information resources
- services (e-mail, chat, ...)
- accessible everywhere
- social interaction



2. INTERNET - pro

- June 2008 □ one billion PCs
- June 2008 □ 1.463 billion people use the Internet
- SLOVENIA, 2006 □ 880.000 users of internet



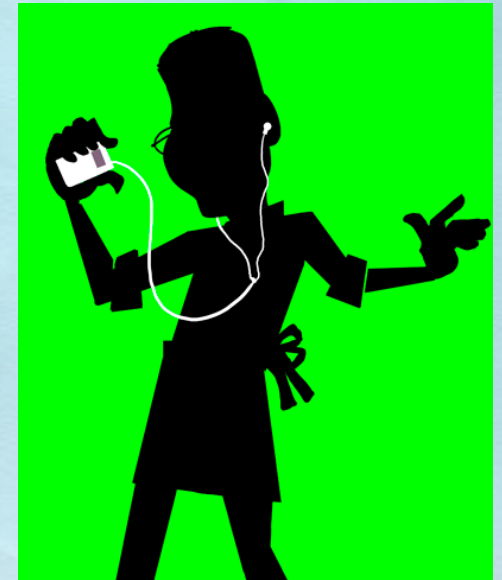
3. TELEVISION

- source of entertainment and news
- households with one television □ 99%
- SLOVENIA □ 98% of households



MOBILE PHONES - contra

- Radiation,
- lack of personal contact & privacy,
- addiction.

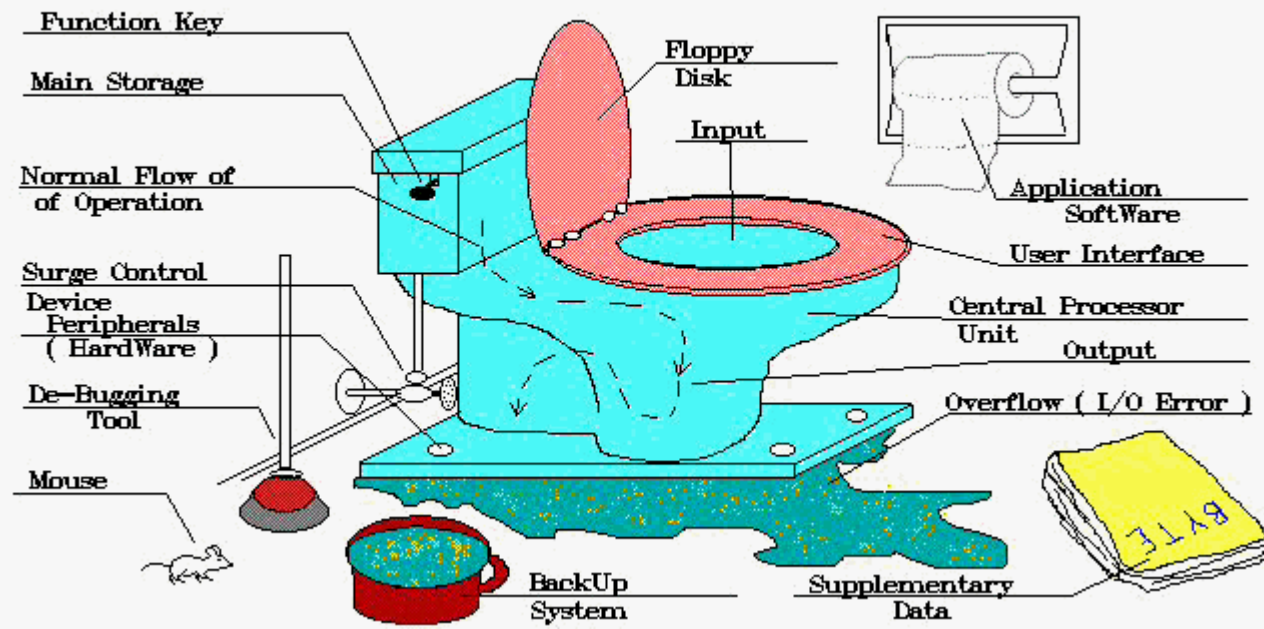


COMPUTERS & INTERNET

- Inappropriate content,
- no privacy,
- playing computer games.

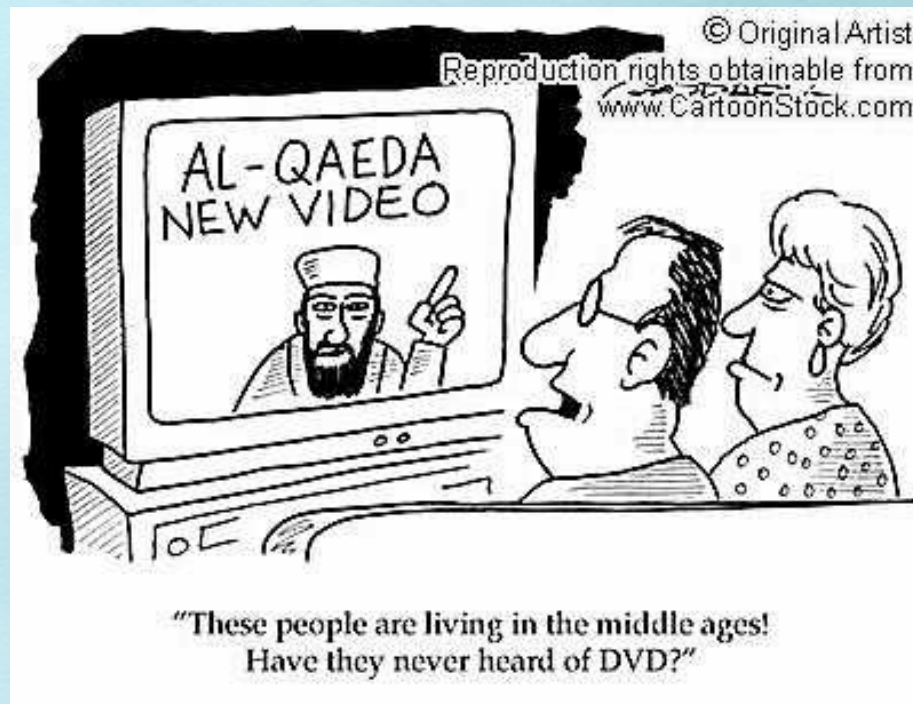


Understanding Computer Technology



TELEVISION - contra

- Addiction,
- loss of sense of time.



2. ENGINEERING

- Technical, scientific knowledge+natural laws, physical resources = engineering



- **PRO:**

- BIOTECHNOLOGY

- CHEMICAL TECHNOLOGY

- NUCLEAR TECHNOLOGY

- **CONTRA:**

- WEAPON OF MASS DESTRUCTION

- NUCLEAR WEAPONS

- NUCLEAR ACCIDENTS



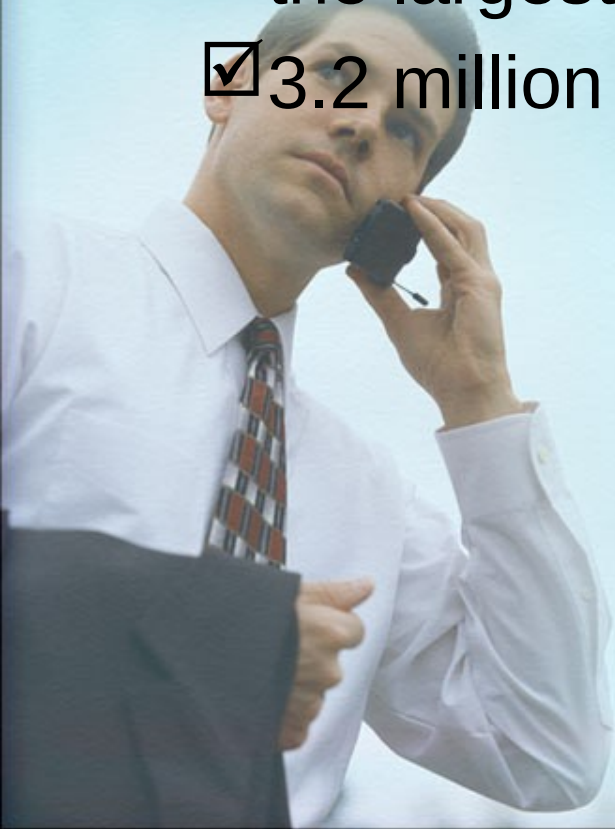
1. BIOTECHNOLOGY - pro

- ☑ Cultivation of plants,
- ☑ improves the taste, texture and appearance of the fruit,
- ☑ bio fuel,
- ☑ in drug discovery and applications (INSULINE),
- ☑ gene therapy ~ treating.



2. CHEMICAL INDUSTRY - pro

- ☑ Products: RUBBER, PVC, PLASTIC, PAPER, PRIMARY METALS ...,
- ☑ the largest industrial sectors,
- ☑ 3.2 million jobs.



3. NUCLEAR INDUSTRY - pro

- ☑ Nuclear power ~ heat, electricity ...,
- ☑ radiation therapy.



1. WEAPON OF MASS DESTRUCTION

- *contra*

- ☒ Biological, chemical and nuclear,
- ☒ kill a lot of people, cause damage to buildings.

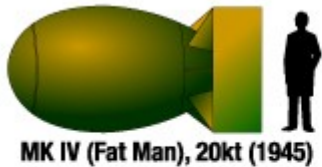


2. NUCLEAR WEAPONS - contra

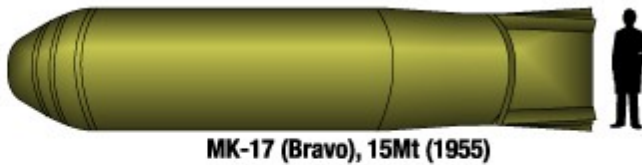
- ☒ Destructive bombs,
- ☒ Nuclear deterrent.



FIRST FISSION BOMBS



FIRST FUSION BOMBS



SINGLE WARHEAD DEVELOPMENT

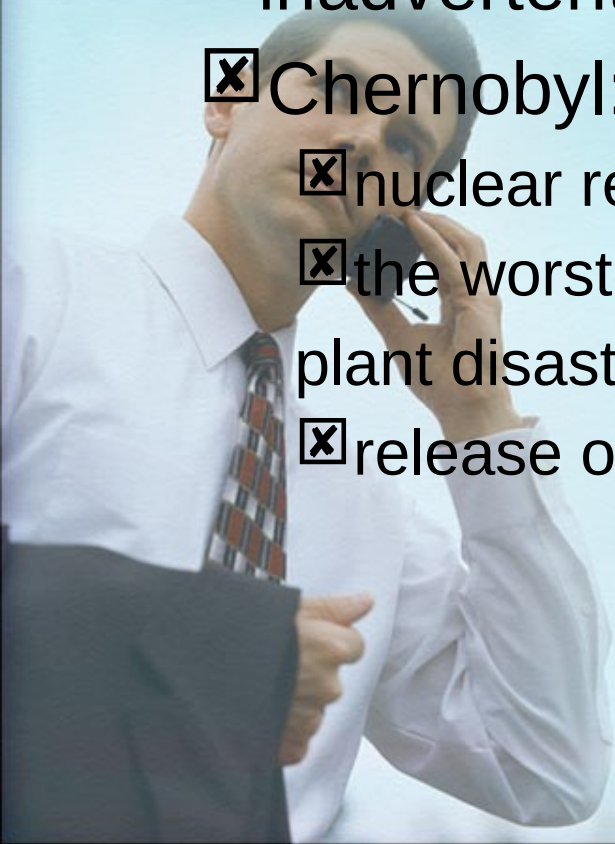
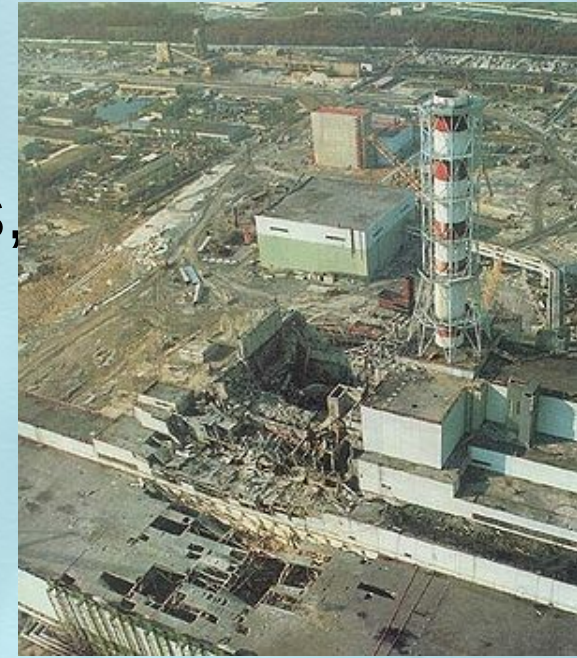


MULTIPLE INDEPENDENT RE-ENTRY VEHICLE (MIRV) DEVELOPMENT



3. NUCLEAR ACCIDENTS - *contra*

- ☒ Under accidental circumstances, an explosion can take place inadvertently,
- ☒ Chernobyl:
 - ☒ nuclear reactor accident,
 - ☒ the worst nuclear power plant disaster,
 - ☒ release of radioactivity.



3. TRANSPORTATION

- The movement of people and goods from one location to another
- The field can be divided into
 - infrastructure,
 - vehicles,
 - operations.

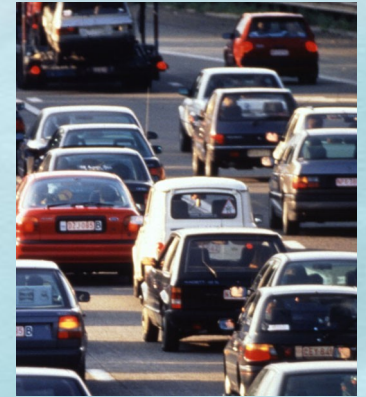


- **PRO**
 CARS.

- **CONTRA**
 POLLUTION,
 CHANGING ENVIRONMENT,
 IMPACT ON PEOPLE.



CARS -pro



- availability of use
- transporting passengers
- easier access to remote places
- independence, freedom, and increased status for owner
- 2002 □ 590 million cars



1. POLLUTION - contra

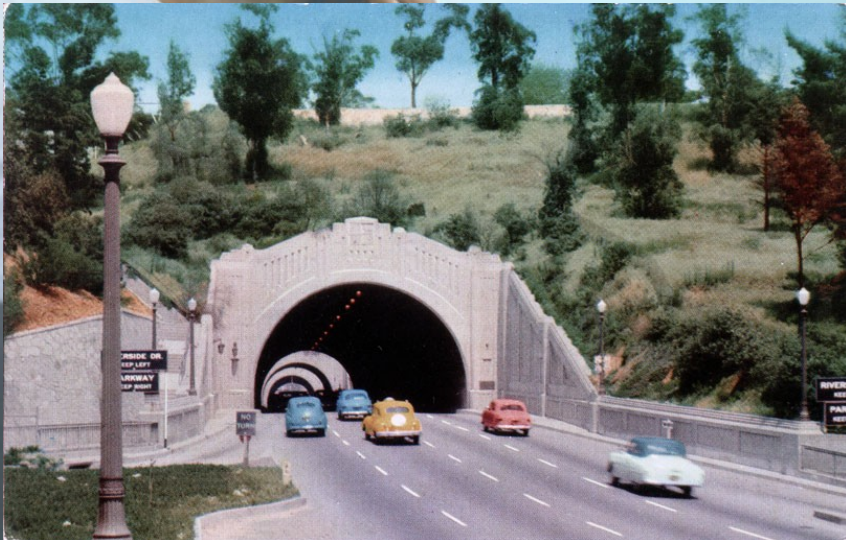
- ✘ Air pollution.
- ✘ global warming - emission of carbon dioxide,
- ✘ traffic jams.



2. CHANGING ENVIRONMENT

- *contra*

- ☒ Infrastructure – intervening with nature
 - ☒ cut down forests,
 - ☒ tunnels,
 - ☒ destroyed agricultural lands,
 - ☒ changed ecosystem.



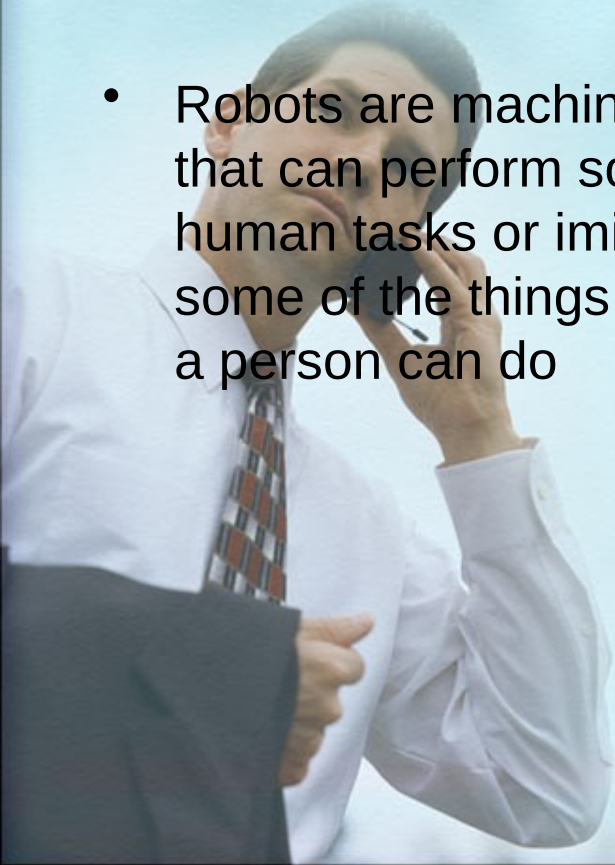
3. IMPACT ON PEOPLE - contra

- ❑ Breathing unhealthy air,
- ❑ car collisions:
 - ❑ 1.2 million people die and
 - ❑ 40 million people are injured each year



4. ROBOTICS

- Robotics is the science and technology of robots
- Robots are machines that can perform some human tasks or imitate some of the things that a person can do



- **PRO:**

- ✓ Car industry,
- ✓ Packaging,
- ✓ MEDICINE □ surgery.



- **CONTRA:**

- Replace human labor,
- abusing.

