

Single Pilot Operations
Technical Interchange Meeting
April 10-12, 2012



Breakout Group 3

- Group 3 was NowGen focused
 - Single Pilot Operations are in use today – lots of experience in our group
 - Concern that regardless of SPO, Nextgen is going to force a change in allocation between the 3 air - ground entities (particularly to operate in Class B, above FL340, oceanic). This is not well understood by the GA community today.
- Consensus that nominal operations are ok with SPO today
 - automation is technically sophisticated enough, and more is in the pipeline
 - Current operations include some Nextgen elements today (e.g. Datalink, RNAV departures, arrivals, approaches)
 - Off-nominal operations are going to be a challenge in Nextgen



Breakout Group 3 General Topics

- AOC/FOC/Dispatch
 - Roles and responsibilities
 - Nextgen is going to require more authority of dispatch and may directly interact with ATC
 - Where to draw the line between strategic and tactical
 - New training and procedure requirements - Problems today
 - If unable to comply, won't be allowed in airspace (class B, and ABV FL340) – declining weather
 - Can ask to speak to pilot on duty today – call MOCC
- New Allocation strategies
 - E.g. Extra pilot could be MEL item for certain weather minima
 - Automation as default, pilot to respond to off-nominal
- Accountability
 - Peer pressure for professionalism of other crew member
 - FOQA may help but not replace
 - Shared perception of pilot having responsibility
- Changes in regulatory process
 - Insurance companies are more restrictive in some cases. More closely connected to financial costs, should they be consulted?
 - What should the government be responsible for?



Breakout Group 3 Research Challenges

- System Centric Performance
 - ATC doesn't necessarily know how many pilots are on board today, but they do profile flights and change requests accordingly
- Need predictive measures
 - Today's environment isn't accepting of incidents and accidents particularly in part 121 pax
- Automation
 - byproduct of automation is to increase high workload, decrease low workload
 - SPO may rely on automation, and therefore exacerbate this problem
- Complexity measures
 - What are the elements of complexity that drive the ability of a single pilot managing the aircraft?
 - How do you know what the limit is and when it has been exceeded?
- Backup pilot availability
 - Frequently deadheading/commuting/positioning pilots are on flights today
- Physiological measures for SP
 - How to know when human is failing (incapacitation)?
 - Medical screening changes?
 - What about cognitive measures?
 - State of the art is not ready



Breakout Group 3 Research Challenges (cont'd)

- Error data
 - Don't know how many incidents and accidents have been prevented by second pilot
 - Types and impacts of errors
- What data is available on differences in SPO today
 - Feeling that 2007 report may not be comparing similar populations (differences in pilots cert., equipment, operations, not just 3 of crew)
- Training changes are not well understood yet
 - New paradigm – how do first officers receive soft skills training?
 - Training for FOC/AOC/dispatch – technical, cultural, organizational. Evidence of conflicts with dispatch functions today. Need to develop a level of trust with AOC dealing directly with ATC/ATM
- Nextgen
 - Less flexibility, more tightly constrained. Off-nominal operations will have more impact. This will increase already high workload for these events, perhaps impacting SPO more.
- Effect on ability to diagnose problems
 - Not sure of effect today



Breakout Group 3 SPO Areas of Interest

- Tasks that may be more vulnerable with SPO? (particularly if something fails because it's dependent on automation)
 - Preflight
 - Walkaround and management of systems
 - Verification of fitness to fly
 - Taxi
 - Preparing for arrival and approach
 - Amended clearances (particularly close in)
 - Closely Spaced Parallel Approaches
 - Optimized Profile Descent
 - In-trail procedures
 - Merging and Spacing
 - Diversions and rerouting
 - Medical, Mx, Operational, weather
 - Rapid Decompression
 - Delegated Separation
 - Length of flight
 - Emergency Evacuation
 - May need another crewmember to – or different training for cabin crew
 - Diagnosis of System Failures



Implementation Thoughts

- For Implementation AK is a good place to start
 - Ocean 21, lots of single pilot operations
- Phased implementation
 - Study 135 ops in more detail
 - 121 cargo operators
 - 121 VFR passenger flights (short hops)
 - Fractionals
- Would be useful to have union involvement early, not just pilot unions

