

# Common Human Factors considerations that emerge during regulatory surveillance activities

Dr Selina Fothergill, PhD.



# Why include HF in audits?

- Consideration of Human Factors is a critical facet of aviation safety assurance
- Humans have played a progressively more important causal role in aviation accidents over time (Weigmann & Shappell, 2017)
- Legal requirements
- It saves you \$\$\$\$\$\$\$\$\$\$



# What an audit team looks like



Lead Auditor

Expert



Airworthiness Inspector



Safety Systems Inspector



Flight Operations Inspectors

Human



Performance

# Typical HF Contexts

## 1. High capacity RPT



## 2. Inflight training schools



## 3. Rotary operations



# 1. High Capacity RPT

- Risk Management Systems
  - Limited predictive methods
- Investigations
  - Insufficient investigator qualifications
- Human Factors Training
  - Out of date material



# 1. High Capacity RPT

- Collect data/use models
- Train investigators
- Review Cognitive Science material regularly
- Incorporate new areas (e.g., Automation)





## 2. Inflight Training Schools

- Cultural differences
  - Communication challenges
- Fast course completion
  - Limited time to understand safety culture
- Behavioural competencies
  - How to observe the student



## 2. Inflight Training Schools

- Communication training (e.g., Assertiveness)
- Positive feedback on behaviours and reporting
- Train Psychometrics
  - 5 point scales with descriptions
  - Clear examples
  - Inter-rater reliability





# 3. Rotary Operations

- Cockpit design
  - Mistaking controls
- Ergonomics
  - Unable to release gear
- Older aircraft
  - Maintenance issues



# 3. Rotary Operations



- Review usability/design purpose before purchase
- Observe/train workarounds (e.g., notes on controls)
- Incorporate Ergonomics into Human Factors training

# Preliminary Solutions

- Improved procedures for investigation activities
- Education and training initiatives for improving student training culture
- Increased awareness of the design of Human Machine Interfaces



# Summary

- Incorporating HF elements/a Human Performance expert on an audit team has advantages
- Improves aviation safety across many different types of operations



- Reduces the number of Human Factors related findings presented to the operator in future surveillance

# Questions



Dr Selina Fothergill, PhD.

[selina.fothergill@uqconnect.edu.au](mailto:selina.fothergill@uqconnect.edu.au)

[selina.fothergill@casa.gov.au](mailto:selina.fothergill@casa.gov.au) (Back mid-2019)