Progress with Simulating the ATC Environment in Flight Simulators

Dr Jeremy Goodman MRAeS
Senior Manager, Product Development

Modelling and Simulation in Air Traffic Management

14-15 November 2017
Progress with Simulating the ATC Environment in Flight Simulators

• What is SATCE?
• Potential Training Benefits
  • Initial Trials
  • Industry Guidance
• What’s Ahead?
Simulated ATC Environment (SATCE)

“The simulation of other traffic entities within an airspace or ground environment, along with the associated ATC radio and data communications…”

“The simulation of other traffic entities within an airspace or ground environment, along with the associated ATC radio and data communications…”

Potential Training Benefits
Radiotelephony, Phraseology & Language

• Radio discipline and etiquette
• Standard phraseology
• English language
Fidelity & Workload

• Increased fidelity
• Realistic crew workload
• New threats & distractions
Enhanced Support

• Human Factors / Non-Technical Skills
• Cockpit Resource Management
• Threat & Error Management
SATCE supports the approach and underlying philosophy of evidence-based training.
SATCE supports the approach and underlying philosophy of evidence-based training.
Competencies

- APPLICATION OF PROCEDURES
- COMMUNICATION
- LEADERSHIP & TEAMWORK
- WORKLOAD MANAGEMENT
- SITUATIONAL AWARENESS
- PROBLEM SOLVING & DECISION MAKING
Instructor

- Instructor is no longer a participant in the simulation
- Minimize ATC role-playing
- Maximize observation
- Powerful logging and debriefing tool
Trials in Training
Trial Device
Trial Objectives

- Integrate SATCE
- Test key technologies
- Mature features, usability
- Validate training benefits
Trial Progress

• Phases 2/3 underway
• Experienced instructors
• Multiple training scenarios
• Technology showing promise
• Next steps – wider exposure
Video #1

- Instructor (PF) left seat
- Non-native English speaking cadet (PM) right seat
- ATC automatically providing vectors on initial approach
- Realistic cadet workload
Video #2

- Cpt Mark Casey, CEO, Head of Training, AFTA
Industry Guidance
Industry Guidance

- Emerging, maturing
- Required by EASA for Part-FCL for the MPL (2011)
- Recommended in:
  - ICAO Doc 9625 4th Ed. FSTD
  - ICAO Doc 9868 PANS-TRG
  - IATA / IFALPA 2nd Ed. Guidance for MPL
  - ARINC Spec 439A
ARINC Spec 439A (2016)

- Most comprehensive guidance
- Includes: features, technology, maintenance and training approval / device qualification
- Used to inform ICAO & other industry guidance
What’s Ahead?

• Ongoing trials - validate value added
• Maturing guidance / requirements
• Early adopters
• Initial civil sales
Thank You

Dr Jeremy Goodman MRAeS
Senior Manager, Product Development