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# IFATCA

*What kind of regulation do we need to match contemporary Human Factors?*

Cologne 16.10.2008  
by Tom Laursen

International Federation of Air Traffic Controllers' Associations

# Who are we?

- Non Political
- Non Industrial
- 50,000 + Air Traffic Controllers
- 31 Corporate Members

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# Where are we?

- 131 Countries
- Europe (42)
- Americas (29)
- Asia & Pacific (14)
- Africa & Middle East (43)

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# What is our mission?

- To promote and uphold a high standard of knowledge and professional efficiency among air traffic controllers;
- To protect and safeguard the interests of the air traffic control profession;
- To make mutually beneficial affiliations with other international organisations;
- To strive for a worldwide federation of Air Traffic Controllers' Associations

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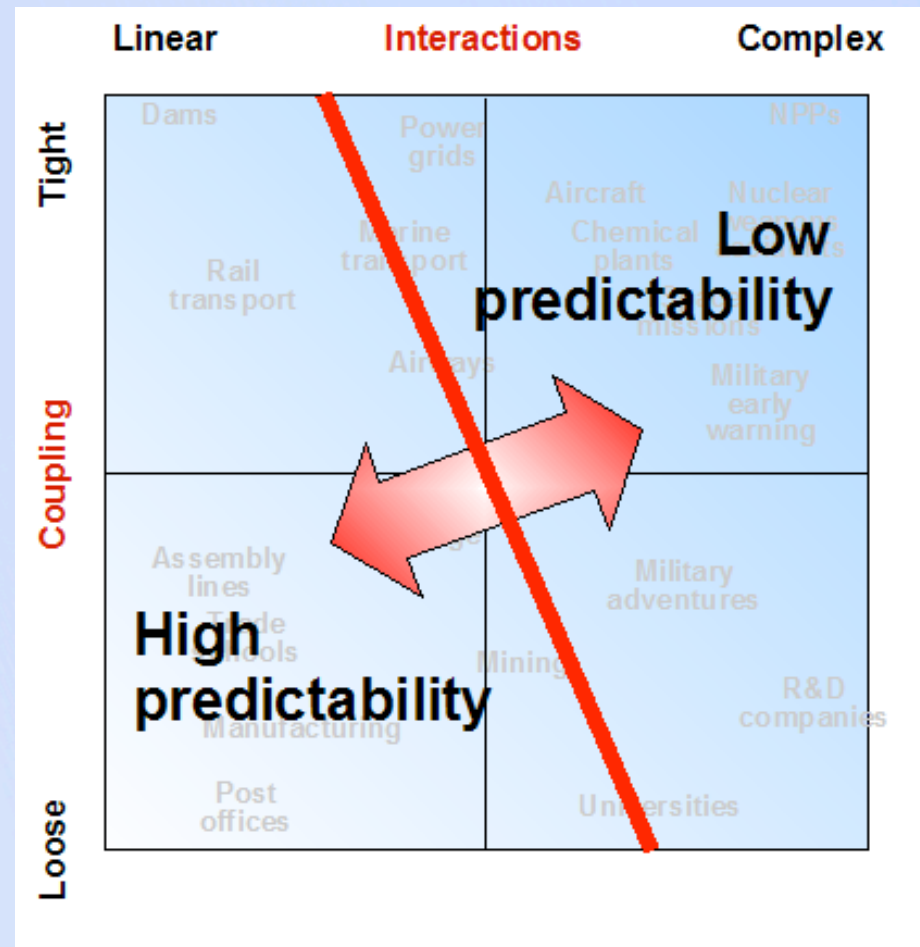


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# 40 Years of Human Factors

Increasing complexity have made modern technological systems intractable, hence underspecified.

Humans are therefore an asset without which the proper functioning of modern technological systems would be impossible.



Perrow, 1984

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# 40 Years of Human Factors

Things go  
right because  
people:

- Learn to overcome design flaws and functional glitches
- Adapt their performance to meet demands
- Interpret and apply procedures to match conditions
- Can detect and correct when things go wrong

Hollnagel, 2006



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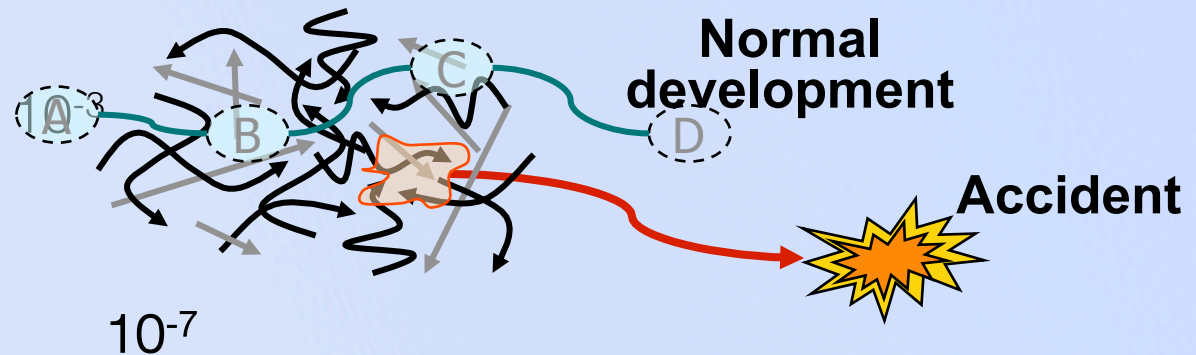
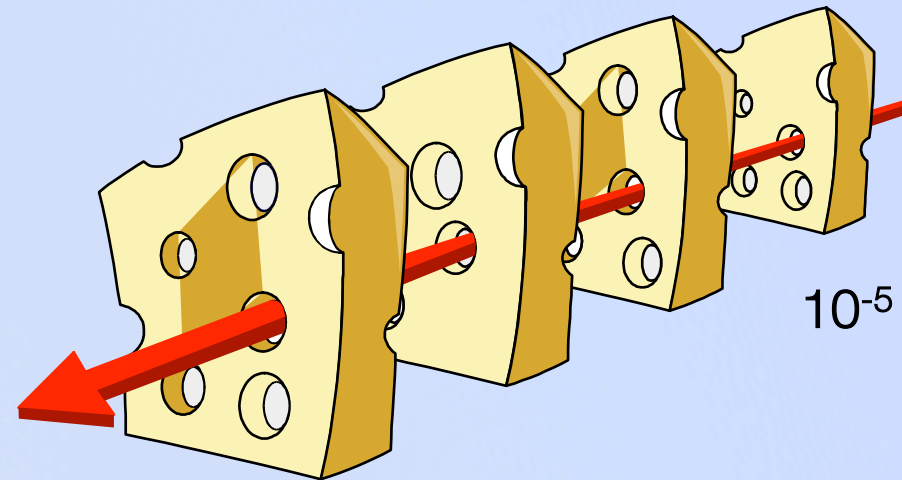
# 40 Years of Human Factors

- Dangerous systems with an accident rate around  $10^{-3}$  (e.g. bungee jumping or mountain climbing)
- Regulated systems, where the accident rate lies around  $10^{-5}$  (e.g. driving, chemical industries or private flying)
- Ultra safe systems, where the risk of disaster is below  $10^{-7}$  (e.g. the nuclear industry, railroads and scheduled civilian flying)

Amalberti, 2001

# 40 Years of Human Factors

Accident Models:



Hollnagel, 2006



# How to regulate the different Systems

- $10^{-3}$ :
  - Individual regulation through tools and simple elimination of risk
- $10^{-5}$ :
  - Regulation and procedures goes hand in hand
  - Accidents and Incidents are almost repetition of the past
  - Learning from safety reporting is easy
  - Measuring improvement is easy and results usually come within a couple of years



# How to regulate the different Systems

- $10^{-7}$ :
  - Systems tend to be over-regulated and unadaptive
  - Accidents usually occur in the absence of any serious breakdown or even any serious error. Accidents results from a combination of factors that are difficult to detect in advance
  - Safety reporting therefore becomes less relevant
  - Predicting future risk is very difficult (bank crisis) or inevitable
  - Measurement of performance (safety) is very difficult
  - Short-term goals tends to be favored over long-term measures
  - An over-emphasis on the Human role in failure

Amalberti, 2001



# What can we do for $10^{-7}$ systems?

- Do not use further  $10^{-5}$  or even  $10^{-3}$  tools to regulate  $10^{-7}$  systems (*if what you have is a hammer, all problems look like a nail*)
- Regulate
  - Company Resources (enough ATCOs, Technicians with domain expertises, etc.)
  - The right composition of the Board of Managers
  - Watch out for too Complex Systems and organizations
- Support
  - Support industrial strive for predicting the future rather than extrapolating from the past
  - Organizational search for new ways to measure performance

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# What can we do for $10^{-7}$ systems?

- Avoid the Automation trap
- Avoid over optimization of systems
- Allow routine based errors because they allow the operator to enhance expertise (NO Zero tolerance)
- Support a “Just Culture”
- Etc.



# IFATCA and EASA

New relationship:

1. Participation in BR 003 work
2. Newcomer in ECAST since late 2007
3. Newcomer in SSCC since 2008
4. Hoping to become in the near future member of the EASA Advisory Board (EAB)



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