

Pilot Decision Making

- Module 2 - The Decision-Making Process

Outline

- Model of pilot performance
- Pilot decision-making process
- Pilot performance levels
- Factors affecting decision-making abilities

Model of Pilot Performance

- Information gathering
- Information processing
- Decision making
- Implementing the decision

Model of Pilot Performance

Risks

- Information gathering
 - Information may be wrong
 - Information may be misinterpreted
- Information processing
 - Attention to one task
 - Important change may be missed
 - Failure to validate information by crosschecking

Model of Pilot Performance

Risks (cont'd)

- Decision-making
 - Influenced by physical, physiological, psychological, organizational, cultural, communication and judgment factors
- Implementing the decisions
 - As above

Types of Decision-making

- Ample-time
 - Situation in which sufficient time is available to follow entire process
- Time critical
 - Insufficient time

Basic Decision-making Model

Ample time

- Step 1: Situational awareness
 - Information gathering, knowledge and vigilance
- Step 2: Evaluating options
 - Diagnose
 - Generate solutions
 - Assess risks
- Step 3: Choosing from options
- Step 4: Start again

Basic Decision-making Model

Categories of Time Critical Problems

- Rules-based problems
 - Well defined – clear solutions e.g.: engine failure before V1
- Well-structured problems
 - Well defined – previously formulated response e.g.: SOP, checklist
- Ill-structured problems
 - Unanticipated problems for which solutions have not been formulated

Modes of Action

- Conscious mode
 - Restricted in capacity
 - Slow
 - Sequential
 - Laborious
 - Error-prone
- Automatic Mode
 - Conscious
 - Limitless
 - Fast
 - Operates in parallel (many things at once)
 - Not generally a problem-solver

Pilot Performance Levels

- Skills-based
 - Routine, highly practiced tasks
- Rules-based
 - Need to modify preprogrammed behaviours given a change in situation
- Knowledge-based
 - Adapt to new, different situation for which solutions have not been addressed

Factors Affecting Decision Making abilities

- Novice v expert
- Use of wrong cues
- Short-term v long term memory
- Interference and distraction

Review

- Model of pilot performance
 - Gather information
 - Process information
 - Make decision
 - Act on decision
- Decision-making process
 - Situational awareness
 - Evaluating options
 - Choosing
 - Start again

Review (cont'd)

- Pilot Performance Levels
 - Skills-based
 - Rule based
 - Knowledge based
- Factors
 - Experiential differences
 - Using wrong cues
 - Limitations of long and short-term memory