



Workshop on Human Factors in Education & Training for Safety

Comparing Air Traffic Control and Healthcare

Warwick – 8th April, 2008

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▶ **Presentation Outline**

- Our experiences
 - Human Factors for Safety Actors in Air Traffic Management
 - Workshop on Risk Analysis for Healthcare Professionals
- Reflections
 - Human Factors Curricula in the Two Domains
 - Similarities and Peculiarities

▶ Human Factors for Safety Actors in Air Traffic Management

- Part of Eurocontrol action to integrate HF in Safety Management Systems (SENSE Programme)
- 2 courses held twice a year in Luxembourg – Eurocontrol training centre
 - 5 days' duration
 - around 10-15 participants from various European states, e.g. Italy, UK, Ireland, Sweden, Norway, Belgium, Malta
- Target: Safety Actors
 - Safety Managers
 - Investigators
 - Safety Auditors
 - Trainers
 - Controllers

▶ Human Factors for Safety Actors in Air Traffic Management

- Learning Areas
 - Theory (what knowledge)
 - Practice (how-to-do knowledge)
 - Behaviour (how-to-behave knowledge)
- Everyday vs. Work situations
 - Integration of HF experts and participants' knowledge
 - Participants to transfer knowledge to their daily practice

▶ **Human Factors for Safety Actors in Air Traffic Management**

	9.00 – 12.00	13.00 – 17.00
DAY 1	10.00 M1 HF DEFINITION	M2 SETTING THE SCENE
DAY 2	M3 HUMAN COGNITION	M3 HUMAN COGNITION
DAY 3	M4 HUMAN ERROR	M4 HUMAN ERROR
DAY 4	M5 CULTURAL AND ORG. FACTORS	M6 HUMAN FACTORS IN DESIGN
DAY 5	M7 TH. & PRACTICE OF ACTIVITY ANALYSIS	M8 WRAP UP 15.00

▶ **Human Factors for Safety Actors in Air Traffic Management**

Selected course contents:

- The SHELL model
- Human errors taxonomy
- Theory of organisational error
- Distributed cognition
- Safety culture
- Principles of good design
- Methods of activity analysis
- Task analysis

▶ **Workshop on Risk Analysis for Healthcare Professionals**

- Commissioned by Local Healthcare Department to support healthcare operators in Risk Analysis (Failure Mode and Effect Analysis)
- 4 courses held in Rome
 - 2 days' duration
 - average of 30 participants
- Target: facilitators
 - Nurses
 - Doctors
 - Analysis laboratory staff

▶ **Workshop on Risk Analysis for Healthcare Professionals**

- Learning Areas
 - Theory (what knowledge)
 - Practice (how-to-do knowledge)
 - Behaviour (how-to-behave knowledge)
- Focus on Organisational Dimensions of Risk
 - Process analysis
 - Taxonomy of human errors
 - Organisation errors
- One continuous practical work on FMEA
 - Divided in easier micro-deliverables

▶ **ATM and Healthcare: Key Messages**

- Flawless human performance does not exist
- Operators' errors are often produced by system deficiencies
 - Errors of design, training, maintenance, policy, etc.
- Easier changing the system than re-wiring the brain
- Human Factors is about involving workers in the organisation processes
 - HF does not provide ready-made solutions, as it deals with human performance (flexibility and plasticity)

▶ Reflections: Human Factors Curricula

ATM

- Regional differences
 - Structured Curricula in Northern Europe
 - Self-initiative in Southern Europe

HEALTHCARE

- Professional differences
 - No structured curricula
 - Tradition of workplace safety in some roles

▶ **Reflections: Long and Short Term Perspective**

ATM

- Long-Term Perspective at the Central Level
 - Eurocontrol initiative
- Short-Term Perspective at the Participants' Level
 - Need for Applied knowledge: “do it with me”

HEALTHCARE

- Short-Term Perspective at the Central Level
 - Need to carry out FMEA: “give me templates”
- Long-Term Perspective at the Participants' Level
 - Need for Theory and Framework

▶ Reflections: Professional Community and Culture

ATM

- Homogeneous community
- Structured work processes
- Problem is in the process
 - “It may happen to anyone”

HEALTHCARE

- Heterogeneous community
- Some work processes are not structured
- Problem is mostly human
 - “He did not pay enough attention”
 - “We do not have tools in the surgery ward”

▶ Reflections: Professional Identity

ATM

- Collectivism
 - Organisation is made by professional peers
 - Part of learning is in the community dynamics
 - Expert community members are accepted as evaluators
- HF is part of Air Traffic Control

HEALTHCARE

- Individualism
 - Organisation sets the constraints
 - Each individual acts differently
 - Evaluation is often not accepted
- HF is not part of professional competencies
 - HF de-skills operators

▶ Reflections: Impact of Culture on Risk Perception

ATM

Risk awareness



Beyond individual fault



Improve the system

HEALTHCARE

Risk awareness



Beyond individual fault



Improve the system

▶ **Reflections: Tensions**

- Local vs. Central initiatives
- Regional vs. Domain culture
- Long Term vs. Short Term Perspective
- Homogeneous Community vs. Individualism
- Professional Identity vs. HF competencies
- Organisational vs. Individual dimension
- Closed system vs. “Infected” system

▶ **Tentative Recommendations for my Next Course**

- Work on risk awareness
 - Combine training and field work (e.g. ENAV case)
- Make it competitive
- Focus on homogeneous communities
 - Professional communities and roles
 - Organisations and departments

► **Thanks for your attention!**
Any question?



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▶ Reflections: Key Risks

ATM

- Cover up by colleagues
- Unnoticed drifting outside of the safe zone
- Effectively informing the design of work tools

HEALTHCARE

- Institutional Infection
 - Organisation injects other organisations' values
- Closed system: local innovation, little horizontal learning
- Overreliance on technical solutions