

**human factors**

# evaluating human factors

it's **important**: many aspects of system design (and its dependability) are influenced by human factors

two **trends** of interest:

1. from qualification to quantification
2. emergence of 'resilience engineering'

# analysis human factors

quantification:

- database of human error probabilities
  - from nuclear/military industries
  - HEART, SLIM, THERP
- data of existing system
  - CREAM includes organisational data
- simulation
  - eg., integrating stochastic and formal models

# resilience engineering

recently emerged area in human factor

- presupposes that human errors and human failures are likely to occur
- assertion that the most serious incidents cannot be anticipated in the system design
- MH: important, these are complex systems, but not leading to methods and techniques, currently an empty critique of practice

# discussion

- BR: is resilience engineering community prepared for cooperation with DSN + HCI?
- MM: human as a source of correction / safety
- HK: resilience? res. eng. crowd includes emergence + unanticipated environment
- BL: uncertainty too large, qualitative is only way → quantitative leads to useless conclusions (but it's real uncertainty)
- RM: so complex, one cannot solve the problem → better a wrong number than no number
- MM: difficulty (or forbidden) to measure human errors / qualities → need to rely on averages

# panel

Henrique:

1. metrics, methods and tools
2. validation
3. impact and relevance

Mirek:

1. taming complexity
2. cost benefits of techniques (translucency)
3. proactive fault management

# panel

Roy:

1. scale slaughters everything
2. we need data and its metadata, validity of experiments
3. education

John R.:

1. incorporate formal methods into dependability assessment
2. composition of evaluations
3. predictive (certification & accreditation)
4. adaptive systems...

# panel: discussion

- scale indeed
- marketing of our (evaluation) methods: 'sexy', demonstrators
- some long-standing problems remain unsolved
- formal definition of cascading failure
- deployment cases
- marketing to students