



PERSONA CIÈNCIA EMPRESA
Universitat Ramon Llull



“European Technology Platform for Industrial Safety - ETPIS”

HUB “Innovation for Education and Training”

Eng. Mónica Grillo – IQS, URL

PQAT



PERSONA CIÈNCIA EMPRESA
Universitat Ramon Llull

Some memories

PQAT



The facts

Seveso accident occurred on July 1976, and resulted in:

- ✓ It resulted in the highest known exposure to 2,3,7,8-tetrachlorodibenzo-p-dioxin (TCDD) in residential populations:
- ✓ **which gave rise to numerous scientific studies and standardized industrial safety regulations.**

The facts

Bohpal accident on 3rd December 1984 resulted in:

- ✓ Hundreds of people died:
 - ✓ A deadly cloud of lethal gas floated from the factory over Bhopal, which was home to more than 900 000 people.
 - ✓ Chaos and panic broke out in the city and surrounding areas as tens of thousands of people attempted to escape,
 - ✓ 20 000 people did require hospital treatment for symptoms including swollen eyes, frothing at the mouth and breathing difficulties,
 - ✓ **and more effects...**



The facts

Toulouse disaster on 21st September 2001 resulted in:

- ✓ 1500 million € of damages,
- ✓ 27 000 homes and 1300 companies damaged,
- ✓ 30 people killed
- ✓ 2242 were injured (officially), and 5000 persons have been treated for acute stress...
- ✓ The following plants were closed down:
 - ✓ the AZF plant, 450 direct jobs, and
 - ✓ The SNPE phosgene related activities, 492 jobs, 600 sub-contracting jobs).

PQAT

The statistics

- ✓ Jukka Takala from the European Agency for Safety and Health at Work has declared:
 - ✓ “Every 3,5 minutes somebody in the EU dies from work-related causes, and every 4,5 seconds an EU worker is involved in an accident that forces them to stay at home for at least three working days”.
 - ✓ ... We need a change, and this change starts with **assessing workplace risks**. We have to **make** employers, workers, safety representatives and policy makers **aware** that proper risk assessment is the **key** to good workplace safety and health management.”



PERSONA E O EMPRESA
Universidade de Aveiro

What is the European Technology Platform for Industrial Safety? – ETPIS - 1

- ✓ It is an organisation, which groups **industry**, unions, authorities, NGOs, banks, insurance and researchers to achieve safety for sustainable European industry growth.
- ✓ The main objective:
 - ✓ preparing a strategic vision of the priority research in industrial safety,
 - ✓ the EC is using it as a basis to implement the main research topics for funding within the Seven Framework Programme of the European Union.



PERSONA Y EMPRESA
Universidad de Sevilla

What is the European Technology Platform for Industrial Safety - ETPIS? - 2

- ✓ The strategic vision would be submitted to the EC in the form of a document which has been called **S**trategic **R**esearch **A**genda (SRA).

PQAT



PERSONA E O EMPRESA
Universidade de Aveiro

What is the European Technology Platform for Industrial Safety - ETPIS? - 3

- ✓ The SRA was organised in seven chapters:
 - ✓ Risk assessment and management
 - ✓ Advanced risk reduction technologies
 - ✓ Structural safety
 - ✓ Human & organisational factors
 - ✓ Emerging risks
 - ✓ Hub Nanosafe
 - ✓ Hub Innovation for training and education (E&T)

PQAT



HUB “E&T” - 1

- ✓ It is a **transverse** activity of ETPIS’s subjects, involving all its other actions mentioned previously.
- ✓ Specific focus are activities for **education and training of managers, workers and public** on all issues, principles and methods relevant to **industrial risk analysis, risk prevention, risk mitigation, risk management** as well as on occupational health and safety, along their life, from school to universities, work time, and social activities.



HUB “E&T” - 2

- ✓ Training and Education has a major role in:
 - ✓ Safety knowledge and safety culture.
 - ✓ Creating and enhancing skills for identifying, assessing and managing risks.
 - ✓ Maintaining and enhancing personal awareness and professional competencies in safety issues.
 - ✓ Collaborating to improve safety.
 - ✓ Disseminating and implementing research results.

PQAT



HUB “E&T” - 3

- ✓ The strategy for innovative research actions considers:
 - ✓ How people learn in the academic and industrial environment.
 - ✓ How learning is translated into culture.
 - ✓ How learning is translated into action.
 - ✓ How knowledge is updated and maintained (with and without continuous use).



PERSONA CIÈNCIA EMPRESA
Universitat Ramon Llull

Research needed for E&T: Support activities

- ✓ **Risk perception & risk communication:**
- ✓ To **know** and **understand** the mechanism building the **risk perception** independently, during or after a crisis for all the stakeholders, considering local cultures and laws.
- ✓ Big effort on determining the best internal and external **communication** policy.

PQAT



Research needed for E&T Tools - 1

- ✓ **Tools to update, maintain knowledge, and build a safety culture:**
 - ✓ Existing software for simulating physic phenomena, such as gas release, thermal behavior in chemical processes, fire and explosions in industrial environments should be adapted for training engineers and workers, and for undergraduate students.
 - ✓ Software for carrying out the simulation of the identification of the risk.



Research needed for E&T Tools - 2

- ✓ **Tools to update, maintain knowledge, and build a safety culture – Simulation software.**
 - ✓ Existing software for simulating physic phenomena, such as gas release, thermal behavior in chemical processes, fire and explosions in industrial environments should be adapted for training engineers and workers, and for undergraduate students.
 - ✓ Software for carrying out the simulation of the identification of the risk.

Research needed for E&T Tools - 3

- ✓ **Tools to update, maintain knowledge, and build a safety culture – Artificial intelligence.**
 - ✓ Prevention of major accidents,
 - ✓ Prevention of risk coming from new and emerging technologies,
 - ✓ Prevention of risks arising from a major use of computers for production tasks,
 - ✓ Prevention of thermal risk in chemical processes as possible cause of major accidents.
 - ✓ Prevention of fire and explosions (i.e. compliance of ATEX Directive).



Research needed for E&T Techniques - 1

- ✓ Method for **attracting**, **maintaining**, and **stimulating** the attention of the user, focusing their activity according to predefined objectives, verifying their progress, and assessing new activities.
- ✓ They should come essentially from psychology, didactics and pedagogy supplemented with e-learning techniques.



PERSONA CIÈNCIA EMPRESA
Universitat Ramon Llull



**“Thanks for your attention”
Mónica Grillo (mgrillo@iqs.edu)**

Leader of the HUB “Innovation for Education and Training”:

Prof. Dr. Rosa Nomen

PQAT