

European Technology Platform on
Industrial Safety

Hub on Education and Training

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Napoli 2006 / 1



Training and Education: Target

- Education and training for workers and people at the various moments of their live.
 - From school to universities.
 - During work time.
 - Including “teaching staff”

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Training and Education: Major role in:

- Knowing safety and building the related culture necessary for dealing with it.
- 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.

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Strategy for innovative research actions

- 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).

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Education and training programmes for students and engineers should provide them with adequate knowledge in risk assessment and risk management, because their actions may have an impact on human health, the environment, or the property.*

* OECD
 "Workshop on sharing experience in the training of engineers in risk management"
 (16-March-2004)

- To expand that to all people involved in process plants.
- Education and training is the key.

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Organisation of the activities

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    graph LR
      A[Education & Training] --> B[Tools]
      A --> C[Techniques]
      A --> D[Support activities]
  
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Tools **Specific resources, role of information and knowledge technologies**

Techniques **Methods to improve knowledge, dissemination and awareness**

Support activities **Prospective activities to identify needs/gaps, co-ordination, dissemination...**

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Support activities

- By approaching the safety stakeholders across the different **industrial sectors** and **nations**, collecting their feedback, and acting upon it.
- Mapping of existing training and educational tools (e.g. integrating and extending S2S or SAFERELNET).
- Creating an on line database of training material.
- Validating existing simulation resources.
- Disseminating the existing safety knowledge to maintain the competence of safety practitioners and the broad spectrum of people working and exposed to risk,

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Tools

- "Tools" are methodologies, frameworks and systems that model and reproduce reality or helps to understand it.
- Objectives:
 - To adapt and further develop the existing simulation software, initially developed for supporting the design, control or management of industrial processes.
 - To develop those new proposals made by other focus groups of the ETPIS.

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Tools

- Simulating software
 - Direct numerical simulation
 - Screen simulation
 - Full extend simulation
 - Virtual reality
 - Extended reality
- Artificial intelligence
 - Decision support systems
 - Diagnostic tools

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Development of tools for training and education in:

Short term	Medium term
<p>Prevention of Major Accidents.</p> <p>Prevention of risk coming from new and emerging technologies, such as bio and nanotechnologies.</p> <p>Prevention of risks arising from a major use of computers for production tasks.</p> <p>Prevention of thermal risk in chemical processes as possible cause of Major Accidents.</p> <p>Prevention of fire and explosions (i.e. compliance of ATEX Directive).</p>	<p>Risk identification</p> <p>Safety and risk management</p>

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Techniques

- “Technique” is identified as a method for attracting, maintaining, and stimulating the attention of user.
- Techniques would come from psychology, didactic and pedagogy supplemented with e-learning techniques.
- Techniques should be analysed and validated from the point of view of their suitability and impact to increase the industrial safety.

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Techniques

- Course design.
- Contents design and management including simulation and artificial intelligence interfaces.
- Creation of open platforms and modular systems
 - shared databases of materials in industrial environment,
 - meeting points to share information,
 - web-based courses, etc.
- Evaluation of performance and re-engineering of courses and their impact in industrial safety.

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Development of techniques for training and education in:

Short term	Medium term
Increase safe behaviour.	Promote inherent safety.
Techniques in support understanding of the risk.	Prepare emergency response systems.
Prepare training and educational programmes for being used within the companies.	Social communication of risk.
Prepare training and educational programmes for being used in the school or universities.	
Development of innovative tools for web-based courses and e-learning.	
Improving social perception of the risks of certain industrial activities.	
Prevention of intrusions, terrorism, etc.	

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**Research Priorities for 2007 in the area of
*Education and training***

- Understand the particularities for the pedagogy in the field of safety (based on risk perception), and improve education and training for students, workers and safety managers.
- Develop simulators for complex risky situations by using screen simulation, full extend simulation and virtual reality to train and educate.
- Creation of open platforms and modular systems for education and training based on knowledge transfer techniques.

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Thank you for your attention



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